TRAFFIC IMPACT ANALYSIS

CITY OF GOODYEAR - REPORT APPROVAL	
Hugh Bigalk	Date 1/25/2019
HTE# 19-0105	QS# 68

PROJECT RAPID
CAMINO ORO/GRANT STREET

REVISED 21 JANUARY 2019
11 JANUARY 2019
17 DECEMBER 2018

Expires 3-31-19

PREPARED FOR
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Prepared By;

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Parker Murphy, EIT

Executive Summary

The purpose of this traffic study is to evaluate the current and future transportation system within the project study area surrounding the site without and with Project Rapid site.

Existing and Future Traffic Data Without Project

The westbound left turning movement at the intersection of Grant Street/Litchfield Road currently operates at an inadequate level of service (LOS) and is expected to worsen in 2020 and 2025 without traffic from the Project Rapid site. This delay is a result of the large through volumes along Litchfield Road not providing a sufficient number of adequate gaps for vehicles turning from the minor approach (Grant Street).

All other study intersections currently operate at an adequate LOS and are expected to continue doing so in 2020 and 2025 without traffic from the project.

Future Traffic Data With the Project

The intersection of Grant Street/Litchfield Road is anticipated to experience delays for the eastbound and westbound left turning movements in 2020 and 2025 without and with traffic from the project. The through volumes along five-lane Litchfield Road do not provide an adequate number of gaps for vehicles turning from the minor approaches.

Turn Lane Analysis

No additional auxiliary lanes are warranted at the access points directly serving the project site.

To ensure left turn lane overlaps do not occur between adjacent key intersections, queue storage requirements were calculated at the intersections of Camino Oro/Grant Street, North Oro Driveway/Camino Oro, and Grant Street/Litchfield Road.

No overlap is expected to occur at these intersections. However, to accommodate both the northbound left turning movement at the intersection of Camino Oro/Grant Street and the southbound left turning movement at the intersection of North Oro Driveway/Camino Oro, the existing striping along Camino Oro should be modified to provide a two-way, center left turn lane along the roadway between South Camino Driveway and Grant Street.

While limited eastbound left turn movements are expected at the intersection of Grant Access/Grant Street, it is recommended that Grant Street be restriped with a two-way, center left turn lane between Camino Oro and Litchfield Road. The existing left turn lanes provided along Grant Street at Camino Oro and Litchfield Road can remain unchanged.

Traffic Signal Warrant Analysis
The intersection of Grant Street/Litchfield Road does not currently meet traffic signal warrants #1, #2, or #3. None of the warrants analyzed are expected to be met in 2020 or 2025 without or with traffic from the project. In 2020 and 2025 with traffic from the project, Warrant #3A meets the two volume related requirements and is under the threshold for the delay related requirement. For Warrant #3A, all three of the requirements must be above their thresholds for the warrant to be met.

Crash Analysis
Rear-end collisions make up the majority of the incidents at the signalized intersections of Yuma Road/Litchfield Road and Van Buren Street/Litchfield Road. In the five year study period, eight (8) of the total sixteen (16) crashes were rear-end type crashes at Yuma Road/Litchfield Road and 46 of the total 142 crashes were rear end-type collisions at the intersection of Van Buren Street/Litchfield Road. These types of crashes are often due to driver inattention, failure to slow or stop, and are common at signalized intersections.

The intersection of Van Buren Street/Litchfield Road has also experienced a large number of left turn and angle type crashes in the last five years. These types of collisions are common at signalized intersections as one vehicle attempts to complete a turning movement as another vehicle rushes through the intersection.

With limited crashes recorded at the remaining study intersections, no specific trends can be determined from the data.

Mitigation
The intersection of Grant Street/Litchfield Road currently experiences delays for turning movements from the minor approach and is expected to continue operating at an inadequate LOS in 2020 and 2025, without and with traffic from the Project Rapid site. While the installation of a traffic signal would alleviate the delays experienced, the west leg (Park Shadows Driveway) at the intersection would need to be aligned with Grant Street. However, the lack of available storage space, and a perpendicular approach, to the intersection for the westbound approach will not allow a traffic signal to operate appropriately. Park Shadows Driveway will need to be limited to a right in/right out driveway. Westbound left turning traffic at the driveway can be directed to the north or south to complete their movement at the intersections of North Crescent Drive/Litchfield Road or South Crescent Drive/Litchfield Road.

The westbound through and through/right turn movement at the intersection of Van Buren Street/Litchfield Road will begin to experience delays in 2025 without traffic from the project. To improve the through progression along westbound Van Buren Street, a westbound right turn lane can be constructed at the intersection. This improvement would remove the slowing, turning vehicles from the through lane and reduce the delays experienced by these movements.

Recommendations

The installation of a traffic signal is recommended at the intersection of Grant Street/Litchfield Road. The offset, west leg of the intersection (Park Shadows Driveway) should be reconfigured to provide right-in/right-out only access. Clear signing and pavement markings should be utilized to restrict the westbound left turning movement from Park Shadows Driveway.

It is recommended that the existing striping along Camino Oro be modified to provide a two-way, center left turn lane along the roadway between South Oro Access and Grant Street.

It is recommended that Grant Street be restriped with a two-way, center left turn lane between Camino Oro and Litchfield Road and the existing eastbound left turn lane at Grant Street/Litchfield Road and westbound left turn lane at Camino Oro/Grant Street.

Project Description

Seefried Industrial Properties, Inc. proposes to construct a new project on the undeveloped parcels surrounding the intersection of the Camino Oro/Grant Street in Goodyear, Arizona. The vicinity of the project is shown in **Figure 1**. The site will be located as shown in **Figure 2**. Project Rapid will include an 115,280 square foot delivery station. Access to the project site will be from seven proposed access points.

The purpose of this traffic impact analysis is to:

- Evaluate the current and future operational characteristics of the adjacent roadway network surrounding the project site.
- Estimate the traffic generation associated the project and assign that traffic to the existing roadway system.
- Analyze future traffic operations at the seven proposed access points and five existing intersections.
- Determine the need for auxiliary (left and right turn) lanes at the proposed access points that will directly serve the project site.
- Conduct a traffic signal warrant analysis at the intersection of Grant Street/Litchfield Road.
- Perform crash analyses to identify any specific crash tends at all of the existing study intersections.

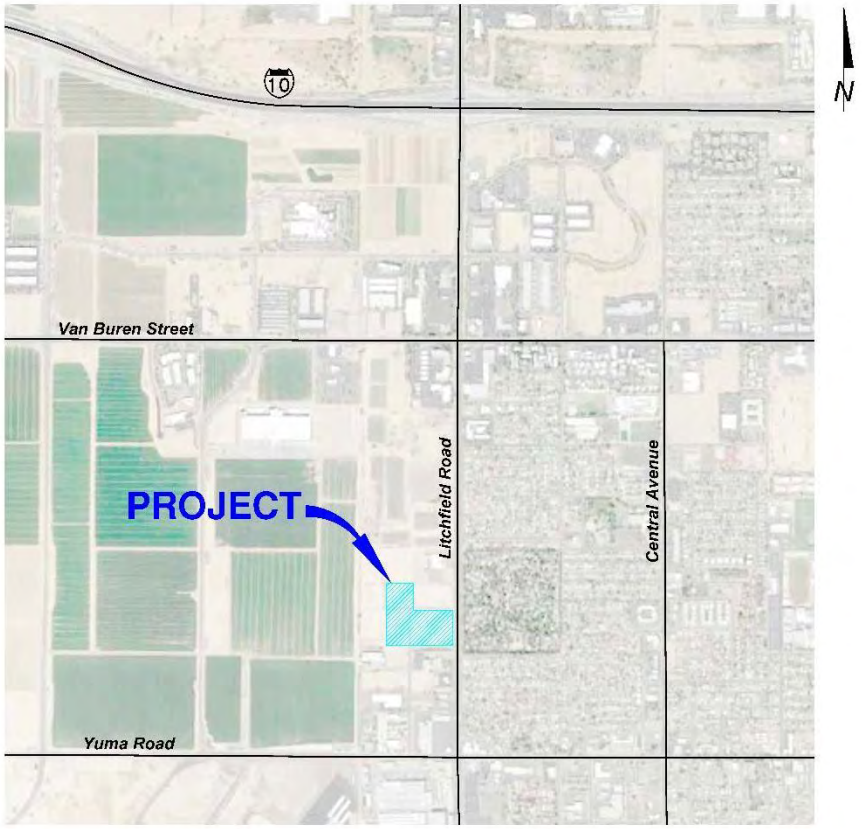
The author of this report is a registered Professional Engineer (Civil) in the State of Arizona having specific expertise and experience in the preparation of traffic impact analyses.

Study Methodology

In order to analyze and evaluate the potential traffic impacts of the proposed development, the following tasks were undertaken:

- Field observation of the proposed site and surrounding area was conducted to evaluate the existing physical and operational characteristics of the adjacent roadway network.
- Site traffic volumes generated by the proposed site were estimated using data collected at a similar, nearby site.
- Calculated site traffic was distributed based on existing traffic patterns and assigned to the primary roadways within the project study limits.

Figure 1 – Vicinity Map



PRELIMINARY SITE PLAN
FOR
PROJECT RAPID
NWC W. GRANT ST & S. LITCHFIELD RD
GOODYEAR, ARIZONA

A PORTION OF THE SOUTHEAST 1/4 OF SECTION 9,TOWNSHIP 1 NORTH, RANGE 1 WEST, OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA.

SITE DATA (OVERALL)

SITE ACERAGE	= 26.425± GROSS ACRES (1,041,258 SF)
	= 23.904± NET ACRES (1,041,258 SF)
	= 1.063± NET ACRES OF RIGHT-OF-WAY ABANDONED
	= 0.168± NET ACRES OF RIGHT-OF-WAY DEDICATIONS
ZONING	PAD
CONSTRUCTION TYPE	II-B
OCCUPANCY CLASSIFICATION	S1, B1, AND A3

BUILDING SQUARE FOOTAGE	PROPOSED
– WAREHOUSE	102,997 SF
– GENERAL OFFICE	12,283 SF
– TOTAL	115,280 SF

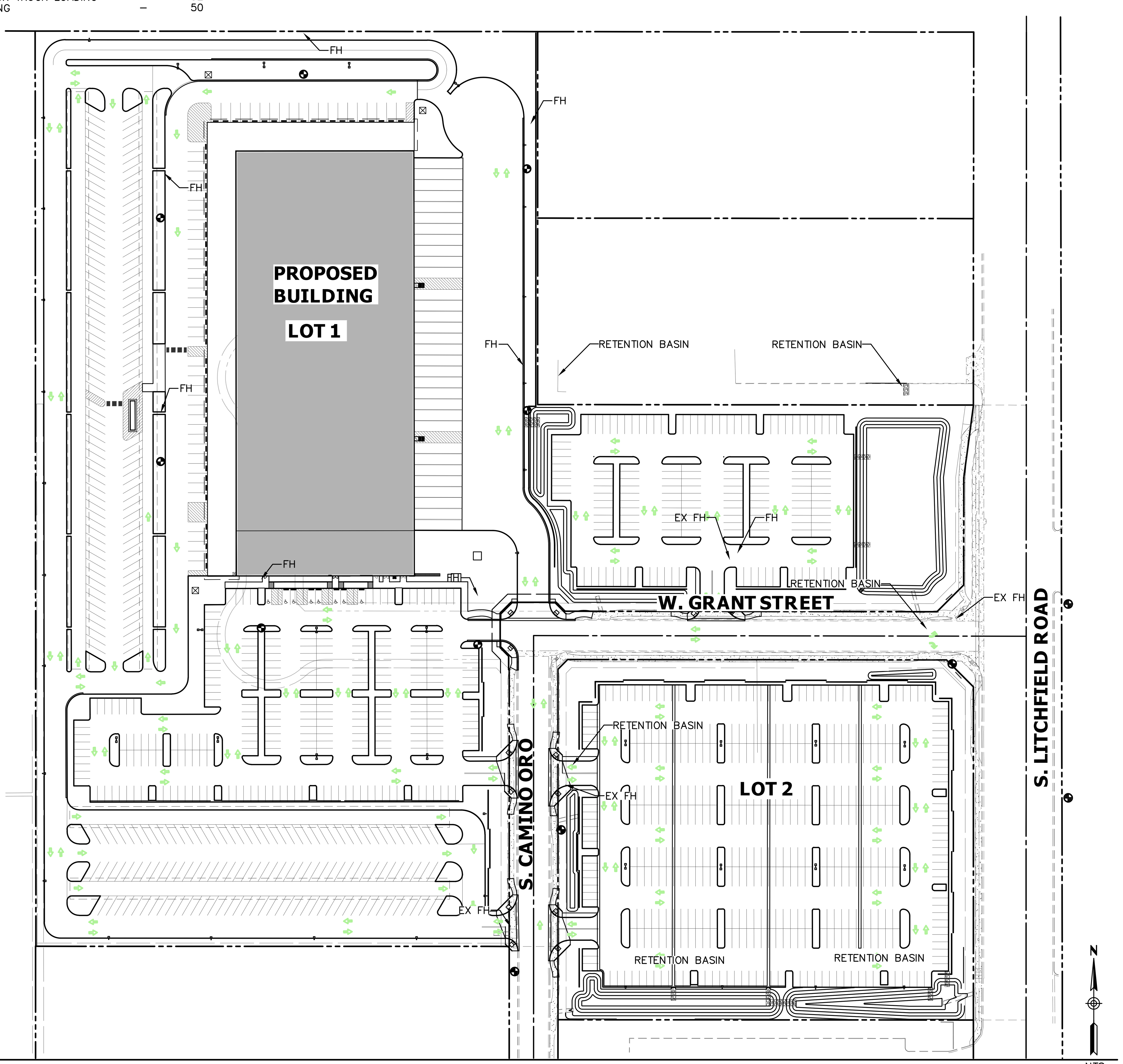
PROPOSED BUILDING HEIGHT = 38'

PARKING CALCULATION:
- OFFICE 12,283 SF / 300 SF = 40.94 (41) SPACES
- ACCESSIBLE REQUIRES A MINIMUM OF 7 STALLS
- WAREHOUSE 102,997 / 1000 SF FOR 1ST 10,000 SF & 5,000 SF FOR REMAINING FLOOR = 28.60 (29) SPACES
- TOTAL = 70

BICYCLE PARKING CALCULATION:
- BICYCLE PARKING 1/10 PER REQ'D VEHICLE PARKING SPACES / 70 PARKING STALLS * 0.10 = 7 SPACES

AUTOMOBILE PARKING SUMMARY:

	PROPOSED	
	REQ	PROVIDED
– ASSOCIATE SPACES	70	243
– ACCESSIBLE	7	8
– BICYCLE PARKING	7	7
– MANAGER/PICKUP SPACES	–	15
– VAN PERSONAL VEHICLE SPACES	–	155
– VAN PARKING SPACES	–	418
– VAN PERSONAL VEHICLE SPACES	–	155
– VAN PRELOAD	–	249
– UTR/VAN LOADING	–	61
– TRAILER/BOX TRUCK LOADING	–	32
– VAN STAGING	–	50



KEYMAP

SHEET INDEX

OWNER/DEVELOPER

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CONTACT: BARBARA JOSLIN
EMAIL: bjoslin@blcompanies.com

LANDSCAPE SITE DATA

[redacted]

LEGAL DESCRIPTION

LOTS 1-10 OF AIRPORT GATEWAY BUSINESS CENTER AS RECORDED IN BOOK969, PAGE 24 OF OFFICIAL RECORDS, MARICOPA COUNTY, ARIZONA.

BENCHMARK

CITY OF GOODYEAR BENCHMARK POINT G328, BRASS CAP IN A HANDHOLE AT LITCHFIELD ROAD ½ MILE NORTH OF YUMA ROAD. ELEV.= 977.78 NAVD88.

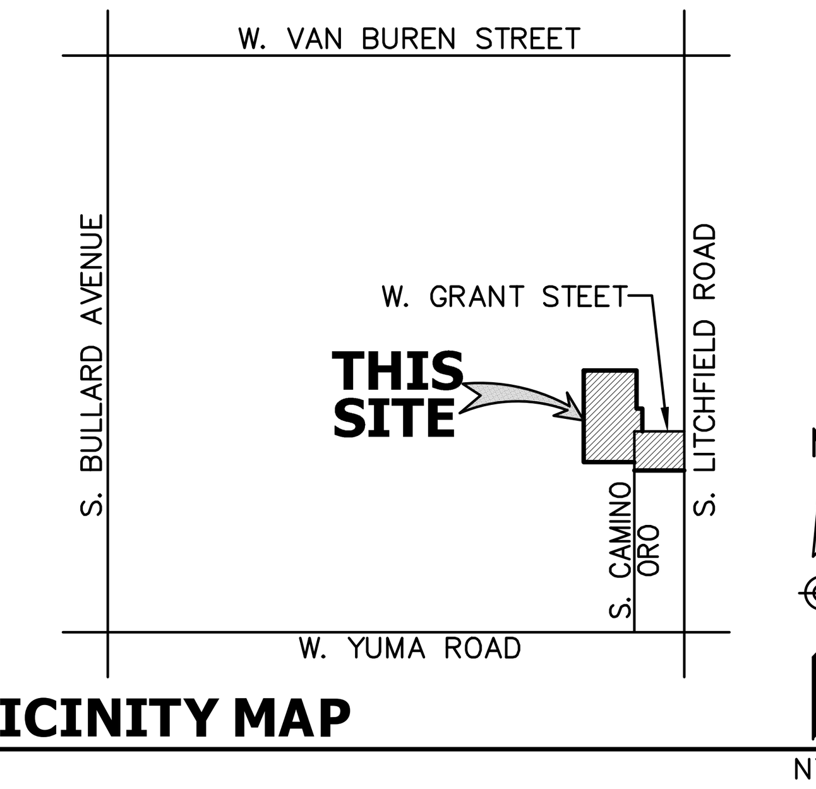
CITY OF GOODYEAR BENCHMARK POINT G332, BRASS CAP IN A HANDHOLE AT LITCHFIELD ROAD AND VAN BUREN STREET. ELEV.= 981.64 NAVD88.

BASIS OF BEARING

BASIS OF BEARING FOR THIS SURVEY IS A BEARING OF NORTH 00°22'18" EAST, ALONG THE EAST LINE OF THE SOUTHEAST QUARTER OF SECTION 9, TOWNSHIP 1 NORTH, RANGE 1 WEST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, ACCORDING TO THE PLAT OF AIRPORT GATEWAY BUSINESS CENTER, RECORDED IN BOOK 969, PAGE 24, MARICOPA COUNTY RECORDS, ARIZONA.

ABBREVIATIONS

APN	ASSESSOR PARCEL NUMBER
BC	BACK OF CURB
BOT	BOTTOM
C	CONCRETE
DW	DRYWELL
ESMT	EASEMENT
EX	EXISTING
EG	EXISTING GRADE
FF	FINISH FLOOR
FG	FINISH GRADE
FL	FLOWLINE
G	GUTTER
HW	HIGH WATER
NTS	NOT TO SCALE
P	PAVEMENT
PUE	PUBLIC UTILITY EASEMENT
RW	RIGHT OF WAY
SB	BUILDING SETBACK
SD	STORM DRAIN
SF	SQUARE FEET
SS	SANITARY SEWER
SW	SIDEWALK
SWE	SIDEWALK EASEMENT
TEL	TELEPHONE
UGFO	UNDERGROUND FIBER OPTIC
UGE	UNDERGROUND ELECTRIC
UGT	UNDERGROUND TELEPHONE
VOL	VOLUME
VP	VOLUME PROVIDED
VR	VOLUME REQUIRED
W	WATER



VICINITY MAP

APN

500-10-698, 500-10-697, 500-10-694, 500-10-693, 500-10-692, 500-10-696, 500-10-695, 500-10-691, 500-10-690, 500-10-689

ENGINEER

HUNTER ENGINEERING, INC.
10450 N. 74TH STREET, SUITE #200
SCOTTSDALE, ARIZONA 85258
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CONTACT: JORGE A. ORTIZ, P.E.
EMAIL: jortiz@hunterengineeringpc.com

LEGEND

CENTERLINE
PROPERTY LINE
RIGHT-OF-WAY LINE
EASEMENT LINE
FLOW LINE
GRADE BREAK
STORM PIPE
WATERLINE
SEWERLINE
CONTOUR — 72
SPOT ELEVATION — 68.89EG
CATCH BASIN
EX FIRE HYDRANT
FIRE DEPARTMENT CONNECTION
FLOW ARROW
WATER METER
WATER VALVE
BACKFLOW DEVICE
PROP FIRE HYDRANT
DRYWELL PLUS SYSTEM
UNDERGROUND RETENTION SYSTEM
CLEANOUT
FIRE TURN RADIUS — 20', R28', R24'
RIPRAP
PROPOSED BUILDING
EX CONCRETE
DIRECTIONAL TRAFFIC ARROWS

SITE PLAN NOTES

1. IMPROVEMENTS MADE WITHIN A CITY RIGHT-OF-WAY, TRACT, OR EASEMENT THAT WILL BE MAINTAINED IN THE FUTURE BY THE CITY OF GOODYEAR SHALL BE CLEARLY IDENTIFIED ON THE APPROVED PLANS AND ARE SUBJECT TO THE FOLLOWING REQUIREMENTS. IMPROVEMENTS MAY INCLUDE BUT ARE NOT LIMITED TO STREET SURFACES, CURB, GUTTER, SIDEWALKS, RAMPS, DRIVEWAYS, TURN BAYS, BUS BAYS, STREET LIGHTING, SIGNAGE, AND STRIPING. LANDSCAPE RESPONSIBILITIES ARE IDENTIFIED UNDER SEPARATE NOTE:
   a. THE DEVELOPER SHALL MAINTAIN AND WARRANTY ALL IMPROVEMENTS FOR A PERIOD OF TWO YEARS BEGINNING IMMEDIATELY AFTER THE CITY ISSUES THE NOTIFICATION OF APPROVAL FOR THE PROJECT.
   b. DURING THE MAINTENANCE AND WARRANTY PERIOD, THE DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE PROTECTION OF ALL IMPROVEMENTS. ANY DAMAGED IMPROVEMENTS SHALL BE IMMEDIATELY REPAIRED OR REPLACED AT THE DEVELOPER'S EXPENSE.
   c. MAINTENANCE SHALL INCLUDE BUT IS NOT LIMITED TO STREET SWEEPING, APPLICATION OF SEALANT IN ALL PAVEMENT CRACKS AND JOINTS, AND APPLICATION OF SEALANT OVER ALL ASPHALT PAVEMENTS.
   d. AT THE TERMINATION OF THE MAINTENANCE AND WARRANTY PERIOD, ALL IMPROVEMENTS SHALL BE UNDAMAGED AND SHALL MEET CITY STANDARDS.
   e. IF ALL IMPROVEMENTS ARE NOT ACCEPTABLE AT THE END OF THE TWO-YEAR PERIOD, THE MAINTENANCE AND WARRANTY PERIOD SHALL CONTINUE UNTIL THE IMPROVEMENTS MEET CITY APPROVAL.
2. LANDSCAPED AREAS THAT WILL BE MAINTAINED IN THE FUTURE BY THE CITY OF GOODYEAR SHALL BE CLEARLY IDENTIFIED ON THE APPROVED PLANS AND ARE SUBJECT TO THE FOLLOWING REQUIREMENTS. THESE AREAS MAY INCLUDE RETENTION BASINS, PARKS, RIGHTS-OF-WAY, AND STREET CENTER MEDIAN LANDSCAPING:
   a. THE DEVELOPER SHALL MAINTAIN AND WARRANTY ALL LANDSCAPE IMPROVEMENTS, INCLUDING PLANTED AREAS AND IRRIGATION SYSTEMS, FOR A PERIOD OF TWO YEARS BEGINNING IMMEDIATELY AFTER THE CITY ISSUES THE NOTIFICATION OF APPROVAL FOR THE PROJECT.
   b. DURING THE MAINTENANCE AND WARRANTY PERIOD, THE DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE PROTECTION TO ALL AREAS. ANY DAMAGED PLANTING AND/OR IRRIGATION SYSTEMS SHALL BE IMMEDIATELY REPAIRED OR REPLACED AT THE DEVELOPER'S EXPENSE.
   c. MAINTENANCE SHALL INCLUDE CONTINUOUS OPERATIONS OF WATERING, WEEDING, REMOVAL OF DEAD PLANT MATERIAL, MOWING, ROLLING, FERTILIZING, SPRAYING, INSECT AND PEST CONTROL, RE-SEEDING, REPLACEMENT, AND ALL OTHER MEASURES NECESSARY TO ENSURE NORMAL HEALTHY GROWTH.
   d. WHEN THE TURF HAS ESTABLISHED SUFFICIENT ROOT STRUCTURE AND HAS OBTAINED AN APPROXIMATE HEIGHT OF 3 INCHES, MOWING SHALL BEGIN IMMEDIATELY TO ACHIEVE A TURF HEIGHT OF 2 INCHES; THE TURF SHALL BE MOWED THEREAFTER TO SAFELY MAINTAIN THE 2-INCH HEIGHT.
   e. AT THE TERMINATION OF THE MAINTENANCE AND WARRANTY PERIOD, ALL TURF AREAS SHALL BE LIVE, HEALTHY, UNDAMAGED, AND FREE OF INFESTATIONS. ALL AREAS SHALL BE COMPLETELY VOID OF BARREN SPOTS LARGER THAN 3 INCHES BY 3 INCHES.
   f. IF ALL PLANTINGS ARE NOT ACCEPTABLE AT THE END OF THE TWO-YEAR PERIOD, THE MAINTENANCE AND WARRANTY PERIOD SHALL CONTINUE UNTIL THE LANDSCAPING MEETS CITY APPROVAL.

NO.	DATE	REVISION	BY

PURPOSE: PRELIMINARY SUBMITTAL

DESIGN BY: RM
DRAWN BY: TDN
CHECKED BY: JO

HUNTER ENGINEERING CIVIL AND SURVEY
10450 NORTH 74TH STREET, SUITE 200
SCOTTSDALE, AZ 85258
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PRELIMINARY SITE PLAN
COVER SHEET
PROJECT RAPID
NWC W. GRANT ST & S. LITCHFIELD RD
GOODYEAR, ARIZONA

CONTACT ARIZONA 811 AT LEAST 2 FULL WORKING DAYS BEFORE YOU BEGIN EXCAVATION
ARIZONA811
CALL 811 OR CLICK ARIZONA811.COM

THESE PLANS ARE NOT APPROVED FOR CONSTRUCTION WITHOUT AN APPROVED SIGNATURE FROM THE GOVERNING MUNICIPALITY.

PROJECT NAME: PROJECT RAPID

HE NO.: SEEF014
SCALE: NTS

SHEET: SP1

- Capacity analyses were performed for the existing conditions and future conditions without and with the project based on an opening year of 2020 and 2025 horizon using the methodology presented in the *2016 Highway Capacity Manual, 6th Edition (HCM 6th)*.
- The need for auxiliary turn lanes at the proposed access points was evaluated based on based on the *National Cooperative Highway Research Program (NCHRP) Report 457*.
- A traffic signal warrant analysis was completed at the intersection of Grant Street/Litchfield Road based on existing traffic volumes and anticipated 2020 and 2025 traffic volumes without and with the proposed project.
- Crash records were obtained from the Arizona Department of Transportation (ADOT) database to identify specific crash tends within the study area.

Existing Conditions

The study location includes the signalized intersections of Yuma Road/Litchfield Road and Van Buren Street/Litchfield Road and the un-signalized intersections of Camino Oro/Yuma Road, Camino Oro/Grant Street, and Grant Street/Litchfield Road.

Yuma Road provides two lanes for each eastbound and westbound directions separated by a two-way left turn lane adjacent to the project. The roadway transitions to a two-lane roadway approximately one-quarter of a mile west of Litchfield Road. There are existing curb, gutter, and sidewalk facilities on both sides of Yuma Road. The posted speed limit is 25 miles per hour (mph).

Near the project Litchfield Road is a four-lane, north/south aligned roadway with a posted speed limit of 40 mph. The roadway is separated by a two-way center left turn lane between Yuma Road and Van Buren Street. North of Van Buren Street and south of Yuma Road, Litchfield Road is separated by a raised concrete median. Three northbound through lanes are provided north of Van Buren Street. Curb, gutter, and sidewalk exist on both sides of the street.

Van Buren Street offers two lanes in each direction separated by a two-way center left turn lane. Curb, gutter, and sidewalk facilities are offered on both sides of the street. Van Buren Street has a posted speed limit of 40 mph.

Camino Oro is a three-lane collector roadway spanning approximately one third mile between Yuma Road and Grant Street. Camino Oro provides access to various commercial developments, including the proposed Project Rapid project. Northbound and southbound traffic are each provided with a travel lane, separated by a two-way center left turn lane. There is a posted speed limit of 25 mph.

Grant Street extends approximately 900 feet west of Litchfield Road before transitioning to north/south alignment and becoming 140th Drive. 140th Drive extends approximately 300 feet north of Grant Street before coming to an end. Curb, gutter, sidewalk and roadway lighting are provided, on both sides, along the extent of the roadways. Grant Street is a two-lane, two-way roadway with a posted speed limit of 25 mph. Grant Street connects Litchfield Road to Camino Oro and primarily serves to provide access to the Project Rapid project site.

On the east side of Litchfield Road, offset from Grant Street, Park Shadows Driveway provides access to a frontage road and a residential development. For the purposes of this analysis, the intersection of Grant Street/Litchfield Road is assumed as a four-leg intersection with Park Shadows Driveway as the east leg.

The study intersection locations, lane configurations, and traffic control are shown in **Figure 3**.

Existing Traffic Data

In order to form a basis for analysis of the project impacts, weekday AM and PM peak hour turning movement counts were conducted at the following intersections;

- Camino Oro/Yuma Road
- Yuma Road/Litchfield Road
- Camino Oro/Grant Street
- Van Buren Street/Litchfield Road
- Grant Street/Litchfield Road

The weekday turning movement counts were conducted from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, in November 2018. In addition, weekday 24-hour intersection approach traffic counts were taken at the intersection of Grant Street/Litchfield Road.

The existing weekday AM and PM peak hour traffic volumes, as well as the weekday 24-hour intersection approach counts are shown in **Figure 4**. Complete traffic count data can be found in the Appendix.

Access

Seven proposed access points will be constructed with the project, two of which will align and reconfigure the existing intersection of Camino Oro/Grant Street.

The intersection of Grant Access/Grant Street will be located on the north side of Grant Street, approximately 250 feet east of Camino Oro. Eastbound traffic will be provided a shared left turn/through lane while westbound vehicles will make use of a shared through/right turn lane. Southbound vehicles exiting the site will be offered a shared left turn/right turn lane.

Figure 3 – Existing Lane Configurations and Traffic Control

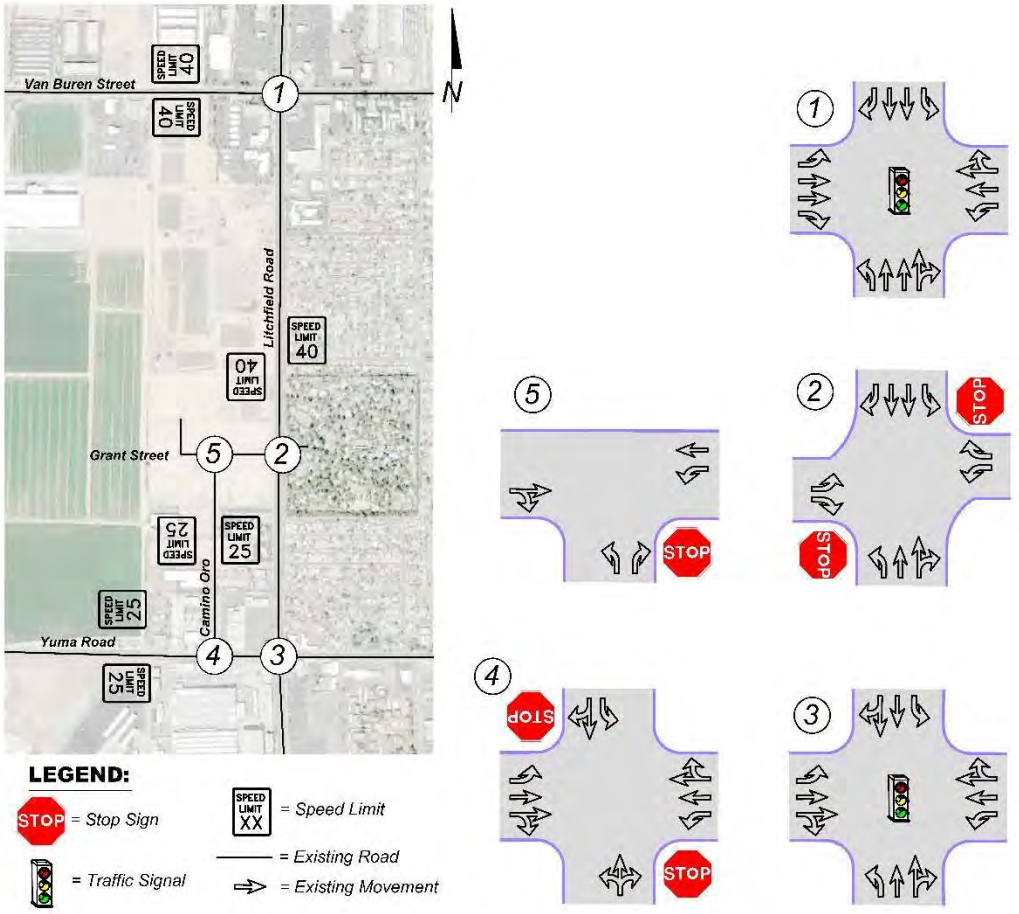
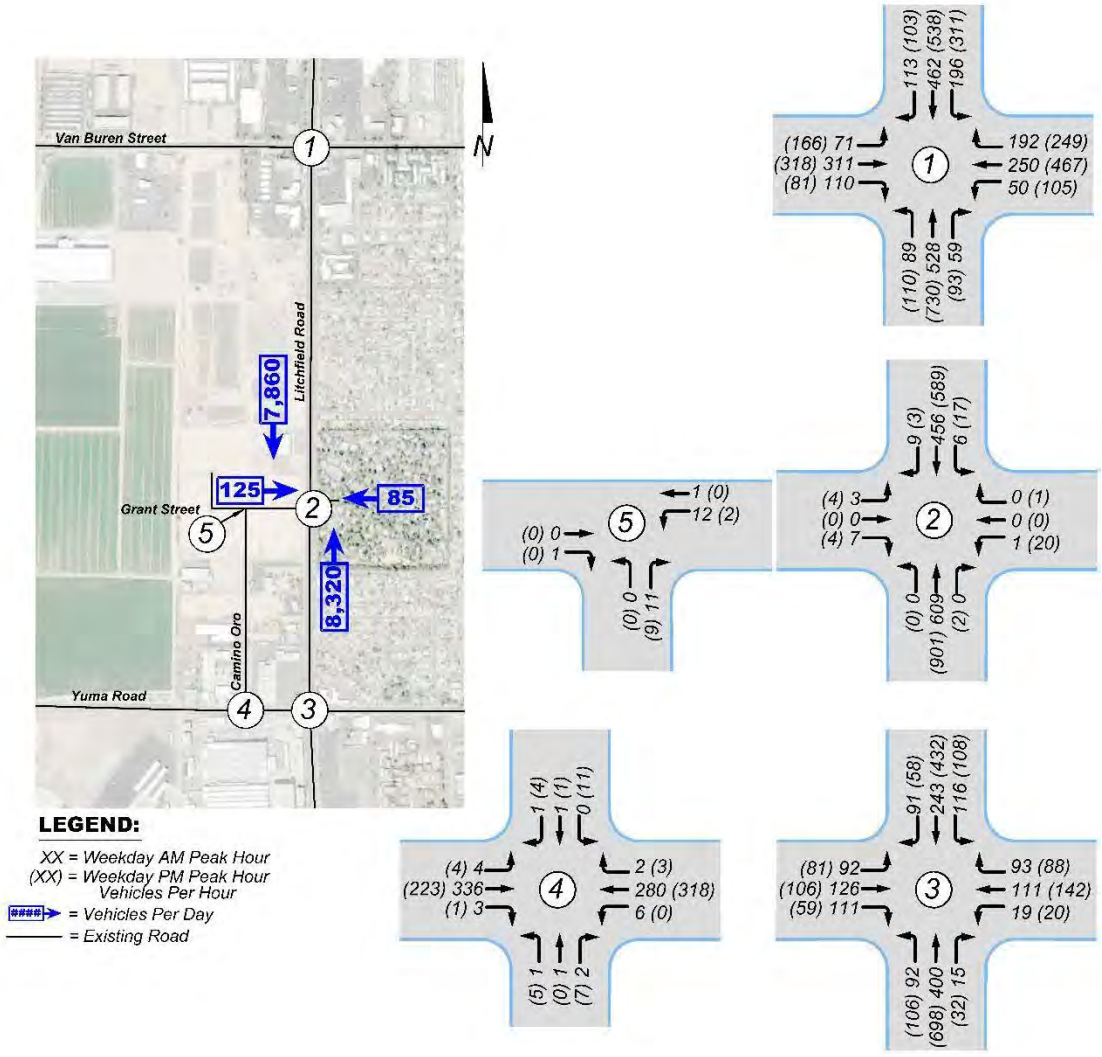


Figure 4 – Existing Weekday Peak Hour Traffic Volumes



The west leg of the intersection of Camino Oro/Grant Street will be reconstructed as a new site driveway with the construction of the Project Rapid site. Additionally, a new north leg will be constructed to provide access to the truck bay and delivery area of the proposed development. Eastbound vehicles will make use of a shared left turn/through/right turn lane while westbound traffic will be offered a dedicated left tum lane and a shared through/right turn lane. Northbound vehicles will utilize a dedicated left turn lane and a shared through/right turn lane while southbound trucks exiting the delivery area will make use of a shared left turn/through/right turn lane. All approaches to the intersection will be STOP controlled.

North Oro Driveway will be located approximately 150 south of Grant Street and will form a four-leg intersection with Camino Oro. The east and west legs of this intersection will provide access to parking areas for the Project Rapid site. Eastbound and westbound traffic will be STOP controlled and provided with shared left turn/through/right turn lanes at the intersection. Northbound traffic will make use of a dedicated left turn lane and shared through/right turn lane and southbound vehicles will utilize dedicated left turn lane and a shared through/right turn lane.

The intersection of South Oro Driveway/Camino Oro will form a four-leg intersection approximately 350 feet south of Grant Street. This access point will serve the proposed van parking and van loading areas for the Project Rapid site. Eastbound and westbound vehicles will both be provided shared left turn/through/right turn lanes. Traffic traveling northbound and southbound along Camino Oro will be offered a dedicated left turn lane and shared through/right turn lane.

With the construction of the proposed Project Rapid site, the intersection of Grant Street/Litchfield Road is expected to experience increased turning volumes, especially those for the eastbound left and right turn, northbound left turn, and southbound right turn movements. This increase in traffic may create conflicts with the adjacent Park Shadows Driveway, located approximately 50 feet north of Grant Street, on the east side of Litchfield Road. For the purposes of this analysis, it is assumed that this offset intersection operates as a four-leg, two-way STOP controlled intersection.

Figure 5 shows the locations, geometry, and spacing for the proposed access points serving the Project Rapid site that will serve as a baseline of the analysis in the report.

Sight distances at the proposed access points should be verified during the design process.

Trip Generation

Trip generation for the Project Rapid site during typical weekday operations was developed utilizing data provided by Seefried Industrial Properties, Inc. This data was based on a similar sites and results in the expected weekday trip generation for Project Rapid site as shown in **Table 1.** The complete trip generation calculations can be found in the Appendix.

Figure 5 – Baseline Access Point and Intersection Configuration Assumptions

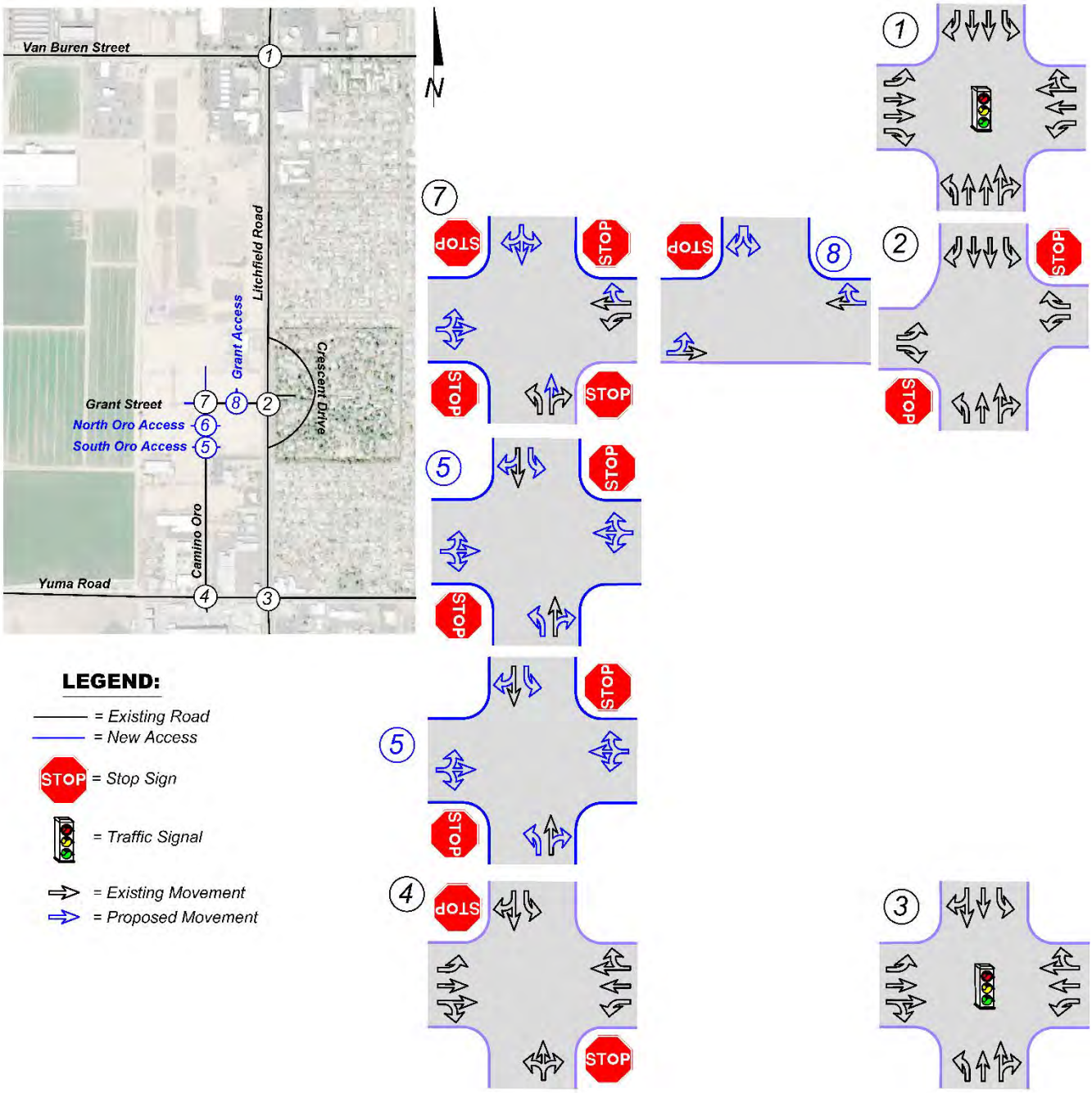


Table 1 – Project Site Generated Trips

Time Period	Delivery Station
Average Daily, Inbound (vtpd)	1,315
Average Daily, Outbound (vtpd)	1,315
Total Daily	**2,630**
AM Peak Hour, Inbound (vtph)	226
AM Peak Hour, Outbound (vtph)	293
Total AM Peak	**519**
PM Peak Hour, Inbound (vtph)	234
PM Peak Hour, Outbound (vtph)	156
Total PM Peak	**390**

vtpd - vehicle trips per day, vtph - vehicle trips per hour

Trip Distribution & Assignment

Trip distribution for the project was based on existing traffic volume patterns near the proposed site. **Figure 6** shows the weekday trip distribution for the project as a percentage of net new primary trips.

Figure 7 shows the assignment of the new site trips generated by the proposed site to the project intersections within the study area.

Existing Traffic Operations

Analysis of current intersection operations was conducted for the weekday AM and PM peak hours using the nationally accepted methodology set forth in the 2016 *Highway Capacity Manual,* Transportation Research Board, 6th Edition (HCM 6th). The computer software Synchro 10 was utilized to calculate the levels of service for individual movements and approaches.

LOS is a qualitative measure of the traffic operations at an intersection or on a roadway segment. Level of service is ranked from LOS A, which signifies little or no congestion and is the highest rank, to LOS F, which signifies congestion and jam conditions. LOS D is typically considered adequate operation at signalized and un-signalized intersections in developed areas.

At signalized intersections, level of service is calculated for each movement and then is summed in a weighted fashion to yield the LOS for the approach and for the intersection as a whole. The criteria for level of service at signalized intersections are shown in **Table 2.**

Figure 6 – Weekday Trip Distribution

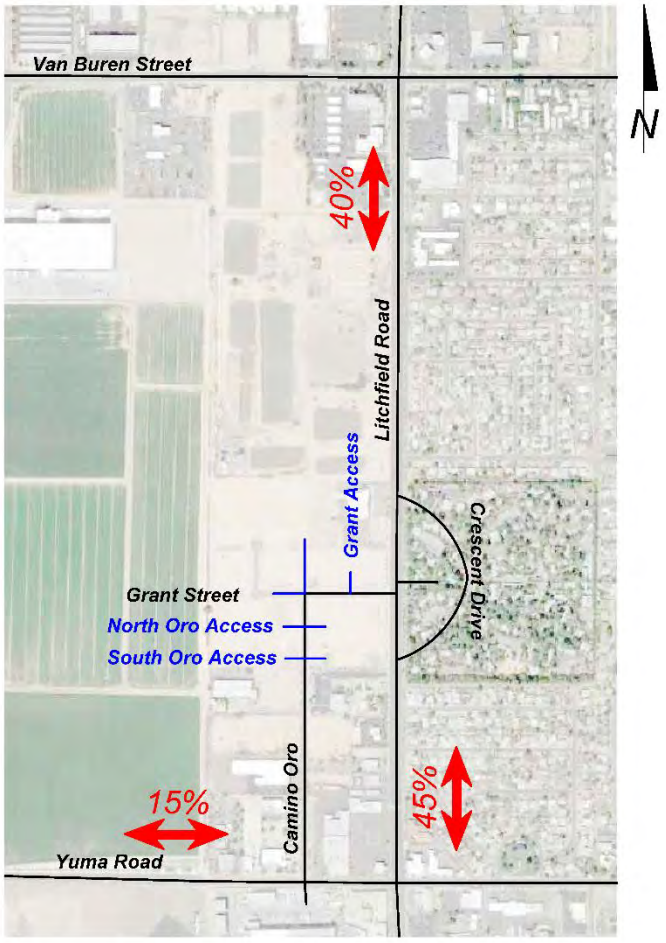


Figure 7 –Weekday Peak Hour Trip Assignment

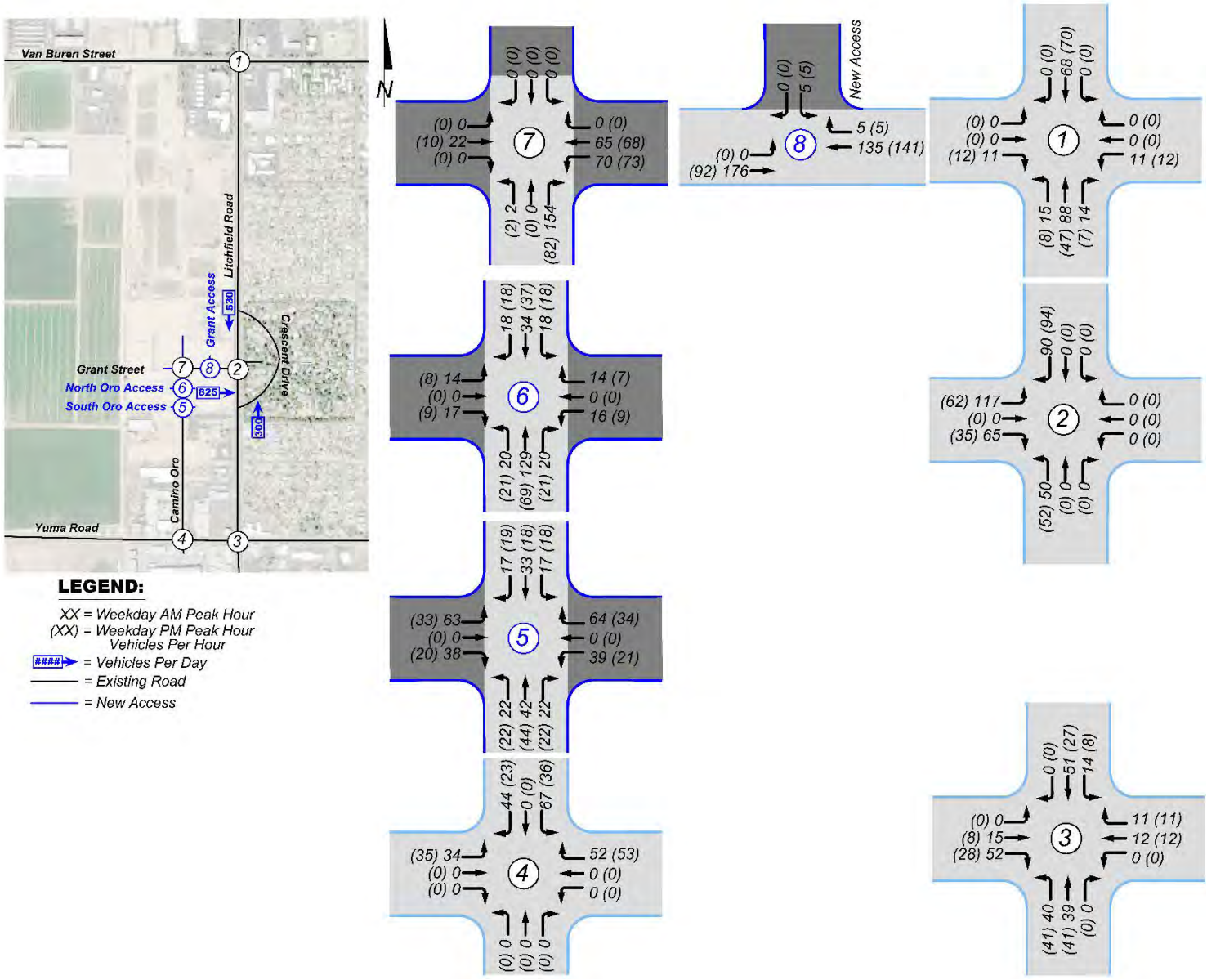


Table 2 - Level of Service Criteria – Signalized Intersections

Level-of-Service	Average Total Delay
A	≤ 10.0 seconds per vehicle
B	> 10.0 and ≤ 20.0 seconds per vehicle
C	> 20.0 and ≤ 35.0 seconds per vehicle
D	> 35.0 and ≤ 55.0 seconds per vehicle
E	> 55.0 and ≤ 80.0 seconds per vehicle
F	> 80.0 seconds per vehicle

In calculating the levels of service, assumed signal phasing and timing data was used. Other assumptions included:

- Cycle length – 90 seconds
- Lane widths – 12 feet
- Approach grade – 0%
- Right turn on red allowed

At un-signalized intersections, level of service is predicted/calculated for those movements which must either stop for or yield to oncoming traffic and is based on average control delay for the particular movement. Control delay is the portion of total delay attributed to traffic control measures such as stop signs and traffic signals. The criteria for level of service at un-signalized intersections are shown in **Table 3.**

Table 3 – Level of Service Criteria – Un-signalized Intersections

Level-of-Service	Delay
A	≤ 10 seconds per vehicle
B	> 10 and ≤ 15 seconds per vehicle
C	> 15 and ≤ 25 seconds per vehicle
D	> 25 and ≤ 35 seconds per vehicle
E	> 35 and ≤ 50 seconds per vehicle
F	> 50 seconds per vehicle

Existing levels of service were calculated for the study intersections as shown in **Table 4**. Complete capacity calculations are included in the Appendix.

As shown in **Table 4**, the westbound left turning movement at the intersection of Grant Street/Litchfield Road currently operates at an inadequate LOS in the weekday PM peak hour. This is due to the relatively large through volumes along Litchfield Road not providing a sufficient number of adequate gaps for vehicles to turn from the minor approach (Grant Street).

The remaining existing study intersections are currently operating at an adequate LOS for all movements during the weekday AM and PM peak hours.

Table 4 – Existing Weekday Peak Hour Levels of Service

Intersection	AM Peak		PM Peak	
	LOS	Delay	LOS	Delay
Signalized Intersections				
Van Buren Street/Litchfield Road				
Overall Intersection	C	20.1	C	28.2
Eastbound Left	C	24.1	C	23.0
Eastbound Through	C	27.3	C	21.4
Eastbound Right	C	27.0	C	20.5
Westbound Left	C	23.3	B	18.8
Westbound Through	C	32.7	D	39.2
Westbound Through/Right	C	34.4	D	40.3
Northbound Left	B	11.2	C	20.9
Northbound Through	B	15.0	C	30.7
Northbound Through/Right	B	15.6	C	33.4
Southbound Left	B	10.7	C	25.0
Southbound Through	B	13.4	C	21.4
Southbound Right	B	12.5	B	19.1
Yuma Road/Litchfield Road				
Overall Intersection	B	16.4	B	16.3
Eastbound Left	C	23.5	C	26.5
Eastbound Through	C	25.9	C	27.7
Eastbound Through/Right	C	26.5	C	28.0
Westbound Left	C	24.4	C	26.7
Westbound Through	C	29.4	C	32.9
Westbound Through/Right	C	30.4	C	34.0
Northbound Left	A	7.7	A	7.6
Northbound Through	B	11.2	B	12.8
Northbound Through/Right	B	11.2	B	12.7
Southbound Left	A	7.8	A	8.2
Southbound Through	B	10.6	B	11.1
Southbound Through/Right	B	10.7	B	11.1
Un-signalized Intersections				
Grant Street/Litchfield Road				
Eastbound Left	C	19.7	D	31.8
Eastbound Right	A	9.9	B	10.4
Westbound Left	C	21.9	E	49.3
Westbound Right	A	0.0	B	12.0
Northbound Left	A	0.0	A	0.0
Southbound Left	A	9.0	B	10.4
Yuma Road/Camino Oro				
Eastbound Left	A	7.9	A	8.0
Westbound Left	A	8.1	A	0.0
Northbound Left/Through/Right	B	12.0	B	10.5
Southbound Left	A	0.0	B	12.9
Southbound Through/Right	B	12.2	A	9.8
Grant Street/Camino Oro				
Westbound Left	A	7.2	A	0.0
Northbound Left	A	0.0	A	0.0
Northbound Right	A	8.4	A	0.0

Delay - seconds per vehicle

Future Traffic Operations Without Project

In order to assess the impacts of the project on future traffic operations, traffic projections were made for the opening year of 2020 and 2025.

A review of historical traffic data in the vicinity of the project showed increasing and decreasing traffic volumes in the project area. Due to this, a 2% annual traffic growth rate was used.

Using a 2% annual traffic growth rate, 2020 and 2025 weekday peak hour traffic volumes without the project were estimated as shown in **Figures 8** and **9**.

As with the current volumes, levels of service were calculated for each of the intersections in the study area for 2020 and 2025 without the project. Intersection levels of service for 2020 and 2025 without the project are shown in **Tables 5** and **6**. Complete capacity calculations are included in the Appendix.

Table 5 shows that the westbound left turn at the intersection of Grant Street/Litchfield Road is expected to continue operating at an inadequate LOS in the weekday PM peak hour. The relatively large through volumes along Litchfield Road do not provide a sufficient number of gaps for traffic to turn from Grant Street onto the major road.

As shown in **Table 6**, both the eastbound and westbound left turning movement at the intersection of Grant Street/Litchfield Road is anticipated to breakdown in 2025 without traffic from the project.

The signalized intersection of Van Buren Street/Litchfield Road is anticipated to operate at an overall adequate LOS. However, the westbound approach will experience delays in 2025 without the project. These delays are a result of the relatively large westbound right turning volumes in the weekday PM peak hour that must reduce speed to complete their maneuver. Vehicles making turns from shared movement lanes tend to impact the through progression at intersections due to this reduction in speed.

The remaining existing study intersections are expected to operate at an adequate LOS for all movements during the weekday AM and PM peak hours of 2020 and 2025 without traffic from the project.

Figure 8 – 2020 Weekday Peak Hour Traffic Volumes Without Project

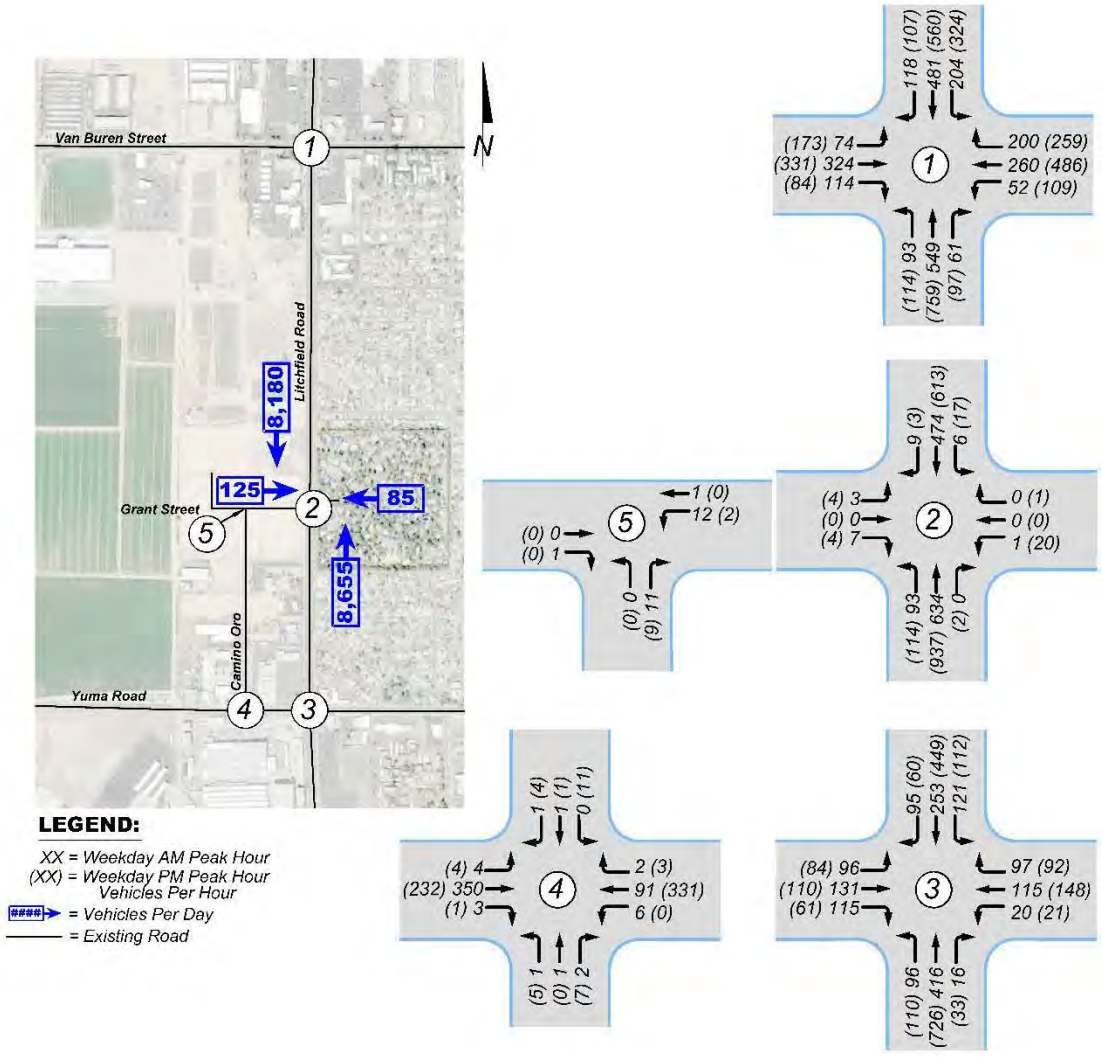


Figure 9 – 2025 Weekday Peak Hour Traffic Volumes Without Project

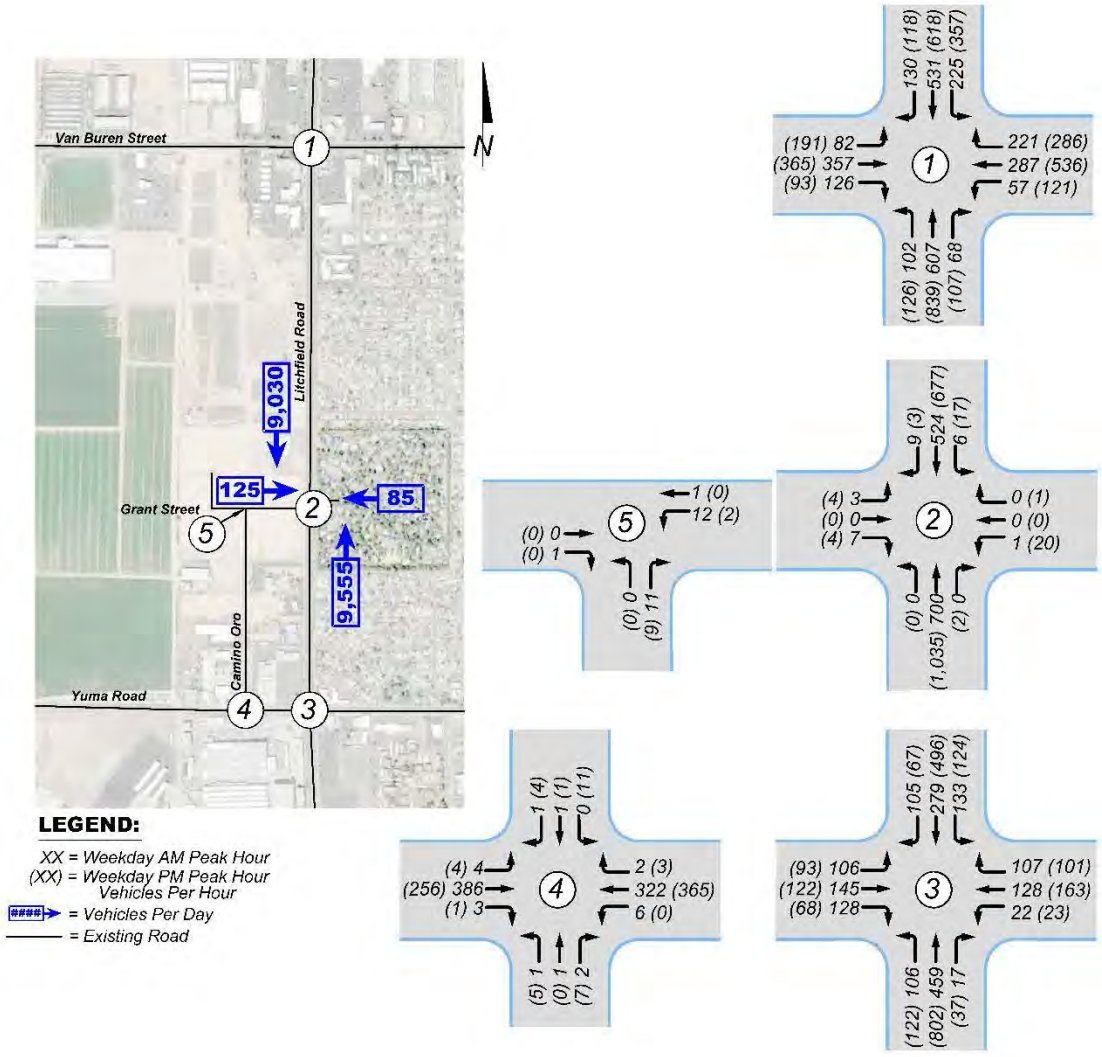


Table 5 –2020 Weekday Peak Hour Levels of Service Without Project

Intersection	AM Peak		PM Peak	
	LOS	Delay	LOS	Delay
Signalized Intersections				
Van Buren Street/Litchfield Road				
Overall Intersection	C	20.5	C	31.0
Eastbound Left	C	24.2	C	25.6
Eastbound Through	C	27.3	C	22.3
Eastbound Right	C	27.0	C	21.3
Westbound Left	C	23.2	B	19.5
Westbound Through	C	33.5	D	44.8
Westbound Through/Right	D	35.4	D	46.0
Northbound Left	B	11.6	C	21.7
Northbound Through	B	15.7	C	33.1
Northbound Through/Right	B	16.3	D	36.7
Southbound Left	B	11.0	C	28.8
Southbound Through	B	13.8	C	22.3
Southbound Right	B	12.8	B	19.8
Yuma Road/Litchfield Road				
Overall Intersection	B	16.6	B	16.6
Eastbound Left	C	23.3	C	26.4
Eastbound Through	C	25.9	C	27.7
Eastbound Through/Right	C	26.4	C	28.0
Westbound Left	C	24.4	C	26.7
Westbound Through	C	29.6	C	33.0
Westbound Through/Right	C	30.6	C	34.1
Northbound Left	A	7.9	A	7.8
Northbound Through	B	11.6	B	13.3
Northbound Through/Right	B	11.6	B	13.2
Southbound Left	A	8.1	A	8.6
Southbound Through	B	11.0	B	11.4
Southbound Through/Right	B	11.1	B	11.4
Un-signalized Intersections				
Grant Street/Litchfield Road				
Eastbound Left	C	20.5	D	34.1
Eastbound Right	B	10.0	B	10.5
Westbound Left	C	23.1	F	54.8
Westbound Right	A	0.0	B	12.2
Northbound Left	A	0.0	A	0.0
Southbound Left	A	9.1	B	10.6
Yuma Road/Camino Oro				
Eastbound Left	A	7.9	A	8.1
Westbound Left	A	8.1	A	0.0
Northbound Left/Through/Right	B	12.2	B	10.6
Southbound Left	A	0.0	B	13.2
Southbound Through/Right	B	12.4	A	9.9
Grant Street/Camino Oro				
Westbound Left	A	7.2	A	0.0
Northbound Left	A	0.0	A	0.0
Northbound Right	A	8.4	A	0.0

Delay - seconds per vehicle

Table 6 – 2025 Weekday Peak Hour Levels of Service Without Project

Intersection	AM Peak		PM Peak	
	LOS	Delay	LOS	Delay
Signalized Intersections				
Van Buren Street/Litchfield Road				
Overall Intersection	C	21.9	D	40.7
Eastbound Left	C	24.3	D	39.5
Eastbound Through	C	27.3	C	24.7
Eastbound Right	C	26.9	C	23.4
Westbound Left	C	23.0	C	21.0
Westbound Through	D	36.2	E	69.5
Westbound Through/Right	D	38.3	E	71.1
Northbound Left	B	12.9	C	22.8
Northbound Through	B	17.5	D	39.0
Northbound Through/Right	B	18.2	D	45.3
Southbound Left	B	12.0	D	41.6
Southbound Through	B	15.1	C	23.8
Southbound Right	B	13.8	C	20.6
Yuma Road/Litchfield Road				
Overall Intersection	B	17.2	B	17.6
Eastbound Left	C	23.0	C	26.1
Eastbound Through	C	25.9	C	27.7
Eastbound Through/Right	C	26.4	C	28.0
Westbound Left	C	24.4	C	26.6
Westbound Through	C	29.9	C	33.4
Westbound Through/Right	C	30.9	C	34.5
Northbound Left	A	8.5	A	8.5
Northbound Through	B	12.6	B	14.8
Northbound Through/Right	B	12.6	B	14.8
Southbound Left	A	8.7	A	9.7
Southbound Through	B	11.8	B	12.4
Southbound Through/Right	B	11.9	B	12.5
Un-signalized Intersections				
Grant Street/Litchfield Road				
Eastbound Left	C	23.2	E	41.5
Eastbound Right	B	10.2	B	10.8
Westbound Left	D	26.4	F	74.6
Westbound Right	A	0.0	B	12.8
Northbound Left	A	0.0	A	0.0
Southbound Left	A	9.4	B	11.2
Yuma Road/Camino Oro				
Eastbound Left	A	8.0	A	8.2
Westbound Left	A	8.2	A	0.0
Northbound Left/Through/Right	B	12.8	B	10.9
Southbound Left	A	0.0	B	13.9
Southbound Through/Right	B	13.0	B	10.0
Grant Street/Camino Oro				
Westbound Left	A	7.2	A	0.0
Northbound Left	A	0.0	A	0.0
Northbound Right	A	8.4	A	0.0

Delay - seconds per vehicle

Future Traffic Operations With Project

In order to assess the impacts of the project on future traffic operations, levels of service were calculated for each project intersections in 2020 and 2025, with the project. Weekday peak hour traffic volumes for 2020 and 2025 without the project were combined with the estimated trips generated by the project to yield weekday peak hour traffic volumes with the project as shown in **Figure 10** and **Figure 11**.

Weekday intersection levels of service for 2020 and 2025, with the project, were then calculated as shown in **Tables 7** and **8**.

Tables 7 and **8** show that the delays experienced by the eastbound and westbound left turning movements at the intersection of Grant Street/Litchfield Road during the weekday peak hours are expected to continue and worsen in 2020 and 2025 without and with the project. The through volumes along five-lane Litchfield Road do not provide an adequate number of gaps for vehicles turning from the minor approaches.

The intersection of Van Buren Street/Litchfield Road is anticipated to operate at an adequate, overall LOS. However, the westbound through and westbound through/right turn movements will experience delays without and with traffic from the Project Rapid site. These delays are a result of the relatively large westbound right turn volumes that must reduce speed in the shared through lane to complete their maneuver.

All other study intersections are expected to operate at an adequate LOS for all movements during the weekday AM and PM peak hours of 2020 and 2025 without and with traffic from the project.

Figure 10 – 2020 Weekday Peak Hour Traffic Volumes With Project

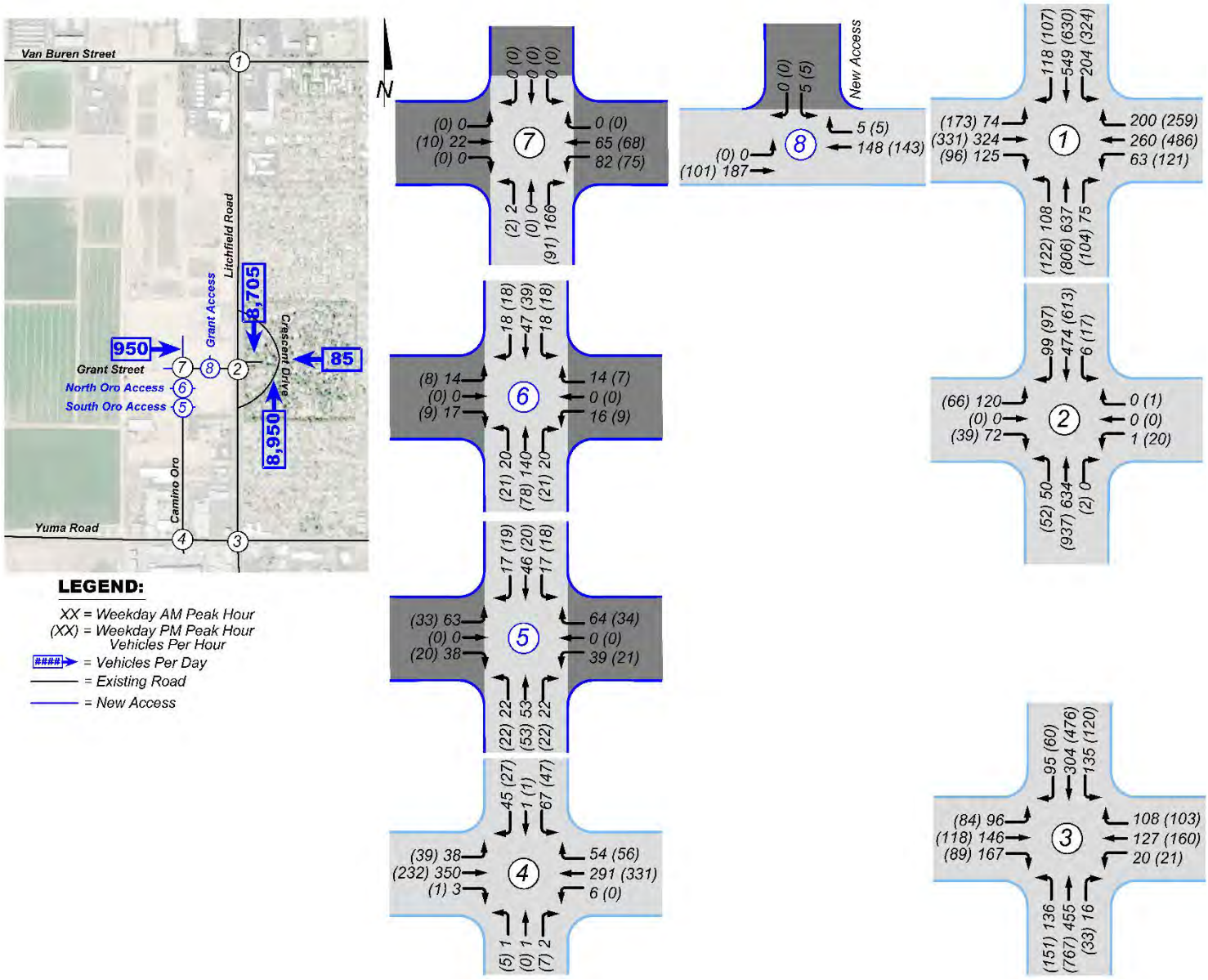


Figure 11 – 2025 Weekday Peak Hour Traffic Volumes With Project

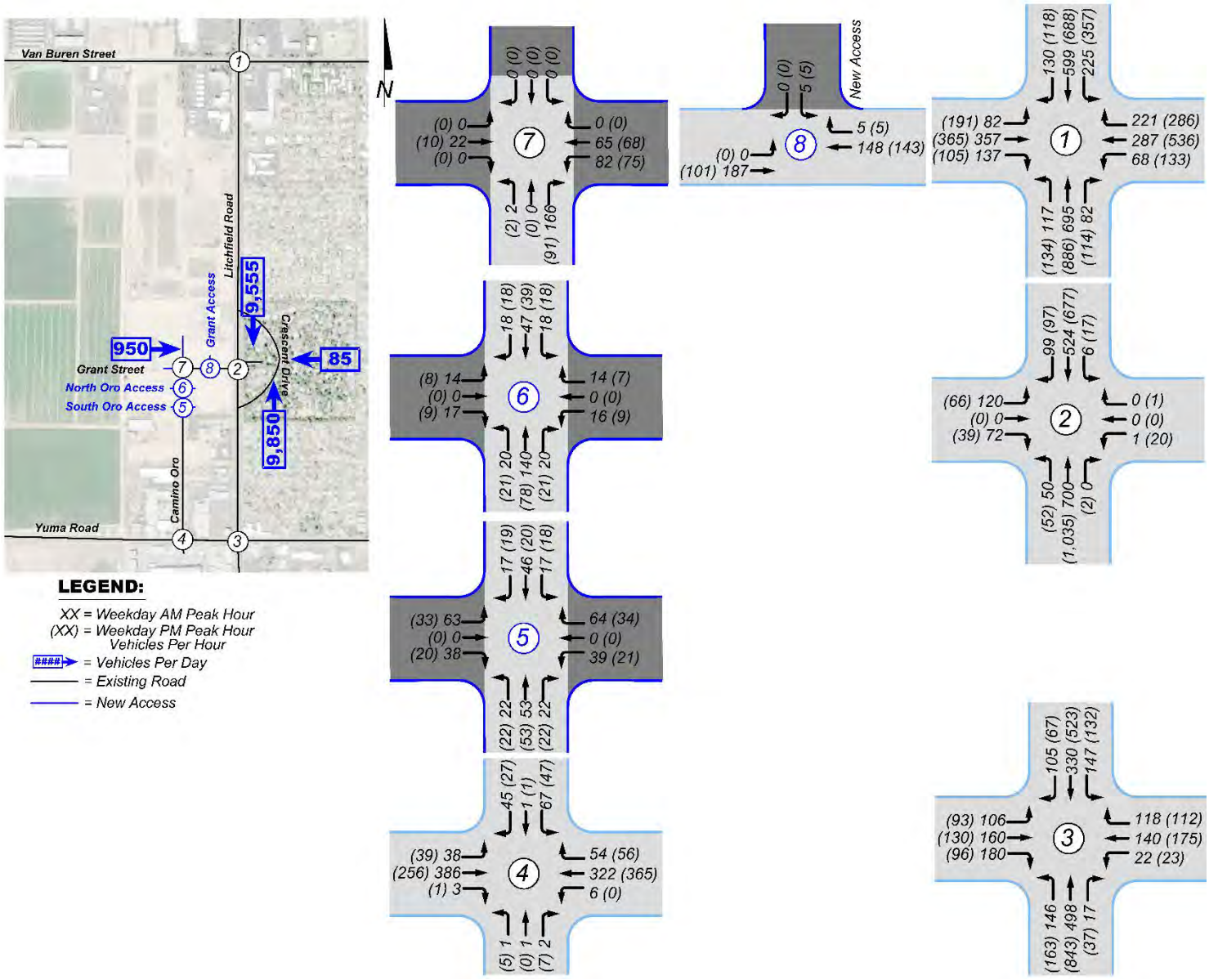


Table 7 – 2020 Weekday Peak Hour Levels of Service With Project

Intersection	2020 Without Project				2020 With Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Signalized Intersections								
Van Buren Street/Litchfield Road								
Overall Intersection	C	20.5	C	31.0	C	20.6	C	32.1
Eastbound Left	C	24.2	C	25.6	C	24.2	C	26.5
Eastbound Through	C	27.3	C	22.3	C	27.8	C	23.2
Eastbound Right	C	27.0	C	21.3	C	27.8	C	22.3
Westbound Left	C	23.2	B	19.5	C	23.3	B	19.8
Westbound Through	C	33.5	D	44.8	C	33.7	D	46.4
Westbound Through/Right	D	35.4	D	46.0	D	35.5	D	47.8
Northbound Left	B	11.6	C	21.7	B	11.9	C	21.8
Northbound Through	B	15.7	C	33.1	B	16.2	C	34.6
Northbound Through/Right	B	16.3	D	36.7	B	16.9	D	39.2
Southbound Left	B	11.0	C	28.8	B	11.4	C	30.8
Southbound Through	B	13.8	C	22.3	B	14.4	C	23.4
Southbound Right	B	12.8	B	19.8	B	12.9	B	20.0
Yuma Road/Litchfield Road								
Overall Intersection	B	16.6	B	16.6	B	17.4	B	17.3
Eastbound Left	C	23.3	C	26.4	C	23.4	C	26.5
Eastbound Through	C	25.9	C	27.7	C	26.5	C	28.3
Eastbound Through/Right	C	26.4	C	28.0	C	28.8	C	28.7
Westbound Left	C	24.4	C	26.7	C	24.5	C	26.8
Westbound Through	C	29.6	C	33.0	C	29.8	C	33.5
Westbound Through/Right	C	30.6	C	34.1	C	30.9	C	34.6
Northbound Left	A	7.9	A	7.8	A	8.4	A	8.4
Northbound Through	B	11.6	B	13.3	B	12.3	B	14.0
Northbound Through/Right	B	11.6	B	13.2	B	12.3	B	13.9
Southbound Left	A	8.1	A	8.6	A	8.5	A	9.3
Southbound Through	B	11.0	B	11.4	B	11.9	B	12.4
Southbound Through/Right	B	11.1	B	11.4	B	12.0	B	12.4
Un-signalized Intersections								
Grant Street/Litchfield Road								
Eastbound Left	C	20.5	D	34.1	F	62.1	F	105.4
Eastbound Right	B	10.0	B	10.5	B	10.5	B	10.9
Westbound Left	C	23.1	F	54.8	D	30.6	F	81.8
Westbound Right	A	0.0	B	12.2	A	0.0	B	12.2
Northbound Left	A	0.0	A	0.0	A	9.1	A	9.7
Southbound Left	A	9.1	B	10.6	A	9.1	B	10.6
Yuma Road/Camino Oro								
Eastbound Left	A	7.9	A	8.1	A	8.2	A	8.3
Westbound Left	A	8.1	A	0.0	A	8.1	A	0.0
Northbound Left/Through/Right	B	12.2	B	10.6	B	13.4	B	11.2
Southbound Left	A	0.0	B	13.2	C	18.3	C	16.6
Southbound Through/Right	B	12.4	A	9.9	A	9.9	B	10.0
Grant Street/Camino Oro								
Eastbound Left/Through/Right	N/A		N/A		A	8.4	A	8.0
Westbound Left	A	7.2	A	0.0	A	9.1	A	8.7
Westbound Through/Right	N/A		N/A		A	8.3	A	8.0
Northbound Left	A	0.0	A	0.0	A	8.3	A	8.2
Northbound Through/Right	N/A		N/A		A	8.3	A	7.6
Northbound Right	A	8.4	A	0.0	N/A		N/A	
Southbound Left/Through/Right	N/A		N/A		A	8.3	A	8.1
Grant Access/Grant Street								
Eastbound Left/Through	N/A		N/A		A	0.0	A	0.0
Southbound Left/Right					B	10.8	B	10.1
North Oro Driveway/Camino Oro								
Eastbound Left/Through/Right	N/A		N/A		A	9.9	A	9.4
Westbound Left/Through/Right					B	10.3	A	9.7
Northbound Left					A	7.4	A	7.4
Southbound Left					A	7.6	A	7.5
South Oro Driveway/Camino Oro								
Eastbound Left/Through/Right	N/A		N/A		B	10.8	A	9.9
Westbound Left/Through/Right					B	10.0	A	9.5
Northbound Left					A	7.4	A	7.3
Southbound Left					A	7.4	A	7.4

Delay - seconds per vehicle

Table 8 – 2025 Weekday Peak Hour Levels of Service With Project

Intersection	2025 Without Project				2025 With Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Signalized Intersections								
Van Buren Street/Litchfield Road								
Overall Intersection	C	21.9	D	40.7	C	22.2	D	42.6
Eastbound Left	C	24.3	D	39.5	C	24.5	C	42.2
Eastbound Through	C	27.3	C	24.7	C	27.9	C	25.7
Eastbound Right	C	26.9	C	23.4	C	27.8	C	24.6
Westbound Left	C	23.0	C	21.0	C	23.3	C	21.4
Westbound Through	D	36.2	E	69.5	D	36.7	E	73.3
Westbound Through/Right	D	38.3	E	71.1	D	38.9	E	74.9
Northbound Left	B	12.9	C	22.8	B	13.0	D	23.0
Northbound Through	B	17.5	D	39.0	B	18.1	D	42.0
Northbound Through/Right	B	18.2	D	45.3	B	19.0	D	49.7
Southbound Left	B	12.0	D	41.6	B	12.7	D	44.3
Southbound Through	B	15.1	C	23.8	B	15.9	D	24.8
Southbound Right	B	13.8	C	20.6	B	14.2	C	20.7
Yuma Road/Litchfield Road								
Overall Intersection	B	17.2	B	17.6	B	18.1	B	18.5
Eastbound Left	C	23.0	C	26.1	C	23.2	C	26.4
Eastbound Through	C	25.9	C	27.7	C	26.6	C	28.5
Eastbound Through/Right	C	26.4	C	28.0	C	28.9	C	28.9
Westbound Left	C	24.4	C	26.6	C	24.7	C	26.9
Westbound Through	C	29.9	C	33.4	C	30.3	C	34.1
Westbound Through/Right	C	30.9	C	34.5	C	31.4	D	35.2
Northbound Left	A	8.5	A	8.5	A	9.1	A	9.2
Northbound Through	B	12.6	B	14.8	B	13.5	B	15.8
Northbound Through/Right	B	12.6	B	14.8	B	13.5	B	15.7
Southbound Left	A	8.7	A	9.7	A	9.2	B	10.6
Southbound Through	B	11.8	B	12.4	B	13.0	B	13.7
Southbound Through/Right	B	11.9	B	12.5	B	13.1	B	13.7
Un-signalized Intersections								
Grant Street/Litchfield Road								
Eastbound Left	C	23.2	E	41.5	F	90.6	F	>120
Eastbound Right	B	10.2	B	10.8	B	10.8	B	11.8
Westbound Left	D	26.4	F	74.6	E	35.5	F	115.1
Westbound Right	A	0.0	B	12.8	A	0.0	B	12.8
Northbound Left	A	0.0	A	0.0	A	9.3	B	10.0
Southbound Left	A	9.4	B	11.2	A	9.4	B	11.2
Yuma Road/Camino Oro								
Eastbound Left	A	8.0	A	8.2	A	8.3	A	8.4
Westbound Left	A	8.2	A	0.0	A	8.2	A	0.0
Northbound Left/Through/Right	B	12.8	B	10.9	B	14.1	B	11.6
Southbound Left	A	0.0	B	13.9	C	20.1	C	17.9
Southbound Through/Right	B	13.0	B	10.0	B	10.1	B	10.2
Grant Street/Camino Oro								
Eastbound Left/Through/Right	N/A		N/A		A	8.4	A	8.0
Westbound Left	A	7.2	A	0.0	A	9.1	A	8.7
Westbound Through/Right	N/A		N/A		A	8.3	A	8.0
Northbound Left	A	0.0	A	0.0	A	8.3	A	8.2
Northbound Through/Right	N/A		N/A		A	8.3	A	7.6
Northbound Right	A	8.4	A	0.0	N/A		N/A	
Southbound Left/Through/Right	N/A		N/A		A	8.3	A	8.1
Grant Access/Grant Street								
Eastbound Left/Through	N/A		N/A		A	0.0	A	0.0
Southbound Left/Right					B	10.8	B	10.1
North Oro Driveway/Camino Oro								
Eastbound Left/Through/Right	N/A		N/A		A	9.9	A	9.4
Westbound Left/Through/Right					B	10.3	A	9.7
Northbound Left					A	7.4	A	7.4
Southbound Left					A	7.6	A	7.5
South Oro Driveway/Camino Oro								
Eastbound Left/Through/Right	N/A		N/A		B	10.8	A	9.9
Westbound Left/Through/Right					B	10.0	A	9.5
Northbound Left					A	7.4	A	7.3
Southbound Left					A	7.4	A	7.4

Delay - seconds per vehicle

Turn Lane Analysis

A key element of this traffic analysis is to determine if right or left turn lanes are required at the proposed project driveway intersections. Turn lane needs were determined based on the City of Goodyear *Engineering Design Standards and Policies Manual.*

When needed, turn lanes remove the slowing turning traffic from the through traffic stream, improving capacity and reducing rear-end crashes. **Table 9** shows the locations that were evaluated for left and right turn lanes based on traffic volumes in 2025 with the project.

Table 9 – Turn Lane Warrants

Intersection	Direction	Turn Treatment Analyzed	Turn Treatment Warranted?
North Oro Driveway/Camino Oro	Northbound	Right Turn Lane	No
North Oro Driveway/Camino Oro	Northbound	Left Turn Lane	No
North Oro Driveway/Camino Oro	Southbound	Left Turn Lane	No
North Oro Driveway/Camino Oro	Southbound	Right Turn Lane	No
South Oro Driveway/Camino Oro	Northbound	Right Turn Lane	No
South Oro Driveway/Camino Oro	Northbound	Left Turn Lane	No
South Oro Driveway/Camino Oro	Southbound	Left Turn Lane	No
South Oro Driveway/Camino Oro	Southbound	Right Turn Lane	No
Grant Access/Grant Street	Eastbound	Left Turn Lane	No
Grant Access/Grant Street	Westbound	Right Turn Lane	No

Table 9 shows that no additional auxiliary turn lanes are warranted at the access points serving the Project Rapid site. The existing two-way, center left turn lane will accommodate northbound and southbound left turning movements along Camino Oro at North Oro Driveway and South Oro Driveway.

To determine if turning movement overlap will occur between key intersections, queue storage requirements of the turn lanes in the study area were calculated using the following methods as recommended in *A Policy of Geometric Design of Highways and Streets* (AASHTO, 2011). For un-signalized intersections, storage for vehicles likely to arrive in an average two-minute period within the average peak hour should be provided.

Vehicles per 2 min. period = (vehicles/hour) ÷ (30 periods/hour)
Storage length = vehicles per 2 min. period x 25 feet

Table 10 shows the calculated queue lengths for turn lanes at the study intersections based on 2025 peak hour traffic volumes with traffic from the project. The computed values are typically rounded to the nearest 25 feet.

Table 10 – Calculated Queue Lengths

Intersection	Left Turn Storage			
	NB	SB	EB	WB
North Oro Driveway/Camino Oro				
Turning Volume (vph)		18		
$S_{calculated}$ =		15		
$S_{rounded}$ =		25		
Camino Oro/Grant Street				
Turning Volume (vph)	2			82
$S_{calculated}$ =	2			68
$S_{rounded}$ =	25			75
Grant Street/Litchfield Road				
Turning Volume (vph)			120	
$S_{calculated}$ =			100	
$S_{rounded}$ =			100	

S - storage in feet, vph - vehicles per hour

As shown in **Table 10**, the intersection of Camino Oro/Grant Street will require minimum storage lengths of 25 feet for the northbound left turn lane and 75 feet for the westbound left turn lane. The existing 100-foot eastbound storage for the left turn lane at the intersection of Grant Street/Litchfield Road is expected to be adequate based on 2025 peak hour traffic volumes with the project. The southbound left turning movement at the intersection of North Oro Driveway/Camino Oro will require 25 feet of storage.

No overlap is expected to occur at these intersections. However, to accommodate both the northbound left turning movement at the intersection of Camino Oro/Grant Street and the southbound left turning movement at the intersection of North Oro Driveway/Camino Oro, the existing striping along Camino Oro should be modified to provide a two-way, center left turn lane along the roadway between South Camino Driveway and Grant Street.

While limited eastbound left turn movements are expected at the intersection of Grant Access/Grant Street, it is recommended that Grant Street be restriped with a two-way, center left turn lane between Camino Oro and Litchfield Road. The existing left turn lanes provided along Grant Street at Camino Oro and Litchfield Road can remain unchanged.

Traffic Signal Warrant Analysis

In order to determine if a traffic signal is warranted, a Traffic Signal Warrant study was completed at the existing intersection of Camino Oro/Grant Street based on existing volumes, 2020 and 2025 without and with the project.

The *Manual on Uniform Traffic Control Devices (MUTCD),* Federal Highway Administration, 2009, lists nine warrants that are used to determine if a traffic signal should be considered for installation at an intersection. A traffic signal may be warranted if one or more of the warrants are satisfied. Warrants #1 (Eight Hour Volume) and #2 (Four Hour Vehicular Volume) were used to evaluate the need to signalize the intersection. Based on existing conditions, availability of information, and applicability, the remaining warrants (#3, #4, #5, #6, #7, #8, and #9) do not apply to the given conditions.

Warrant #1 (Eight Hour Volume) is satisfied when for at least eight (8) hours of an average day, specific traffic volume levels are met for both the major and minor streets (Condition A – Minimum Vehicular Volume). The MUTCD states these volumes depend on the vehicles per hour (vph) combined for both approaches of the major street, and for the highest volume approach on the minor street. The values vary depending on the number of approach lanes and the 85th percentile speed of the roadways.

Warrant #1 also applies to operating conditions where the major street traffic levels are sufficiently high that traffic entering or crossing from a minor street suffers excessive delay (Condition B – Interruption of Continuous Traffic). Once again, the warrant is satisfied when for each of any of the same eight (8) hours of an average day, specific traffic volume levels are met for both the major and minor streets.

Warrant #2 (Four Hour Volume) is met when, for any four hours of the average day on both the major and minor streets, the hourly approach volumes are above the plotted curve contained in the MUTCD (see Appendix).

Warrant #3 (Peak Hour) is normally applied to cases where a site attracts/releases large volumes of vehicles over a short time, such as a football game or large office/industrial complex. The warrant is satisfied when for at least one hour of a day, specific traffic delays and volumes on the minor street approach along with entering traffic volumes are met (Condition A – Minimum Vehicular Delay and Volume), or when for any one hour of the day, approach volumes on both the major and minor streets are above the plotted curve contained in the MUTCD (Condition B - Minimum Combined Vehicular Volume) (see Appendix). For Condition 3A to meet, all three of the requirements (one delay and two volume related) must be met.

Daily traffic on Litchfield Road and Grant Street generated by the project was distributed throughout the 24 hours of a day based on the received trip generation data.

Table 11 shows the results of the warrant analyses. The Appendix contains a complete set of each of the warrant analyses and the corresponding trip generation calculations.

Table 11 – Traffic Signal Warrant Analysis (Grant Street/Litchfield Road)

Year	Warrant Number									
	1		2	3	4	5	6	7	8	9
	Condition A	Condition B								
Existing	No	No	No	No	*	*	*	*	*	*
Hours Met	0	0	0	N/A	*	*	*	*	*	*
2020 without project	No	No	No	No	*	*	*	*	*	*
Hours Met	0	0	0	N/A	*	*	*	*	*	*
2025 without project	No	No	No	No	*	*	*	*	*	*
Hours Met	0	0	0	N/A	*	*	*	*	*	*
2020 with project	No	No	No	No	*	*	*	*	*	*
Hours Met	0	3	0	N/A	*	*	*	*	*	*
2025 with project	No	No	No	No	*	*	*	*	*	*
Hours Met	0	3	2	N/A	*	*	*	*	*	*

* Warrant Does Not Apply

As shown in **Table 10**, the intersection of Grant Street/Litchfield Road does not currently meet traffic signal warrants #1, #2, or #3. None of the analyzed warrants are expected to be met in 2020 or 2025 without or with traffic from the project. In 2020 and 2025 with traffic from the project, Warrant #3A meets the two volume related requirements and is under the threshold for the delay related requirement. For Warrant #3A, all three of the requirements must be above their thresholds for the warrant to be met.

Regardless, it is important to mention that traffic signals should not be installed because one or more of the warrants are satisfied. The MUTCD warrants reflect only the lowest minimum levels on which traffic engineers agree. It also states that, "The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Crash Analysis

Crash histories at the existing study intersections were obtained from the Arizona Department of Transportation database. Within the five year time period analyzed there were a total of 160 reported crashes that occurred at the study intersections. Results of the crash analyses are shown in **Table 12a** through **12e**.

Table 12a – Crash Analysis (Camino Oro/Yuma Road)

Year	Crash Type							Fatal	Injury	Crash Totals
	Angle	Left Turn	Rear-End	Sideswipe	Single Vehicle	Head On	Other			
2013	1								1	1
2014										0
2015										0
2016		1								1
2017										0
5-Year Total	1	1	0	0	0	0	0	0	1	2

Table 12b – Crash Analysis (Camino Oro/Grant Street)

Year	Crash Type							Fatal	Injury	Crash Totals
	Angle	Left Turn	Rear-End	Sideswipe	Single Vehicle	Head On	Other			
2013										0
2014										0
2015										0
2016										0
2017										0
5-Year Total	0	0	0	0	0	0	0	0	0	0

Table 12c – Crash Analysis (Yuma Road/Litchfield Road)

Year	Crash Type							Fatal	Injury	Crash Totals
	Angle	Left Turn	Rear-End	Sideswipe	Single Vehicle	Head On	Other			
2013			2						1	2
2014	1		4							5
2015	1	2	1	1					1	5
2016		1			1				1	2
2017			1		1					2
5-Year Total	2	3	8	1	2	0	0	0	3	16

Table 12d – Crash Analysis (Grant Street/Litchfield Road)

Year	Crash Type							Fatal	Injury	Crash Totals
	Angle	Left Turn	Rear-End	Sideswipe	Single Vehicle	Head On	Other			
2013										0
2014										0
2015										0
2016										0
2017										0
5-Year Total	0	0	0	0	0	0	0	0	0	0

Table 12e – Crash Analysis (Van Buren Street/Litchfield Road)

Year	Crash Type							Fatal	Injury	Crash Totals
	Angle	Left Turn	Rear-End	Sideswipe	Single Vehicle	Head On	Other			
2013	2	7	7	3	3				8	22
2014	6	7	7	6		1			8	27
2015	6	10	10	3	1		1		14	31
2016	4	11	11	5	2	1			6	34
2017	8	6	11		2		1		8	28
5-Year Total	26	41	46	17	8	2	2	0	44	142

Rear-end collisions make up the majority of the incidents at the signalized intersections of Yuma Road/Litchfield Road and Van Buren Street/Litchfield Road. In the five year study period, eight (8) of the total sixteen (16) crashes were rear-end type crashes at Yuma Road/Litchfield Road and 46 of the total 142 crashes were rear end-type collisions at the intersection of Van Buren Street/Litchfield Road. These types of crashes are often due to driver inattention, failure to slow or stop, and are common at signalized intersections.

The intersection of Van Buren Street/Litchfield Road has also experienced a large number of left turn and angle type crashes in the last five years. These types of collisions are common at signalized intersections as one vehicle attempts to complete a turning movement as another vehicle rushes through the intersection.

With limited crashes recorded at the remaining study intersections, no specific trends can be determined from the data.

It should be noted that this crash summary only includes crashes where a police officer was contacted and wrote a report, otherwise, there is no record of the incident. It is possible that there were other minor crashes along this road, however, as mentioned above, the Police Department was not contacted and no official record of these crashes exists. An expanded summary of the crash data can be found in the Appendix.

Mitigation

The intersection of Grant Street/Litchfield Road currently experiences delays for turning movements from the minor approach and is expected to continue operating at an inadequate LOS in 2020 and 2025, without and with traffic from the Project Rapid site. While the installation of a traffic signal would alleviate the delays experienced, consideration should be given to the offset geometry of the intersection. Due to this, the west leg (Park Shadows Driveway) at the intersection would need to be aligned with Grant Street. However, the lack of available storage space, and a perpendicular approach, to the intersection for the westbound approach will not allow a traffic signal to operate appropriately. Park Shadows Driveway will need to be limited to a right in/right out driveway. Westbound left turning traffic at the driveway can be directed to the north or south to complete their movement at the intersections of North Crescent Drive/Litchfield Road or South Crescent Drive/Litchfield Road.

While the intersection of Van Buren Street/Litchfield Road is expected to operate at an adequate overall LOS, the westbound through and through/right turn movement will begin to experience delays in 2025 without traffic from the project. To improve the through progression along westbound Van Buren Street, a westbound right turn lane can be constructed at the intersection. This improvement would remove the slowing, turning vehicles from the through lane and reduce the delays experienced by these movements.

The expected improvement in LOS with mitigation is shown in **Table 13**.

Table 13 – Mitigation Measures

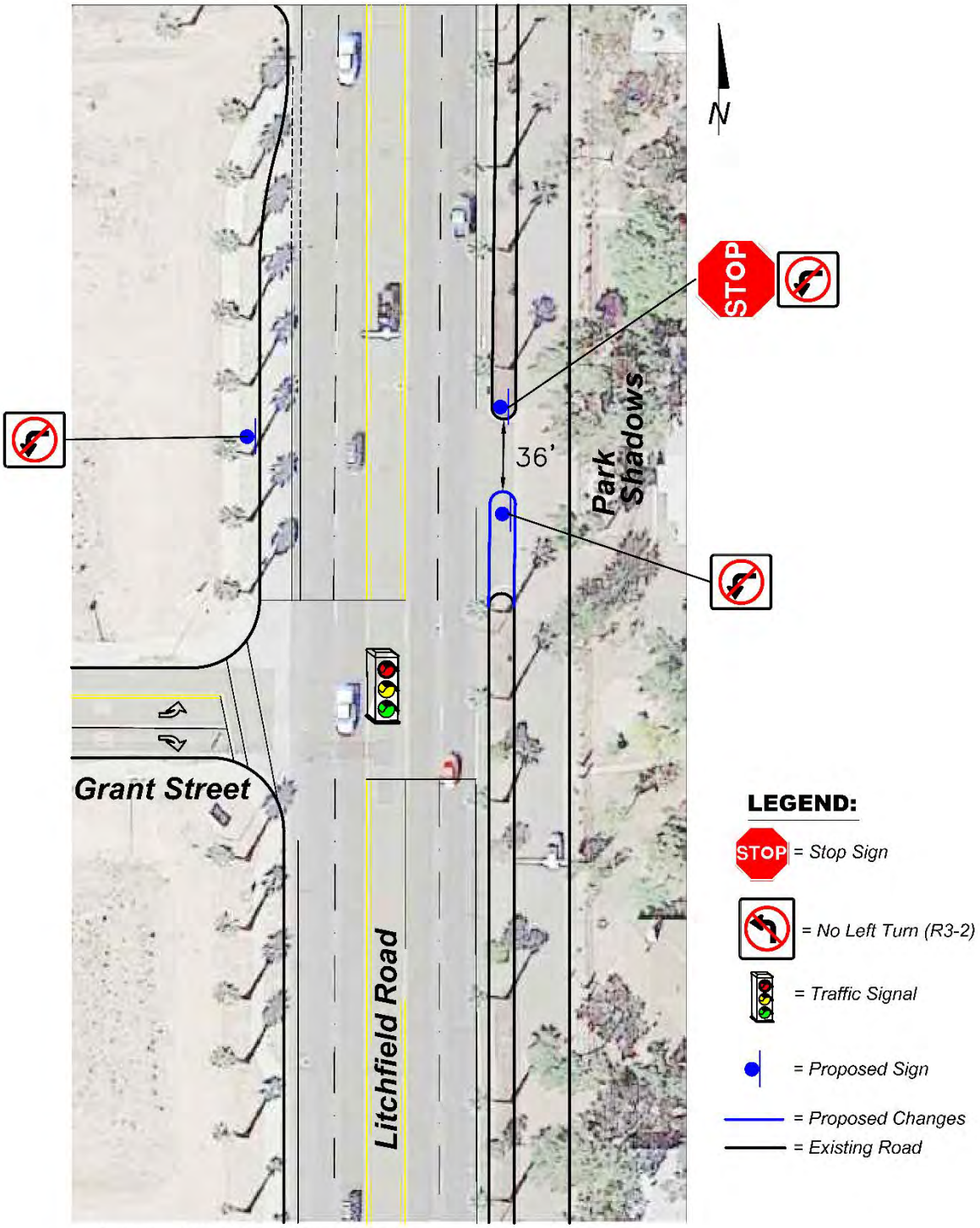
Intersection	Improvement	2025 Study Horizon											
		Without Project				With Project				With Project Mitigation			
		AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Van Buren St/Litchfield Rd													
Overall Intersection	Install Westbound Right Turn Lane	C	21.9	D	40.7	C	22.2	D	42.6	C	20.8	C	31.0
Eastbound Left		C	24.3	D	39.5	C	24.5	C	42.2	C	23.5	C	25.9
Eastbound Thru		C	27.3	C	24.7	C	27.9	C	25.7	C	28.4	C	25.7
Eastbound Right		C	26.9	C	23.4	C	27.8	C	24.6	C	28.3	C	24.7
Westbound Left		C	23.0	C	21.0	C	23.3	C	21.4	C	23.7	C	21.5
Westbound Thru		D	36.2	E	69.5	D	36.7	E	73.3	C	27.8	C	30.3
Westbound Thru/Right		D	38.3	E	71.1	D	38.9	E	74.9	N/A		N/A	
Westbound Right		N/A		N/A		N/A		N/A		D	36.7	D	40.4
Northbound Left		B	12.9	C	22.8	B	13.0	D	23.0	B	12.4	C	21.2
Northbound Thru		B	17.5	D	39.0	B	18.1	D	42.0	B	17.3	D	36.9
Northbound Thru/Right		B	18.2	D	45.3	B	19.0	D	49.7	B	18.2	D	43.0
Southbound Left		B	12.0	D	41.6	B	12.7	D	44.3	B	12.1	D	38.4
Southbound Thru		B	15.1	C	23.8	B	15.9	D	24.8	B	15.2	C	23.0
Southbound Right		B	13.8	C	20.6	B	14.2	C	20.7	B	13.5	B	19.2
Grant St/Litchfield Rd													
Overall Intersection	Install Traffic Signal Restrict Park Shadows to Right-In/Right-Out (Separate Intersection)	N/A		N/A		N/A		N/A		A	5.5	A	4.3
Eastbound Left		C	23.2	E	41.5	F	90.6	F	>120	B	13.1	B	18.5
Eastbound Thru/Right		N/A		N/A		N/A		N/A		B	11.6	B	17.2
Eastbound Right		B	10.2	B	10.8	B	10.8	B	11.8	N/A		N/A	
Westbound Left		D	26.4	F	74.6	E	35.5	F	115.1				
Westbound Thru/Right		N/A		N/A		N/A		N/A					
Westbound Right		A	0.0	B	12.8	A	0.0	B	12.8				
Northbound Left		A	0.0	A	0.0	A	9.3	B	10.0	A	4.0	A	2.8
Northbound Thru		N/A		N/A		N/A		N/A		A	4.7	A	3.8
Northbound Thru/Right										N/A		N/A	
Southbound Left		A	9.4	B	11.2	A	9.4	B	11.2				
Southbound Thru		N/A		N/A		N/A		N/A		A	4.3	A	3.2
Southbound Right										A	3.7	A	2.6

Delay - seconds per vehicle

As shown in **Table 13**, the westbound through and through/right turn movements fail without and with traffic from the project at the intersection of Van Buren Street/Litchfield Road. The installation of a westbound right turn lane would alleviate the delays for these movements.

The installation of a traffic signal is recommended at the offset intersection of Grant Street/Litchfield Road. **Figure 12** shows the proposed configuration to separate the intersections of Grant Street/Litchfield Road and Park Shadows Driveway/Litchfield Road. These proposed changes would mitigate the conflicts associated with offset intersection operations and allow the installation of the recommended traffic signal at the intersection of Grant Street/Litchfield Road.

Figure 12 – Proposed Grant Street/Litchfield Road Intersection Changes



Conclusion

When fully completed, the proposed Project Rapid project is predicted to generate an additional 2,630 vehicle trips per day (vtpd) on weekdays to the adjacent street system from the new project site. Fifty percent of these new trips (1,315 vehicle trips) will be into the project and fifty percent will be out of the project.

The westbound left turning movement at the intersection of Grant Street/Litchfield Road currently operates at an inadequate level of service (LOS) and is expected to worsen in 2020 and 2025 without traffic from the Project Rapid site. This delay is a result of the large through volumes along Litchfield Road not providing a sufficient number of adequate gaps for vehicles turning from the minor approach (Grant Street).

All other study intersections currently operate at an adequate LOS and are expected to continue doing so in 2020 and 2025 without traffic from the project.

The intersection of Grant Street/Litchfield Road is anticipated to experience delays for the eastbound and westbound left turning movements in 2020 and 2025 with traffic from the project. The through volumes along five-lane Litchfield Road do not provide an adequate number of gaps for vehicles turning from the minor approaches.

No additional auxiliary lanes are warranted at the access points directly serving the project site.

To ensure left turn lane overlaps do not occur between adjacent key intersections, queue storage requirements were calculated at the intersections of Camino Oro/Grant Street, North Oro Driveway/Camino Oro, and Grant Street/Litchfield Road. No overlap is expected to occur at these intersections

The intersection of Grant Street/Litchfield Road does not currently meet traffic signal warrants #1, #2, or #3. Neither warrant is expected to be met in 2020 or 2025 without or with traffic from the project. In 2020 and 2025 with traffic from the project, Warrant #3A meets the two volume related requirements and is under the threshold for the delay related requirement. For Warrant #3A, all three of the requirements must be above their thresholds for the warrant to be met.

Rear-end collisions make up the majority of the incidents at the signalized intersections of Yuma Road/Litchfield Road and Van Buren Street/Litchfield Road. In the five year study period, eight (8) of the total sixteen (16) crashes were rear-end type crashes at Yuma Road/Litchfield Road and 46 of the total 142 crashes were rear end-type collisions at the intersection of Van Buren Street/Litchfield Road. These types of crashes are often due to driver inattention, failure to slow or stop, and are common at signalized intersections.

The intersection of Van Buren Street/Litchfield Road has also experienced a large number of left turn and angle type crashes in the last five years. These types of collisions are common at signalized intersections as one vehicle attempts to complete a turning movement as another vehicle rushes through the intersection.

With limited crashes recorded at the remaining study intersections, no specific trends can be determined from the data.

The intersection of Grant Street/Litchfield Road currently experiences delays for turning movements from the minor approach and is expected to continue operating at an inadequate LOS in 2020 and 2025, without and with traffic from the Project Rapid site. While the installation of a traffic signal would alleviate the delays experienced, the west leg (Park Shadows Driveway) at the intersection would need to be aligned with Grant Street. However, the lack of available storage space, and a perpendicular approach, to the intersection for the westbound approach will not allow a traffic signal to operate appropriately. Park Shadows Driveway will need to be limited to a right in/right out driveway. Westbound left turning traffic at the driveway can be directed to the north or south to complete their movement at the intersections of North Crescent Drive/Litchfield Road or South Crescent Drive/Litchfield Road.

The westbound through and through/right turn movement at the intersection of Van Buren Street/Litchfield Road will begin to experience delays in 2025 without traffic from the project. To improve the through progression along westbound Van Buren Street, a westbound right turn lane can be constructed at the intersection. This improvement would remove the slowing, turning vehicles from the through lane and reduce the delays experienced by these movements.

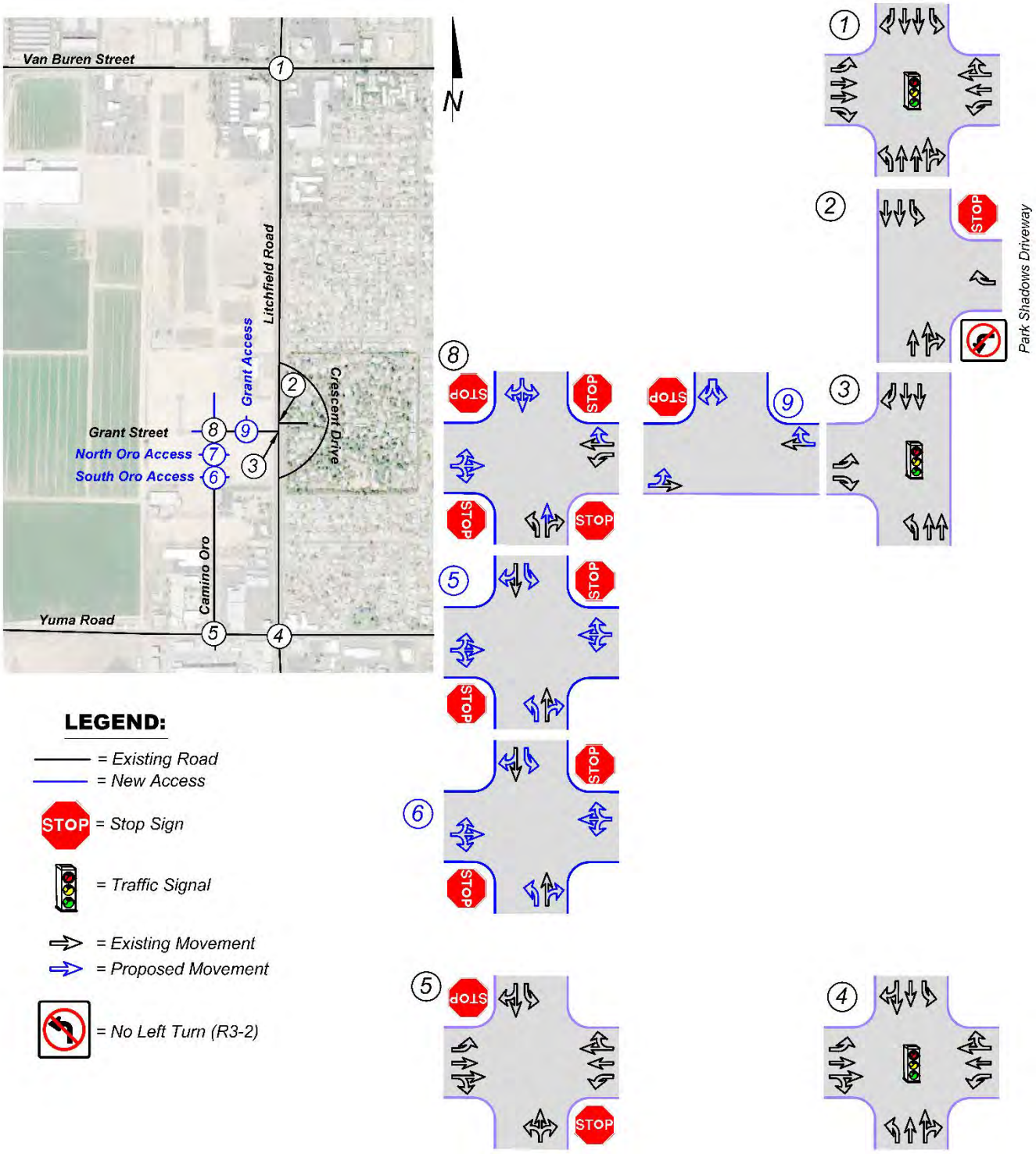
The installation of a traffic signal is recommended at the intersection of Grant Street/Litchfield Road. The offset, west leg of the intersection (Park Shadows Driveway) should be reconfigured to provide right-in/right-out only access. Clear signing and pavement markings should be utilized to restrict the westbound left turning movement from Park Shadows Driveway.

It is recommended that the existing striping along Camino Oro be modified to provide a two-way, center left turn lane along the roadway.

It is recommended that Grant Street be restriped with a two-way, center left turn lane between Camino Oro and Litchfield Road.

Proposed lane configurations and traffic control are shown in **Figure 13**.

Figure 13 – Proposed Lane Configurations and Traffic Control



PROJECT RAPID
CAMINO ORO/GRANT STREET
TRAFFIC IMPACT ANALYSIS

APPENDIX

Traffic Counts

Trip Generation Calculations

Capacity Calculations

Traffic Signal Warrant Analysis

Comment Resolution

PROJECT RAPID
CAMINO ORO/GRANT STREET
TRAFFIC IMPACT ANALYSIS

APPENDIX

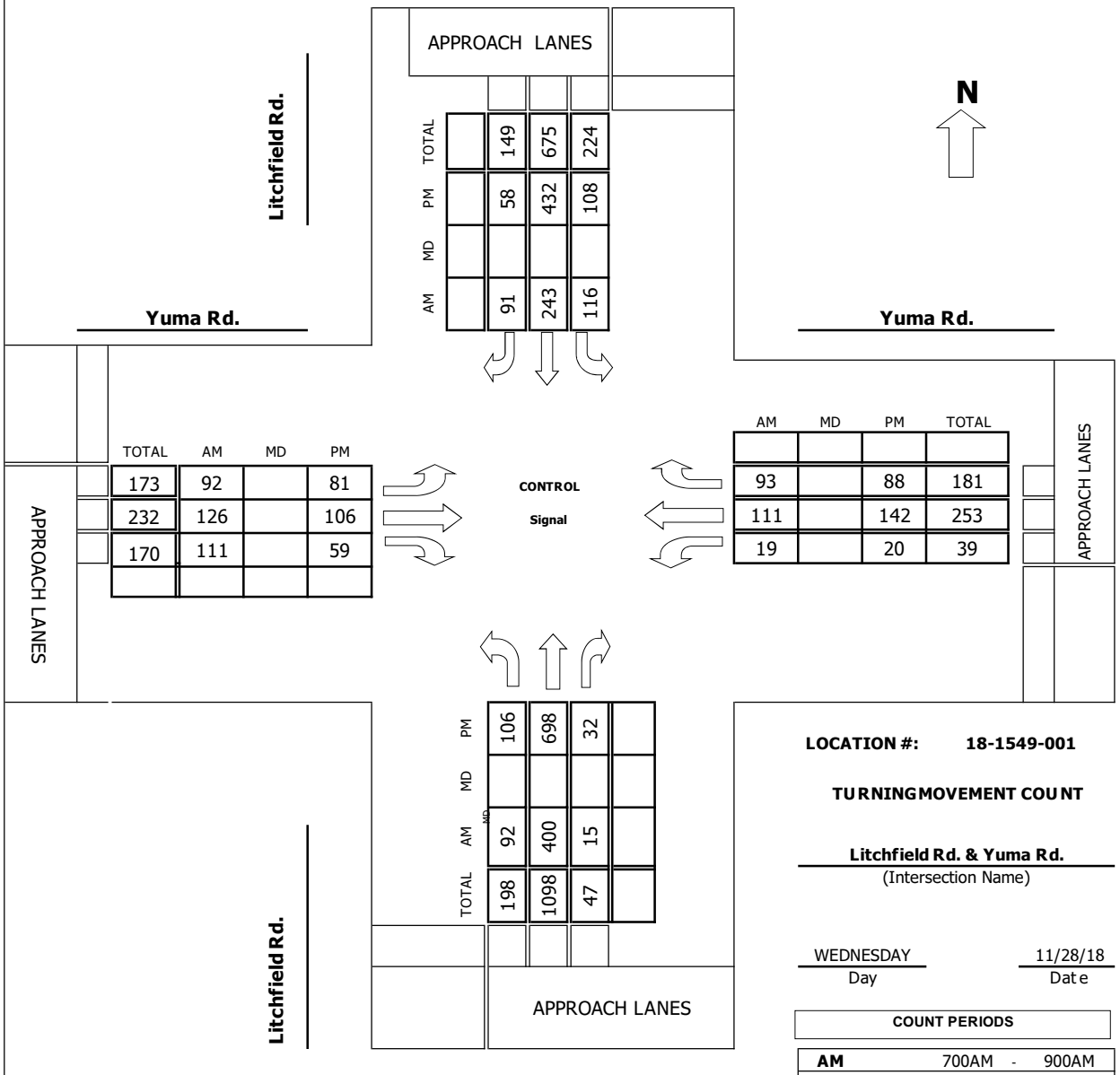
Traffic Counts

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
620.316.6745

Project #: 18-1549-001

TMC SUMMARY OF Litchfield Rd. & Yuma Rd.



LOCATION #: 18-1549-001

TURNING MOVEMENT COUNT

Litchfield Rd. & Yuma Rd.
(Intersection Name)

WEDNESDAY (Day) 11/28/18 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 700 AM

NOON PEAK HOUR

PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	LitchfieldRd.	DATE:	11/28/18	LOCATION:	Goodyear
E-W STREET:	Yuma Rd.	DAY:	WEDNESDAY	PROJECT#	18-1549-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	28	69	5	28	69	21	28	41	28	6	28	26	377
7:15 AM	24	89	4	32	39	28	24	33	24	6	24	28	355
7:30 AM	21	114	1	30	76	20	21	24	29	2	29	20	387
7:45 AM	19	128	5	26	59	22	19	28	30	5	30	19	390
8:00 AM	16	91	2	24	77	13	16	20	32	1	21	14	327
8:15 AM	13	76	6	20	82	16	13	32	21	4	19	21	323
8:30 AM	9	77	3	22	67	19	19	20	14	1	16	24	291
8:45 AM	11	69	5	19	59	16	10	22	16	2	13	28	270
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	141	713	31	201	528	155	150	220	194	27	180	180	2720
Approach %	15.93	80.56	3.50	22.74	59.73	17.53	26.60	39.01	34.40	6.98	46.51	46.51	
App/Depart	885	/	1043	884	/	749	564	/	452	387	/	476	

AM Peak Hr Begins at: 700 AM

PEAK													
Volumes	92	400	15	116	243	91	92	126	111	19	111	93	1509
Approach %	18.15	78.90	2.96	25.78	54.00	20.22	27.96	38.30	33.74	8.52	49.78	41.70	
PEAK HR. FACTOR:		0.834			0.893			0.848			0.929		0.967

CONTROL:	Signal
COMMENT 1:	
GPS:	33.435339, -112.358258

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	LitchfieldRd. 0	DATE:	11/28/18	LOCATION:	Goodyear
E-W STREET:	Yuma Rd.	DAY:	WEDNESDAY	PROJECT#	18-1549-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	2	0	1	2	0	1	2	0	1	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	20	188	5	34	109	19	21	25	18	5	39	21	504
4:15 PM	36	154	8	25	93	18	16	26	17	7	40	26	466
4:30 PM	20	228	11	16	122	8	20	27	13	0	20	16	501
4:45 PM	30	128	8	33	108	13	24	28	11	8	43	25	459
5:00 PM	28	139	8	39	106	18	22	30	15	8	26	22	461
5:15 PM	41	122	7	33	99	12	17	27	7	10	35	36	446
5:30 PM	13	79	3	33	101	10	21	21	19	4	23	29	356
5:45 PM	23	82	5	34	87	18	14	25	11	2	36	23	360
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	211	1120	55	247	825	116	155	209	111	44	262	198	3553
Approach %	15.22	80.81	3.97	20.79	69.44	9.76	32.63	44.00	23.37	8.73	51.98	39.29	
App/Depart	1386	/	1473	1188	/	980	475	/	511	504	/	589	

PM Peak Hr Begins at: 400 PM

PEAK													
Volumes	106	698	32	108	432	58	81	106	59	20	142	88	1930
Approach %	12.68	83.49	3.83	18.06	72.24	9.70	32.93	43.09	23.98	8.00	56.80	35.20	
PEAK HR. FACTOR:		0.807			0.923			0.961			0.822		0.957

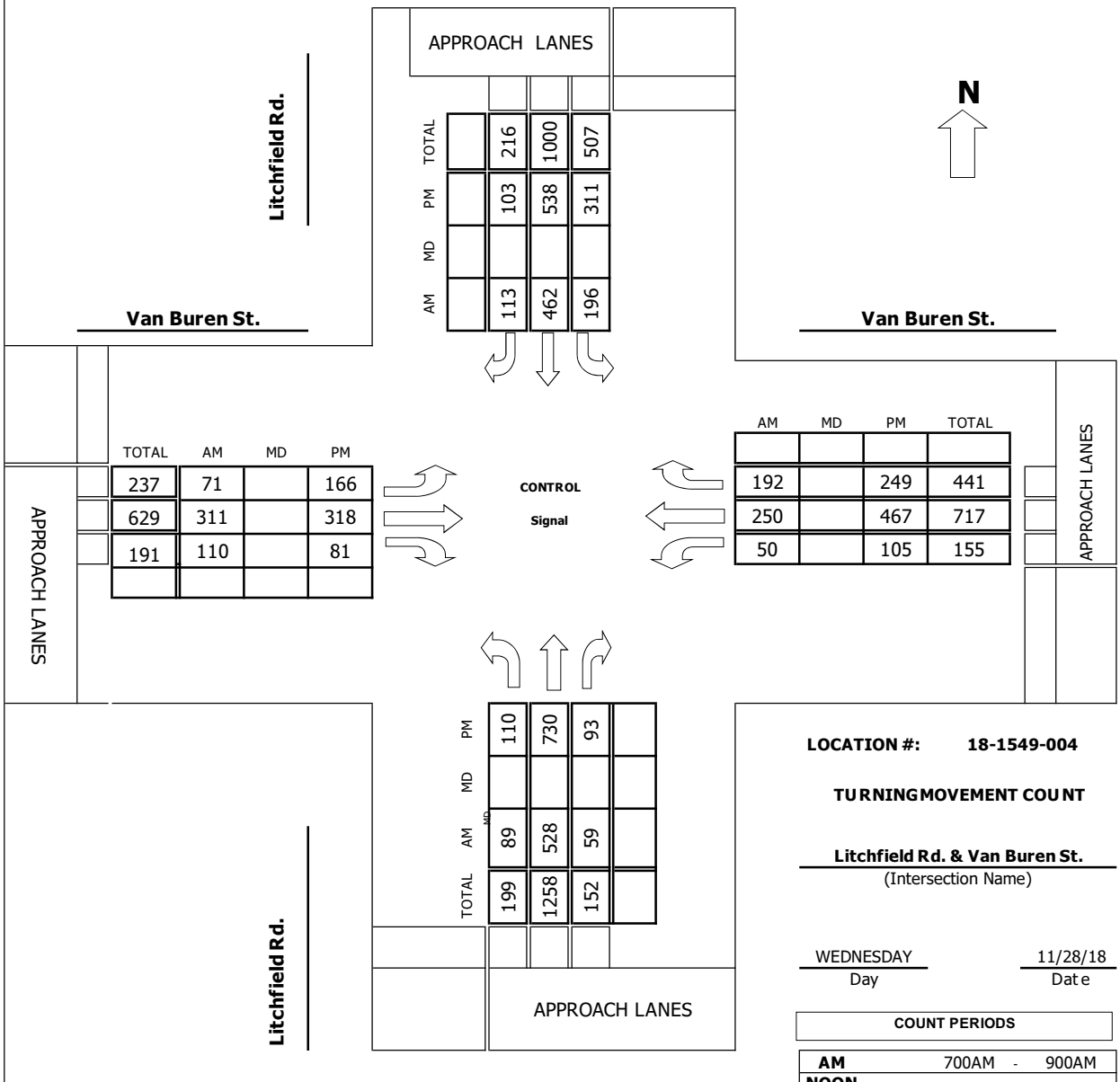
CONTROL:	Signal
COMMENT 1:	0
GPS:	33.435339, -112.358258

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
620.316.6745

Project #: 18-1549-004

TMC SUMMARY OF Litchfield Rd. & Van Buren St.



LOCATION #: 18-1549-004

TURNING MOVEMENT COUNT

Litchfield Rd. & Van Buren St.
(Intersection Name)

WEDNESDAY (Day) 11/28/18 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 715 AM

NOON PEAK HOUR

PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Litchfield Rd.	DATE:	11/28/18	LOCATION:	Goodyear
E-W STREET:	Van Buren St.	DAY:	WEDNESDAY	PROJECT#	18-1549-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	1	2	1	1	2	1	1	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	15	122	13	39	124	20	13	51	17	11	45	33	503
7:15 AM	17	114	20	37	102	19	10	87	22	17	65	37	547
7:30 AM	20	153	15	59	164	21	23	75	33	11	61	61	696
7:45 AM	34	163	16	62	87	38	22	87	30	11	68	42	660
8:00 AM	18	98	8	38	109	35	16	62	25	11	56	52	528
8:15 AM	14	95	19	45	121	23	18	71	16	15	49	33	519
8:30 AM	22	99	22	43	101	20	14	47	14	22	99	22	525
8:45 AM	20	88	8	55	93	26	24	63	15	14	55	38	499
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	160	932	121	378	901	202	140	543	172	112	498	318	4477
Approach %	13.19	76.83	9.98	25.52	60.84	13.64	16.37	63.51	20.12	12.07	53.66	34.27	
App/Depart	1213	/	1390	1481	/	1185	855	/	1042	928	/	860	

AM Peak Hr Begins at: 715 AM

PEAK													
Volumes	89	528	59	196	462	113	71	311	110	50	250	192	2431
Approach %	13.17	78.11	8.73	25.42	59.92	14.66	14.43	63.21	22.36	10.16	50.81	39.02	
PEAK HR. FACTOR:		0.793			0.790			0.885			0.925		0.873

CONTROL: Signal
COMMENT 1:
GPS: 33.449803, -112.358233

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	LitchfieldRd. 0	DATE:	11/28/18	LOCATION:	Goodyear
E-W STREET:	Van Buren St.	DAY:	WEDNESDAY	PROJECT#	18-1549-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	3	0	1	2	1	1	2	1	1	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	29	200	22	78	144	30	42	70	20	31	130	59	855
4:15 PM	31	174	23	80	116	30	32	96	25	27	116	58	808
4:30 PM	26	195	23	80	132	22	43	73	18	21	91	68	792
4:45 PM	24	161	25	73	146	21	49	79	18	26	130	64	816
5:00 PM	30	163	17	77	130	22	63	71	16	35	130	80	834
5:15 PM	22	158	15	68	139	38	41	80	22	25	131	63	802
5:30 PM	21	107	14	64	132	23	38	76	22	22	105	69	693
5:45 PM	10	112	14	70	125	19	32	69	14	19	120	64	668
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	193	1270	153	590	1064	205	340	614	155	206	953	525	6268
Approach %	11.94	78.59	9.47	31.74	57.24	11.03	30.66	55.37	13.98	12.23	56.59	31.18	
App/Depart	1616	/	2135	1859	/	1425	1109	/	1357	1684	/	1351	

PM Peak Hr Begins at: 400 PM

PEAK													
Volumes	110	730	93	311	538	103	166	318	81	105	467	249	3271
Approach %	11.79	78.24	9.97	32.67	56.51	10.82	29.38	56.28	14.34	12.79	56.88	30.33	
PEAK HR. FACTOR:		0.929			0.944			0.923			0.933		0.956

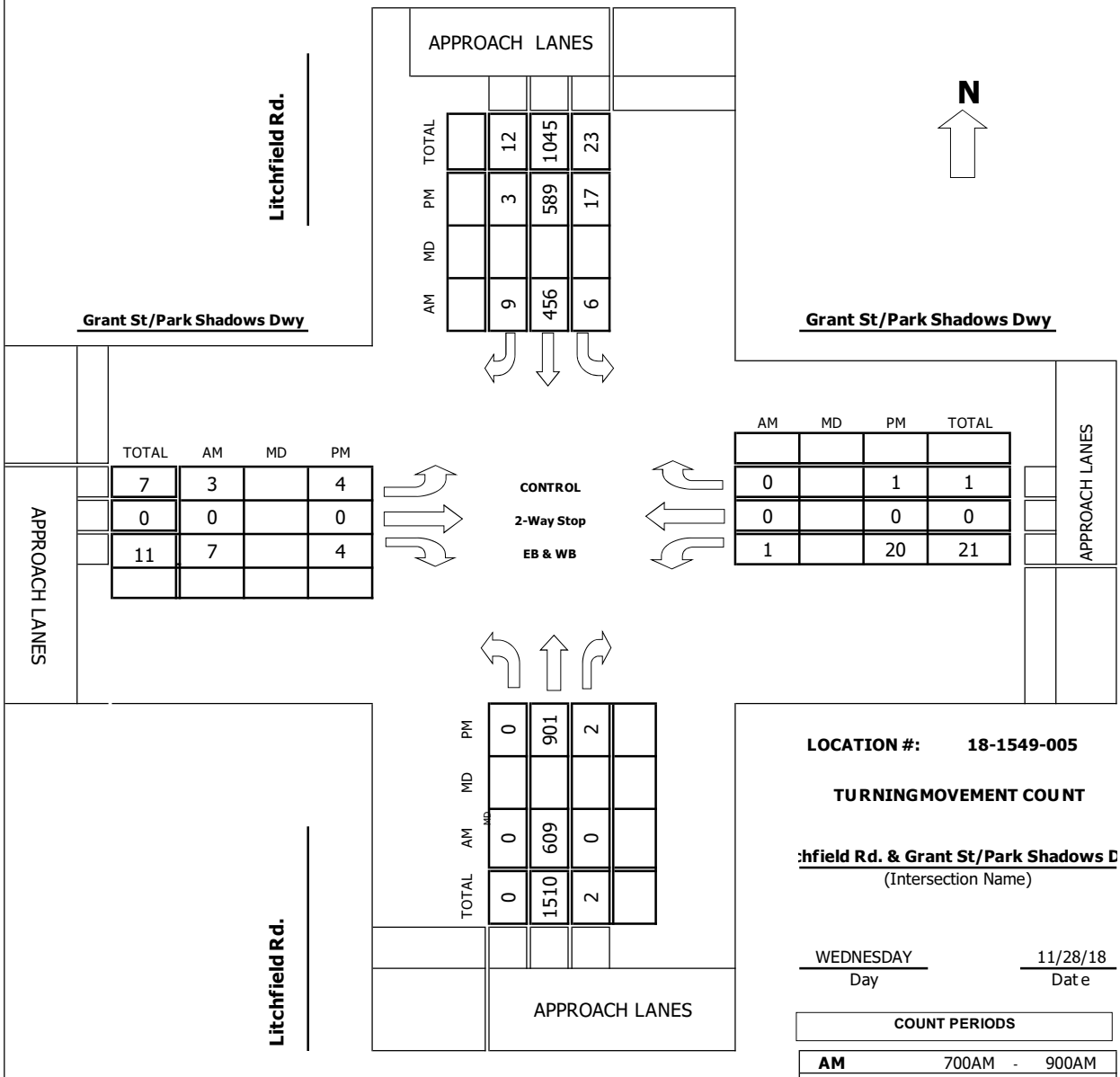
CONTROL: Signal
COMMENT 1: 0
GPS: 33.449803, -112.358233

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
620.316.6745

Project #: 18-1549-005

TMC SUMMARY OF Litchfield Rd. & Grant St/Park Shadows Dwy



LOCATION #: 18-1549-005

TURNING MOVEMENT COUNT

:hfield Rd. & Grant St/Park Shadows D
(Intersection Name)

WEDNESDAY (Day) 11/28/18 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 700 AM

NOON PEAK HOUR

PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	LitchfieldRd.	DATE:	11/28/18	LOCATION:	Goodyear
E-W STREET:	Grant St/Park Shadows Dwy	DAY:	WEDNESDAY	PROJECT#	18-1549-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	1	0	1	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	133	0	2	122	0	0	0	1	0	0	0	258
7:15 AM	0	139	0	2	83	0	3	0	4	0	0	0	231
7:30 AM	0	168	0	0	127	8	0	0	2	1	0	0	306
7:45 AM	0	169	0	2	124	1	0	0	0	0	0	0	296
8:00 AM	0	111	0	1	112	4	1	0	1	0	0	1	231
8:15 AM	0	111	0	1	122	1	0	0	2	0	0	0	237
8:30 AM	1	116	1	3	107	2	0	0	0	0	0	1	231
8:45 AM	0	105	0	1	98	4	0	0	1	2	0	1	212
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	1	1052	1	12	895	20	4	0	11	3	0	3	2002
Approach %	0.09	99.81	0.09	1.29	96.55	2.16	26.67	0.00	73.33	50.00	0.00	50.00	
App/Depart	1054	/	1059	927	/	909	15	/	13	6	/	21	

AM Peak Hr Begins at: 700 AM

PEAK													
Volumes	0	609	0	6	456	9	3	0	7	1	0	0	1091
Approach %	0.00	100.00	0.00	1.27	96.82	1.91	30.00	0.00	70.00	100.00	0.00	0.00	

PEAK HR. FACTOR:	0.901	0.872	0.357	0.250	0.891

CONTROL: 2-Way Stop (EB & WB)
COMMENT 1:
GPS: 33.440727, -112.358308

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	LitchfieldRd. 0	DATE:	11/28/18	LOCATION:	Goodyear
E-W STREET:	Grant St/Park Shadows Dwy	DAY:	WEDNESDAY	PROJECT#	18-1549-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	1	0	1	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	271	1	8	166	1	1	0	2	0	0	0	450
4:15 PM	0	189	0	3	145	1	0	0	1	0	0	0	339
4:30 PM	0	263	0	3	138	1	2	0	0	17	0	1	425
4:45 PM	0	178	1	3	140	0	1	0	1	3	0	0	327
5:00 PM	0	193	0	3	163	0	1	0	1	1	0	1	363
5:15 PM	0	176	0	1	145	1	1	0	2	1	0	1	328
5:30 PM	0	117	1	1	151	0	1	0	1	2	0	0	274
5:45 PM	0	125	0	1	131	0	0	0	0	0	0	0	257
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	1512	3	23	1179	4	7	0	8	24	0	3	2763
Approach %	0.00	99.80	0.20	1.91	97.76	0.33	46.67	0.00	53.33	88.89	0.00	11.11	
App/Depart	1515	/	1522	1206	/	1211	15	/	26	27	/	4	

PM Peak Hr Begins at: 400 PM

PEAK													
Volumes	0	901	2	17	589	3	4	0	4	20	0	1	1541
Approach %	0.00	99.78	0.22	2.79	96.72	0.49	50.00	0.00	50.00	95.24	0.00	4.76	

PEAK HR. FACTOR:	0.830	0.870	0.667	0.292	0.856

CONTROL:	2-Way Stop(EB & WB)
COMMENT 1:	0
GPS:	33.440727, -112.358308

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Wednesday, November 28, 2018 City: Goodyear Project #: 18-1549-006

Location: Litchfield Rd. & Grant St. / Park Shadows Driveway

AM Period	NB		SB		EB		WB			PM Period	NB		SB		EB		WB		
00:00	1		0		0		0			12:00	155		123		2		2		
00:15	10		11		0		0			12:15	130		115		0		1		
00:30	6		6		0		0			12:30	117		119		2		0		
00:45	8	25	11	28	0	0	0	0	53	12:45	119	521	143	500	2	6	3	6	1033
01:00	6		3		1		0			13:00	121		119		4		2		
01:15	3		4		0		0			13:15	121		106		1		2		
01:30	11		6		0		0			13:30	125		123		1		1		
01:45	7	27	6	19	0	1	0	0	47	13:45	134	501	117	465	2	8	1	6	980
02:00	19		8		1		0			14:00	146		133		1		2		
02:15	8		12		1		0			14:15	143		141		1		0		
02:30	7		11		0		6			14:30	176		135		7		0		
02:45	11	45	10	41	0	2	0	6	94	14:45	149	614	149	558	1	10	0	2	1184
03:00	13		10		0		0			15:00	166		147		1		0		
03:15	6		4		0		0			15:15	179		159		3		1		
03:30	10		17		0		0			15:30	211		135		2		0		
03:45	11	40	21	52	0	0	0	0	92	15:45	172	728	167	608	7	13	0	1	1350
04:00	25		14		1		0			16:00	272		175		3		0		
04:15	24		29		0		0			16:15	189		149		1		0		
04:30	29		52		2		0			16:30	263		142		2		18		
04:45	37	115	96	191	0	3	0	0	309	16:45	179	903	143	609	2	8	3	21	1541
05:00	51		46		0		0			17:00	193		166		2		2		
05:15	60		60		0		0			17:15	176		147		3		2		
05:30	67		136		1		0			17:30	118		152		2		2		
05:45	91	269	148	390	1	2	2	2	663	17:45	125	612	132	597	0	7	0	6	1222
06:00	80		94		0		0			18:00	114		120		5		2		
06:15	71		91		1		0			18:15	121		113		6		0		
06:30	99		124		0		0			18:30	94		93		1		1		
06:45	104	354	170	479	3	4	4	4	841	18:45	89	418	83	409	2	14	0	3	844
07:00	133		124		1		0			19:00	79		83		0		1		
07:15	139		85		7		0			19:15	63		76		5		0		
07:30	168		135		2		1			19:30	59		79		1		0		
07:45	169	609	127	471	0	10	0	1	1091	19:45	55	256	67	305	0	6	0	1	568
08:00	111		117		2		1			20:00	58		69		0		0		
08:15	111		124		2		0			20:15	54		62		0		0		
08:30	118		112		0		1			20:30	32		68		1		0		
08:45	105	445	103	456	1	5	3	5	911	20:45	29	173	58	257	1	2	0	0	432
09:00	97		88		2		2			21:00	45		39		2		0		
09:15	105		72		3		3			21:15	41		62		1		1		
09:30	109		88		1		4			21:30	34		41		0		0		
09:45	147	458	98	346	2	8	2	11	823	21:45	21	141	38	180	0	3	0	1	325
10:00	117		85		1		2			22:00	30		29		0		0		
10:15	104		87		0		1			22:15	25		38		0		0		
10:30	111		73		2		0			22:30	18		28		1		1		
10:45	103	435	67	312	1	4	2	5	756	22:45	18	91	27	122	1	2	0	1	216
11:00	119		49		0		0			23:00	10		24		2		0		
11:15	100		75		2		1			23:15	24		19		0		0		
11:30	148		145		1		0			23:30	14		12		0		0		
11:45	110	477	126	395	2	5	1	2	879	23:45	12	60	15	70	0	2	0	0	132
Total Vol.		3299		3180		44		36	**6559**			5018		4680		81		48	**9827**

GPS Coordinates: 33.440727, -112.358308

Daily Totals

NB	SB	EB	WB	Combined
8317	7860	125	84	**16386**

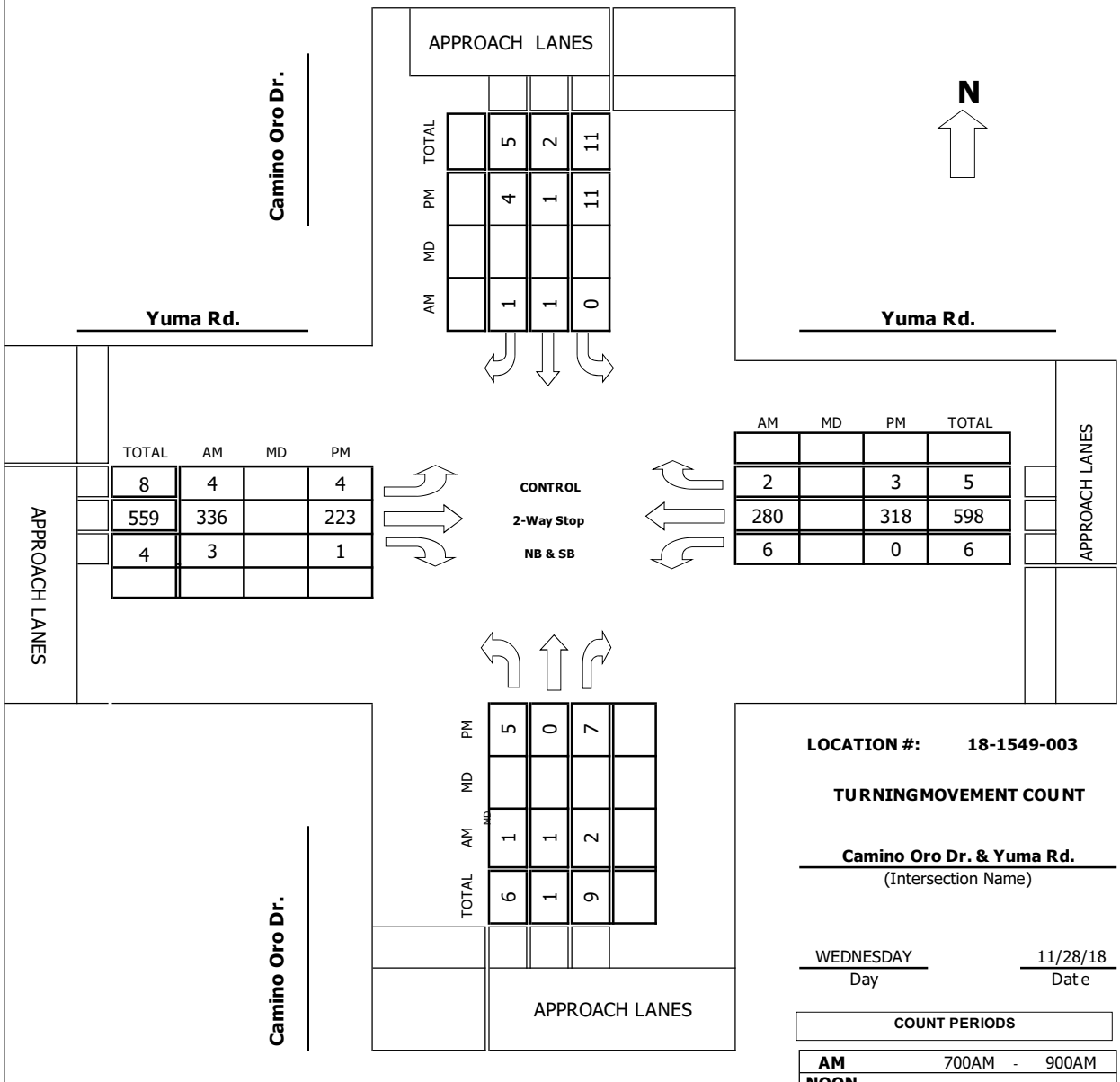
	AM					PM				
Split %	50.3%	48.5%	0.7%	0.5%	**40.0%**	51.1%	47.6%	0.8%	0.5%	**60.0%**
Peak Hour	07:00	06:45	06:45	08:45	**07:00**	16:00	15:15	15:15	16:30	**15:45**
Volume	609	514	13	12	**1091**	903	636	15	25	**1560**
P.H.F.	0.90	0.76	0.46	0.75	**0.89**	0.83	0.91	0.54	0.35	**0.87**

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
620.316.6745

Project #: 18-1549-003

TMC SUMMARY OF Camino Oro Dr. & Yuma Rd.



LOCATION #: 18-1549-003

TURNING MOVEMENT COUNT

Camino Oro Dr. & Yuma Rd.
(Intersection Name)

WEDNESDAY (Day) 11/28/18 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 700 AM

NOON PEAK HOUR

PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Camino Oro Dr.	DATE:	11/28/18	LOCATION:	Goodyear
E-W STREET:	Yuma Rd.	DAY:	WEDNESDAY	PROJECT#	18-1549-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	1	2	0	0	2	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	1	0	1	0	0	1	0	94	1	3	89	0	190
7:15 AM	0	0	0	0	0	0	0	89	1	2	66	0	158
7:30 AM	0	1	1	0	1	0	1	77	1	1	60	2	145
7:45 AM	0	0	0	0	0	0	3	76	0	0	65	0	144
8:00 AM	0	1	1	1	1	5	2	69	0	2	49	0	131
8:15 AM	1	0	2	0	0	0	4	65	0	1	52	0	125
8:30 AM	0	0	0	0	0	0	2	58	1	1	55	1	118
8:45 AM	0	0	0	0	0	1	2	43	0	2	43	3	94
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	2	2	5	1	2	7	14	571	4	12	479	6	1105
Approach %	22.22	22.22	55.56	10.00	20.00	70.00	2.38	96.94	0.68	2.41	96.38	1.21	
App/Depart	9	/	22	10	/	18	589	/	577	497	/	488	

AM Peak Hr Begins at: 700 AM

PEAK													
Volumes	1	1	2	0	1	1	4	336	3	6	280	2	637
Approach %	25.00	25.00	50.00	0.00	50.00	50.00	1.17	97.96	0.87	2.08	97.22	0.69	
PEAK HR. FACTOR:	0.500			0.500			0.903			0.783			0.838

CONTROL:	2-Way Stop (NB & SB)
COMMENT 1:	
GPS:	33.435366, -112.360299

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Camino Oro Dr. 0	DATE:	11/28/18	LOCATION:	Goodyear
E-W STREET:	Yuma Rd.	DAY:	WEDNESDAY	PROJECT#	18-1549-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	1	1	0	1	2	0	0	2	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	1	0	1	1	0	0	1	58	1	0	80	1	144
4:15 PM	2	0	1	1	1	2	2	59	0	0	96	0	164
4:30 PM	0	0	3	9	0	0	1	43	0	0	58	1	115
4:45 PM	2	0	2	0	0	2	0	63	0	0	84	1	154
5:00 PM	0	0	1	0	0	0	0	59	0	0	76	1	137
5:15 PM	1	0	3	2	0	0	1	55	0	0	82	0	144
5:30 PM	0	0	0	0	0	0	2	60	0	0	59	0	121
5:45 PM	0	0	1	0	0	1	0	54	0	0	80	0	136
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	6	0	12	13	1	5	7	451	1	0	615	4	1115
Approach %	33.33	0.00	66.67	68.42	5.26	26.32	1.53	98.26	0.22	0.00	99.35	0.65	
App/Depart	18	/	11	19	/	2	459	/	476	619	/	626	

PM Peak Hr Begins at: 400 PM

PEAK													
Volumes	5	0	7	11	1	4	4	223	1	0	318	3	577
Approach %	41.67	0.00	58.33	68.75	6.25	25.00	1.75	97.81	0.44	0.00	99.07	0.93	
PEAK HR. FACTOR:	0.750			0.444			0.905			0.836			0.880

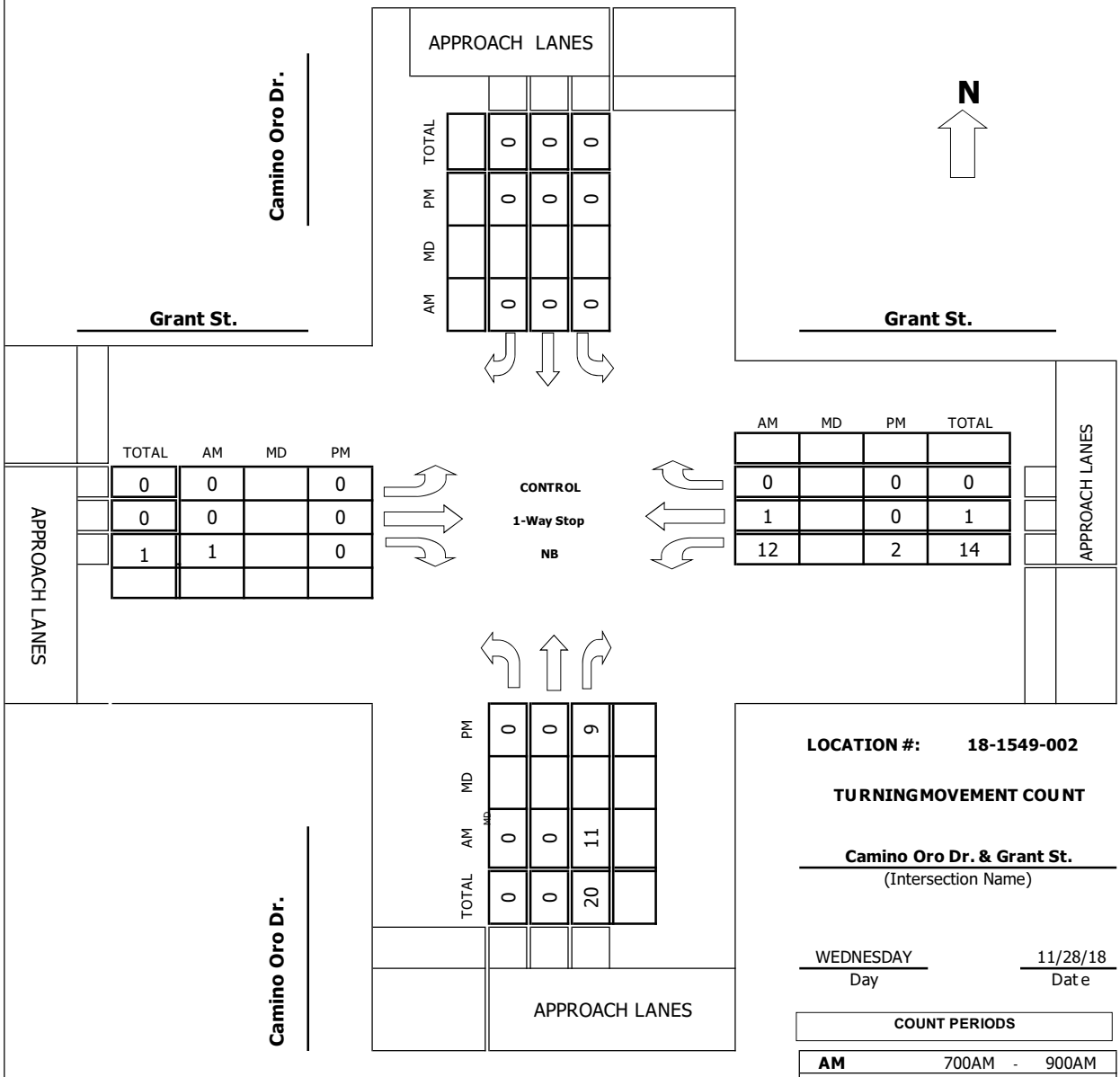
CONTROL:	2-Way Stop (NB & SB)
COMMENT 1:	0
GPS:	33.435366, -112.360299

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
620.316.6745

Project #: 18-1549-002

TMC SUMMARY OF Camino Oro Dr. & Grant St.



LOCATION #: 18-1549-002

TURNING MOVEMENT COUNT

Camino Oro Dr. & Grant St.
(Intersection Name)

WEDNESDAY (Day) 11/28/18 (Date)

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	400PM	-	600PM

AM PEAK HOUR 715 AM

NOON PEAK HOUR

PM PEAK HOUR 430 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Camino Oro Dr.	DATE:	11/28/18	LOCATION:	Goodyear
E-W STREET:	Grant St.	DAY:	WEDNESDAY	PROJECT#	18-1549-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	0	1	0	0	0	0	1	0	1	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	6	0	0	0	0	0	0	1	0	0	7
7:30 AM	0	0	3	0	0	0	0	0	0	6	1	0	10
7:45 AM	0	0	1	0	0	0	0	0	0	1	0	0	2
8:00 AM	0	0	1	0	0	0	0	0	1	4	0	0	6
8:15 AM	0	0	2	0	0	0	0	0	0	1	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	2	1	0	3
8:45 AM	0	0	1	0	0	0	0	0	0	4	0	0	5
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	0	15	0	0	0	0	0	1	19	2	0	37
Approach %	0.00	0.00	100.00	####	####	####	0.00	0.00	100.00	90.48	9.52	0.00	
App/Depart	15	/	0	0	/	20	1	/	15	21	/	2	

AM Peak Hr Begins at: 715 AM

PEAK													
Volumes	0	0	11	0	0	0	0	0	1	12	1	0	25
Approach %	0.00	0.00	100.00	####	####	####	0.00	0.00	100.00	92.31	7.69	0.00	

PEAK HR. FACTOR:	0.458	0.000	0.250	0.464	0.625

CONTROL: 1-Way Stop (NB)
COMMENT 1:
GPS: 33.440545, -112.360277

Intersection Turning Movement

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

veracitytrafficgroup

N-S STREET:	Camino Oro Dr. 0	DATE:	11/28/18	LOCATION:	Goodyear
E-W STREET:	Grant St.	DAY:	WEDNESDAY	PROJECT#	18-1549-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	1	0	1	0	0	0	0	1	0	1	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	0	3	0	0	0	0	0	0	1	0	0	4
4:15 PM	0	0	1	0	0	0	0	0	0	1	0	0	2
4:30 PM	0	0	2	0	0	0	0	0	0	1	0	0	3
4:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	3	0	0	0	0	0	0	1	0	0	4
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	0	15	0	0	0	0	0	0	4	0	0	19
Approach %	0.00	0.00	100.00	####	####	####	####	####	####	100.00	0.00	0.00	
App/Depart	15	/	0	0	/	4	0	/	15	4	/	0	

PM Peak Hr Begins at: 430 PM

PEAK													
Volumes	0	0	9	0	0	0	0	0	0	2	0	0	11
Approach %	0.00	0.00	100.00	####	####	####	####	####	####	100.00	0.00	0.00	
PEAK HR. FACTOR:	0.750			0.000			0.000			0.500			0.688

CONTROL:	1-Way Stop (NB)
COMMENT 1:	0
GPS:	33.440545, -112.360277

PROJECT RAPID
CAMINO ORO/GRANT STREET
TRAFFIC IMPACT ANALYSIS

APPENDIX

Trip Generation Calculations

AMZL Delivery Station 12K (12K - 72000Capacity)

Headcount

Total night shfit (Sort+Pick/stage)			257
Total Staffing with Sameday			324
Dispatch Capacity (OTR)			78

Shift Structure

Note: Adjustments to car volumes should be made to account for carpooling and mass transit use, as may be appropriate to the local jurisdiction.

	Start	End	Headcount	Parking
Sort 1	11:15:00AM	3:15:00AM	4 1	33
Sort 2	3:4 5:00AM	7:4 5:00AM	4 1	33
Long Sort+Pick/Stage	11:15:00 AM	7:4 5:00AM	129	104
Pick/Stage	8:00:00 AM	12:00:00 PM	87	70
Flex Dispatch	9:30:00 AM	1:30:00 AM	12	10
Same Day	12:30:00 PM	4 :30:00PM	8	7
RTS	5:30:00 PM	9:30:00 PM	6	5

Traffic Schedule

Cars

Average Weekday

	In	Out	Total
00:00	0	0	0
01:00	0	0	0
02:00	0	0	0
03:00	0	0	0
03:15	0	33	33
03:30	33	0	33
04 :00	0	0	0
05:00	0	0	0
06:00	0	0	0
06:15	0	0	0
06:30	0	0	0
06:4 5	0	0	0
07:00	0	0	0
07:15	0	0	0
07:30	0	0	0
07:4 5	70	0	70
08:00	0	137	137
08:30	0	0	0
09:00	0	0	0
09:15	10	0	10
09:30	0	0	0
09:4 5	0	0	0
10:00	0	0	0
11:00	0	0	0
11:15	0	0	0
11:30	0	0	0
11:4 5	0	0	0
12:00	0	70	70
12:15	7	0	7
12:30	0	0	0
12:4 5	0	0	0
13:00	12	0	12
13:30	0	10	10
14 :00	0	0	0
15:00	0	0	0
16:00	0	0	0
16:30	0	7	7
17:00	6	12	18
17:15	5	0	5
17:30	0	0	0
17:4 5	0	0	0
18:00	0	0	0
18:15	0	0	0
18:30	0	0	0
18:4 5	0	0	0
19:00	0	0	0
20:00	0	0	0
21:00	0	6	6
21:15	0	0	0
21:30	0	5	5
21:4 5	0	0	0
22:00	0	0	0
22:30	0	0	0
23:00	137	0	137
	280	280	560

Trucks

Average Weekday

	In	Out	Total
00:00	2	3	5
01:00	3	3	6
02:00	3	3	6
03:00	1	1	2
03:15	1	1	2
03:30	1	1	2
04 :00	1	1	2
05:00	0	0	0
06:00	0	0	0
06:15	0	0	0
06:30	0	0	0
06:4 5	0	0	0
07:00	0	0	0
07:15	0	0	0
07:30	0	0	0
07:4 5	0	0	0
08:00	0	0	0
08:30	0	0	0
09:00	0	0	0
09:15	0	0	0
09:30	0	0	0
09:4 5	0	0	0
10:00	0	0	0
11:00	0	0	0
11:15	0	0	0
11:30	0	0	0
11:4 5	0	0	0
12:00	0	0	0
12:15	0	0	0
12:30	0	0	0
12:4 5	0	0	0
13:00	1	0	1
13:30	0	1	1
14 :00	0	0	0
15:00	0	0	0
16:00	0	0	0
16:30	0	0	0
17:00	0	0	0
17:15	0	0	0
17:30	0	0	0
17:4 5	0	0	0
18:00	0	0	0
18:15	0	0	0
18:30	0	0	0
18:4 5	0	0	0
19:00	0	0	0
20:00	0	0	0
21:00	0	0	0
21:15	0	0	0
21:30	0	0	0
21:4 5	1	0	1
22:00	2	2	4
22:30	2	2	4
23:00	3	3	6
	21	21	4 2

DSP

Average Weekday

	In	Out	Total
00:00	0	0	0
01:00	0	0	0
02:00	0	0	0
03:00	0	0	0
03:15	0	0	0
03:30	0	0	0
04 :00	0	0	0
05:00	0	0	0
06:00	0	0	0
06:15	0	0	0
06:30	0	0	0
06:4 5	0	0	0
07:00	0	0	0
07:15	0	0	0
07:30	0	0	0
07:4 5	78	0	78
08:00	78	78	156
08:30	0	78	78
09:00	78	0	78
09:15	0	0	0
09:30	78	78	156
09:4 5	0	0	0
10:00	0	78	78
11:00	0	0	0
11:15	0	0	0
11:30	0	0	0
11:4 5	0	0	0
12:00	0	0	0
12:15	0	0	0
12:30	0	0	0
12:4 5	0	0	0
13:00	0	0	0
13:30	0	0	0
14 :30	0	0	0
15:00	0	0	0
16:00	0	0	0
16:30	0	0	0
17:00	0	0	0
17:15	0	0	0
17:30	78	0	78
17:4 5	0	78	78
18:00	78	0	78
18:15	0	78	78
18:30	78	0	78
18:4 5	0	78	78
19:00	78	0	78
19:15	0	78	78
21:00	0	0	0
21:15	0	0	0
21:30	0	0	0
21:4 5	0	0	0
22:00	0	0	0
22:30	0	0	0
23:00	0	0	0
	624	624	1,24 8

Flex

Average Weekday

	In	Out	Total
00:00	0	0	0
01:00	0	0	0
02:00	0	0	0
03:00	0	0	0
03:15	0	0	0
03:30	0	0	0
04 :00	0	0	0
05:00	0	0	0
06:00	0	0	0
06:15	0	0	0
06:30	0	0	0
06:4 5	0	0	0
07:00	0	0	0
07:15	0	0	0
07:30	0	0	0
07:4 5	0	0	0
08:00	0	0	0
08:30	0	0	0
09:00	0	0	0
09:15	0	0	0
09:30	0	0	0
09:4 5	0	0	0
10:00	0	0	0
11:00	78	0	78
11:15	78	78	156
11:30	78	78	156
11:4 5	78	78	156
12:00	0	78	78
12:15	0	0	0
12:30	0	0	0
12:4 5	0	0	0
13:00	0	0	0
13:30	0	0	0
14 :30	78	0	78
15:00	0	78	78
16:00	0	0	0
16:30	0	0	0
17:00	0	0	0
17:15	0	0	0
17:30	0	0	0
17:4 5	0	0	0
18:00	0	0	0
18:15	0	0	0
18:30	0	0	0
18:4 5	0	0	0
19:00	0	0	0
19:15	0	0	0
21:00	0	0	0
21:15	0	0	0
21:30	0	0	0
21:4 5	0	0	0
22:00	0	0	0
22:30	0	0	0
23:00	0	0	0
	390	390	780

Total

Average Weekday

	In	Out	Total
00:00	2	3	5
01:00	3	3	6
02:00	3	3	6
03:00	1	1	2
03:15	1	34	35
03:30	34	1	35
04 :00	1	1	2
05:00	0	0	0
06:00	0	0	0
06:15	0	0	0
06:30	0	0	0
06:4 5	0	0	0
07:00	0	0	0
07:15	0	0	0
07:30	0	0	0
07:4 5	14 8	0	14 8
08:00	78	215	293
08:30	0	78	78
09:00	78	0	78
09:15	10	0	10
09:30	78	78	156
09:4 5	0	0	0
10:00	0	78	78
11:00	78	0	78
11:15	78	78	156
11:30	78	78	156
11:4 5	78	78	156
12:00	0	14 8	14 8
12:15	7	0	7
12:30	0	0	0
12:4 5	0	0	0
13:00	13	0	13
13:30	0	11	11
14 :00	78	0	78
15:00	0	78	78
16:00	0	0	0
16:30	0	7	7
17:00	6	12	18
17:15	5	0	5
17:30	78	0	78
17:4 5	0	78	78
18:00	78	0	78
18:15	0	78	78
18:30	78	0	78
18:4 5	0	78	78
19:00	78	0	78
20:00	0	78	78
21:00	0	6	6
21:15	0	0	0
21:30	0	5	5
21:4 5	1	0	1
22:00	2	2	4
22:30	2	2	4
23:00	14 0	3	14 3
	1,315	1,315	2,630

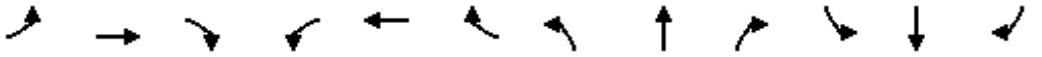
PROJECT RAPID
CAMINO ORO/GRANT STREET
TRAFFIC IMPACT ANALYSIS

APPENDIX

Capacity Calculations

HCM 6th Signalized Intersection Summary
12: Litchfield Road & Van Buren Street

12/10/2018



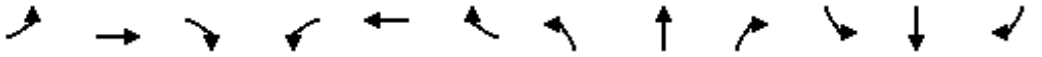
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	311	110	50	250	192	89	528	59	196	462	113
Future Volume (veh/h)	71	311	110	50	250	192	89	528	59	196	462	113
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	346	122	56	278	213	99	587	66	218	513	126
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	237	703	314	280	369	274	489	1954	217	530	1630	727
Arrive On Green	0.05	0.20	0.20	0.05	0.19	0.19	0.06	0.42	0.42	0.10	0.46	0.46
Sat Flow, veh/h	1781	3554	1585	1781	1944	1443	1781	4663	518	1781	3554	1585
Grp Volume(v), veh/h	79	346	122	56	253	238	99	427	226	218	513	126
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1611	1781	1702	1777	1781	1777	1585
Q Serve(g_s), s	2.6	6.5	5.0	1.9	10.1	10.5	2.3	6.3	6.4	5.0	6.9	3.5
Cycle Q Clear(g_c), s	2.6	6.5	5.0	1.9	10.1	10.5	2.3	6.3	6.4	5.0	6.9	3.5
Prop In Lane	1.00		1.00	1.00		0.90	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	237	703	314	280	338	306	489	1427	745	530	1630	727
V/C Ratio(X)	0.33	0.49	0.39	0.20	0.75	0.78	0.20	0.30	0.30	0.41	0.31	0.17
Avail Cap(c_a), veh/h	319	1044	466	339	484	439	611	1427	745	776	1630	727
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	26.8	26.2	22.9	28.8	28.9	11.0	14.5	14.5	10.2	12.9	12.0
Incr Delay (d2), s/veh	0.8	0.5	0.8	0.3	3.9	5.4	0.2	0.5	1.1	0.5	0.5	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.1	2.6	1.8	0.8	4.4	4.3	0.8	2.3	2.5	1.7	2.5	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.1	27.3	27.0	23.3	32.7	34.4	11.2	15.0	15.6	10.7	13.4	12.5
LnGrp LOS	C	C	C	C	C	C	B	B	B	B	B	B
Approach Vol, veh/h		547			547			752			857	
Approach Delay, s/veh		26.8			32.4			14.7			12.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	36.0	7.9	19.4	8.9	39.0	8.5	18.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.7	26.3	5.9	22.1	9.5	34.5	7.5	20.5
Max Q Clear Time (g_c+I1), s	7.0	8.4	3.9	8.5	4.3	8.9	4.6	12.5
Green Ext Time (p_c), s	0.4	3.7	0.0	2.1	0.1	3.7	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
12: Litchfield Road & Van Buren Street

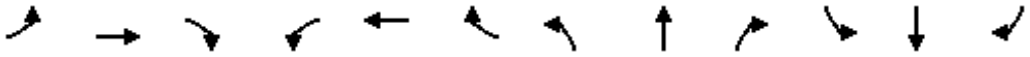
12/10/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	318	81	105	467	249	110	730	93	311	538	103
Future Volume (veh/h)	166	318	81	105	467	249	110	730	93	311	538	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	184	353	90	117	519	277	122	811	103	346	598	114
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	299	1066	476	423	605	322	364	1069	135	435	1172	523
Arrive On Green	0.10	0.30	0.30	0.07	0.27	0.27	0.07	0.23	0.23	0.17	0.33	0.33
Sat Flow, veh/h	1781	3554	1585	1781	2240	1192	1781	4590	580	1781	3554	1585
Grp Volume(v), veh/h	184	353	90	117	411	385	122	600	314	346	598	114
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1656	1781	1702	1766	1781	1777	1585
Q Serve(g_s), s	5.7	6.0	3.3	3.6	17.2	17.3	4.0	12.8	13.0	10.8	10.6	4.1
Cycle Q Clear(g_c), s	5.7	6.0	3.3	3.6	17.2	17.3	4.0	12.8	13.0	10.8	10.6	4.1
Prop In Lane	1.00		1.00	1.00		0.72	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	299	1066	476	423	480	447	364	793	411	435	1172	523
V/C Ratio(X)	0.62	0.33	0.19	0.28	0.86	0.86	0.33	0.76	0.76	0.80	0.51	0.22
Avail Cap(c_a), veh/h	324	1066	476	515	534	498	466	971	504	532	1351	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	21.3	20.3	18.5	27.1	27.1	20.3	27.9	28.0	18.2	21.1	18.9
Incr Delay (d2), s/veh	3.1	0.2	0.2	0.4	12.1	13.2	0.5	2.8	5.5	6.8	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	2.4	1.2	1.4	8.3	7.9	1.6	5.1	5.7	4.7	4.1	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	21.4	20.5	18.8	39.2	40.3	20.9	30.7	33.4	25.0	21.4	19.1
LnGrp LOS	C	C	C	B	D	D	C	C	C	C	C	B
Approach Vol, veh/h		627			913			1036			1058	
Approach Delay, s/veh		21.8			37.0			30.4			22.3	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	22.7	9.8	27.9	10.2	30.3	12.1	25.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	22.3	9.3	22.9	10.1	29.7	8.7	23.5
Max Q Clear Time (g_c+I1), s	12.8	15.0	5.6	8.0	6.0	12.6	7.7	19.3
Green Ext Time (p_c), s	0.5	3.2	0.1	2.1	0.1	3.9	0.0	1.8

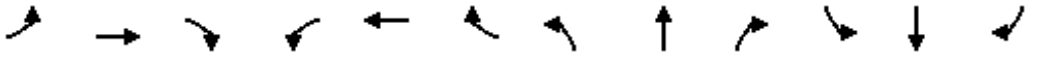
Intersection Summary	
HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	126	111	19	111	93	92	400	15	116	243	91
Future Volume (veh/h)	92	126	111	19	111	93	92	400	15	116	243	91
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	102	140	123	21	123	103	102	444	17	129	270	101
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	295	240	249	219	169	641	1634	62	600	1206	440
Arrive On Green	0.07	0.16	0.16	0.02	0.11	0.11	0.07	0.47	0.47	0.07	0.47	0.47
Sat Flow, veh/h	1781	1861	1514	1781	1908	1474	1781	3490	133	1781	2549	931
Grp Volume(v), veh/h	102	133	130	21	114	112	102	226	235	129	186	185
Grp Sat Flow(s), veh/h/ln	1781	1777	1598	1781	1777	1605	1781	1777	1846	1781	1777	1703
Q Serve(g_s), s	3.2	4.4	4.8	0.7	3.9	4.3	1.8	5.0	5.0	2.3	4.0	4.1
Cycle Q Clear(g_c), s	3.2	4.4	4.8	0.7	3.9	4.3	1.8	5.0	5.0	2.3	4.0	4.1
Prop In Lane	1.00		0.95	1.00		0.92	1.00		0.07	1.00		0.55
Lane Grp Cap(c), veh/h	289	282	253	249	204	184	641	832	864	600	840	805
V/C Ratio(X)	0.35	0.47	0.51	0.08	0.56	0.61	0.16	0.27	0.27	0.22	0.22	0.23
Avail Cap(c_a), veh/h	402	648	582	357	565	510	870	832	864	848	840	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	24.7	24.9	24.2	27.0	27.2	7.6	10.4	10.4	7.6	10.0	10.0
Incr Delay (d2), s/veh	0.7	1.2	1.6	0.1	2.4	3.2	0.1	0.8	0.8	0.2	0.6	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.3	1.9	1.9	0.3	1.7	1.8	0.6	1.8	1.9	0.7	1.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.5	25.9	26.5	24.4	29.4	30.4	7.7	11.2	11.2	7.8	10.6	10.7
LnGrp LOS	C	C	C	C	C	C	A	B	B	A	B	B
Approach Vol, veh/h		365			247			563			500	
Approach Delay, s/veh		25.4			29.4			10.6			9.9	
Approach LOS		C			C			B			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	34.7	6.1	14.7	8.7	35.0	8.9	11.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	29.5	5.5	23.5	12.5	30.5	8.5	20.5
Max Q Clear Time (g_c+I1), s	4.3	7.0	2.7	6.8	3.8	6.1	5.2	6.3
Green Ext Time (p_c), s	0.2	2.5	0.0	1.4	0.1	2.0	0.1	1.1

Intersection Summary	
HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	106	59	20	142	88	106	698	32	108	432	58
Future Volume (veh/h)	81	106	59	20	142	88	106	698	32	108	432	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	118	66	22	158	98	118	776	36	120	480	64
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	256	344	181	268	253	148	574	1753	81	459	1599	212
Arrive On Green	0.06	0.15	0.15	0.02	0.12	0.12	0.06	0.51	0.51	0.06	0.51	0.51
Sat Flow, veh/h	1781	2250	1184	1781	2155	1264	1781	3458	160	1781	3153	419
Grp Volume(v), veh/h	90	92	92	22	129	127	118	399	413	120	270	274
Grp Sat Flow(s),veh/h/ln	1781	1777	1657	1781	1777	1643	1781	1777	1841	1781	1777	1795
Q Serve(g_s), s	3.1	3.3	3.6	0.8	4.9	5.3	2.2	10.2	10.2	2.2	6.3	6.4
Cycle Q Clear(g_c), s	3.1	3.3	3.6	0.8	4.9	5.3	2.2	10.2	10.2	2.2	6.3	6.4
Prop In Lane	1.00		0.71	1.00		0.77	1.00		0.09	1.00		0.23
Lane Grp Cap(c), veh/h	256	271	253	268	209	193	574	901	933	459	901	910
V/C Ratio(X)	0.35	0.34	0.37	0.08	0.62	0.66	0.21	0.44	0.44	0.26	0.30	0.30
Avail Cap(c_a), veh/h	317	490	457	351	451	417	736	901	933	643	901	910
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	27.0	27.1	26.6	30.0	30.1	7.4	11.2	11.2	7.9	10.2	10.2
Incr Delay (d2), s/veh	0.8	0.7	0.9	0.1	2.9	3.8	0.2	1.6	1.5	0.3	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.4	1.4	0.3	2.2	2.3	0.7	3.7	3.8	0.7	2.3	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	27.7	28.0	26.7	32.9	34.0	7.6	12.8	12.7	8.2	11.1	11.1
LnGrp LOS	C	C	C	C	C	C	A	B	B	A	B	B
Approach Vol, veh/h		274			278			930			664	
Approach Delay, s/veh		27.4			32.9			12.1			10.6	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	40.7	6.3	15.4	9.0	40.7	8.8	12.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.9	35.3	5.1	19.7	11.0	36.2	6.7	18.1
Max Q Clear Time (g_c+I1), s	4.2	12.2	2.8	5.6	4.2	8.4	5.1	7.3
Green Ext Time (p_c), s	0.2	4.9	0.0	0.8	0.1	3.2	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	16.3
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	336	3	6	280	2	1	1	2	0	1	1
Future Vol, veh/h	4	336	3	6	280	2	1	1	2	0	1	1
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	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	373	3	7	311	2	1	1	2	0	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	313	0	0	376	0	0	553	710	188	521	710	157
Stage 1	-	-	-	-	-	-	383	383	-	326	326	-
Stage 2	-	-	-	-	-	-	170	327	-	195	384	-
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	1244	-	-	1179	-	-	416	357	822	438	357	861
Stage 1	-	-	-	-	-	-	611	610	-	661	647	-
Stage 2	-	-	-	-	-	-	815	646	-	788	610	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1244	-	-	1179	-	-	411	354	822	433	354	861
Mov Cap-2 Maneuver	-	-	-	-	-	-	411	354	-	433	354	-
Stage 1	-	-	-	-	-	-	609	608	-	659	643	-
Stage 2	-	-	-	-	-	-	808	642	-	782	608	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	12	12.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	520	1244	-	-	1179	-	-	-	502
HCM Lane V/C Ratio	0.009	0.004	-	-	0.006	-	-	-	0.004
HCM Control Delay (s)	12	7.9	-	-	8.1	-	-	0	12.2
HCM Lane LOS	B	A	-	-	A	-	-	A	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	223	1	0	318	3	5	0	7	4	1	11
Future Vol, veh/h	4	223	1	0	318	3	5	0	7	4	1	11
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	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	248	1	0	353	3	6	0	8	4	1	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	356	0	0	249	0	0	434	613	125	487	612	178
Stage 1	-	-	-	-	-	-	257	257	-	355	355	-
Stage 2	-	-	-	-	-	-	177	356	-	132	257	-
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	1199	-	-	1314	-	-	506	406	902	464	407	834
Stage 1	-	-	-	-	-	-	725	694	-	635	628	-
Stage 2	-	-	-	-	-	-	808	628	-	858	694	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1199	-	-	1314	-	-	496	405	902	459	406	834
Mov Cap-2 Maneuver	-	-	-	-	-	-	496	405	-	459	406	-
Stage 1	-	-	-	-	-	-	723	692	-	633	628	-
Stage 2	-	-	-	-	-	-	795	628	-	848	692	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	10.5	10.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	673	1199	-	-	1314	-	-	459	767
HCM Lane V/C Ratio	0.02	0.004	-	-	-	-	-	0.01	0.017
HCM Control Delay (s)	10.5	8	-	-	0	-	-	12.9	9.8
HCM Lane LOS	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0	0.1

Intersection	
Int Delay, s/veh	7.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	1	12	1	0	11
Future Vol, veh/h	0	1	12	1	0	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	-	100	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	13	1	0	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	28	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1622	-	987	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	996	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1622	-	979	1084
Mov Cap-2 Maneuver	-	-	-	-	979	-
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	996	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.7	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	1084	-	-	1622	-
HCM Lane V/C Ratio	-	0.011	-	-	0.008	-
HCM Control Delay (s)	0	8.4	-	-	7.2	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	0	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	2	0	0	9
Future Vol, veh/h	0	0	2	0	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	-
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2	0	0	10

Major/Minor	Minor2		Major2	
Conflicting Flow All	4	0	0	0
Stage 1	4	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	891	-	-	-
Stage 1	892	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	-	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	0	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	7	1	0	0	0	609	0	6	456	9
Future Vol, veh/h	3	0	7	1	0	0	0	609	0	6	456	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	0	-	0	150	-	-	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	8	1	0	0	0	677	0	7	507	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	860	-	254	945	-	339	517	0	0	677	0	0
Stage 1	521	-	-	677	-	-	-	-	-	-	-	-
Stage 2	339	-	-	268	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	-	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	-	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	250	0	745	217	0	657	1045	-	-	911	-	-
Stage 1	507	0	-	409	0	-	-	-	-	-	-	-
Stage 2	649	0	-	714	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	249	-	745	214	-	657	1045	-	-	911	-	-
Mov Cap-2 Maneuver	249	-	-	214	-	-	-	-	-	-	-	-
Stage 1	507	-	-	409	-	-	-	-	-	-	-	-
Stage 2	649	-	-	701	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	21.9	0	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1045	-	-	249	745	214	-	911	-	-
HCM Lane V/C Ratio	-	-	-	0.013	0.01	0.005	-	0.007	-	-
HCM Control Delay (s)	0	-	-	19.7	9.9	21.9	0	9	-	-
HCM Lane LOS	A	-	-	C	A	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	4	20	0	1	0	901	2	17	589	3
Future Vol, veh/h	4	0	4	20	0	1	0	901	2	17	589	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	0	-	0	150	-	-	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	4	22	0	1	0	1001	2	19	654	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1193	-	327	1367	-	502	657	0	0	1003	0	0
Stage 1	692	-	-	1002	-	-	-	-	-	-	-	-
Stage 2	501	-	-	365	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	-	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	-	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	142	0	669	106	0	515	926	-	-	686	-	-
Stage 1	400	0	-	260	0	-	-	-	-	-	-	-
Stage 2	521	0	-	627	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	139	-	669	103	-	515	926	-	-	686	-	-
Mov Cap-2 Maneuver	139	-	-	103	-	-	-	-	-	-	-	-
Stage 1	400	-	-	260	-	-	-	-	-	-	-	-
Stage 2	520	-	-	606	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.1	47.5	0	0.3
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	926	-	-	139	669	103	515	686	-	-
HCM Lane V/C Ratio	-	-	-	0.032	0.007	0.216	0.002	0.028	-	-
HCM Control Delay (s)	0	-	-	31.8	10.4	49.3	12	10.4	-	-
HCM Lane LOS	A	-	-	D	B	E	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.8	0	0.1	-	-

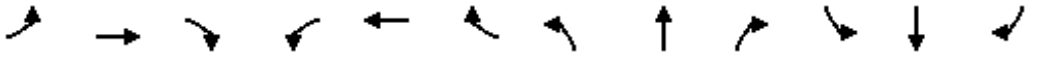
HCM 6th Signalized Intersection Summary
12: Litchfield Road & Van Buren Street

12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	324	114	52	260	200	93	549	61	204	481	118
Future Volume (veh/h)	74	324	114	52	260	200	93	549	61	204	481	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	360	127	58	289	222	103	610	68	227	534	131
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	721	322	281	379	283	475	1924	212	521	1616	721
Arrive On Green	0.05	0.20	0.20	0.05	0.20	0.20	0.06	0.41	0.41	0.10	0.45	0.45
Sat Flow, veh/h	1781	3554	1585	1781	1940	1447	1781	4667	515	1781	3554	1585
Grp Volume(v), veh/h	82	360	127	58	264	247	103	443	235	227	534	131
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1610	1781	1702	1778	1781	1777	1585
Q Serve(g_s), s	2.7	6.8	5.3	1.9	10.7	11.1	2.5	6.7	6.8	5.3	7.3	3.7
Cycle Q Clear(g_c), s	2.7	6.8	5.3	1.9	10.7	11.1	2.5	6.7	6.8	5.3	7.3	3.7
Prop In Lane	1.00		1.00	1.00		0.90	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	235	721	322	281	347	314	475	1403	733	521	1616	721
V/C Ratio(X)	0.35	0.50	0.39	0.21	0.76	0.79	0.22	0.32	0.32	0.44	0.33	0.18
Avail Cap(c_a), veh/h	315	1035	462	336	480	435	594	1403	733	756	1616	721
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	26.8	26.2	22.8	28.8	29.0	11.4	15.1	15.1	10.4	13.3	12.3
Incr Delay (d2), s/veh	0.9	0.5	0.8	0.4	4.7	6.3	0.2	0.6	1.2	0.6	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.7	1.9	0.8	4.7	4.5	0.9	2.4	2.7	1.8	2.7	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.2	27.3	27.0	23.2	33.5	35.4	11.6	15.7	16.3	11.0	13.8	12.8
LnGrp LOS	C	C	C	C	C	D	B	B	B	B	B	B
Approach Vol, veh/h		569			569			781			892	
Approach Delay, s/veh		26.8			33.3			15.3			13.0	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	35.8	8.0	19.9	8.9	39.0	8.6	19.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.7	26.3	5.9	22.1	9.5	34.5	7.5	20.5
Max Q Clear Time (g_c+I1), s	7.3	8.8	3.9	8.8	4.5	9.3	4.7	13.1
Green Ext Time (p_c), s	0.4	3.8	0.0	2.1	0.1	3.9	0.0	1.7

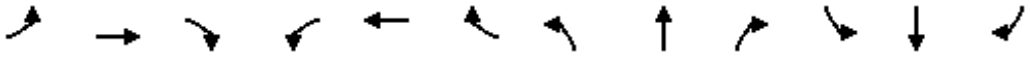
Intersection Summary	
HCM 6th Ctrl Delay	20.5
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	331	84	109	486	259	114	759	97	324	560	107
Future Volume (veh/h)	173	331	84	109	486	259	114	759	97	324	560	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	192	368	93	121	540	288	127	843	108	360	622	119
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	1075	480	418	609	324	359	1074	137	433	1185	529
Arrive On Green	0.10	0.30	0.30	0.07	0.27	0.27	0.07	0.23	0.23	0.17	0.33	0.33
Sat Flow, veh/h	1781	3554	1585	1781	2240	1192	1781	4585	584	1781	3554	1585
Grp Volume(v), veh/h	192	368	93	121	428	400	127	625	326	360	622	119
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1656	1781	1702	1765	1781	1777	1585
Q Serve(g_s), s	6.2	6.6	3.5	3.9	18.8	18.9	4.3	14.0	14.1	11.7	11.5	4.4
Cycle Q Clear(g_c), s	6.2	6.6	3.5	3.9	18.8	18.9	4.3	14.0	14.1	11.7	11.5	4.4
Prop In Lane	1.00		1.00	1.00		0.72	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	292	1075	480	418	483	450	359	798	414	433	1185	529
V/C Ratio(X)	0.66	0.34	0.19	0.29	0.89	0.89	0.35	0.78	0.79	0.83	0.52	0.23
Avail Cap(c_a), veh/h	305	1075	480	498	512	477	447	931	483	507	1295	578
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	22.1	21.1	19.1	28.5	28.5	21.1	29.3	29.3	18.9	21.9	19.6
Incr Delay (d2), s/veh	4.8	0.2	0.2	0.4	16.3	17.6	0.6	3.8	7.4	9.9	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	2.6	1.3	1.5	9.6	9.1	1.7	5.8	6.5	5.5	4.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	22.3	21.3	19.5	44.8	46.0	21.7	33.1	36.7	28.8	22.3	19.8
LnGrp LOS	C	C	C	B	D	D	C	C	D	C	C	B
Approach Vol, veh/h		653			949			1078			1101	
Approach Delay, s/veh		23.1			42.1			32.8			24.2	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.6	23.6	10.1	29.2	10.6	31.7	12.6	26.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	22.3	9.3	22.9	10.1	29.7	8.7	23.5
Max Q Clear Time (g_c+I1), s	13.7	16.1	5.9	8.6	6.3	13.5	8.2	20.9
Green Ext Time (p_c), s	0.4	3.0	0.1	2.1	0.1	3.9	0.0	1.3

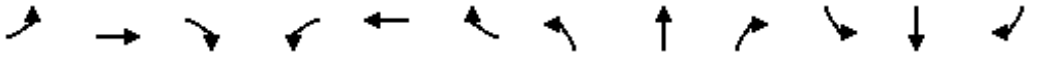
Intersection Summary	
HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	131	115	20	115	97	96	416	16	121	253	95
Future Volume (veh/h)	96	131	115	20	115	97	96	416	16	121	253	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	146	128	22	128	108	107	462	18	134	281	106
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	293	305	248	251	224	174	627	1620	63	585	1191	439
Arrive On Green	0.07	0.16	0.16	0.03	0.12	0.12	0.07	0.46	0.46	0.07	0.47	0.47
Sat Flow, veh/h	1781	1861	1514	1781	1900	1481	1781	3487	136	1781	2542	937
Grp Volume(v), veh/h	107	139	135	22	119	117	107	235	245	134	194	193
Grp Sat Flow(s),veh/h/ln	1781	1777	1598	1781	1777	1604	1781	1777	1846	1781	1777	1702
Q Serve(g_s), s	3.3	4.6	5.0	0.7	4.1	4.5	2.0	5.3	5.3	2.5	4.2	4.4
Cycle Q Clear(g_c), s	3.3	4.6	5.0	0.7	4.1	4.5	2.0	5.3	5.3	2.5	4.2	4.4
Prop In Lane	1.00		0.95	1.00		0.92	1.00		0.07	1.00		0.55
Lane Grp Cap(c), veh/h	293	291	261	251	209	189	627	825	857	585	833	798
V/C Ratio(X)	0.37	0.48	0.52	0.09	0.57	0.62	0.17	0.28	0.29	0.23	0.23	0.24
Avail Cap(c_a), veh/h	399	642	577	357	560	505	852	825	857	830	833	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	24.7	24.9	24.2	27.1	27.3	7.8	10.8	10.8	7.9	10.3	10.4
Incr Delay (d2), s/veh	0.8	1.2	1.6	0.1	2.4	3.3	0.1	0.9	0.8	0.2	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	2.0	2.0	0.3	1.8	1.8	0.6	1.9	2.0	0.8	1.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.3	25.9	26.4	24.4	29.6	30.6	7.9	11.6	11.6	8.1	11.0	11.1
LnGrp LOS	C	C	C	C	C	C	A	B	B	A	B	B
Approach Vol, veh/h		381			258			587			521	
Approach Delay, s/veh		25.4			29.6			10.9			10.3	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	34.7	6.1	15.1	8.8	35.0	9.1	12.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	29.5	5.5	23.5	12.5	30.5	8.5	20.5
Max Q Clear Time (g_c+I1), s	4.5	7.3	2.7	7.0	4.0	6.4	5.3	6.5
Green Ext Time (p_c), s	0.2	2.6	0.0	1.5	0.1	2.1	0.1	1.1

Intersection Summary	
HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	110	61	21	148	92	110	726	33	112	449	60
Future Volume (veh/h)	84	110	61	21	148	92	110	726	33	112	449	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	93	122	68	23	164	102	122	807	37	124	499	67
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	259	353	185	271	259	153	560	1742	80	444	1587	212
Arrive On Green	0.06	0.16	0.16	0.03	0.12	0.12	0.06	0.50	0.50	0.06	0.50	0.50
Sat Flow, veh/h	1781	2252	1182	1781	2152	1267	1781	3460	159	1781	3150	421
Grp Volume(v), veh/h	93	95	95	23	134	132	122	414	430	124	281	285
Grp Sat Flow(s),veh/h/ln	1781	1777	1658	1781	1777	1642	1781	1777	1842	1781	1777	1795
Q Serve(g_s), s	3.2	3.4	3.7	0.8	5.1	5.5	2.3	10.8	10.9	2.3	6.7	6.7
Cycle Q Clear(g_c), s	3.2	3.4	3.7	0.8	5.1	5.5	2.3	10.8	10.9	2.3	6.7	6.7
Prop In Lane	1.00		0.71	1.00		0.77	1.00		0.09	1.00		0.23
Lane Grp Cap(c), veh/h	259	278	260	271	214	198	560	895	927	444	895	904
V/C Ratio(X)	0.36	0.34	0.37	0.08	0.63	0.67	0.22	0.46	0.46	0.28	0.31	0.32
Avail Cap(c_a), veh/h	315	487	454	352	448	414	719	895	927	625	895	904
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	27.0	27.1	26.5	30.1	30.2	7.6	11.5	11.5	8.2	10.5	10.5
Incr Delay (d2), s/veh	0.8	0.7	0.9	0.1	3.0	3.9	0.2	1.7	1.7	0.3	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.5	1.5	0.3	2.3	2.3	0.7	4.0	4.1	0.7	2.4	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	27.7	28.0	26.7	33.0	34.1	7.8	13.3	13.2	8.6	11.4	11.4
LnGrp LOS	C	C	C	C	C	C	A	B	B	A	B	B
Approach Vol, veh/h		283			289			966			690	
Approach Delay, s/veh		27.4			33.0			12.6			10.9	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.1	40.7	6.3	15.8	9.1	40.7	8.9	13.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.9	35.3	5.1	19.7	11.0	36.2	6.7	18.1
Max Q Clear Time (g_c+I1), s	4.3	12.9	2.8	5.7	4.3	8.7	5.2	7.5
Green Ext Time (p_c), s	0.2	5.1	0.0	0.9	0.1	3.3	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	350	3	6	291	2	1	1	2	0	1	1
Future Vol, veh/h	4	350	3	6	291	2	1	1	2	0	1	1
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	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	389	3	7	323	2	1	1	2	0	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	325	0	0	392	0	0	575	738	196	541	738	163
Stage 1	-	-	-	-	-	-	399	399	-	338	338	-
Stage 2	-	-	-	-	-	-	176	339	-	203	400	-
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	1231	-	-	1163	-	-	401	344	812	424	344	853
Stage 1	-	-	-	-	-	-	598	601	-	650	639	-
Stage 2	-	-	-	-	-	-	809	638	-	780	600	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1231	-	-	1163	-	-	397	341	812	419	341	853
Mov Cap-2 Maneuver	-	-	-	-	-	-	397	341	-	419	341	-
Stage 1	-	-	-	-	-	-	596	599	-	648	635	-
Stage 2	-	-	-	-	-	-	802	634	-	774	598	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.2	12.2	12.4
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	505	1231	-	-	1163	-	-	-	487
HCM Lane V/C Ratio	0.009	0.004	-	-	0.006	-	-	-	0.005
HCM Control Delay (s)	12.2	7.9	-	-	8.1	-	-	0	12.4
HCM Lane LOS	B	A	-	-	A	-	-	A	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	232	1	0	331	3	5	0	7	4	1	11
Future Vol, veh/h	4	232	1	0	331	3	5	0	7	4	1	11
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	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	258	1	0	368	3	6	0	8	4	1	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	371	0	0	259	0	0	452	638	130	507	637	186
Stage 1	-	-	-	-	-	-	267	267	-	370	370	-
Stage 2	-	-	-	-	-	-	185	371	-	137	267	-
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	-	-	1303	-	-	491	393	896	449	393	824
Stage 1	-	-	-	-	-	-	715	687	-	622	619	-
Stage 2	-	-	-	-	-	-	799	618	-	852	687	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1184	-	-	1303	-	-	482	392	896	444	392	824
Mov Cap-2 Maneuver	-	-	-	-	-	-	482	392	-	444	392	-
Stage 1	-	-	-	-	-	-	713	685	-	620	619	-
Stage 2	-	-	-	-	-	-	786	618	-	842	685	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	10.6	10.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	660	1184	-	-	1303	-	-	444	755
HCM Lane V/C Ratio	0.02	0.004	-	-	-	-	-	0.01	0.018
HCM Control Delay (s)	10.6	8.1	-	-	0	-	-	13.2	9.9
HCM Lane LOS	B	A	-	-	A	-	-	B	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0	0.1

Intersection	
Int Delay, s/veh	7.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	1	12	1	0	11
Future Vol, veh/h	0	1	12	1	0	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	-	100	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	13	1	0	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	28	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1622	-	987	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	996	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1622	-	979	1084
Mov Cap-2 Maneuver	-	-	-	-	979	-
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	996	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.7	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	1084	-	-	1622	-
HCM Lane V/C Ratio	-	0.011	-	-	0.008	-
HCM Control Delay (s)	0	8.4	-	-	7.2	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	0	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	2	0	0	9
Future Vol, veh/h	0	0	2	0	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	-
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2	0	0	10

Major/Minor	Minor2		Major2	
Conflicting Flow All	4	0	0	0
Stage 1	4	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	891	-	-	-
Stage 1	892	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	-	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	0	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	7	1	0	0	0	634	0	6	474	9
Future Vol, veh/h	3	0	7	1	0	0	0	634	0	6	474	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	0	-	0	150	-	-	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	8	1	0	0	0	704	0	7	527	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	893	-	264	982	-	352	537	0	0	704	0	0
Stage 1	541	-	-	704	-	-	-	-	-	-	-	-
Stage 2	352	-	-	278	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	-	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	-	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	236	0	734	203	0	644	1027	-	-	890	-	-
Stage 1	493	0	-	394	0	-	-	-	-	-	-	-
Stage 2	638	0	-	705	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	235	-	734	200	-	644	1027	-	-	890	-	-
Mov Cap-2 Maneuver	235	-	-	200	-	-	-	-	-	-	-	-
Stage 1	493	-	-	394	-	-	-	-	-	-	-	-
Stage 2	638	-	-	692	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.2	23.1	0	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1027	-	-	235	734	200	-	890	-	-
HCM Lane V/C Ratio	-	-	-	0.014	0.011	0.006	-	0.007	-	-
HCM Control Delay (s)	0	-	-	20.5	10	23.1	0	9.1	-	-
HCM Lane LOS	A	-	-	C	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	4	20	0	1	0	937	2	17	613	3
Future Vol, veh/h	4	0	4	20	0	1	0	937	2	17	613	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	0	-	0	150	-	-	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	4	22	0	1	0	1041	2	19	681	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1240	-	341	1421	-	522	684	0	0	1043	0	0
Stage 1	719	-	-	1042	-	-	-	-	-	-	-	-
Stage 2	521	-	-	379	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	-	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	-	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	131	0	655	97	0	499	905	-	-	663	-	-
Stage 1	386	0	-	246	0	-	-	-	-	-	-	-
Stage 2	507	0	-	615	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	128	-	655	94	-	499	905	-	-	663	-	-
Mov Cap-2 Maneuver	128	-	-	94	-	-	-	-	-	-	-	-
Stage 1	386	-	-	246	-	-	-	-	-	-	-	-
Stage 2	506	-	-	593	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.3	52.8	0	0.3
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	905	-	-	128	655	94	499	663	-	-
HCM Lane V/C Ratio	-	-	-	0.035	0.007	0.236	0.002	0.028	-	-
HCM Control Delay (s)	0	-	-	34.1	10.5	54.8	12.2	10.6	-	-
HCM Lane LOS	A	-	-	D	B	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.8	0	0.1	-	-

HCM 6th Signalized Intersection Summary
12: Litchfield Road & Van Buren Street

12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	357	126	57	287	221	102	607	68	225	531	130
Future Volume (veh/h)	82	357	126	57	287	221	102	607	68	225	531	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	397	140	63	319	246	113	674	76	250	590	144
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	234	772	344	281	403	303	439	1834	205	494	1579	704
Arrive On Green	0.06	0.22	0.22	0.05	0.21	0.21	0.06	0.39	0.39	0.11	0.44	0.44
Sat Flow, veh/h	1781	3554	1585	1781	1930	1455	1781	4660	521	1781	3554	1585
Grp Volume(v), veh/h	91	397	140	63	293	272	113	491	259	250	590	144
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1608	1781	1702	1777	1781	1777	1585
Q Serve(g_s), s	3.1	7.6	5.9	2.1	12.1	12.5	2.9	7.9	8.0	6.1	8.6	4.3
Cycle Q Clear(g_c), s	3.1	7.6	5.9	2.1	12.1	12.5	2.9	7.9	8.0	6.1	8.6	4.3
Prop In Lane	1.00		1.00	1.00		0.90	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	234	772	344	281	371	335	439	1340	699	494	1579	704
V/C Ratio(X)	0.39	0.51	0.41	0.22	0.79	0.81	0.26	0.37	0.37	0.51	0.37	0.20
Avail Cap(c_a), veh/h	305	1011	451	331	469	425	552	1340	699	705	1579	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	26.8	26.1	22.6	29.1	29.3	12.6	16.7	16.7	11.2	14.4	13.2
Incr Delay (d2), s/veh	1.1	0.5	0.8	0.4	7.0	9.1	0.3	0.8	1.5	0.8	0.7	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.3	3.1	2.2	0.9	5.5	5.3	1.1	2.9	3.2	2.1	3.2	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.3	27.3	26.9	23.0	36.2	38.3	12.9	17.5	18.2	12.0	15.1	13.8
LnGrp LOS	C	C	C	C	D	D	B	B	B	B	B	B
Approach Vol, veh/h		628			628			863			984	
Approach Delay, s/veh		26.8			35.8			17.1			14.1	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.0	35.1	8.2	21.4	9.1	39.0	8.9	20.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.7	26.3	5.9	22.1	9.5	34.5	7.5	20.5
Max Q Clear Time (g_c+I1), s	8.1	10.0	4.1	9.6	4.9	10.6	5.1	14.5
Green Ext Time (p_c), s	0.5	4.2	0.0	2.3	0.1	4.3	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	21.9
HCM 6th LOS	C

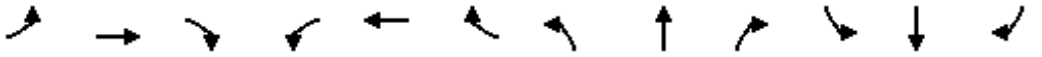
HCM 6th Signalized Intersection Summary
12: Litchfield Road & Van Buren Street

12/10/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	365	93	121	536	286	126	839	107	357	618	118
Future Volume (veh/h)	191	365	93	121	536	286	126	839	107	357	618	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	406	103	134	596	318	140	932	119	397	687	131
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	1049	468	397	603	322	349	1100	140	435	1226	547
Arrive On Green	0.10	0.30	0.30	0.07	0.27	0.27	0.08	0.24	0.24	0.18	0.34	0.34
Sat Flow, veh/h	1781	3554	1585	1781	2238	1194	1781	4586	584	1781	3554	1585
Grp Volume(v), veh/h	212	406	103	134	473	441	140	691	360	397	687	131
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1655	1781	1702	1765	1781	1777	1585
Q Serve(g_s), s	7.4	7.9	4.3	4.7	23.1	23.1	5.1	16.9	17.0	13.8	13.7	5.1
Cycle Q Clear(g_c), s	7.4	7.9	4.3	4.7	23.1	23.1	5.1	16.9	17.0	13.8	13.7	5.1
Prop In Lane	1.00		1.00	1.00		0.72	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	263	1049	468	397	479	446	349	817	424	435	1226	547
V/C Ratio(X)	0.81	0.39	0.22	0.34	0.99	0.99	0.40	0.85	0.85	0.91	0.56	0.24
Avail Cap(c_a), veh/h	263	1049	468	455	479	446	415	871	452	464	1226	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	24.4	23.2	20.5	31.7	31.7	22.1	31.6	31.6	20.0	23.2	20.4
Incr Delay (d2), s/veh	16.6	0.2	0.2	0.5	37.8	39.4	0.7	7.4	13.7	21.5	0.6	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	3.2	1.5	1.9	14.3	13.5	2.1	7.4	8.4	7.7	5.4	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	24.7	23.4	21.0	69.5	71.1	22.8	39.0	45.3	41.6	23.8	20.6
LnGrp LOS	D	C	C	C	E	E	C	D	D	D	C	C
Approach Vol, veh/h		721			1048			1191			1215	
Approach Delay, s/veh		28.8			64.0			39.0			29.2	
Approach LOS		C			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.6	25.4	11.0	30.2	11.4	34.6	13.2	28.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	22.3	9.3	22.9	10.1	29.7	8.7	23.5
Max Q Clear Time (g_c+I1), s	15.8	19.0	6.7	9.9	7.1	15.7	9.4	25.1
Green Ext Time (p_c), s	0.2	1.9	0.1	2.3	0.1	4.1	0.0	0.0

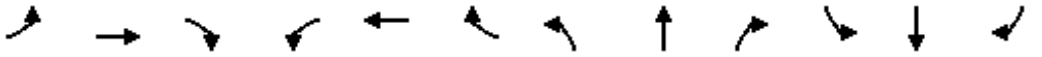
Intersection Summary	
HCM 6th Ctrl Delay	40.7
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	145	128	22	128	107	106	459	17	133	279	105
Future Volume (veh/h)	106	145	128	22	128	107	106	459	17	133	279	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	118	161	142	24	142	119	118	510	19	148	310	117
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	325	268	254	239	186	595	1589	59	552	1166	431
Arrive On Green	0.08	0.18	0.18	0.03	0.13	0.13	0.07	0.45	0.45	0.07	0.46	0.46
Sat Flow, veh/h	1781	1850	1523	1781	1901	1480	1781	3494	130	1781	2539	939
Grp Volume(v), veh/h	118	154	149	24	132	129	118	259	270	148	215	212
Grp Sat Flow(s), veh/h/ln	1781	1777	1596	1781	1777	1604	1781	1777	1847	1781	1777	1701
Q Serve(g_s), s	3.7	5.2	5.6	0.8	4.7	5.1	2.3	6.2	6.2	2.9	4.9	5.1
Cycle Q Clear(g_c), s	3.7	5.2	5.6	0.8	4.7	5.1	2.3	6.2	6.2	2.9	4.9	5.1
Prop In Lane	1.00		0.95	1.00		0.92	1.00		0.07	1.00		0.55
Lane Grp Cap(c), veh/h	301	312	281	254	223	202	595	808	840	552	816	782
V/C Ratio(X)	0.39	0.49	0.53	0.09	0.59	0.64	0.20	0.32	0.32	0.27	0.26	0.27
Avail Cap(c_a), veh/h	392	629	565	354	549	495	811	808	840	787	816	782
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	24.7	24.9	24.2	27.4	27.6	8.3	11.6	11.6	8.5	11.0	11.1
Incr Delay (d2), s/veh	0.8	1.2	1.6	0.2	2.5	3.4	0.2	1.0	1.0	0.3	0.8	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.6	2.2	2.2	0.3	2.1	2.1	0.7	2.3	2.4	0.9	1.8	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.0	25.9	26.4	24.4	29.9	30.9	8.5	12.6	12.6	8.7	11.8	11.9
LnGrp LOS	C	C	C	C	C	C	A	B	B	A	B	B
Approach Vol, veh/h		421			285			647			575	
Approach Delay, s/veh		25.3			29.9			11.8			11.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	34.7	6.3	16.2	8.9	35.0	9.6	12.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	29.5	5.5	23.5	12.5	30.5	8.5	20.5
Max Q Clear Time (g_c+I1), s	4.9	8.2	2.8	7.6	4.3	7.1	5.7	7.1
Green Ext Time (p_c), s	0.2	2.9	0.0	1.7	0.2	2.4	0.1	1.3

Intersection Summary	
HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	122	68	23	163	101	122	802	37	127	496	67
Future Volume (veh/h)	93	122	68	23	163	101	122	802	37	127	496	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	136	76	26	181	112	136	891	41	141	551	74
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	266	377	199	278	277	163	522	1709	79	404	1557	209
Arrive On Green	0.07	0.17	0.17	0.03	0.13	0.13	0.06	0.49	0.49	0.06	0.49	0.49
Sat Flow, veh/h	1781	2247	1186	1781	2153	1267	1781	3459	159	1781	3150	422
Grp Volume(v), veh/h	103	106	106	26	148	145	136	458	474	141	310	315
Grp Sat Flow(s),veh/h/ln	1781	1777	1657	1781	1777	1642	1781	1777	1842	1781	1777	1794
Q Serve(g_s), s	3.6	3.9	4.2	0.9	5.8	6.2	2.7	12.9	12.9	2.8	7.8	7.9
Cycle Q Clear(g_c), s	3.6	3.9	4.2	0.9	5.8	6.2	2.7	12.9	12.9	2.8	7.8	7.9
Prop In Lane	1.00		0.72	1.00		0.77	1.00		0.09	1.00		0.24
Lane Grp Cap(c), veh/h	266	298	278	278	228	211	522	878	910	404	879	887
V/C Ratio(X)	0.39	0.36	0.38	0.09	0.65	0.69	0.26	0.52	0.52	0.35	0.35	0.35
Avail Cap(c_a), veh/h	309	478	446	352	439	406	675	878	910	579	879	887
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	27.0	27.1	26.4	30.3	30.5	8.2	12.6	12.6	9.2	11.3	11.3
Incr Delay (d2), s/veh	0.9	0.7	0.9	0.1	3.1	4.0	0.3	2.2	2.1	0.5	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.7	1.7	0.4	2.6	2.6	0.9	4.8	5.0	0.9	2.9	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	27.7	28.0	26.6	33.4	34.5	8.5	14.8	14.8	9.7	12.4	12.5
LnGrp LOS	C	C	C	C	C	C	A	B	B	A	B	B
Approach Vol, veh/h		315			319			1068			766	
Approach Delay, s/veh		27.2			33.3			14.0			12.0	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	40.7	6.6	16.8	9.2	40.7	9.4	13.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.9	35.3	5.1	19.7	11.0	36.2	6.7	18.1
Max Q Clear Time (g_c+I1), s	4.8	14.9	2.9	6.2	4.7	9.9	5.6	8.2
Green Ext Time (p_c), s	0.2	5.6	0.0	1.0	0.2	3.7	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	17.6
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	386	3	6	322	2	1	1	2	0	1	1
Future Vol, veh/h	4	386	3	6	322	2	1	1	2	0	1	1
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	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	429	3	7	358	2	1	1	2	0	1	1

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	360	0	0	432	0	0	633	813	216	596	813	180
Stage 1	-	-	-	-	-	-	439	439	-	373	373	-
Stage 2	-	-	-	-	-	-	194	374	-	223	440	-
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	1195	-	-	1124	-	-	364	311	789	387	311	832
Stage 1	-	-	-	-	-	-	567	576	-	620	617	-
Stage 2	-	-	-	-	-	-	789	616	-	759	576	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1195	-	-	1124	-	-	360	308	789	382	308	832
Mov Cap-2 Maneuver	-	-	-	-	-	-	360	308	-	382	308	-
Stage 1	-	-	-	-	-	-	565	574	-	618	613	-
Stage 2	-	-	-	-	-	-	782	612	-	753	574	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.1	12.8	13
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	467	1195	-	-	1124	-	-	-	450
HCM Lane V/C Ratio	0.01	0.004	-	-	0.006	-	-	-	0.005
HCM Control Delay (s)	12.8	8	-	-	8.2	-	-	0	13
HCM Lane LOS	B	A	-	-	A	-	-	A	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	256	1	0	365	3	5	0	7	4	1	11
Future Vol, veh/h	4	256	1	0	365	3	5	0	7	4	1	11
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	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	284	1	0	406	3	6	0	8	4	1	12

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	409	0	0	285	0	0	497	702	143	558	701	205
Stage 1	-	-	-	-	-	-	293	293	-	408	408	-
Stage 2	-	-	-	-	-	-	204	409	-	150	293	-
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	1146	-	-	1274	-	-	456	361	879	412	361	802
Stage 1	-	-	-	-	-	-	691	669	-	591	595	-
Stage 2	-	-	-	-	-	-	779	594	-	837	669	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1146	-	-	1274	-	-	447	360	879	407	360	802
Mov Cap-2 Maneuver	-	-	-	-	-	-	447	360	-	407	360	-
Stage 1	-	-	-	-	-	-	689	667	-	589	595	-
Stage 2	-	-	-	-	-	-	766	594	-	827	667	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	10.9	11
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	627	1146	-	-	1274	-	-	407	728
HCM Lane V/C Ratio	0.021	0.004	-	-	-	-	-	0.011	0.018
HCM Control Delay (s)	10.9	8.2	-	-	0	-	-	13.9	10
HCM Lane LOS	B	A	-	-	A	-	-	B	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0	0.1

Intersection	
Int Delay, s/veh	7.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	1	12	1	0	11
Future Vol, veh/h	0	1	12	1	0	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	-	100	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1	13	1	0	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1	0	28	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1622	-	987	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	996	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1622	-	979	1084
Mov Cap-2 Maneuver	-	-	-	-	979	-
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	996	-

Approach	EB	WB	NB
HCM Control Delay, s	0	6.7	8.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	1084	-	-	1622	-
HCM Lane V/C Ratio	-	0.011	-	-	0.008	-
HCM Control Delay (s)	0	8.4	-	-	7.2	-
HCM Lane LOS	A	A	-	-	A	-
HCM 95th %tile Q(veh)	-	0	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	0	0	2	0	0	9
Future Vol, veh/h	0	0	2	0	0	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	100	-
Veh in Median Storage, #	0	-	-	0	16974	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2	0	0	10

Major/Minor	Minor2		Major2	
Conflicting Flow All	4	0	0	0
Stage 1	4	-	-	-
Stage 2	0	-	-	-
Critical Hdwy	6.52	6.22	4.12	-
Critical Hdwy Stg 1	5.52	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	4.018	3.318	2.218	-
Pot Cap-1 Maneuver	891	-	-	-
Stage 1	892	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	0	-	-	-
Mov Cap-2 Maneuver	0	-	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-

Approach	EB	WB
HCM Control Delay, s	0	
HCM LOS	A	

Minor Lane/Major Mvmt	EBLn1	WBL	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	7	1	0	0	0	700	0	6	524	9
Future Vol, veh/h	3	0	7	1	0	0	0	700	0	6	524	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	0	-	0	150	-	-	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	8	1	0	0	0	778	0	7	582	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	985	-	291	1083	-	389	592	0	0	778	0	0
Stage 1	596	-	-	778	-	-	-	-	-	-	-	-
Stage 2	389	-	-	305	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	-	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	-	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	202	0	706	172	0	610	980	-	-	834	-	-
Stage 1	457	0	-	355	0	-	-	-	-	-	-	-
Stage 2	606	0	-	680	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	201	-	706	169	-	610	980	-	-	834	-	-
Mov Cap-2 Maneuver	201	-	-	169	-	-	-	-	-	-	-	-
Stage 1	457	-	-	355	-	-	-	-	-	-	-	-
Stage 2	606	-	-	667	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.1	26.4	0	0.1
HCM LOS	B	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	980	-	-	201	706	169	-	834	-	-
HCM Lane V/C Ratio	-	-	-	0.017	0.011	0.007	-	0.008	-	-
HCM Control Delay (s)	0	-	-	23.2	10.2	26.4	0	9.4	-	-
HCM Lane LOS	A	-	-	C	B	D	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	0	-	-

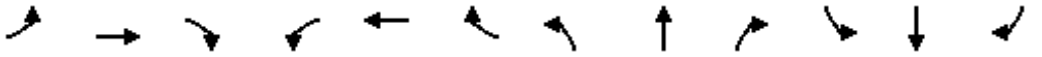
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	4	20	0	1	0	1035	2	17	677	3
Future Vol, veh/h	4	0	4	20	0	1	0	1035	2	17	677	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	0	-	0	150	-	-	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	4	22	0	1	0	1150	2	19	752	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1365	-	376	1565	-	576	755	0	0	1152	0	0
Stage 1	790	-	-	1151	-	-	-	-	-	-	-	-
Stage 2	575	-	-	414	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	-	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	-	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	106	0	622	75	0	460	851	-	-	602	-	-
Stage 1	350	0	-	211	0	-	-	-	-	-	-	-
Stage 2	470	0	-	586	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	103	-	622	73	-	460	851	-	-	602	-	-
Mov Cap-2 Maneuver	103	-	-	73	-	-	-	-	-	-	-	-
Stage 1	350	-	-	211	-	-	-	-	-	-	-	-
Stage 2	469	-	-	563	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.2	71.7	0	0.3
HCM LOS	D	F		

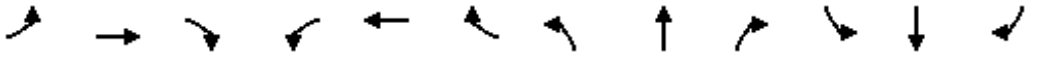
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	851	-	-	103	622	73	460	602	-	-
HCM Lane V/C Ratio	-	-	-	0.043	0.007	0.304	0.002	0.031	-	-
HCM Control Delay (s)	0	-	-	41.5	10.8	74.6	12.8	11.2	-	-
HCM Lane LOS	A	-	-	E	B	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	1.1	0	0.1	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	324	125	63	260	200	108	637	75	204	549	118
Future Volume (veh/h)	74	324	125	63	260	200	108	637	75	204	549	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	360	139	70	289	222	120	708	83	227	610	131
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	235	705	315	282	378	282	447	1916	223	485	1612	719
Arrive On Green	0.05	0.20	0.20	0.05	0.20	0.20	0.06	0.41	0.41	0.10	0.45	0.45
Sat Flow, veh/h	1781	3554	1585	1781	1940	1447	1781	4638	539	1781	3554	1585
Grp Volume(v), veh/h	82	360	139	70	264	247	120	518	273	227	610	131
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1610	1781	1702	1773	1781	1777	1585
Q Serve(g_s), s	2.8	6.9	5.9	2.3	10.7	11.1	2.9	8.0	8.1	5.3	8.6	3.7
Cycle Q Clear(g_c), s	2.8	6.9	5.9	2.3	10.7	11.1	2.9	8.0	8.1	5.3	8.6	3.7
Prop In Lane	1.00		1.00	1.00		0.90	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	235	705	315	282	347	314	447	1406	732	485	1612	719
V/C Ratio(X)	0.35	0.51	0.44	0.25	0.76	0.79	0.27	0.37	0.37	0.47	0.38	0.18
Avail Cap(c_a), veh/h	314	1033	461	330	479	434	562	1406	732	719	1612	719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	27.2	26.8	22.8	28.9	29.1	11.5	15.5	15.5	10.7	13.7	12.4
Incr Delay (d2), s/veh	0.9	0.6	1.0	0.5	4.7	6.4	0.3	0.7	1.5	0.7	0.7	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.1	2.8	2.2	0.9	4.7	4.5	1.0	2.9	3.2	1.8	3.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.2	27.8	27.8	23.3	33.7	35.5	11.9	16.2	16.9	11.4	14.4	12.9
LnGrp LOS	C	C	C	C	C	D	B	B	B	B	B	B
Approach Vol, veh/h		581			581			911			968	
Approach Delay, s/veh		27.3			33.2			15.8			13.5	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.2	35.9	8.4	19.6	9.1	39.0	8.6	19.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.7	26.3	5.9	22.1	9.5	34.5	7.5	20.5
Max Q Clear Time (g_c+I1), s	7.3	10.1	4.3	8.9	4.9	10.6	4.8	13.1
Green Ext Time (p_c), s	0.4	4.4	0.0	2.2	0.1	4.4	0.0	1.7

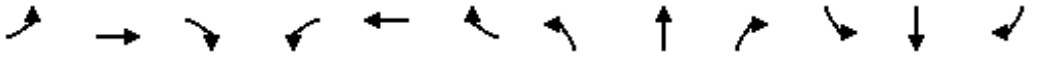
Intersection Summary	
HCM 6th Ctrl Delay	20.6
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	331	96	121	486	259	122	806	104	324	630	107
Future Volume (veh/h)	173	331	96	121	486	259	122	806	104	324	630	107
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	192	368	107	134	540	288	136	896	116	360	700	119
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	1047	467	416	605	322	341	1105	143	424	1191	531
Arrive On Green	0.10	0.29	0.29	0.07	0.27	0.27	0.08	0.24	0.24	0.17	0.34	0.34
Sat Flow, veh/h	1781	3554	1585	1781	2240	1192	1781	4578	590	1781	3554	1585
Grp Volume(v), veh/h	192	368	107	134	428	400	136	665	347	360	700	119
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1656	1781	1702	1764	1781	1777	1585
Q Serve(g_s), s	6.3	6.7	4.2	4.4	19.2	19.2	4.7	15.3	15.4	11.8	13.5	4.5
Cycle Q Clear(g_c), s	6.3	6.7	4.2	4.4	19.2	19.2	4.7	15.3	15.4	11.8	13.5	4.5
Prop In Lane	1.00		1.00	1.00		0.72	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	289	1047	467	416	480	447	341	822	426	424	1191	531
V/C Ratio(X)	0.66	0.35	0.23	0.32	0.89	0.89	0.40	0.81	0.81	0.85	0.59	0.22
Avail Cap(c_a), veh/h	299	1047	467	483	504	470	419	917	475	495	1275	569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	23.0	22.1	19.4	29.0	29.1	21.0	29.6	29.6	19.1	22.8	19.8
Incr Delay (d2), s/veh	5.2	0.2	0.2	0.4	17.4	18.7	0.8	5.0	9.6	11.7	0.6	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	2.8	2.7	1.5	1.7	9.9	9.4	1.9	6.4	7.2	5.7	5.3	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.5	23.2	22.3	19.8	46.4	47.8	21.8	34.6	39.2	30.8	23.4	20.0
LnGrp LOS	C	C	C	B	D	D	C	C	D	C	C	B
Approach Vol, veh/h		667			962			1148			1179	
Approach Delay, s/veh		24.0			43.3			34.5			25.3	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.7	24.5	10.7	28.9	11.0	32.2	12.7	26.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	22.3	9.3	22.9	10.1	29.7	8.7	23.5
Max Q Clear Time (g_c+I1), s	13.8	17.4	6.4	8.7	6.7	15.5	8.3	21.2
Green Ext Time (p_c), s	0.4	2.6	0.1	2.2	0.1	4.2	0.0	1.1

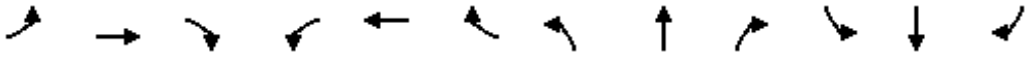
Intersection Summary	
HCM 6th Ctrl Delay	32.1
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	146	167	20	127	108	136	455	16	135	304	95
Future Volume (veh/h)	96	146	167	20	127	108	136	455	16	135	304	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	162	186	22	141	120	151	506	18	150	338	106
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	304	272	217	238	188	597	1611	57	561	1230	380
Arrive On Green	0.07	0.17	0.17	0.03	0.13	0.13	0.07	0.46	0.46	0.07	0.46	0.46
Sat Flow, veh/h	1781	1777	1585	1781	1888	1491	1781	3500	124	1781	2673	825
Grp Volume(v), veh/h	107	162	186	22	132	129	151	257	267	150	223	221
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1602	1781	1777	1848	1781	1777	1722
Q Serve(g_s), s	3.4	5.5	7.3	0.7	4.7	5.1	2.9	6.0	6.1	2.9	5.1	5.3
Cycle Q Clear(g_c), s	3.4	5.5	7.3	0.7	4.7	5.1	2.9	6.0	6.1	2.9	5.1	5.3
Prop In Lane	1.00		1.00	1.00		0.93	1.00		0.07	1.00		0.48
Lane Grp Cap(c), veh/h	290	304	272	217	224	202	597	818	851	561	818	792
V/C Ratio(X)	0.37	0.53	0.68	0.10	0.59	0.64	0.25	0.31	0.31	0.27	0.27	0.28
Avail Cap(c_a), veh/h	392	630	562	320	550	495	804	818	851	795	818	792
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	25.0	25.8	24.3	27.4	27.5	8.2	11.3	11.3	8.3	11.0	11.1
Incr Delay (d2), s/veh	0.8	1.4	3.0	0.2	2.5	3.4	0.2	1.0	1.0	0.3	0.8	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.4	2.4	2.9	0.3	2.1	2.1	0.9	2.2	2.3	0.9	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.4	26.5	28.8	24.5	29.8	30.9	8.4	12.3	12.3	8.5	11.9	12.0
LnGrp LOS	C	C	C	C	C	C	A	B	B	A	B	B
Approach Vol, veh/h		455			283			675			594	
Approach Delay, s/veh		26.7			29.9			11.4			11.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	35.0	6.2	15.9	9.3	35.0	9.2	12.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	29.5	5.5	23.5	12.5	30.5	8.5	20.5
Max Q Clear Time (g_c+I1), s	4.9	8.1	2.7	9.3	4.9	7.3	5.4	7.1
Green Ext Time (p_c), s	0.2	2.9	0.0	1.9	0.2	2.5	0.1	1.3

Intersection Summary	
HCM 6th Ctrl Delay	17.4
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	118	89	21	160	103	151	767	33	120	476	60
Future Volume (veh/h)	84	118	89	21	160	103	151	767	33	120	476	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	93	131	99	23	178	114	168	852	37	133	529	67
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	255	327	230	259	272	165	549	1741	76	424	1564	197
Arrive On Green	0.06	0.16	0.16	0.03	0.13	0.13	0.07	0.50	0.50	0.06	0.49	0.49
Sat Flow, veh/h	1781	1994	1401	1781	2124	1291	1781	3469	151	1781	3174	401
Grp Volume(v), veh/h	93	116	114	23	147	145	168	436	453	133	295	301
Grp Sat Flow(s), veh/h/ln	1781	1777	1618	1781	1777	1638	1781	1777	1843	1781	1777	1798
Q Serve(g_s), s	3.3	4.3	4.7	0.8	5.8	6.2	3.3	11.9	11.9	2.6	7.4	7.5
Cycle Q Clear(g_c), s	3.3	4.3	4.7	0.8	5.8	6.2	3.3	11.9	11.9	2.6	7.4	7.5
Prop In Lane	1.00		0.87	1.00		0.79	1.00		0.08	1.00		0.22
Lane Grp Cap(c), veh/h	255	291	265	259	228	210	549	892	925	424	876	886
V/C Ratio(X)	0.37	0.40	0.43	0.09	0.65	0.69	0.31	0.49	0.49	0.31	0.34	0.34
Avail Cap(c_a), veh/h	308	477	434	337	438	404	686	892	925	599	876	886
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	27.5	27.6	26.7	30.4	30.6	8.1	12.1	12.1	8.9	11.3	11.3
Incr Delay (d2), s/veh	0.9	0.9	1.1	0.1	3.1	4.0	0.3	1.9	1.8	0.4	1.0	1.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.4	1.9	1.9	0.3	2.6	2.6	1.1	4.4	4.6	0.9	2.7	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.5	28.3	28.7	26.8	33.5	34.6	8.4	14.0	13.9	9.3	12.4	12.4
LnGrp LOS	C	C	C	C	C	C	A	B	B	A	B	B
Approach Vol, veh/h		323			315			1057			729	
Approach Delay, s/veh		28.0			33.5			13.1			11.8	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	41.4	6.4	16.5	9.8	40.7	9.0	13.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.9	35.3	5.1	19.7	11.0	36.2	6.7	18.1
Max Q Clear Time (g_c+I1), s	4.6	13.9	2.8	6.7	5.3	9.5	5.3	8.2
Green Ext Time (p_c), s	0.2	5.4	0.0	1.1	0.2	3.5	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	17.3
HCM 6th LOS	B

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	22	0	82	65	0	2	0	166	0	0	0
Future Vol, veh/h	0	22	0	82	65	0	2	0	166	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	24	0	91	72	0	2	0	184	0	0	0
Number of Lanes	0	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	8.4	8.7	8.3	0
HCM LOS	A	A	A	-

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	166	22	82	65	0
LT Vol	2	0	0	82	0	0
Through Vol	0	0	22	0	65	0
RT Vol	0	166	0	0	0	0
Lane Flow Rate	2	184	24	91	72	0
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.003	0.222	0.035	0.139	0.1	0
Departure Headway (Hd)	5.534	4.33	5.163	5.481	4.979	5.232
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	649	832	695	656	721	0
Service Time	3.244	2.041	3.185	3.2	2.698	3.252
HCM Lane V/C Ratio	0.003	0.221	0.035	0.139	0.1	0
HCM Control Delay	8.3	8.3	8.4	9.1	8.3	8.3
HCM Lane LOS	A	A	A	A	A	N
HCM 95th-tile Q	0	0.8	0.1	0.5	0.3	0

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	10	0	75	68	0	2	0	91	0	0	0
Future Vol, veh/h	0	10	0	75	68	0	2	0	91	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	11	0	83	76	0	2	0	101	0	0	0
Number of Lanes	0	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	8	8.4	7.6	0
HCM LOS	A	A	A	-

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	91	10	75	68	0
LT Vol	2	0	0	75	0	0
Through Vol	0	0	10	0	68	0
RT Vol	0	91	0	0	0	0
Lane Flow Rate	2	101	11	83	76	0
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.003	0.12	0.015	0.121	0.099	0
Departure Headway (Hd)	5.474	4.271	4.951	5.22	4.72	5.079
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	658	844	726	683	754	0
Service Time	3.174	1.971	2.959	2.984	2.483	3.083
HCM Lane V/C Ratio	0.003	0.12	0.015	0.122	0.101	0
HCM Control Delay	8.2	7.6	8	8.7	8	8.1
HCM Lane LOS	A	A	A	A	A	N
HCM 95th-tile Q	0	0.4	0	0.4	0.3	0

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	350	3	6	291	54	1	1	2	67	1	45
Future Vol, veh/h	38	350	3	6	291	54	1	1	2	67	1	45
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	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	389	3	7	323	60	1	1	2	74	1	50

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	383	0	0	392	0	0	651	872	196	646	843	192
Stage 1	-	-	-	-	-	-	475	475	-	367	367	-
Stage 2	-	-	-	-	-	-	176	397	-	279	476	-
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	1172	-	-	1163	-	-	354	287	812	357	299	817
Stage 1	-	-	-	-	-	-	539	556	-	625	621	-
Stage 2	-	-	-	-	-	-	809	602	-	704	555	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1172	-	-	1163	-	-	321	275	812	344	286	817
Mov Cap-2 Maneuver	-	-	-	-	-	-	321	275	-	344	286	-
Stage 1	-	-	-	-	-	-	520	536	-	603	617	-
Stage 2	-	-	-	-	-	-	754	598	-	676	535	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.1	13.4	14.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	434	1172	-	-	1163	-	-	344	785
HCM Lane V/C Ratio	0.01	0.036	-	-	0.006	-	-	0.216	0.065
HCM Control Delay (s)	13.4	8.2	-	-	8.1	-	-	18.3	9.9
HCM Lane LOS	B	A	-	-	A	-	-	C	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.8	0.2

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	232	1	0	331	56	5	0	7	47	1	27
Future Vol, veh/h	39	232	1	0	331	56	5	0	7	47	1	27
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	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	258	1	0	368	62	6	0	8	52	1	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	430	0	0	259	0	0	530	775	130	614	744	215
Stage 1	-	-	-	-	-	-	345	345	-	399	399	-
Stage 2	-	-	-	-	-	-	185	430	-	215	345	-
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	1126	-	-	1303	-	-	432	327	896	376	341	790
Stage 1	-	-	-	-	-	-	644	635	-	598	601	-
Stage 2	-	-	-	-	-	-	799	582	-	767	635	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1126	-	-	1303	-	-	403	315	896	362	328	790
Mov Cap-2 Maneuver	-	-	-	-	-	-	403	315	-	362	328	-
Stage 1	-	-	-	-	-	-	620	611	-	575	601	-
Stage 2	-	-	-	-	-	-	767	582	-	731	611	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.2	0	11.2	14.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	593	1126	-	-	1303	-	-	362	752
HCM Lane V/C Ratio	0.022	0.038	-	-	-	-	-	0.144	0.041
HCM Control Delay (s)	11.2	8.3	-	-	0	-	-	16.6	10
HCM Lane LOS	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.5	0.1

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	0	17	16	0	14	20	140	20	18	47	18
Future Vol, veh/h	14	0	17	16	0	14	20	140	20	18	47	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	0	19	18	0	16	22	156	22	20	52	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	321	324	62	323	323	167	72	0	0	178	0	0
Stage 1	102	102	-	211	211	-	-	-	-	-	-	-
Stage 2	219	222	-	112	112	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	632	594	1003	630	595	877	1528	-	-	1398	-	-
Stage 1	904	811	-	791	728	-	-	-	-	-	-	-
Stage 2	783	720	-	893	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	607	577	1003	605	578	877	1528	-	-	1398	-	-
Mov Cap-2 Maneuver	607	577	-	605	578	-	-	-	-	-	-	-
Stage 1	891	800	-	780	718	-	-	-	-	-	-	-
Stage 2	758	710	-	864	792	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	10.3	0.8	1.7
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1528	-	-	775	707	1398	-	-
HCM Lane V/C Ratio	0.015	-	-	0.044	0.047	0.014	-	-
HCM Control Delay (s)	7.4	-	-	9.9	10.3	7.6	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	9	9	0	7	21	78	21	18	39	18
Future Vol, veh/h	8	0	9	9	0	7	21	78	21	18	39	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	10	10	0	8	23	87	23	20	43	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	242	249	53	243	248	99	63	0	0	110	0	0
Stage 1	93	93	-	145	145	-	-	-	-	-	-	-
Stage 2	149	156	-	98	103	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	712	654	1014	711	655	957	1540	-	-	1480	-	-
Stage 1	914	818	-	858	777	-	-	-	-	-	-	-
Stage 2	854	769	-	908	810	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	691	635	1014	689	636	957	1540	-	-	1480	-	-
Mov Cap-2 Maneuver	691	635	-	689	636	-	-	-	-	-	-	-
Stage 1	900	807	-	845	765	-	-	-	-	-	-	-
Stage 2	834	757	-	887	799	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	9.7	1.3	1.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1540	-	-	831	785	1480	-	-
HCM Lane V/C Ratio	0.015	-	-	0.023	0.023	0.014	-	-
HCM Control Delay (s)	7.4	-	-	9.4	9.7	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	0	38	39	0	64	22	53	22	17	46	17
Future Vol, veh/h	63	0	38	39	0	64	22	53	22	17	46	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	70	0	42	43	0	71	24	59	24	19	51	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	254	230	61	239	227	71	70	0	0	83	0	0
Stage 1	99	99	-	119	119	-	-	-	-	-	-	-
Stage 2	155	131	-	120	108	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	699	670	1004	715	672	991	1531	-	-	1514	-	-
Stage 1	907	813	-	885	797	-	-	-	-	-	-	-
Stage 2	847	788	-	884	806	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	635	651	1004	670	653	991	1531	-	-	1514	-	-
Mov Cap-2 Maneuver	635	651	-	670	653	-	-	-	-	-	-	-
Stage 1	892	802	-	871	784	-	-	-	-	-	-	-
Stage 2	774	775	-	836	796	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	10	1.7	1.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1531	-	-	737	839	1514	-	-
HCM Lane V/C Ratio	0.016	-	-	0.152	0.136	0.012	-	-
HCM Control Delay (s)	7.4	-	-	10.8	10	7.4	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.5	0	-	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	0	20	21	0	34	22	53	22	18	20	19
Future Vol, veh/h	33	0	20	21	0	34	22	53	22	18	20	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	0	22	23	0	38	24	59	24	20	22	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	211	204	33	203	202	71	43	0	0	83	0	0
Stage 1	73	73	-	119	119	-	-	-	-	-	-	-
Stage 2	138	131	-	84	83	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	746	692	1041	755	694	991	1566	-	-	1514	-	-
Stage 1	937	834	-	885	797	-	-	-	-	-	-	-
Stage 2	865	788	-	924	826	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	702	673	1041	723	675	991	1566	-	-	1514	-	-
Mov Cap-2 Maneuver	702	673	-	723	675	-	-	-	-	-	-	-
Stage 1	923	823	-	872	785	-	-	-	-	-	-	-
Stage 2	819	776	-	892	815	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	9.5	1.7	2.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1566	-	-	800	868	1514	-	-
HCM Lane V/C Ratio	0.016	-	-	0.074	0.07	0.013	-	-
HCM Control Delay (s)	7.3	-	-	9.9	9.5	7.4	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	187	148	5	5	0
Future Vol, veh/h	0	187	148	5	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	208	164	6	6	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	170	0	-	0	375	167
Stage 1	-	-	-	-	167	-
Stage 2	-	-	-	-	208	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1407	-	-	-	626	877
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	827	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1407	-	-	-	626	877
Mov Cap-2 Maneuver	-	-	-	-	626	-
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	827	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1407	-	-	-	626
HCM Lane V/C Ratio	-	-	-	-	0.009
HCM Control Delay (s)	0	-	-	-	10.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	101	143	5	5	0
Future Vol, veh/h	0	101	143	5	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	112	159	6	6	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	165	0	-	0	274	162
Stage 1	-	-	-	-	162	-
Stage 2	-	-	-	-	112	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1413	-	-	-	716	883
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	913	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1413	-	-	-	716	883
Mov Cap-2 Maneuver	-	-	-	-	716	-
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	913	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1413	-	-	-	716
HCM Lane V/C Ratio	-	-	-	-	0.008
HCM Control Delay (s)	0	-	-	-	10.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	120	0	72	1	0	0	50	634	0	6	474	99
Future Vol, veh/h	120	0	72	1	0	0	50	634	0	6	474	99
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	0	-	0	150	-	-	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	133	0	80	1	0	0	56	704	0	7	527	110

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1005	-	264	1094	-	352	637	0	0	704	0	0
Stage 1	541	-	-	816	-	-	-	-	-	-	-	-
Stage 2	464	-	-	278	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	-	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	-	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	196	0	734	168	0	644	943	-	-	890	-	-
Stage 1	493	0	-	337	0	-	-	-	-	-	-	-
Stage 2	548	0	-	705	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	186	-	734	142	-	644	943	-	-	890	-	-
Mov Cap-2 Maneuver	186	-	-	142	-	-	-	-	-	-	-	-
Stage 1	464	-	-	317	-	-	-	-	-	-	-	-
Stage 2	515	-	-	623	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	42.8	30.6	0.7	0.1
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	943	-	-	186	734	142	-	890	-	-
HCM Lane V/C Ratio	0.059	-	-	0.717	0.109	0.008	-	0.007	-	-
HCM Control Delay (s)	9.1	-	-	62.1	10.5	30.6	0	9.1	-	-
HCM Lane LOS	A	-	-	F	B	D	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	4.5	0.4	0	-	0	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	0	39	20	0	1	52	937	2	17	613	97
Future Vol, veh/h	66	0	39	20	0	1	52	937	2	17	613	97
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	0	-	0	150	-	-	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	73	0	43	22	0	1	58	1041	2	19	681	108

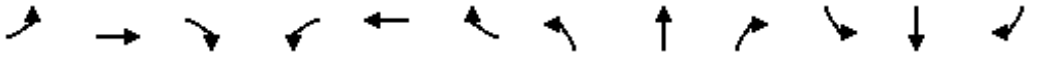
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1356	-	341	1537	-	522	789	0	0	1043	0	0
Stage 1	719	-	-	1158	-	-	-	-	-	-	-	-
Stage 2	637	-	-	379	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	-	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	-	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	108	0	655	79	0	499	827	-	-	663	-	-
Stage 1	386	0	-	208	0	-	-	-	-	-	-	-
Stage 2	432	0	-	615	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	100	-	655	68	-	499	827	-	-	663	-	-
Mov Cap-2 Maneuver	100	-	-	68	-	-	-	-	-	-	-	-
Stage 1	359	-	-	193	-	-	-	-	-	-	-	-
Stage 2	401	-	-	558	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	70.3	78.5	0.5	0.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	827	-	-	100	655	68	499	663	-	-
HCM Lane V/C Ratio	0.07	-	-	0.733	0.066	0.327	0.002	0.028	-	-
HCM Control Delay (s)	9.7	-	-	105.4	10.9	81.8	12.2	10.6	-	-
HCM Lane LOS	A	-	-	F	B	F	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	3.8	0.2	1.2	0	0.1	-	-

HCM 6th Signalized Intersection Summary
12: Litchfield Road & Van Buren Street

01/16/2019



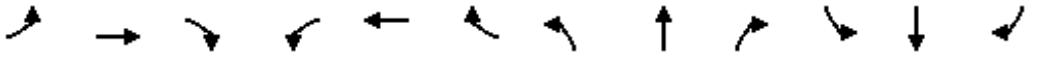
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	357	137	68	287	221	117	695	82	225	599	130
Future Volume (veh/h)	82	357	137	68	287	221	117	695	82	225	599	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	397	152	76	319	246	130	772	91	250	666	144
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	232	756	337	282	401	303	418	1835	215	463	1565	698
Arrive On Green	0.06	0.21	0.21	0.05	0.21	0.21	0.07	0.40	0.40	0.11	0.44	0.44
Sat Flow, veh/h	1781	3554	1585	1781	1930	1455	1781	4634	543	1781	3554	1585
Grp Volume(v), veh/h	91	397	152	76	293	272	130	566	297	250	666	144
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1608	1781	1702	1773	1781	1777	1585
Q Serve(g_s), s	3.1	7.8	6.5	2.6	12.3	12.6	3.3	9.4	9.5	6.2	10.1	4.4
Cycle Q Clear(g_c), s	3.1	7.8	6.5	2.6	12.3	12.6	3.3	9.4	9.5	6.2	10.1	4.4
Prop In Lane	1.00		1.00	1.00		0.90	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	232	756	337	282	369	334	418	1348	702	463	1565	698
V/C Ratio(X)	0.39	0.52	0.45	0.27	0.79	0.81	0.31	0.42	0.42	0.54	0.43	0.21
Avail Cap(c_a), veh/h	302	1003	447	324	465	421	518	1348	702	670	1565	698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	27.3	26.8	22.8	29.4	29.6	12.6	17.1	17.2	11.7	15.1	13.5
Incr Delay (d2), s/veh	1.1	0.6	0.9	0.5	7.3	9.4	0.4	1.0	1.9	1.0	0.8	0.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.3	3.1	2.4	1.1	5.6	5.4	1.2	3.5	3.9	2.2	3.8	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.5	27.9	27.8	23.3	36.7	38.9	13.0	18.1	19.0	12.7	15.9	14.2
LnGrp LOS	C	C	C	C	D	D	B	B	B	B	B	B
Approach Vol, veh/h		640			641			993			1060	
Approach Delay, s/veh		27.4			36.1			17.7			14.9	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.1	35.5	8.5	21.2	9.6	39.0	8.9	20.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.7	26.3	5.9	22.1	9.5	34.5	7.5	20.5
Max Q Clear Time (g_c+I1), s	8.2	11.5	4.6	9.8	5.3	12.1	5.1	14.6
Green Ext Time (p_c), s	0.5	4.7	0.0	2.3	0.1	4.8	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	22.2
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
12: Litchfield Road & Van Buren Street

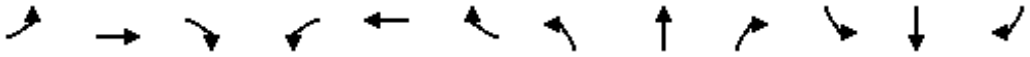
01/16/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	365	105	133	536	286	134	886	114	357	688	118
Future Volume (veh/h)	191	365	105	133	536	286	134	886	114	357	688	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	406	117	148	596	318	149	984	127	397	764	131
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	258	1012	452	394	597	318	334	1121	144	431	1235	551
Arrive On Green	0.10	0.28	0.28	0.08	0.27	0.27	0.08	0.24	0.24	0.19	0.35	0.35
Sat Flow, veh/h	1781	3554	1585	1781	2238	1194	1781	4579	590	1781	3554	1585
Grp Volume(v), veh/h	212	406	117	148	473	441	149	731	380	397	764	131
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1655	1781	1702	1764	1781	1777	1585
Q Serve(g_s), s	7.6	8.1	5.0	5.2	23.5	23.5	5.4	18.2	18.3	14.2	15.7	5.2
Cycle Q Clear(g_c), s	7.6	8.1	5.0	5.2	23.5	23.5	5.4	18.2	18.3	14.2	15.7	5.2
Prop In Lane	1.00		1.00	1.00		0.72	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	258	1012	452	394	474	441	334	833	432	431	1235	551
V/C Ratio(X)	0.82	0.40	0.26	0.38	1.00	1.00	0.45	0.88	0.88	0.92	0.62	0.24
Avail Cap(c_a), veh/h	258	1012	452	439	474	441	391	861	446	454	1235	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	25.4	24.3	20.8	32.3	32.3	22.1	32.0	32.0	20.9	23.9	20.4
Incr Delay (d2), s/veh	18.9	0.3	0.3	0.6	41.0	42.6	0.9	10.0	17.7	23.4	0.9	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	4.3	3.3	1.8	2.1	14.8	14.0	2.2	8.2	9.4	8.1	6.3	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	42.2	25.7	24.6	21.4	73.3	74.9	23.0	42.0	49.7	44.3	24.8	20.7
LnGrp LOS	D	C	C	C	E	E	C	D	D	D	C	C
Approach Vol, veh/h		735			1062			1260			1292	
Approach Delay, s/veh		30.3			66.7			42.1			30.4	
Approach LOS		C			E			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.9	26.1	11.6	29.6	11.8	35.1	13.2	28.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	22.3	9.3	22.9	10.1	29.7	8.7	23.5
Max Q Clear Time (g_c+I1), s	16.2	20.3	7.2	10.1	7.4	17.7	9.6	25.5
Green Ext Time (p_c), s	0.2	1.3	0.1	2.3	0.1	4.2	0.0	0.0

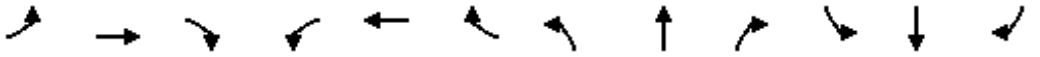
Intersection Summary	
HCM 6th Ctrl Delay	42.6
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	160	180	22	140	118	146	498	17	147	330	105
Future Volume (veh/h)	106	160	180	22	140	118	146	498	17	147	330	105
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	118	178	200	24	156	131	162	553	19	163	367	117
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	296	326	290	219	253	199	569	1571	54	533	1194	375
Arrive On Green	0.08	0.18	0.18	0.03	0.13	0.13	0.08	0.45	0.45	0.08	0.45	0.45
Sat Flow, veh/h	1781	1777	1585	1781	1895	1485	1781	3505	120	1781	2660	837
Grp Volume(v), veh/h	118	178	200	24	146	141	162	280	292	163	243	241
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1603	1781	1777	1849	1781	1777	1720
Q Serve(g_s), s	3.7	6.2	8.0	0.8	5.3	5.7	3.2	7.0	7.0	3.3	5.9	6.1
Cycle Q Clear(g_c), s	3.7	6.2	8.0	0.8	5.3	5.7	3.2	7.0	7.0	3.3	5.9	6.1
Prop In Lane	1.00		1.00	1.00		0.93	1.00		0.07	1.00		0.49
Lane Grp Cap(c), veh/h	296	326	290	219	238	214	569	796	828	533	797	772
V/C Ratio(X)	0.40	0.55	0.69	0.11	0.61	0.66	0.28	0.35	0.35	0.31	0.31	0.31
Avail Cap(c_a), veh/h	383	614	548	316	536	483	761	796	828	749	797	772
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.3	25.2	25.9	24.4	27.8	28.0	8.8	12.3	12.3	8.9	12.0	12.0
Incr Delay (d2), s/veh	0.9	1.4	2.9	0.2	2.6	3.4	0.3	1.2	1.2	0.3	1.0	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.6	2.7	3.2	0.3	2.3	2.3	1.0	2.6	2.7	1.1	2.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.2	26.6	28.9	24.7	30.3	31.4	9.1	13.5	13.5	9.2	13.0	13.1
LnGrp LOS	C	C	C	C	C	C	A	B	B	A	B	B
Approach Vol, veh/h		496			311			734			647	
Approach Delay, s/veh		26.7			30.4			12.5			12.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.7	35.0	6.3	17.0	9.7	35.0	9.7	13.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	13.5	29.5	5.5	23.5	12.5	30.5	8.5	20.5
Max Q Clear Time (g_c+I1), s	5.3	9.0	2.8	10.0	5.2	8.1	5.7	7.7
Green Ext Time (p_c), s	0.2	3.1	0.0	2.0	0.2	2.7	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	18.1
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	93	130	96	23	175	112	163	843	37	132	523	67
Future Volume (veh/h)	93	130	96	23	175	112	163	843	37	132	523	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	144	107	26	194	124	181	937	41	147	581	74
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	261	349	243	264	287	175	517	1707	75	389	1526	194
Arrive On Green	0.07	0.17	0.17	0.03	0.14	0.14	0.08	0.49	0.49	0.07	0.48	0.48
Sat Flow, veh/h	1781	2005	1392	1781	2122	1292	1781	3468	152	1781	3172	403
Grp Volume(v), veh/h	103	126	125	26	161	157	181	480	498	147	325	330
Grp Sat Flow(s), veh/h/ln	1781	1777	1620	1781	1777	1638	1781	1777	1843	1781	1777	1798
Q Serve(g_s), s	3.7	4.8	5.2	0.9	6.5	6.9	3.8	14.1	14.1	3.1	8.7	8.8
Cycle Q Clear(g_c), s	3.7	4.8	5.2	0.9	6.5	6.9	3.8	14.1	14.1	3.1	8.7	8.8
Prop In Lane	1.00		0.86	1.00		0.79	1.00		0.08	1.00		0.22
Lane Grp Cap(c), veh/h	261	310	282	264	241	222	517	874	907	389	855	865
V/C Ratio(X)	0.39	0.41	0.44	0.10	0.67	0.71	0.35	0.55	0.55	0.38	0.38	0.38
Avail Cap(c_a), veh/h	301	465	424	336	427	394	640	874	907	552	855	865
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.5	27.6	27.8	26.8	30.9	31.1	8.8	13.3	13.3	10.0	12.4	12.4
Incr Delay (d2), s/veh	1.0	0.9	1.1	0.2	3.2	4.1	0.4	2.5	2.4	0.6	1.3	1.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	1.6	2.1	2.1	0.4	2.9	2.9	1.2	5.4	5.6	1.0	3.3	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.4	28.5	28.9	26.9	34.1	35.2	9.2	15.8	15.7	10.6	13.7	13.7
LnGrp LOS	C	C	C	C	C	D	A	B	B	B	B	B
Approach Vol, veh/h		354			344			1159			802	
Approach Delay, s/veh		28.0			34.1			14.7			13.1	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	41.5	6.6	17.6	10.3	40.7	9.5	14.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	11.9	35.3	5.1	19.7	11.0	36.2	6.7	18.1
Max Q Clear Time (g_c+I1), s	5.1	16.1	2.9	7.2	5.8	10.8	5.7	8.9
Green Ext Time (p_c), s	0.2	5.8	0.0	1.2	0.2	3.9	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	22	0	82	65	0	2	0	166	0	0	0
Future Vol, veh/h	0	22	0	82	65	0	2	0	166	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	24	0	91	72	0	2	0	184	0	0	0
Number of Lanes	0	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	8.4	8.7	8.3	0
HCM LOS	A	A	A	-

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	166	22	82	65	0
LT Vol	2	0	0	82	0	0
Through Vol	0	0	22	0	65	0
RT Vol	0	166	0	0	0	0
Lane Flow Rate	2	184	24	91	72	0
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.003	0.222	0.035	0.139	0.1	0
Departure Headway (Hd)	5.534	4.33	5.163	5.481	4.979	5.232
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	649	832	695	656	721	0
Service Time	3.244	2.041	3.185	3.2	2.698	3.252
HCM Lane V/C Ratio	0.003	0.221	0.035	0.139	0.1	0
HCM Control Delay	8.3	8.3	8.4	9.1	8.3	8.3
HCM Lane LOS	A	A	A	A	A	N
HCM 95th-tile Q	0	0.8	0.1	0.5	0.3	0

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	10	0	75	68	0	2	0	91	0	0	0
Future Vol, veh/h	0	10	0	75	68	0	2	0	91	0	0	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	11	0	83	76	0	2	0	101	0	0	0
Number of Lanes	0	1	0	1	1	0	1	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	2	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	1	2	1
HCM Control Delay	8	8.4	7.6	0
HCM LOS	A	A	A	-

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	0%	100%	100%
Vol Right, %	0%	100%	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	2	91	10	75	68	0
LT Vol	2	0	0	75	0	0
Through Vol	0	0	10	0	68	0
RT Vol	0	91	0	0	0	0
Lane Flow Rate	2	101	11	83	76	0
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.003	0.12	0.015	0.121	0.099	0
Departure Headway (Hd)	5.474	4.271	4.951	5.22	4.72	5.079
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	658	844	726	683	754	0
Service Time	3.174	1.971	2.959	2.984	2.483	3.083
HCM Lane V/C Ratio	0.003	0.12	0.015	0.122	0.101	0
HCM Control Delay	8.2	7.6	8	8.7	8	8.1
HCM Lane LOS	A	A	A	A	A	N
HCM 95th-tile Q	0	0.4	0	0.4	0.3	0

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	38	386	3	6	322	54	1	1	2	67	1	45
Future Vol, veh/h	38	386	3	6	322	54	1	1	2	67	1	45
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	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	429	3	7	358	60	1	1	2	74	1	50

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	418	0	0	432	0	0	709	947	216	701	918	209
Stage 1	-	-	-	-	-	-	515	515	-	402	402	-
Stage 2	-	-	-	-	-	-	194	432	-	299	516	-
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	1138	-	-	1124	-	-	321	260	789	325	270	797
Stage 1	-	-	-	-	-	-	511	533	-	596	599	-
Stage 2	-	-	-	-	-	-	789	581	-	685	533	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1138	-	-	1124	-	-	290	249	789	312	258	797
Mov Cap-2 Maneuver	-	-	-	-	-	-	290	249	-	312	258	-
Stage 1	-	-	-	-	-	-	492	513	-	574	595	-
Stage 2	-	-	-	-	-	-	734	578	-	656	513	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.1	14.1	16
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	400	1138	-	-	1124	-	-	312	762
HCM Lane V/C Ratio	0.011	0.037	-	-	0.006	-	-	0.239	0.067
HCM Control Delay (s)	14.1	8.3	-	-	8.2	-	-	20.1	10.1
HCM Lane LOS	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.9	0.2

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	39	256	1	0	365	56	5	0	7	47	1	27
Future Vol, veh/h	39	256	1	0	365	56	5	0	7	47	1	27
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	-	-	100	-	-	-	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	284	1	0	406	62	6	0	8	52	1	30

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	468	0	0	285	0	0	575	839	143	665	808	234
Stage 1	-	-	-	-	-	-	371	371	-	437	437	-
Stage 2	-	-	-	-	-	-	204	468	-	228	371	-
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	1090	-	-	1274	-	-	401	300	879	345	313	768
Stage 1	-	-	-	-	-	-	622	618	-	568	578	-
Stage 2	-	-	-	-	-	-	779	560	-	754	618	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1090	-	-	1274	-	-	373	288	879	332	301	768
Mov Cap-2 Maneuver	-	-	-	-	-	-	373	288	-	332	301	-
Stage 1	-	-	-	-	-	-	598	594	-	546	578	-
Stage 2	-	-	-	-	-	-	747	560	-	718	594	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0	11.6	15
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	562	1090	-	-	1274	-	-	332	728
HCM Lane V/C Ratio	0.024	0.04	-	-	-	-	-	0.157	0.043
HCM Control Delay (s)	11.6	8.4	-	-	0	-	-	17.9	10.2
HCM Lane LOS	B	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.6	0.1

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	0	17	16	0	14	20	140	20	18	47	18
Future Vol, veh/h	14	0	17	16	0	14	20	140	20	18	47	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	0	19	18	0	16	22	156	22	20	52	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	321	324	62	323	323	167	72	0	0	178	0	0
Stage 1	102	102	-	211	211	-	-	-	-	-	-	-
Stage 2	219	222	-	112	112	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	632	594	1003	630	595	877	1528	-	-	1398	-	-
Stage 1	904	811	-	791	728	-	-	-	-	-	-	-
Stage 2	783	720	-	893	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	607	577	1003	605	578	877	1528	-	-	1398	-	-
Mov Cap-2 Maneuver	607	577	-	605	578	-	-	-	-	-	-	-
Stage 1	891	800	-	780	718	-	-	-	-	-	-	-
Stage 2	758	710	-	864	792	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	10.3	0.8	1.7
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1528	-	-	775	707	1398	-	-
HCM Lane V/C Ratio	0.015	-	-	0.044	0.047	0.014	-	-
HCM Control Delay (s)	7.4	-	-	9.9	10.3	7.6	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	0	9	9	0	7	21	78	21	18	39	18
Future Vol, veh/h	8	0	9	9	0	7	21	78	21	18	39	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	0	10	10	0	8	23	87	23	20	43	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	242	249	53	243	248	99	63	0	0	110	0	0
Stage 1	93	93	-	145	145	-	-	-	-	-	-	-
Stage 2	149	156	-	98	103	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	712	654	1014	711	655	957	1540	-	-	1480	-	-
Stage 1	914	818	-	858	777	-	-	-	-	-	-	-
Stage 2	854	769	-	908	810	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	691	635	1014	689	636	957	1540	-	-	1480	-	-
Mov Cap-2 Maneuver	691	635	-	689	636	-	-	-	-	-	-	-
Stage 1	900	807	-	845	765	-	-	-	-	-	-	-
Stage 2	834	757	-	887	799	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	9.7	1.3	1.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1540	-	-	831	785	1480	-	-
HCM Lane V/C Ratio	0.015	-	-	0.023	0.023	0.014	-	-
HCM Control Delay (s)	7.4	-	-	9.4	9.7	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	0	38	39	0	64	22	53	22	17	46	17
Future Vol, veh/h	63	0	38	39	0	64	22	53	22	17	46	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	70	0	42	43	0	71	24	59	24	19	51	19

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	254	230	61	239	227	71	70	0	0	83	0	0
Stage 1	99	99	-	119	119	-	-	-	-	-	-	-
Stage 2	155	131	-	120	108	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	699	670	1004	715	672	991	1531	-	-	1514	-	-
Stage 1	907	813	-	885	797	-	-	-	-	-	-	-
Stage 2	847	788	-	884	806	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	635	651	1004	670	653	991	1531	-	-	1514	-	-
Mov Cap-2 Maneuver	635	651	-	670	653	-	-	-	-	-	-	-
Stage 1	892	802	-	871	784	-	-	-	-	-	-	-
Stage 2	774	775	-	836	796	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	10	1.7	1.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1531	-	-	737	839	1514	-	-
HCM Lane V/C Ratio	0.016	-	-	0.152	0.136	0.012	-	-
HCM Control Delay (s)	7.4	-	-	10.8	10	7.4	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.5	0	-	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	0	20	21	0	34	22	53	22	18	20	18
Future Vol, veh/h	33	0	20	21	0	34	22	53	22	18	20	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	0	22	23	0	38	24	59	24	20	22	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	210	203	32	202	201	71	42	0	0	83	0	0
Stage 1	72	72	-	119	119	-	-	-	-	-	-	-
Stage 2	138	131	-	83	82	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	747	693	1042	756	695	991	1567	-	-	1514	-	-
Stage 1	938	835	-	885	797	-	-	-	-	-	-	-
Stage 2	865	788	-	925	827	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	703	674	1042	724	676	991	1567	-	-	1514	-	-
Mov Cap-2 Maneuver	703	674	-	724	676	-	-	-	-	-	-	-
Stage 1	924	824	-	872	785	-	-	-	-	-	-	-
Stage 2	819	776	-	893	816	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	9.5	1.7	2.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1567	-	-	801	869	1514	-	-
HCM Lane V/C Ratio	0.016	-	-	0.074	0.07	0.013	-	-
HCM Control Delay (s)	7.3	-	-	9.9	9.5	7.4	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.2	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	187	148	5	5	0
Future Vol, veh/h	0	187	148	5	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	208	164	6	6	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	170	0	-	0	375	167
Stage 1	-	-	-	-	167	-
Stage 2	-	-	-	-	208	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1407	-	-	-	626	877
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	827	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1407	-	-	-	626	877
Mov Cap-2 Maneuver	-	-	-	-	626	-
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	827	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1407	-	-	-	626
HCM Lane V/C Ratio	-	-	-	-	0.009
HCM Control Delay (s)	0	-	-	-	10.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	101	143	5	5	0
Future Vol, veh/h	0	101	143	5	5	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	112	159	6	6	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	165	0	-	0	274	162
Stage 1	-	-	-	-	162	-
Stage 2	-	-	-	-	112	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1413	-	-	-	716	883
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	913	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1413	-	-	-	716	883
Mov Cap-2 Maneuver	-	-	-	-	716	-
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	913	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1413	-	-	-	716
HCM Lane V/C Ratio	-	-	-	-	0.008
HCM Control Delay (s)	0	-	-	-	10.1
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	120	0	72	1	0	0	50	700	0	6	524	99
Future Vol, veh/h	120	0	72	1	0	0	50	700	0	6	524	99
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	0	-	0	150	-	-	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	133	0	80	1	0	0	56	778	0	7	582	110

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1097	-	291	1195	-	389	692	0	0	778	0	0
Stage 1	596	-	-	890	-	-	-	-	-	-	-	-
Stage 2	501	-	-	305	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	-	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	-	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	168	0	706	142	0	610	899	-	-	834	-	-
Stage 1	457	0	-	304	0	-	-	-	-	-	-	-
Stage 2	521	0	-	680	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	159	-	706	119	-	610	899	-	-	834	-	-
Mov Cap-2 Maneuver	159	-	-	119	-	-	-	-	-	-	-	-
Stage 1	429	-	-	285	-	-	-	-	-	-	-	-
Stage 2	489	-	-	598	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	60.7	35.5	0.6	0.1
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	899	-	-	159	706	119	-	834	-	-
HCM Lane V/C Ratio	0.062	-	-	0.839	0.113	0.009	-	0.008	-	-
HCM Control Delay (s)	9.3	-	-	90.6	10.8	35.5	0	9.4	-	-
HCM Lane LOS	A	-	-	F	B	E	A	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	5.6	0.4	0	-	0	-	-

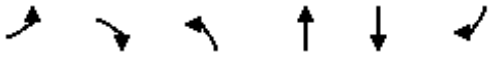
Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	66	0	39	20	0	1	52	1035	2	17	677	97
Future Vol, veh/h	66	0	39	20	0	1	52	1035	2	17	677	97
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	0	0	-	0	150	-	-	150	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	73	0	43	22	0	1	58	1150	2	19	752	108

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1481	-	376	1681	-	576	860	0	0	1152	0	0
Stage 1	790	-	-	1267	-	-	-	-	-	-	-	-
Stage 2	691	-	-	414	-	-	-	-	-	-	-	-
Critical Hdwy	7.54	-	6.94	7.54	-	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	-	-	6.54	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	-	3.32	3.52	-	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	87	0	622	62	0	460	777	-	-	602	-	-
Stage 1	350	0	-	179	0	-	-	-	-	-	-	-
Stage 2	401	0	-	586	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	80	-	622	53	-	460	777	-	-	602	-	-
Mov Cap-2 Maneuver	80	-	-	53	-	-	-	-	-	-	-	-
Stage 1	324	-	-	166	-	-	-	-	-	-	-	-
Stage 2	370	-	-	528	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	110.3	110.2	0.5	0.2
HCM LOS	F	F		

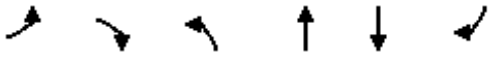
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	777	-	-	80	622	53	460	602	-	-
HCM Lane V/C Ratio	0.074	-	-	0.917	0.07	0.419	0.002	0.031	-	-
HCM Control Delay (s)	10	-	-	168.8	11.2	115.1	12.8	11.2	-	-
HCM Lane LOS	B	-	-	F	B	F	B	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	4.8	0.2	1.5	0	0.1	-	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	120	72	50	700	524	99
Future Volume (vph)	120	72	50	700	524	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.43	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	806	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	133	80	56	778	582	110
RTOR Reduction (vph)	0	65	0	0	0	50
Lane Group Flow (vph)	133	15	56	778	582	60
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	6.8	6.8	19.3	19.3	19.3	19.3
Effective Green, g (s)	6.8	6.8	19.3	19.3	19.3	19.3
Actuated g/C Ratio	0.19	0.19	0.55	0.55	0.55	0.55
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	342	306	443	1945	1945	870
v/s Ratio Prot				c0.22	0.16	
v/s Ratio Perm	c0.08	0.01	0.07			0.04
v/c Ratio	0.39	0.05	0.13	0.40	0.30	0.07
Uniform Delay, d1	12.3	11.5	3.8	4.6	4.3	3.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.1	0.1	0.1	0.1	0.0
Delay (s)	13.1	11.6	4.0	4.7	4.3	3.7
Level of Service	B	B	A	A	A	A
Approach Delay (s)	12.5			4.6	4.2	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	35.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	39	52	1035	677	97
Future Volume (vph)	66	39	52	1035	677	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1770	3539	3539	1583
Flt Permitted	0.95	1.00	0.37	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	682	3539	3539	1583
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	43	58	1150	752	108
RTOR Reduction (vph)	0	37	0	0	0	36
Lane Group Flow (vph)	73	6	58	1150	752	72
Turn Type	Perm	Perm	Perm	NA	NA	Perm
Protected Phases				2	6	
Permitted Phases	4	4	2			6
Actuated Green, G (s)	6.0	6.0	30.3	30.3	30.3	30.3
Effective Green, g (s)	6.0	6.0	30.3	30.3	30.3	30.3
Actuated g/C Ratio	0.13	0.13	0.67	0.67	0.67	0.67
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	234	209	456	2367	2367	1058
v/s Ratio Prot				c0.32	0.21	
v/s Ratio Perm	c0.04	0.00	0.09			0.05
v/c Ratio	0.31	0.03	0.13	0.49	0.32	0.07
Uniform Delay, d1	17.8	17.1	2.7	3.7	3.2	2.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.1	0.2	0.1	0.0
Delay (s)	18.5	17.2	2.8	3.8	3.2	2.6
Level of Service	B	B	A	A	A	A
Approach Delay (s)	18.0			3.8	3.2	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	45.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
12: Litchfield Road & Van Buren Street

12/12/2018

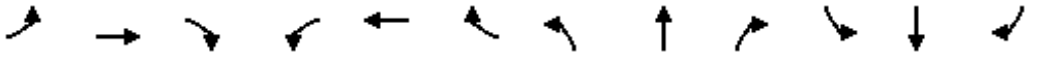
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	357	137	68	287	221	117	695	82	225	599	130
Future Volume (veh/h)	82	357	137	68	287	221	117	695	82	225	599	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	397	152	76	319	246	130	772	91	250	666	144
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent HeavyVeh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	293	711	317	272	694	309	426	1874	219	470	1594	711
Arrive On Green	0.06	0.20	0.20	0.05	0.20	0.20	0.06	0.40	0.40	0.11	0.45	0.45
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	4634	543	1781	3554	1585
Grp Volume(v), veh/h	91	397	152	76	319	246	130	566	297	250	666	144
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1702	1773	1781	1777	1585
Q Serve(g_s), s	3.1	7.7	6.5	2.6	6.1	11.4	3.2	9.1	9.2	6.0	9.8	4.2
Cycle Q Clear(g_c),s	3.1	7.7	6.5	2.6	6.1	11.4	3.2	9.1	9.2	6.0	9.8	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	293	711	317	272	694	309	426	1376	717	470	1594	711
V/C Ratio(X)	0.31	0.56	0.48	0.28	0.46	0.80	0.31	0.41	0.41	0.53	0.42	0.20
AvailCap(c_a), veh/h	365	1021	456	316	947	423	530	1376	717	686	1594	711
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	27.7	27.2	23.1	27.4	29.5	12.0	16.4	16.4	11.2	14.4	12.9
Incr Delay (d2), s/veh	0.6	0.7	1.1	0.6	0.5	7.2	0.4	0.9	1.8	0.9	0.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.1	2.4	1.0	2.5	4.7	1.2	3.4	3.7	2.1	3.6	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	28.4	28.3	23.7	27.8	36.7	12.4	17.3	18.2	12.1	15.2	13.5
LnGrp LOS	C	C	C	C	C	D	B	B	B	B	B	B
Approach Vol, veh/h		640			641			993			1060	
Approach Delay, s/veh		27.7			30.7			16.9			14.2	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	35.6	8.5	19.9	9.5	39.0	8.9	19.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.7	26.3	5.9	22.1	9.5	34.5	7.5	20.5
Max Q Clear Time (g_c+I1), s	8.0	11.2	4.6	9.7	5.2	11.8	5.1	13.4
Green Ext Time (p_c), s	0.5	4.7	0.0	2.3	0.1	4.9	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
12: Litchfield Road & Van Buren Street

12/12/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	191	365	105	133	536	286	134	886	114	357	688	118
Future Volume (veh/h)	191	365	105	133	536	286	134	886	114	357	688	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	212	406	117	148	596	318	149	984	127	397	764	131
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	328	940	419	384	864	385	344	1158	149	437	1254	559
Arrive On Green	0.10	0.26	0.26	0.08	0.24	0.24	0.08	0.25	0.25	0.18	0.35	0.35
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	4579	590	1781	3554	1585
Grp Volume(v), veh/h	212	406	117	148	596	318	149	731	380	397	764	131
Grp Sat Flow(s), veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1702	1764	1781	1777	1585
Q Serve(g_s), s	7.3	7.9	4.9	5.1	12.7	15.8	5.0	17.0	17.1	12.9	14.7	4.9
Cycle Q Clear(g_c), s	7.3	7.9	4.9	5.1	12.7	15.8	5.0	17.0	17.1	12.9	14.7	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	328	940	419	384	864	385	344	861	446	437	1254	559
V/C Ratio(X)	0.65	0.43	0.28	0.39	0.69	0.83	0.43	0.85	0.85	0.91	0.61	0.23
Avail Cap(c_a), veh/h	328	978	436	435	1004	448	412	912	473	485	1268	566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	25.4	24.3	20.9	28.6	29.8	20.3	29.6	29.6	18.7	22.2	19.0
Incr Delay (d2), s/veh	4.3	0.3	0.4	0.6	1.7	10.6	0.9	7.3	13.4	19.7	0.8	0.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	3.2	3.2	1.8	2.0	5.3	6.8	2.0	7.4	8.4	7.1	5.8	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.9	25.7	24.7	21.5	30.3	40.4	21.2	36.9	43.0	38.4	23.0	19.2
LnGrp LOS	C	C	C	C	C	D	C	D	D	D	C	B
Approach Vol, veh/h		735			1062			1260			1292	
Approach Delay, s/veh		25.6			32.1			36.9			27.4	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.7	25.5	11.4	26.5	11.4	33.9	13.2	24.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	17.5	22.3	9.3	22.9	10.1	29.7	8.7	23.5
Max Q Clear Time (g_c+I1), s	14.9	19.1	7.1	9.9	7.0	16.7	9.3	17.8
Green Ext Time (p_c), s	0.4	2.0	0.1	2.3	0.1	4.4	0.0	2.4

Intersection Summary	
HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C

PROJECT RAPID
CAMINO ORO/GRANT STREET
TRAFFIC IMPACT ANALYSIS

APPENDIX

Traffic Signal Warrant Analysis

General Description of Intersection

Existing Volumes

Project Number:	19008
Name of Major Roadway:	Litchfield Road
Direction:	N/S
# of NB Lanes:	2
# of SB Lanes:	2
85th percentile speed:	40 *mph*
Control #:	
Section #:	
Route #:	
Name of Minor Roadway:	Grant Street
Direction:	E/W
# of EB Lanes:	2
# of WB Lanes:	1
85th percentile speed:	25 *mph*
Control #:	
Section #:	
Route #:	
City:	Goodyear
Population:	80,000
County:	
District:	
Data Source:	24-hour approach
Date of Survey:	11/28/2018 *(press Ctrl + ;)*
Day of Week:	Wednesday
Weather:	Sunny
Surface Conditions:	Dry / Smooth

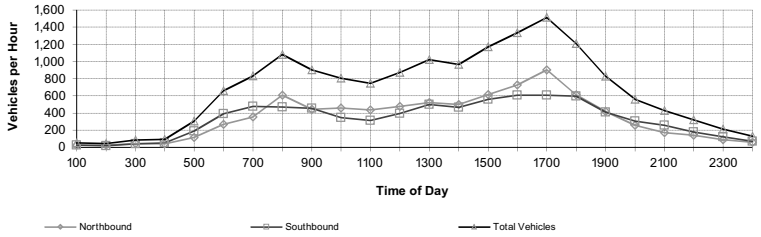
Enter Traffic Volumes:

Automated Traffic Counts

Street: **Litchfield Road**
Location: **Grant Street**

City/State: **Goodyear, AZ**
Project #: **19 008**
Date: **11/28/2018**
Day of Week: **Wednesday**
Data Source: **24-hour approach**

24-Hour Volume: **16,177**



Time	Northbound		Southbound	
	Vehicles	Peds	Vehicles	Peds
12:00 AM				
12:15 AM				
12:30 AM				
12:45 AM				
1:00 AM	25		28	
1:15 AM				
1:30 AM				
1:45 AM				
2:00 AM	27		19	
2:15 AM				
2:30 AM				
2:45 AM				
3:00 AM	45		41	
3:15 AM				
3:30 AM				
3:45 AM				
4:00 AM	40		52	
4:15 AM				
4:30 AM				
4:45 AM				
5:00 AM	115		191	
5:15 AM				
5:30 AM				
5:45 AM				
6:00 AM	269		390	
6:15 AM				
6:30 AM				
6:45 AM				
7:00 AM	354		479	
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM	609		471	
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM	445		456	
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM	458		346	
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM	435		312	
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM	477		395	

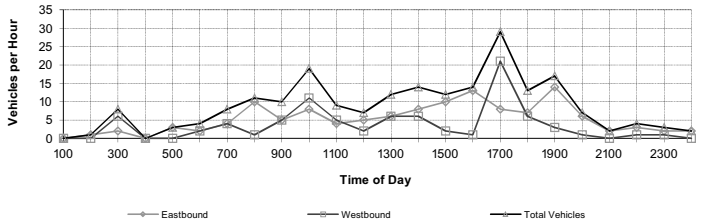
Time	Northbound		Southbound	
	Vehicles	Peds	Vehicles	Peds
12:00 PM				
12:15 PM				
12:30 PM				
12:45 PM				
1:00 PM	521		500	
1:15 PM				
1:30 PM				
1:45 PM				
2:00 PM	501		465	
2:15 PM				
2:30 PM				
2:45 PM				
3:00 PM	614		558	
3:15 PM				
3:30 PM				
3:45 PM				
4:00 PM	728		608	
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM	903		609	
5:15 PM				
5:30 PM				
5:45 PM				
6:00 PM	612		597	
6:15 PM				
6:30 PM				
6:45 PM				
7:00 PM	418		409	
7:15 PM				
7:30 PM				
7:45 PM				
8:00 PM	256		305	
8:15 PM				
8:30 PM				
8:45 PM				
9:00 PM	173		257	
9:15 PM				
9:30 PM				
9:45 PM				
10:00 PM	141		180	
10:15 PM				
10:30 PM				
10:45 PM				
11:00 PM	91		122	
11:15 PM				
11:30 PM				
11:45 PM				
12:00 AM	60		70	
	8,317		7,860	
			24-Hour Volume	16,177

Equipment ID#:

Automated Traffic Counts

Street: **Grant Street**
Location: **Litchfield Road**

City/State: **Goodyear, AZ**
Project #:
Date: **11/28/2018**
Day of Week: **Wednesday**
Data Source: **24-hour approach**



24-Hour Volume: **209**

Time	Eastbound		Westbound	
	Vehicles	Peds	Vehicles	Peds
12:00 AM				
12:15 AM				
12:30 AM				
12:45 AM				
1:00 AM	0		0	
1:15 AM				
1:30 AM				
1:45 AM				
2:00 AM	1		0	
2:15 AM				
2:30 AM				
2:45 AM				
3:00 AM	2		6	
3:15 AM				
3:30 AM				
3:45 AM				
4:00 AM	0		0	
4:15 AM				
4:30 AM				
4:45 AM				
5:00 AM	3		0	
5:15 AM				
5:30 AM				
5:45 AM				
6:00 AM	2		2	
6:15 AM				
6:30 AM				
6:45 AM				
7:00 AM	4		4	
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM	10		1	
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM	5		5	
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM	8		11	
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM	4		5	
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM	5		2	

Time	Eastbound		Westbound	
	Vehicles	Peds	Vehicles	Peds
12:00 PM				
12:59 PM				
12:30 PM				
12:45 PM				
1:00 PM	6		6	
1:59 PM				
1:30 PM				
1:45 PM				
2:00 PM	8		6	
2:59 PM				
2:30 PM				
2:45 PM				
3:00 PM	10		2	
3:59 PM				
3:30 PM				
3:45 PM				
4:00 PM	13		1	
4:59 PM				
4:30 PM				
12:00 AM				
5:00 PM	8		21	
5:59 PM				
5:30 PM				
5:45 PM				
6:00 PM	7		6	
6:59 PM				
6:30 PM				
6:45 PM				
7:00 PM	14		3	
7:59 PM				
7:30 PM				
7:45 PM				
8:00 PM	6		1	
8:59 PM				
8:30 PM				
8:45 PM				
9:00 PM	2		0	
9:59 PM				
9:30 PM				
9:45 PM				
10:00 PM	3		1	
10:59 PM				
10:30 PM				
10:45 PM				
11:00 PM	2		1	
11:59 PM				
11:30 PM				
11:45 PM				
12:00 AM	2		0	
	125		84	
24-Hour Volume			209	

Equipment ID#:

TRAFFIC SURVEY - COUNT ANALYSIS
2009 MUTCD WARRANTS

2019 With Project

County: _____ **District No.:** _____

City: Goodyear **Population:** 80,000 **Survey Date:** 11/28/2018

	Route #	Name	Control	Section	85% Speed
Major	_____	Litchfield Road	_____	- _____	40
Minor	_____	Grant Street	_____	- _____	25

Warrant 1: Eight- Hour Volumes

Condition A

Number of Lanes			Major Street Both Approaches Required		Minor Street High Volume Approach Required	
Major	Street	Minor Street	Urban	Rural*	Urban	Rural
1		1	500	350	150	105
2 or more		1	600	420	150	105
2 or more		2 or more	**600**	420	**200**	140
1		2 or more	500	350	200	140

*Criteria when the 85th percentile speed is greater than 40 mph or when the population is less than 10,000

Warrant 1

Time		Volume		Criteria		
				Major	Minor	
Begin	End	Major	Minor	>= 600	>= 200	Both Meet
12:00 AM	1:00 AM	53	0	N	N	N
1:00 AM	2:00 AM	46	1	N	N	N
2:00 AM	3:00 AM	86	6	N	N	N
3:00 AM	4:00 AM	92	0	N	N	N
4:00 AM	5:00 AM	306	3	N	N	N
5:00 AM	6:00 AM	659	2	Y	N	N
6:00 AM	7:00 AM	833	4	Y	N	N
7:00 AM	8:00 AM	1080	10	Y	N	N
8:00 AM	9:00 AM	901	5	Y	N	N
9:00 AM	10:00 AM	804	11	Y	N	N
10:00 AM	11:00 AM	747	5	Y	N	N
11:00 AM	12:00 PM	872	5	Y	N	N
12:00 PM	1:00 PM	1021	6	Y	N	N
1:00 PM	2:00 PM	966	8	Y	N	N
2:00 PM	3:00 PM	1172	10	Y	N	N
3:00 PM	4:00 PM	1336	13	Y	N	N
4:00 PM	5:00 PM	1512	21	Y	N	N
5:00 PM	6:00 PM	1209	7	Y	N	N
6:00 PM	7:00 PM	827	14	Y	N	N
7:00 PM	8:00 PM	561	6	N	N	N
8:00 PM	9:00 PM	430	2	N	N	N
9:00 PM	10:00 PM	321	3	N	N	N
10:00 PM	11:00 PM	213	2	N	N	N
11:00 PM	12:00 AM	130	2	N	N	N

Total number of hours, both the major (both approaches) and minor (high volume approach) met: 0

Hours Required: 8

Condition A is not satisfied

Warrant 1 not satisfied.

Warrant 1: Eight- Hour Volumes

Condition B

Number of Lanes			Major Street Both Approaches Required		Minor Street High Volume Approach Required	
Major	Street	Minor Street	Urban	Rural*	Urban	Rural*
1		1	750	525	75	53
2 or more		1	900	630	75	53
2 or more		2 or more	**900**	630	**100**	70
1		2 or more	750	525	100	70

*Criteria when the 85th percentile speed is greater than 40 mph or when the population is less than 10,000

Warrant 2

Time		Volume		Criteria		
				Major	Minor	
Begin	End	Major	Minor	>= 900	>=100	Both Meet
12:00 AM	1:00 AM	53	0	N	N	N
1:00 AM	2:00 AM	46	1	N	N	N
2:00 AM	3:00 AM	86	6	N	N	N
3:00 AM	4:00 AM	92	0	N	N	N
4:00 AM	5:00 AM	306	3	N	N	N
5:00 AM	6:00 AM	659	2	N	N	N
6:00 AM	7:00 AM	833	4	N	N	N
7:00 AM	8:00 AM	1080	10	Y	N	N
8:00 AM	9:00 AM	901	5	Y	N	N
9:00 AM	10:00 AM	804	11	N	N	N
10:00 AM	11:00 AM	747	5	N	N	N
11:00 AM	12:00 PM	872	5	N	N	N
12:00 PM	1:00 PM	1021	6	Y	N	N
1:00 PM	2:00 PM	966	8	Y	N	N
2:00 PM	3:00 PM	1172	10	Y	N	N
3:00 PM	4:00 PM	1336	13	Y	N	N
4:00 PM	5:00 PM	1512	21	Y	N	N
5:00 PM	6:00 PM	1209	7	Y	N	N
6:00 PM	7:00 PM	827	14	N	N	N
7:00 PM	8:00 PM	561	6	N	N	N
8:00 PM	9:00 PM	430	2	N	N	N
9:00 PM	10:00 PM	321	3	N	N	N
10:00 PM	11:00 PM	213	2	N	N	N
11:00 PM	12:00 AM	130	2	N	N	N

Total number of hours, both the major (both approaches) and minor (high volume approach) met: 0

Hours Required: 8

Condition B is not satisfied

Warrant 1 not satisfied.

Warrant 2: Four Hour Vehicular Volumes

This warrant is similar to Warrant 1A, except that the required traffic volumes must be present for at least four hours of an average day. The traffic volumes required are based on curves (Figure 4C-2) shown in the MUTCD.

*** The required traffic volumes for Warrant 2 do not meet for any one hour.**

Warrant 2 is not satisfied

Warrant 3, Condition A- Peak Hour Delay

This warrant is intended for application where traffic conditions will cause undue delay to traffic entering or crossing the major street. The peak hour delay warrant is satisfied when the following conditions exist for one hour (any four consecutive 15-minute periods) of an average weekday:

(1) The total delay by the traffic on a side street controlled by a stop sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach, **and**

(2) the volume on the side street (one direction) equals or exceeds 100 vph for one moving lane of traffic and 150 vph for two moving lanes, **and**

(3) the total traffic volume serviced during 1 hour equals or exceeds 800 vph for an intersection with four (or more) approaches or 650 vph for three approaches.

***Part 1 - not satisfied**
***Part 2 - not satisfied**
***Part 3 - satisfied**

Warrant 3, Condition B - Peak Hour Volume

This warrant applies to traffic entering from the minor street which encounters undue delay crossing the main street. This w is satisfied when the main street and side street traffic volumes satisfy the curves shown in Figure 4C-4 of the TMUTCD.

Warrant 3 Condition B is not satisfied.

Warrant 4: Pedestrian Volume

Required*	Existing
100 or more for each of any four hours	**0%**
OR	
190 or more during any one hour	**0%**

* For predominant pedestrian crossing speeds less than 3.5 ft/sec, the pedestrian volume may be reduced as much as 50 percent.

Gap Requirements

YES	NO	Is the nearest signal located more than 300 feet away?
YES	NO	For traffic flow which is not platooned, are there less than 60 gaps per hour of adequate length for the pedestrians to cross the street?

Warrant 4 is N/A.

Warrant 5: School Crossing

YES NO Is the number of adequate gaps in traffic stream during the period when the children are using the crossing less than the number of minutes in the same period?

Warrant 5 is N/A.

Warrant 6: Coordinate Systems

YES NO Are the adjacent signals in a signal system?
YES NO Would the resultant spacing be 1000 feet or more?

Warrant 6 is N/A.

Warrant 7: Crash Experience

YES NO Is 80% or more of one of Warrants #1, #2, or #3 met?
YES NO Have there been more than five accidents susceptible to correction by a traffic signal in 12 months?

Warrant 7 is N/A.

Warrant 8: Roadway Network

YES NO Does the major street having an existing or immediately projected entering volume of > 1000 vehicles per hour of a typical weekday?

YES NO Do 5-year projected traffic volumes meet Warrants 1, 2, or 3?

YES NO Is there an entering traffic volume of at least 1000 vehicles per hour for each of any 5 hours on a Saturday or Sunday?

Warrant 8 is N/A.

Summary:

Warrants satisfied: none

Warrants not satisfied: 1, 2, 3

Warrants not applicable: 4, 5, 6, 7, 8

Warrants not included in study: none

Warrant 2 - Four Hour Vehicular Volumes

85th % speed: <= 40 mph
Population: >= 10,000

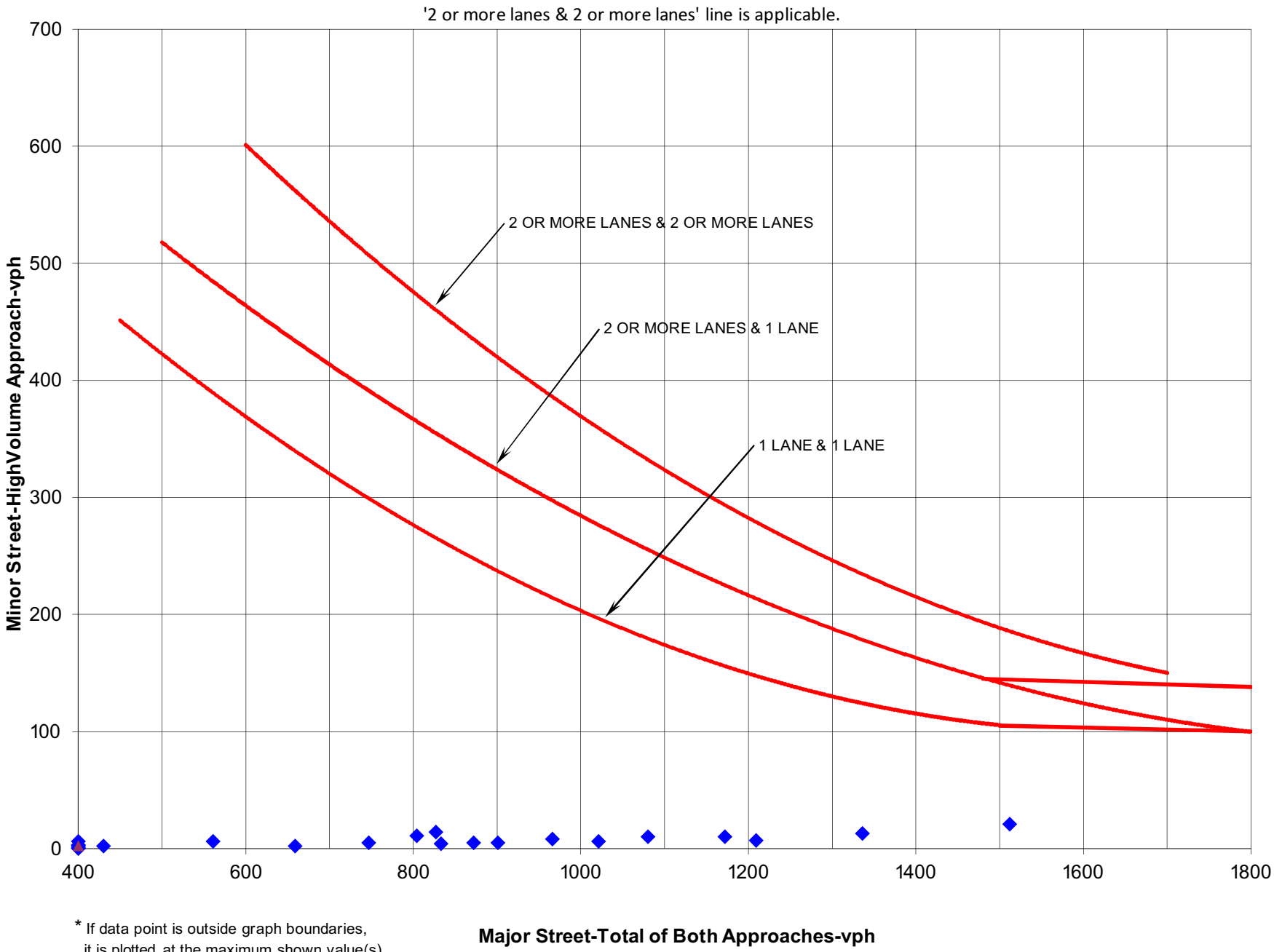
Major Street Lanes: 2
Minor Street Lanes: 2

Use Figure: 4C-1 2&2

Rank	Major Street Volume	Minor Street Volume	Figure 4C-1			Figure 4C-2		
			1&1	2&1	2&2	1&1	2&1	2&2
1	130	2	-	-	N	-	-	-
2	53	0	-	-	N	-	-	-
3	46	1	-	-	N	-	-	-
4	86	6	-	-	N	-	-	-
5	92	0	-	-	N	-	-	-
6	306	3	-	-	N	-	-	-
7	659	2	-	-	N	-	-	-
8	833	4	-	-	N	-	-	-
9	1080	10	-	-	N	-	-	-
10	901	5	-	-	N	-	-	-
11	804	11	-	-	N	-	-	-
12	747	5	-	-	N	-	-	-
13	872	5	-	-	N	-	-	-
14	1021	6	-	-	N	-	-	-
15	966	8	-	-	N	-	-	-
16	1172	10	-	-	N	-	-	-
17	1336	13	-	-	N	-	-	-
18	1512	21	-	-	N	-	-	-
19	1209	7	-	-	N	-	-	-
20	827	14	-	-	N	-	-	-
21	561	6	-	-	N	-	-	-
22	430	2	-	-	N	-	-	-
23	321	3	-	-	N	-	-	-
24	213	2	-	-	N	-	-	-
			0	0	0	0	0	0
Warrant 2 is not satisfied.			N	N	N	N	N	N

Warrant 3

Figure 4C-3 Peak Hour Warrant

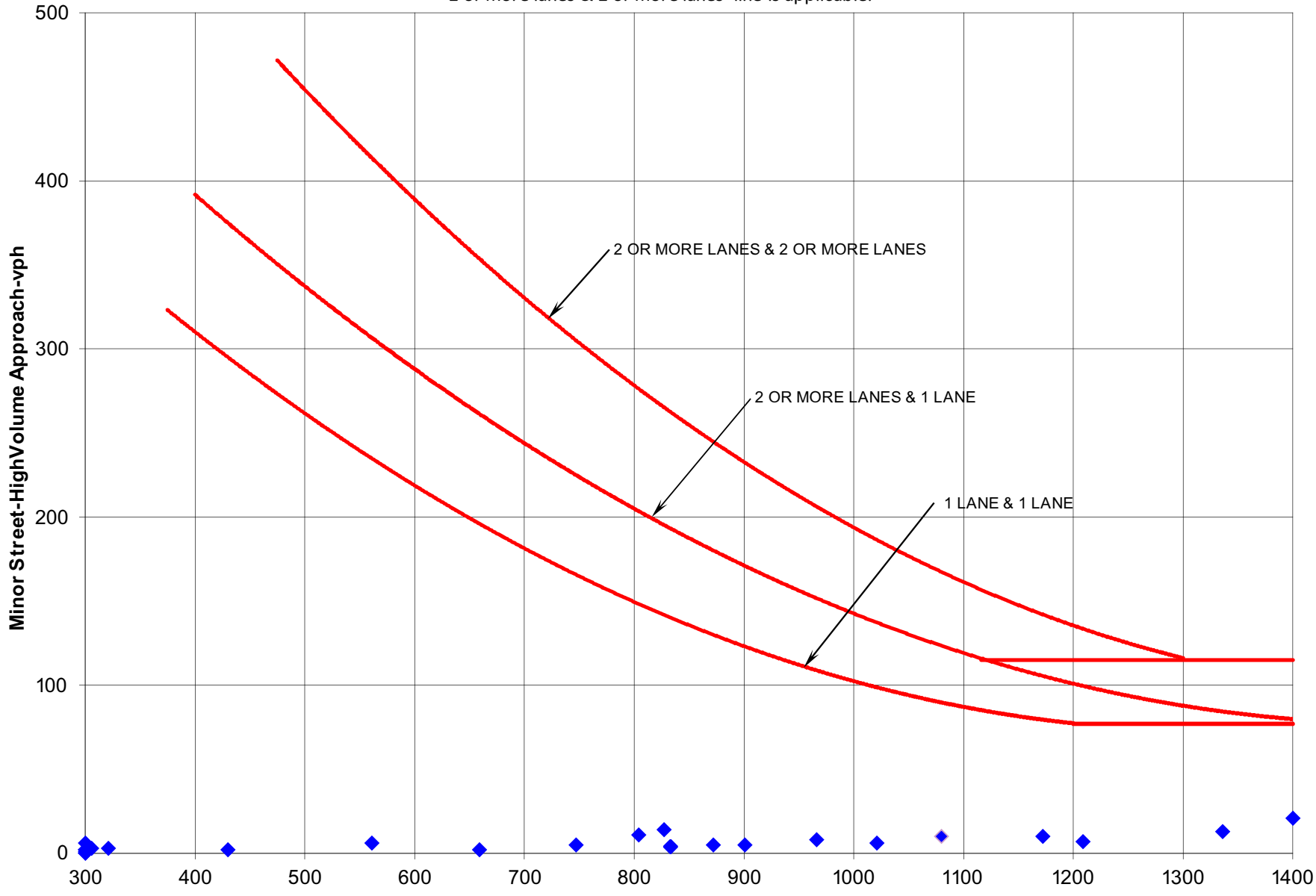


* If data point is outside graph boundaries, it is plotted at the maximum shown value(s).

Warrant 2

Figure 4C-1 Four Hour Volume Warrant

'2 or more lanes & 2 or more lanes' line is applicable.



* If data point is outside graph boundaries, it is plotted at the maximum shown value(s).

General Description of Intersection

2020 Without Project

Project Number:	19008
Name of Major Roadway:	Litchfield Road
Direction:	N/S
# of NB Lanes:	2
# of SB Lanes:	2
85th percentile speed:	40 *mph*
Control #:	
Section #:	
Route #:	
Name of Minor Roadway:	Grant Street
Direction:	E/W
# of EB Lanes:	2
# of WB Lanes:	1
85th percentile speed:	25 *mph*
Control #:	
Section #:	
Route #:	
City:	Goodyear
Population:	80,000
County:	
District:	
Data Source:	24-hour approach
Date of Survey:	11/28/2018 *(press Ctrl + ;)*
Day of Week:	Wednesday
Weather:	Sunny
Surface Conditions:	Dry, Smooth

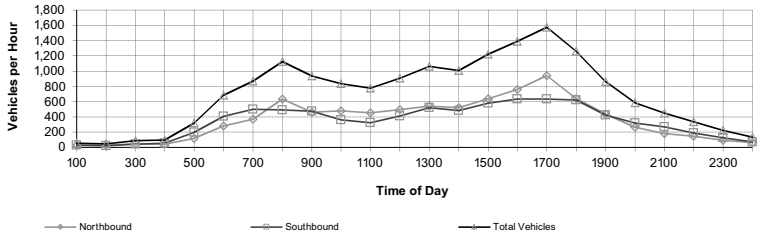
Enter Traffic Volumes:

Automated Traffic Counts

Street: **Litchfield Road**
Location: **Grant Street**

City/State: **Goodyear, AZ**
Project #: **19 008**
Date: **11/28/2018**
Day of Week: **Wednesday**
Data Source: **24-hour approach**

24-Hour Volume: **16,831**



Time	Northbound		Southbound	
	Vehicles	Peds	Vehicles	Peds
12:00 AM				
12:15 AM				
12:30 AM				
12:45 AM				
1:00 AM	26		29	
1:15 AM				
1:30 AM				
1:45 AM				
2:00 AM	28		20	
2:15 AM				
2:30 AM				
2:45 AM				
3:00 AM	47		43	
3:15 AM				
3:30 AM				
3:45 AM				
4:00 AM	42		54	
4:15 AM				
4:30 AM				
4:45 AM				
5:00 AM	120		199	
5:15 AM				
5:30 AM				
5:45 AM				
6:00 AM	280		406	
6:15 AM				
6:30 AM				
6:45 AM				
7:00 AM	368		498	
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM	634		490	
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM	463		474	
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM	477		360	
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM	453		325	
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM	496		411	

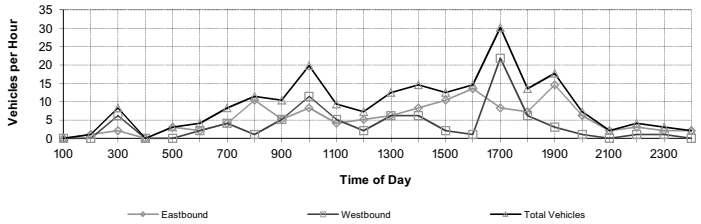
Time	Northbound		Southbound	
	Vehicles	Peds	Vehicles	Peds
12:00 PM				
12:15 PM				
12:30 PM				
12:45 PM				
1:00 PM	542		520	
1:15 PM				
1:30 PM				
1:45 PM				
2:00 PM	521		484	
2:15 PM				
2:30 PM				
2:45 PM				
3:00 PM	639		581	
3:15 PM				
3:30 PM				
3:45 PM				
4:00 PM	757		633	
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM	939		634	
5:15 PM				
5:30 PM				
5:45 PM				
6:00 PM	637		621	
6:15 PM				
6:30 PM				
6:45 PM				
7:00 PM	435		426	
7:15 PM				
7:30 PM				
7:45 PM				
8:00 PM	266		317	
8:15 PM				
8:30 PM				
8:45 PM				
9:00 PM	180		267	
9:15 PM				
9:30 PM				
9:45 PM				
10:00 PM	147		187	
10:15 PM				
10:30 PM				
10:45 PM				
11:00 PM	95		127	
11:15 PM				
11:30 PM				
11:45 PM				
12:00 AM	62		73	
	8,653		8,178	
			24-Hour Volume	16,831

Equipment ID#:

Automated Traffic Counts

Street: **Grant Street**
Location: **Litchfield Road**

City/State: **Goodyear, AZ**
Project #:
Date: **11/28/2018**
Day of Week: **Wednesday**
Data Source: **24-hour approach**



24-Hour Volume: **217**

Time	Eastbound		Westbound	
	Vehicles	Peds	Vehicles	Peds
12:00 AM				
12:15 AM				
12:30 AM				
12:45 AM				
1:00 AM	0		0	
1:15 AM				
1:30 AM				
1:45 AM				
2:00 AM	1		0	
2:15 AM				
2:30 AM				
2:45 AM				
3:00 AM	2		6	
3:15 AM				
3:30 AM				
3:45 AM				
4:00 AM	0		0	
4:15 AM				
4:30 AM				
4:45 AM				
5:00 AM	3		0	
5:15 AM				
5:30 AM				
5:45 AM				
6:00 AM	2		2	
6:15 AM				
6:30 AM				
6:45 AM				
7:00 AM	4		4	
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM	10		1	
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM	5		5	
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM	8		11	
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM	4		5	
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM	5		2	

Time	Eastbound		Westbound	
	Vehicles	Peds	Vehicles	Peds
12:00 PM				
12:59 PM				
12:30 PM				
12:45 PM				
1:00 PM	6		6	
1:59 PM				
1:30 PM				
1:45 PM				
2:00 PM	8		6	
2:59 PM				
2:30 PM				
2:45 PM				
3:00 PM	10		2	
3:59 PM				
3:30 PM				
3:45 PM				
4:00 PM	14		1	
4:59 PM				
4:30 PM				
12:00 AM				
5:00 PM	8		22	
5:59 PM				
5:30 PM				
5:45 PM				
6:00 PM	7		6	
6:59 PM				
6:30 PM				
6:45 PM				
7:00 PM	15		3	
7:59 PM				
7:30 PM				
7:45 PM				
8:00 PM	6		1	
8:59 PM				
8:30 PM				
8:45 PM				
9:00 PM	2		0	
9:59 PM				
9:30 PM				
9:45 PM				
10:00 PM	3		1	
10:59 PM				
10:30 PM				
10:45 PM				
11:00 PM	2		1	
11:59 PM				
11:30 PM				
11:45 PM				
12:00 AM	2		0	
	130		87	
	24-Hour Volume		217	

Equipment ID#:

TRAFFIC SURVEY - COUNT ANALYSIS
2009 MUTCD WARRANTS

2019 With Project

County: _____ **District No.:** _____

City: Goodyear **Population:** 80,000 **Survey Date:** 11/28/2018

	Route #	Name	Control	Section	85% Speed
Major		Litchfield Road		-	40
Minor		Grant Street		-	25

Warrant 1: Eight- Hour Volumes

Condition A

Number of Lanes			Major Street Both Approaches Required		Minor Street High Volume Approach Required	
Major	Street	Minor Street	Urban	Rural*	Urban	Rural
1		1	500	350	150	105
2 or more		1	600	420	150	105
2 or more		2 or more	**600**	420	**200**	140
1		2 or more	500	350	200	140

*Criteria when the 85th percentile speed is greater than 40 mph or when the population is less than 10,000

Warrant 1

Time		Volume		Criteria		
Begin	End	Major	Minor	Major >= 600	Minor >= 200	Both Meet
12:00 AM	1:00 AM	55.1412	0	N	N	N
1:00 AM	2:00 AM	47.8584	1.0404	N	N	N
2:00 AM	3:00 AM	89.4744	6.2424	N	N	N
3:00 AM	4:00 AM	95.7168	0	N	N	N
4:00 AM	5:00 AM	318.3624	3.1212	N	N	N
5:00 AM	6:00 AM	685.6236	2.0808	Y	N	N
6:00 AM	7:00 AM	866.6532	4.1616	Y	N	N
7:00 AM	8:00 AM	1123.632	10.404	Y	N	N
8:00 AM	9:00 AM	937.4004	5.202	Y	N	N
9:00 AM	10:00 AM	836.4816	11.4444	Y	N	N
10:00 AM	11:00 AM	777.1788	5.202	Y	N	N
11:00 AM	12:00 PM	907.2288	5.202	Y	N	N
12:00 PM	1:00 PM	1062.248	6.2424	Y	N	N
1:00 PM	2:00 PM	1005.026	8.3232	Y	N	N
2:00 PM	3:00 PM	1219.349	10.404	Y	N	N
3:00 PM	4:00 PM	1389.974	13.5252	Y	N	N
4:00 PM	5:00 PM	1573.085	21.8484	Y	N	N
5:00 PM	6:00 PM	1257.844	7.2828	Y	N	N
6:00 PM	7:00 PM	860.4108	14.5656	Y	N	N
7:00 PM	8:00 PM	583.6644	6.2424	N	N	N
8:00 PM	9:00 PM	447.372	2.0808	N	N	N
9:00 PM	10:00 PM	333.9684	3.1212	N	N	N
10:00 PM	11:00 PM	221.6052	2.0808	N	N	N
11:00 PM	12:00 AM	135.252	2.0808	N	N	N

Total number of hours, both the major (both approaches) and minor (high volume approach) met: 0

Hours Required: 8

Condition A is not satisfied

Warrant 1 not satisfied.

Warrant 1: Eight- Hour Volumes

Condition B

Number of Lanes			Major Street Both Approaches Required		Minor Street High Volume Approach Required	
Major	Street	Minor Street	Urban	Rural*	Urban	Rural*
1		1	750	525	75	53
2 or more		1	900	630	75	53
2 or more		2 or more	**900**	630	**100**	70
1		2 or more	750	525	100	70

*Criteria when the 85th percentile speed is greater than 40 mph or when the population is less than 10,000

Warrant 2

Time		Volume		Criteria		
Begin	End	Major	Minor	Major >= 900	Minor >=100	Both Meet
12:00 AM	1:00 AM	55.1412	0	N	N	N
1:00 AM	2:00 AM	47.8584	1.0404	N	N	N
2:00 AM	3:00 AM	89.4744	6.2424	N	N	N
3:00 AM	4:00 AM	95.7168	0	N	N	N
4:00 AM	5:00 AM	318.3624	3.1212	N	N	N
5:00 AM	6:00 AM	685.6236	2.0808	N	N	N
6:00 AM	7:00 AM	866.6532	4.1616	N	N	N
7:00 AM	8:00 AM	1123.632	10.404	Y	N	N
8:00 AM	9:00 AM	937.4004	5.202	Y	N	N
9:00 AM	10:00 AM	836.4816	11.4444	N	N	N
10:00 AM	11:00 AM	777.1788	5.202	N	N	N
11:00 AM	12:00 PM	907.2288	5.202	Y	N	N
12:00 PM	1:00 PM	1062.248	6.2424	Y	N	N
1:00 PM	2:00 PM	1005.026	8.3232	Y	N	N
2:00 PM	3:00 PM	1219.349	10.404	Y	N	N
3:00 PM	4:00 PM	1389.974	13.5252	Y	N	N
4:00 PM	5:00 PM	1573.085	21.8484	Y	N	N
5:00 PM	6:00 PM	1257.844	7.2828	Y	N	N
6:00 PM	7:00 PM	860.4108	14.5656	N	N	N
7:00 PM	8:00 PM	583.6644	6.2424	N	N	N
8:00 PM	9:00 PM	447.372	2.0808	N	N	N
9:00 PM	10:00 PM	333.9684	3.1212	N	N	N
10:00 PM	11:00 PM	221.6052	2.0808	N	N	N
11:00 PM	12:00 AM	135.252	2.0808	N	N	N

Total number of hours, both the major (both approaches) and minor (high volume approach) met: 0

Hours Required: 8

Condition B is not satisfied

Warrant 1 not satisfied.

Warrant 2: Four Hour Vehicular Volumes

This warrant is similar to Warrant 1A, except that the required traffic volumes must be present for at least four hours of an average day. The traffic volumes required are based on curves (Figure 4C-2) shown in the MUTCD.

*** The required traffic volumes for Warrant 2 do not meet for any one hour.**

Warrant 2 is not satisfied

Warrant 3, Condition A- Peak Hour Delay

This warrant is intended for application where traffic conditions will cause undue delay to traffic entering or crossing the major street. The peak hour delay warrant is satisfied when the following conditions exist for one hour (any four consecutive 15-minute periods) of an average weekday:

(1) The total delay by the traffic on a side street controlled by a stop sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach, **and**

(2) the volume on the side street (one direction) equals or exceeds 100 vph for one moving lane of traffic and 150 vph for two moving lanes, **and**

(3) the total traffic volume serviced during 1 hour equals or exceeds 800 vph for an intersection with four (or more) approaches or 650 vph for three approaches.

***Part 1 - not satisfied**
***Part 2 - not satisfied**
***Part 3 - satisfied**

Warrant 3, Condition B - Peak Hour Volume

This warrant applies to traffic entering from the minor street which encounters undue delay crossing the main street. This w is satisfied when the main street and side street traffic volumes satisfy the curves shown in Figure 4C-4 of the TMUTCD.

Warrant 3 Condition B is not satisfied.

Warrant 4: Pedestrian Volume

Required*	Existing
100 or more for each of any four hours	**0%**
OR	
190 or more during any one hour	**0%**

* For predominant pedestrian crossing speeds less than 3.5 ft/sec, the pedestrian volume may be reduced as much as 50 percent.

Gap Requirements

YES	NO	Is the nearest signal located more than 300 feet away?
YES	NO	For traffic flow which is not platooned, are there less than 60 gaps per hour of adequate length for the pedestrians to cross the street?

Warrant 4 is N/A.

Warrant 5: School Crossing

YES NO Is the number of adequate gaps in traffic stream during the period when the children are using the crossing less than the number of minutes in the same period?

Warrant 5 is N/A.

Warrant 6: Coordinate Systems

YES NO Are the adjacent signals in a signal system?
YES NO Would the resultant spacing be 1000 feet or more?

Warrant 6 is N/A.

Warrant 7: Crash Experience

YES NO Is 80% or more of one of Warrants #1, #2, or #3 met?
YES NO Have there been more than five accidents susceptible to correction by a traffic signal in 12 months?

Warrant 7 is N/A.

Warrant 8: Roadway Network

YES NO Does the major street having an existing or immediately projected entering volume of > 1000 vehicles per hour of a typical weekday?

YES NO Do 5-year projected traffic volumes meet Warrants 1, 2, or 3?

YES NO Is there an entering traffic volume of at least 1000 vehicles per hour for each of any 5 hours on a Saturday or Sunday?

Warrant 8 is N/A.

Summary:

Warrants satisfied: none

Warrants not satisfied: 1, 2, 3

Warrants not applicable: 4, 5, 6, 7, 8

Warrants not included in study: none

Warrant 2 - Four Hour Vehicular Volumes

85th % speed: <= 40 mph
Population: >= 10,000

Major Street Lanes: 2
Minor Street Lanes: 2

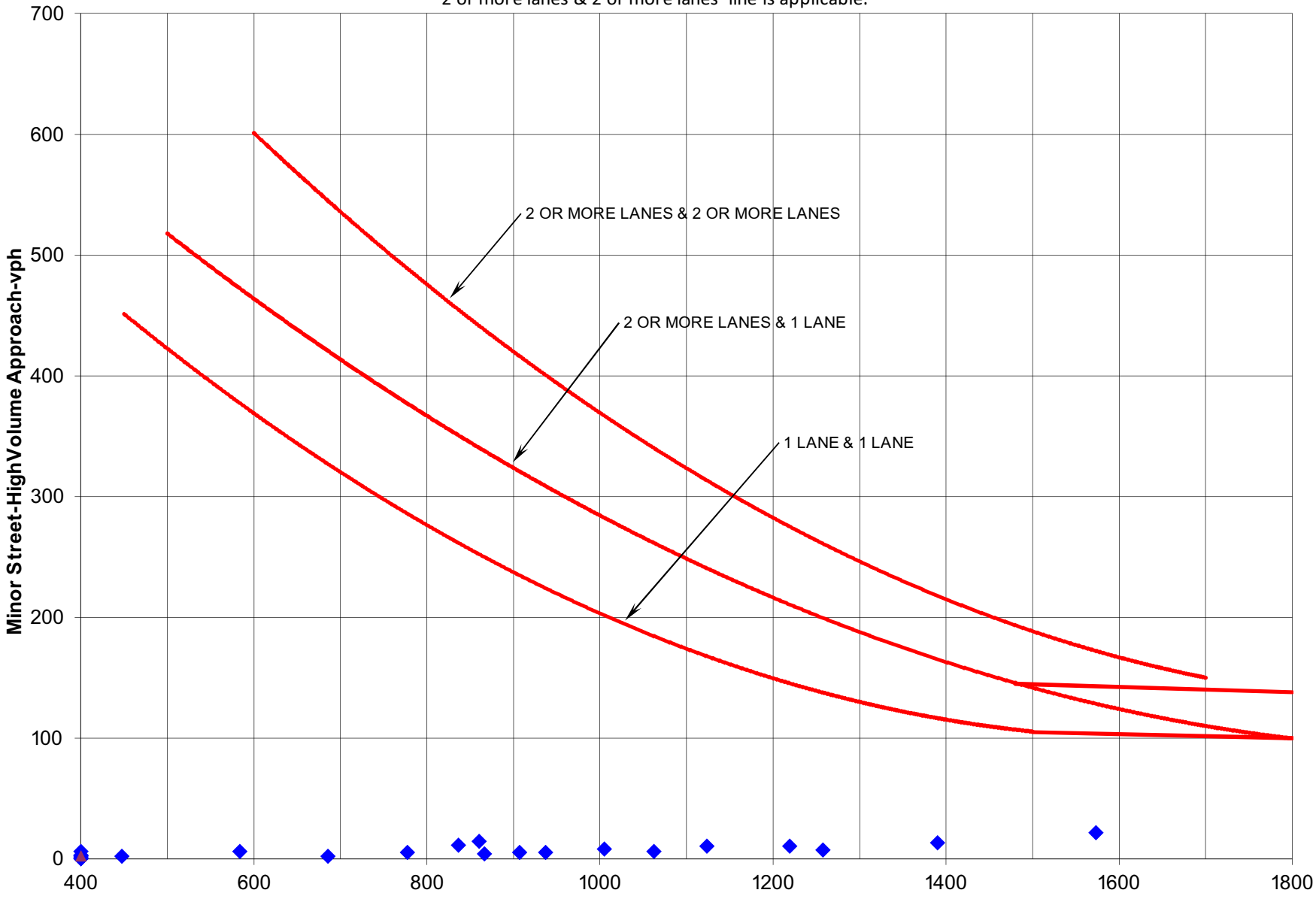
Use Figure: 4C-1 2&2

Rank	Major Street Volume	Minor Street Volume	Figure 4C-1			Figure 4C-2		
			1&1	2&1	2&2	1&1	2&1	2&2
1	135.252	2.0808	-	-	N	-	-	-
2	55.1412	0	-	-	N	-	-	-
3	47.8584	1.0404	-	-	N	-	-	-
4	89.4744	6.2424	-	-	N	-	-	-
5	95.7168	0	-	-	N	-	-	-
6	318.3624	3.1212	-	-	N	-	-	-
7	685.6236	2.0808	-	-	N	-	-	-
8	866.6532	4.1616	-	-	N	-	-	-
9	1123.632	10.404	-	-	N	-	-	-
10	937.4004	5.202	-	-	N	-	-	-
11	836.4816	11.4444	-	-	N	-	-	-
12	777.1788	5.202	-	-	N	-	-	-
13	907.2288	5.202	-	-	N	-	-	-
14	1062.2484	6.2424	-	-	N	-	-	-
15	1005.0264	8.3232	-	-	N	-	-	-
16	1219.3488	10.404	-	-	N	-	-	-
17	1389.9744	13.5252	-	-	N	-	-	-
18	1573.0848	21.8484	-	-	N	-	-	-
19	1257.8436	7.2828	-	-	N	-	-	-
20	860.4108	14.5656	-	-	N	-	-	-
21	583.6644	6.2424	-	-	N	-	-	-
22	447.372	2.0808	-	-	N	-	-	-
23	333.9684	3.1212	-	-	N	-	-	-
24	221.6052	2.0808	-	-	N	-	-	-
			0	0	0	0	0	0
Warrant 2 is not satisfied.			N	N	N	N	N	N

Warrant 3

Figure 4C-3 Peak Hour Warrant

'2 or more lanes & 2 or more lanes' line is applicable.

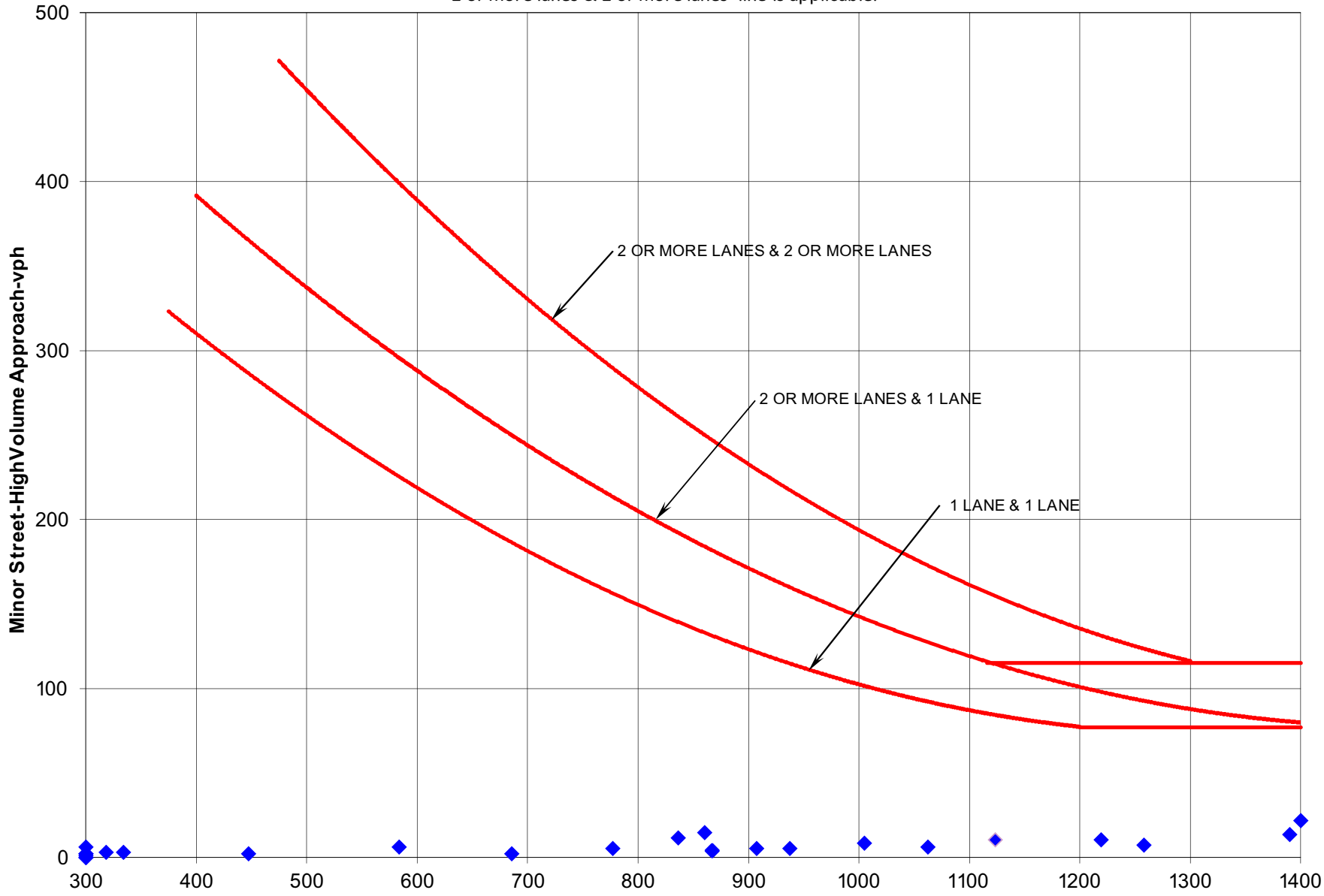


* If data point is outside graph boundaries, it is plotted at the maximum shown value(s).

Warrant 2

Figure 4C-1 Four Hour Volume Warrant

'2 or more lanes & 2 or more lanes' line is applicable.



* If data point is outside graph boundaries, it is plotted at the maximum shown value(s).

General Description of Intersection

2025 Without Project

Project Number:	19008
Name of Major Roadway:	Litchfield Road
Direction:	N/S
# of NB Lanes:	2
# of SB Lanes:	2
85th percentile speed:	40 *mph*
Control #:	
Section #:	
Route #:	
Name of Minor Roadway:	Grant Street
Direction:	E/W
# of EB Lanes:	2
# of WB Lanes:	1
85th percentile speed:	25 *mph*
Control #:	
Section #:	
Route #:	
City:	Goodyear
Population:	80,000
County:	
District:	
Data Source:	24-hour approach
Date of Survey:	11/28/2018 *(press Ctrl + ;)*
Day of Week:	Wednesday
Weather:	Sunny
Surface Conditions:	Dry, Smooth

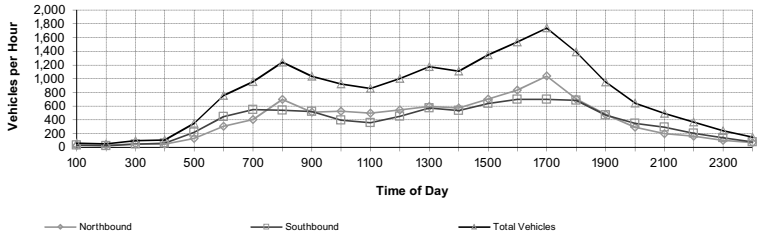
Enter Traffic Volumes:

Automated Traffic Counts

Street: **Litchfield Road**
Location: **Grant Street**

City/State: **Goodyear, AZ**
Project #: **19 008**
Date: **11/28/2018**
Day of Week: **Wednesday**
Data Source: **24-hour approach**

24-Hour Volume: **18,582**



Time	Northbound		Southbound	
	Vehicles	Peds	Vehicles	Peds
12:00 AM				
12:15 AM				
12:30 AM				
12:45 AM				
1:00 AM	29		32	
1:15 AM				
1:30 AM				
1:45 AM				
2:00 AM	31		22	
2:15 AM				
2:30 AM				
2:45 AM				
3:00 AM	52		47	
3:15 AM				
3:30 AM				
3:45 AM				
4:00 AM	46		60	
4:15 AM				
4:30 AM				
4:45 AM				
5:00 AM	132		219	
5:15 AM				
5:30 AM				
5:45 AM				
6:00 AM	309		448	
6:15 AM				
6:30 AM				
6:45 AM				
7:00 AM	407		550	
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM	700		541	
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM	511		524	
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM	526		397	
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM	500		358	
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM	548		454	

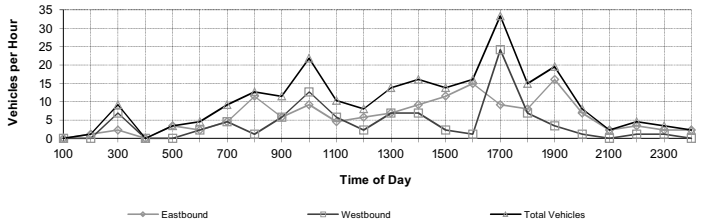
Time	Northbound		Southbound	
	Vehicles	Peds	Vehicles	Peds
12:00 PM				
12:15 PM				
12:30 PM				
12:45 PM				
1:00 PM	598		574	
1:15 PM				
1:30 PM				
1:45 PM				
2:00 PM	575		534	
2:15 PM				
2:30 PM				
2:45 PM				
3:00 PM	705		641	
3:15 PM				
3:30 PM				
3:45 PM				
4:00 PM	836		698	
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM	1037		700	
5:15 PM				
5:30 PM				
5:45 PM				
6:00 PM	703		686	
6:15 PM				
6:30 PM				
6:45 PM				
7:00 PM	480		470	
7:15 PM				
7:30 PM				
7:45 PM				
8:00 PM	294		350	
8:15 PM				
8:30 PM				
8:45 PM				
9:00 PM	199		295	
9:15 PM				
9:30 PM				
9:45 PM				
10:00 PM	162		207	
10:15 PM				
10:30 PM				
10:45 PM				
11:00 PM	105		140	
11:15 PM				
11:30 PM				
11:45 PM				
12:00 AM	69		80	
	9,554		9,029	
			24-Hour Volume	18,582

Equipment ID#:

Automated Traffic Counts

Street: **Grant Street**
Location: **Litchfield Road**

City/State: **Goodyear, AZ**
Project #:
Date: **11/28/2018**
Day of Week: **Wednesday**
Data Source: **24-hour approach**



24-Hour Volume: **240**

Time	Eastbound		Westbound	
	Vehicles	Peds	Vehicles	Peds
12:00 AM				
12:15 AM				
12:30 AM				
12:45 AM				
1:00 AM	0		0	
1:15 AM				
1:30 AM				
1:45 AM				
2:00 AM	1		0	
2:15 AM				
2:30 AM				
2:45 AM				
3:00 AM	2		7	
3:15 AM				
3:30 AM				
3:45 AM				
4:00 AM	0		0	
4:15 AM				
4:30 AM				
4:45 AM				
5:00 AM	3		0	
5:15 AM				
5:30 AM				
5:45 AM				
6:00 AM	2		2	
6:15 AM				
6:30 AM				
6:45 AM				
7:00 AM	5		5	
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM	11		1	
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM	6		6	
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM	9		13	
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM	5		6	
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM	6		2	

Time	Eastbound		Westbound	
	Vehicles	Peds	Vehicles	Peds
12:00 PM				
12:59 PM				
12:30 PM				
12:45 PM				
1:00 PM	7		7	
1:59 PM				
1:30 PM				
1:45 PM				
2:00 PM	9		7	
2:59 PM				
2:30 PM				
2:45 PM				
3:00 PM	11		2	
3:59 PM				
3:30 PM				
3:45 PM				
4:00 PM	15		1	
4:59 PM				
4:30 PM				
12:00 AM				
5:00 PM	9		24	
5:59 PM				
5:30 PM				
5:45 PM				
6:00 PM	8		7	
6:59 PM				
6:30 PM				
6:45 PM				
7:00 PM	16		3	
7:59 PM				
7:30 PM				
7:45 PM				
8:00 PM	7		1	
8:59 PM				
8:30 PM				
8:45 PM				
9:00 PM	2		0	
9:59 PM				
9:30 PM				
9:45 PM				
10:00 PM	3		1	
10:59 PM				
10:30 PM				
10:45 PM				
11:00 PM	2		1	
11:59 PM				
11:30 PM				
11:45 PM				
12:00 AM	2		0	
	144		96	
24-Hour Volume			240	

Equipment ID#:

TRAFFIC SURVEY - COUNT ANALYSIS
2009 MUTCD WARRANTS

2019 With Project

County: _____ **District No.:** _____

City: Goodyear **Population:** 80,000 **Survey Date:** 11/28/2018

	Route #	Name	Control	Section	85% Speed
Major	_____	Litchfield Road	_____	- _____	40
Minor	_____	Grant Street	_____	- _____	25

Warrant 1: Eight- Hour Volumes

Condition A

Number of Lanes			Major Street Both Approaches Required		Minor Street High Volume Approach Required	
Major	Street	Minor Street	Urban	Rural*	Urban	Rural
1		1	500	350	150	105
2 or more		1	600	420	150	105
2 or more		2 or more	**600**	420	**200**	140
1		2 or more	500	350	200	140

*Criteria when the 85th percentile speed is greater than 40 mph or when the population is less than 10,000

Warrant 1

Time		Volume		Criteria Major	Criteria Minor	
Begin	End	Major	Minor	>= 600	>= 200	Both Meet
12:00 AM	1:00 AM	60.88034	0	N	N	N
1:00 AM	2:00 AM	52.83954	1.1486857	N	N	N
2:00 AM	3:00 AM	98.78697	6.892114	N	N	N
3:00 AM	4:00 AM	105.6791	0	N	N	N
4:00 AM	5:00 AM	351.4978	3.446057	N	N	N
5:00 AM	6:00 AM	756.9839	2.2973713	Y	N	N
6:00 AM	7:00 AM	956.8552	4.5947427	Y	N	N
7:00 AM	8:00 AM	1240.581	11.486857	Y	N	N
8:00 AM	9:00 AM	1034.966	5.7434283	Y	N	N
9:00 AM	10:00 AM	923.5433	12.635542	Y	N	N
10:00 AM	11:00 AM	858.0682	5.7434283	Y	N	N
11:00 AM	12:00 PM	1001.654	5.7434283	Y	N	N
12:00 PM	1:00 PM	1172.808	6.892114	Y	N	N
1:00 PM	2:00 PM	1109.63	9.1894853	Y	N	N
2:00 PM	3:00 PM	1346.26	11.486857	Y	N	N
3:00 PM	4:00 PM	1534.644	14.932914	Y	N	N
4:00 PM	5:00 PM	1736.813	24.122399	Y	N	N
5:00 PM	6:00 PM	1388.761	8.0407997	Y	N	N
6:00 PM	7:00 PM	949.963	16.081599	Y	N	N
7:00 PM	8:00 PM	644.4127	6.892114	Y	N	N
8:00 PM	9:00 PM	493.9348	2.2973713	N	N	N
9:00 PM	10:00 PM	368.7281	3.446057	N	N	N
10:00 PM	11:00 PM	244.67	2.2973713	N	N	N
11:00 PM	12:00 AM	149.3291	2.2973713	N	N	N

Total number of hours, both the major (both approaches) and minor (high volume approach) met: 0

Hours Required: 8

Condition A is not satisfied

Warrant 1 not satisfied.

Warrant 1: Eight- Hour Volumes

Condition B

Number of Lanes			Major Street Both Approaches Required		Minor Street High Volume Approach Required	
Major	Street	Minor Street	Urban	Rural*	Urban	Rural*
1		1	750	525	75	53
2 or more		1	900	630	75	53
2 or more		2 or more	**900**	630	**100**	70
1		2 or more	750	525	100	70

*Criteria when the 85th percentile speed is greater than 40 mph or when the population is less than 10,000

Warrant 2

Time		Volume		Criteria		
Begin	End	Major	Minor	Major >= 900	Minor >=100	Both Meet
12:00 AM	1:00 AM	60.88034	0	N	N	N
1:00 AM	2:00 AM	52.83954	1.1486857	N	N	N
2:00 AM	3:00 AM	98.78697	6.892114	N	N	N
3:00 AM	4:00 AM	105.6791	0	N	N	N
4:00 AM	5:00 AM	351.4978	3.446057	N	N	N
5:00 AM	6:00 AM	756.9839	2.2973713	N	N	N
6:00 AM	7:00 AM	956.8552	4.5947427	Y	N	N
7:00 AM	8:00 AM	1240.581	11.486857	Y	N	N
8:00 AM	9:00 AM	1034.966	5.7434283	Y	N	N
9:00 AM	10:00 AM	923.5433	12.635542	Y	N	N
10:00 AM	11:00 AM	858.0682	5.7434283	N	N	N
11:00 AM	12:00 PM	1001.654	5.7434283	Y	N	N
12:00 PM	1:00 PM	1172.808	6.892114	Y	N	N
1:00 PM	2:00 PM	1109.63	9.1894853	Y	N	N
2:00 PM	3:00 PM	1346.26	11.486857	Y	N	N
3:00 PM	4:00 PM	1534.644	14.932914	Y	N	N
4:00 PM	5:00 PM	1736.813	24.122399	Y	N	N
5:00 PM	6:00 PM	1388.761	8.0407997	Y	N	N
6:00 PM	7:00 PM	949.963	16.081599	Y	N	N
7:00 PM	8:00 PM	644.4127	6.892114	N	N	N
8:00 PM	9:00 PM	493.9348	2.2973713	N	N	N
9:00 PM	10:00 PM	368.7281	3.446057	N	N	N
10:00 PM	11:00 PM	244.67	2.2973713	N	N	N
11:00 PM	12:00 AM	149.3291	2.2973713	N	N	N

Total number of hours, both the major (both approaches) and minor (high volume approach) met: 0

Hours Required: 8

Condition B is not satisfied

Warrant 1 not satisfied.

Warrant 2: Four Hour Vehicular Volumes

This warrant is similar to Warrant 1A, except that the required traffic volumes must be present for at least four hours of an average day. The traffic volumes required are based on curves (Figure 4C-2) shown in the MUTCD.

*** The required traffic volumes for Warrant 2 do not meet for any one hour.**

Warrant 2 is not satisfied

Warrant 3, Condition A- Peak Hour Delay

This warrant is intended for application where traffic conditions will cause undue delay to traffic entering or crossing the major street. The peak hour delay warrant is satisfied when the following conditions exist for one hour (any four consecutive 15-minute periods) of an average weekday:

(1) The total delay by the traffic on a side street controlled by a stop sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach, **and**

(2) the volume on the side street (one direction) equals or exceeds 100 vph for one moving lane of traffic and 150 vph for two moving lanes, **and**

(3) the total traffic volume serviced during 1 hour equals or exceeds 800 vph for an intersection with four (or more) approaches or 650 vph for three approaches.

***Part 1 - not satisfied**
***Part 2 - not satisfied**
***Part 3 - satisfied**

Warrant 3, Condition B - Peak Hour Volume

This warrant applies to traffic entering from the minor street which encounters undue delay crossing the main street. This w is satisfied when the main street and side street traffic volumes satisfy the curves shown in Figure 4C-4 of the TMUTCD.

Warrant 3 Condition B is not satisfied.

Warrant 4: Pedestrian Volume

Required*	Existing
100 or more for each of any four hours	**0%**
OR	
190 or more during any one hour	**0%**

* For predominant pedestrian crossing speeds less than 3.5 ft/sec, the pedestrian volume may be reduced as much as 50 percent.

Gap Requirements

YES	NO	Is the nearest signal located more than 300 feet away?
YES	NO	For traffic flow which is not platooned, are there less than 60 gaps per hour of adequate length for the pedestrians to cross the street?

Warrant 4 is N/A.

Warrant 5: School Crossing

YES NO Is the number of adequate gaps in traffic stream during the period when the children are using the crossing less than the number of minutes in the same period?

Warrant 5 is N/A.

Warrant 6: Coordinate Systems

YES NO Are the adjacent signals in a signal system?
YES NO Would the resultant spacing be 1000 feet or more?

Warrant 6 is N/A.

Warrant 7: Crash Experience

YES NO Is 80% or more of one of Warrants #1, #2, or #3 met?
YES NO Have there been more than five accidents susceptible to correction by a traffic signal in 12 months?

Warrant 7 is N/A.

Warrant 8: Roadway Network

YES NO Does the major street having an existing or immediately projected entering volume of > 1000 vehicles per hour of a typical weekday?

YES NO Do 5-year projected traffic volumes meet Warrants 1, 2, or 3?

YES NO Is there an entering traffic volume of at least 1000 vehicles per hour for each of any 5 hours on a Saturday or Sunday?

Warrant 8 is N/A.

Summary:

Warrants satisfied: none

Warrants not satisfied: 1, 2, 3

Warrants not applicable: 4, 5, 6, 7, 8

Warrants not included in study: none

Warrant 2 - Four Hour Vehicular Volumes

85th % speed: <= 40 mph
Population: >= 10,000

Major Street Lanes: 2
Minor Street Lanes: 2

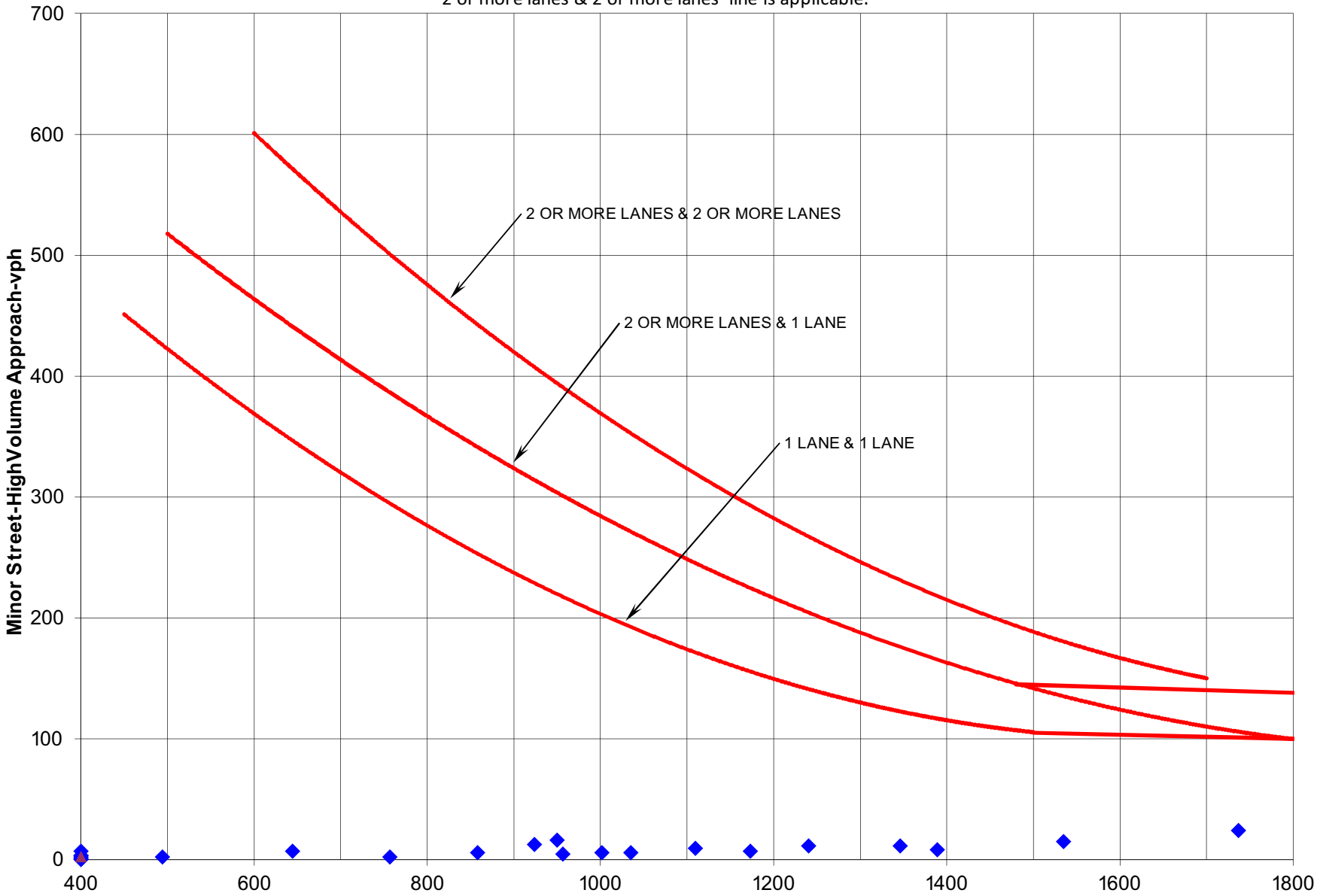
Use Figure: 4C-1 2&2

Rank	Major Street Volume	Minor Street Volume	Figure 4C-1			Figure 4C-2		
			1&1	2&1	2&2	1&1	2&1	2&2
1	149.3291368	2.29737134	-	-	N	-	-	-
2	60.88034039	0	-	-	N	-	-	-
3	52.83954071	1.14868567	-	-	N	-	-	-
4	98.78696742	6.89211401	-	-	N	-	-	-
5	105.6790814	0	-	-	N	-	-	-
6	351.4978143	3.446057	-	-	N	-	-	-
7	756.983855	2.29737134	-	-	N	-	-	-
8	956.8551612	4.59474267	-	-	N	-	-	-
9	1240.580521	11.4868567	-	-	N	-	-	-
10	1034.965787	5.74342834	-	-	N	-	-	-
11	923.5432768	12.6355423	-	-	N	-	-	-
12	858.0681937	5.74342834	-	-	N	-	-	-
13	1001.653902	5.74342834	-	-	N	-	-	-
14	1172.808067	6.89211401	-	-	N	-	-	-
15	1109.630355	9.18948534	-	-	N	-	-	-
16	1346.259602	11.4868567	-	-	N	-	-	-
17	1534.644052	14.9329137	-	-	N	-	-	-
18	1736.812729	24.122399	-	-	N	-	-	-
19	1388.760972	8.04079967	-	-	N	-	-	-
20	949.9630471	16.0815993	-	-	N	-	-	-
21	644.4126596	6.89211401	-	-	N	-	-	-
22	493.9348371	2.29737134	-	-	N	-	-	-
23	368.7280993	3.446057	-	-	N	-	-	-
24	244.6700472	2.29737134	-	-	N	-	-	-
			0	0	0	0	0	0
Warrant 2 is not satisfied.			N	N	N	N	N	N

Warrant 3

Figure 4C-3 Peak Hour Warrant

'2 or more lanes & 2 or more lanes' line is applicable.



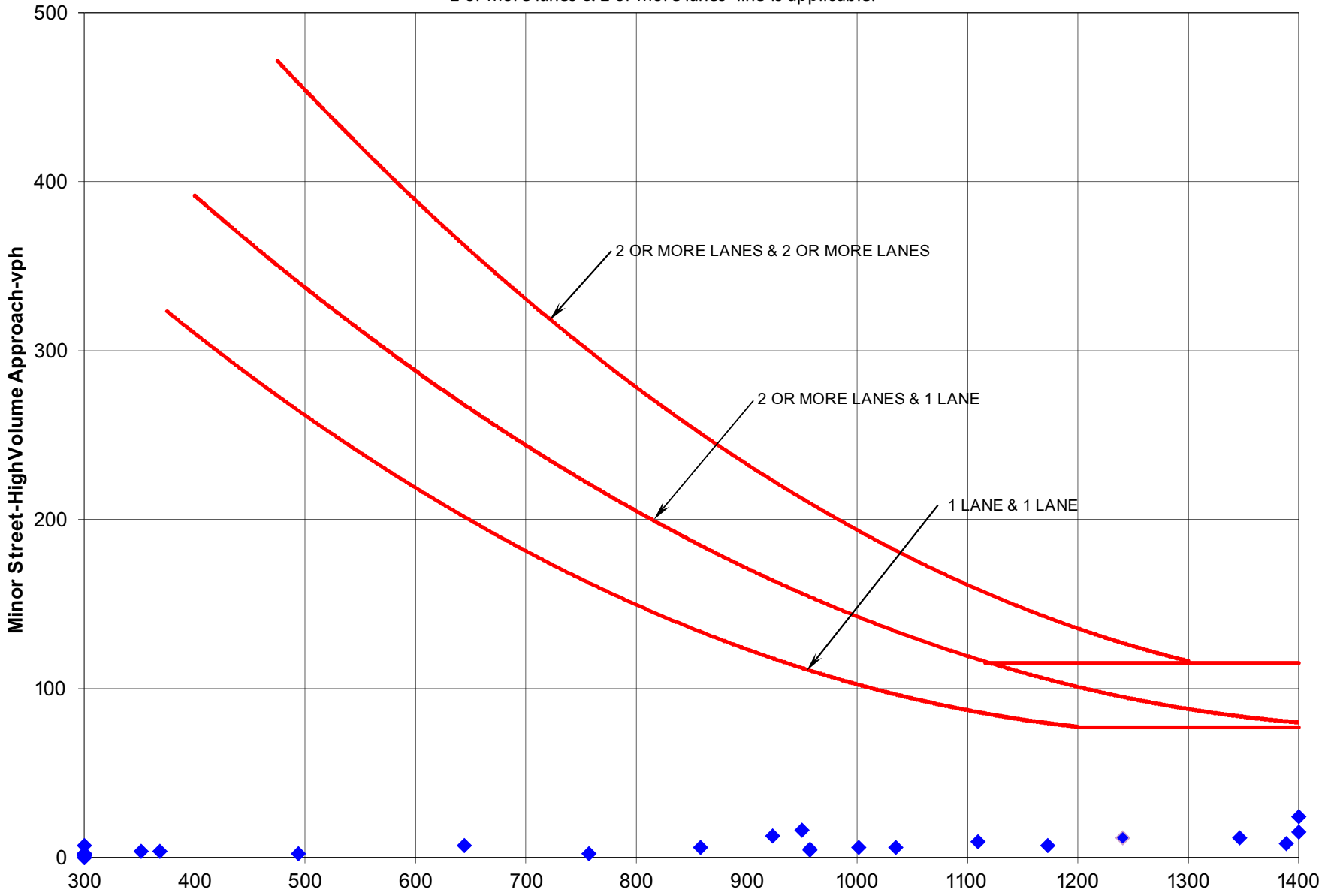
* If data point is outside graph boundaries, it is plotted at the maximum shown value(s).

Major Street-Total of Both Approaches-vph

Warrant 2

Figure 4C-1 Four Hour Volume Warrant

'2 or more lanes & 2 or more lanes' line is applicable.



* If data point is outside graph boundaries, it is plotted at the maximum shown value(s).

General Description of Intersection

2020 With Project

Project Number:	19008
Name of Major Roadway:	Litchfield Road
Direction:	N/S
# of NB Lanes:	2
# of SB Lanes:	2
85th percentile speed:	40 *mph*
Control #:	
Section #:	
Route #:	
Name of Minor Roadway:	Grant Street
Direction:	E/W
# of EB Lanes:	2
# of WB Lanes:	1
85th percentile speed:	25 *mph*
Control #:	
Section #:	
Route #:	
City:	Goodyear
Population:	80,000
County:	
District:	
Data Source:	24-hour approach
Date of Survey:	11/28/2018 *(press Ctrl + ;)*
Day of Week:	Wednesday
Weather:	Sunny
Surface Conditions:	Dry / Smooth

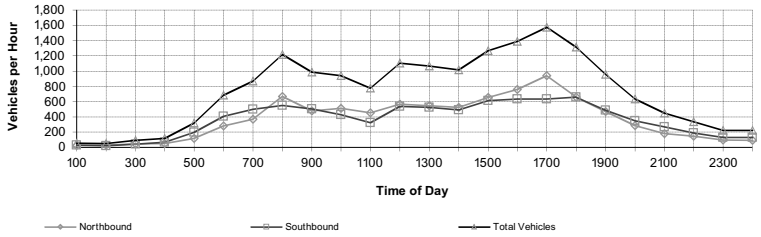
Enter Traffic Volumes:

Automated Traffic Counts

Street: **Litchfield Road**
Location: **Grant Street**

City/State: **Goodyear, AZ**
Project #: **19 008**
Date: **11/28/2018**
Day of Week: **Wednesday**
Data Source: **24-hour approach**

24-Hour Volume: **17,652**



Time	Northbound		Southbound	
	Vehicles	Peds	Vehicles	Peds
12:00 AM				
12:15 AM				
12:30 AM				
12:45 AM				
1:00 AM	26		30	
1:15 AM				
1:30 AM				
1:45 AM				
2:00 AM	29		21	
2:15 AM				
2:30 AM				
2:45 AM				
3:00 AM	47		44	
3:15 AM				
3:30 AM				
3:45 AM				
4:00 AM	50		69	
4:15 AM				
4:30 AM				
4:45 AM				
5:00 AM	120		199	
5:15 AM				
5:30 AM				
5:45 AM				
6:00 AM	280		406	
6:15 AM				
6:30 AM				
6:45 AM				
7:00 AM	368		498	
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM	667		549	
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM	481		506	
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM	514		426	
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM	453		325	
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM	566		536	

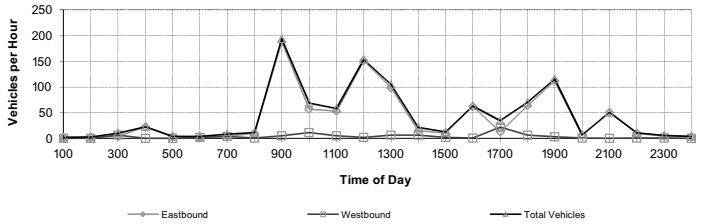
Time	Northbound		Southbound	
	Vehicles	Peds	Vehicles	Peds
12:00 PM				
12:15 PM				
12:30 PM				
12:45 PM				
1:00 PM	544		523	
1:15 PM				
1:30 PM				
1:45 PM				
2:00 PM	524		489	
2:15 PM				
2:30 PM				
2:45 PM				
3:00 PM	656		612	
3:15 PM				
3:30 PM				
3:45 PM				
4:00 PM	757		633	
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM	939		634	
5:15 PM				
5:30 PM				
5:45 PM				
6:00 PM	657		657	
6:15 PM				
6:30 PM				
6:45 PM				
7:00 PM	470		488	
7:15 PM				
7:30 PM				
7:45 PM				
8:00 PM	284		349	
8:15 PM				
8:30 PM				
8:45 PM				
9:00 PM	180		267	
9:15 PM				
9:30 PM				
9:45 PM				
10:00 PM	147		188	
10:15 PM				
10:30 PM				
10:45 PM				
11:00 PM	96		129	
11:15 PM				
11:30 PM				
11:45 PM				
12:00 AM	94		129	
	8,949		8,704	
			24-Hour Volume	17,652

Equipment ID#:

Automated Traffic Counts

Street: **Grant Street**
Location: **Litchfield Road**

City/State: **Goodyear, AZ**
Project #:
Date: **11/28/2018**
Day of Week: **Wednesday**
Data Source: **24-hour approach**



24-Hour Volume: **1,039**

Time	Eastbound		Westbound	
	Vehicles	Peds	Vehicles	Peds
12:00 AM				
12:15 AM				
12:30 AM				
12:45 AM				
1:00 AM	2		0	
1:15 AM				
1:30 AM				
1:45 AM				
2:00 AM	3		0	
2:15 AM				
2:30 AM				
2:45 AM				
3:00 AM	4		6	
3:15 AM				
3:30 AM				
3:45 AM				
4:00 AM	23		0	
4:15 AM				
4:30 AM				
4:45 AM				
5:00 AM	4		0	
5:15 AM				
5:30 AM				
5:45 AM				
6:00 AM	2		2	
6:15 AM				
6:30 AM				
6:45 AM				
7:00 AM	4		4	
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM	10		1	
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM	188		5	
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM	57		11	
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM	53		5	
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM	151		2	

Time	Eastbound		Westbound	
	Vehicles	Peds	Vehicles	Peds
12:00 PM				
12:59 PM				
12:30 PM				
12:45 PM				
1:00 PM	99		6	
1:59 PM				
1:30 PM				
1:45 PM				
2:00 PM	15		6	
2:59 PM				
2:30 PM				
2:45 PM				
3:00 PM	10		2	
3:59 PM				
3:30 PM				
3:45 PM				
4:00 PM	62		1	
4:59 PM				
4:30 PM				
12:00 AM				
5:00 PM	13		22	
5:59 PM				
5:30 PM				
5:45 PM				
6:00 PM	64		6	
6:59 PM				
6:30 PM				
6:45 PM				
7:00 PM	112		3	
7:59 PM				
7:30 PM				
7:45 PM				
8:00 PM	6		1	
8:59 PM				
8:30 PM				
8:45 PM				
9:00 PM	51		0	
9:59 PM				
9:30 PM				
9:45 PM				
10:00 PM	10		1	
10:59 PM				
10:30 PM				
10:45 PM				
11:00 PM	5		1	
11:59 PM				
11:30 PM				
11:45 PM				
12:00 AM	4		0	
	952		87	
			24-Hour Volume	1,039

Equipment ID#:

TRAFFIC SURVEY - COUNT ANALYSIS
2009 MUTCD WARRANTS

2019 With Project

County: _____ **District No.:** _____

City: Goodyear **Population:** 80,000 **Survey Date:** 11/28/2018

	Route #	Name	Control	Section	85% Speed
Major	_____	Litchfield Road	_____	- _____	40
Minor	_____	Grant Street	_____	- _____	25

Warrant 1: Eight- Hour Volumes

Condition A

Number of Lanes			Major Street Both Approaches Required		Minor Street High Volume Approach Required	
Major	Street	Minor Street	Urban	Rural*	Urban	Rural
1		1	500	350	150	105
2 or more		1	600	420	150	105
2 or more		2 or more	**600**	420	**200**	140
1		2 or more	500	350	200	140

*Criteria when the 85th percentile speed is greater than 40 mph or when the population is less than 10,000

Warrant 1

Time		Volume		Criteria		
				Major	Minor	
Begin	End	Major	Minor	>= 600	>= 200	Both Meet
12:00 AM	1:00 AM	56.3912	1.875	N	N	N
1:00 AM	2:00 AM	49.7334	2.9154	N	N	N
2:00 AM	3:00 AM	91.3494	6.2424	N	N	N
3:00 AM	4:00 AM	118.2168	22.5	N	N	N
4:00 AM	5:00 AM	318.9874	3.7462	N	N	N
5:00 AM	6:00 AM	685.6236	2.0808	Y	N	N
6:00 AM	7:00 AM	866.6532	4.1616	Y	N	N
7:00 AM	8:00 AM	1216.132	10.404	Y	N	N
8:00 AM	9:00 AM	986.1504	188.327	Y	N	N
9:00 AM	10:00 AM	940.2316	57.0732	Y	N	N
10:00 AM	11:00 AM	777.1788	52.9116	Y	N	N
11:00 AM	12:00 PM	1102.229	151.452	Y	N	N
12:00 PM	1:00 PM	1066.623	98.7424	Y	N	N
1:00 PM	2:00 PM	1013.151	15.1982	Y	N	N
2:00 PM	3:00 PM	1268.099	10.404	Y	N	N
3:00 PM	4:00 PM	1389.974	62.2752	Y	N	N
4:00 PM	5:00 PM	1573.085	21.8484	Y	N	N
5:00 PM	6:00 PM	1313.469	63.5328	Y	N	N
6:00 PM	7:00 PM	957.9108	112.0656	Y	N	N
7:00 PM	8:00 PM	632.4144	6.2424	Y	N	N
8:00 PM	9:00 PM	447.372	50.8308	N	N	N
9:00 PM	10:00 PM	334.5934	9.9962	N	N	N
10:00 PM	11:00 PM	224.1052	4.5808	N	N	N
11:00 PM	12:00 AM	222.752	3.9558	N	N	N

Total number of hours, both the major (both approaches) and minor (high volume approach) met: 0

Hours Required: 8

Condition A is not satisfied

Warrant 1 not satisfied.

Warrant 1: Eight- Hour Volumes

Condition B

Number of Lanes			Major Street Both Approaches Required		Minor Street High Volume Approach Required	
Major	Street	Minor Street	Urban	Rural*	Urban	Rural*
1		1	750	525	75	53
2 or more		1	900	630	75	53
2 or more		2 or more	**900**	630	**100**	70
1		2 or more	750	525	100	70

*Criteria when the 85th percentile speed is greater than 40 mph or when the population is less than 10,000

Warrant 2

Time		Volume		Criteria		
Begin	End	Major	Minor	Major >= 900	Minor >=100	Both Meet
12:00 AM	1:00 AM	56.3912	1.875	N	N	N
1:00 AM	2:00 AM	49.7334	2.9154	N	N	N
2:00 AM	3:00 AM	91.3494	6.2424	N	N	N
3:00 AM	4:00 AM	118.2168	22.5	N	N	N
4:00 AM	5:00 AM	318.9874	3.7462	N	N	N
5:00 AM	6:00 AM	685.6236	2.0808	N	N	N
6:00 AM	7:00 AM	866.6532	4.1616	N	N	N
7:00 AM	8:00 AM	1216.132	10.404	Y	N	N
8:00 AM	9:00 AM	986.1504	188.327	Y	Y	Y
9:00 AM	10:00 AM	940.2316	57.0732	Y	N	N
10:00 AM	11:00 AM	777.1788	52.9116	N	N	N
11:00 AM	12:00 PM	1102.229	151.452	Y	Y	Y
12:00 PM	1:00 PM	1066.623	98.7424	Y	N	N
1:00 PM	2:00 PM	1013.151	15.1982	Y	N	N
2:00 PM	3:00 PM	1268.099	10.404	Y	N	N
3:00 PM	4:00 PM	1389.974	62.2752	Y	N	N
4:00 PM	5:00 PM	1573.085	21.8484	Y	N	N
5:00 PM	6:00 PM	1313.469	63.5328	Y	N	N
6:00 PM	7:00 PM	957.9108	112.0656	Y	Y	Y
7:00 PM	8:00 PM	632.4144	6.2424	N	N	N
8:00 PM	9:00 PM	447.372	50.8308	N	N	N
9:00 PM	10:00 PM	334.5934	9.9962	N	N	N
10:00 PM	11:00 PM	224.1052	4.5808	N	N	N
11:00 PM	12:00 AM	222.752	3.9558	N	N	N

Total number of hours, both the major (both approaches) and minor (high volume approach) met: 3

Hours Required: 8

Condition B is not satisfied

Warrant 1 not satisfied.

Warrant 2: Four Hour Vehicular Volumes

This warrant is similar to Warrant 1A, except that the required traffic volumes must be present for at least four hours of an average day. The traffic volumes required are based on curves (Figure 4C-2) shown in the MUTCD.

* **The required traffic volumes for Warrant 2 do not meet for any one hour.**

Warrant 2 is not satisfied

Warrant 3, Condition A- Peak Hour Delay

This warrant is intended for application where traffic conditions will cause undue delay to traffic entering or crossing the major street. The peak hour delay warrant is satisfied when the following conditions exist for one hour (any four consecutive 15-minute periods) of an average weekday:

(1) The total delay by the traffic on a side street controlled by a stop sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach, **and**

(2) the volume on the side street (one direction) equals or exceeds 100 vph for one moving lane of traffic and 150 vph for two moving lanes, **and**

(3) the total traffic volume serviced during 1 hour equals or exceeds 800 vph for an intersection with four (or more) approaches or 650 vph for three approaches.

***Part 1 - not satisfied**
***Part 2 - satisfied**
***Part 3 - satisfied**

Warrant 3, Condition B - Peak Hour Volume

This warrant applies to traffic entering from the minor street which encounters undue delay crossing the main street. This w is satisfied when the main street and side street traffic volumes satisfy the curves shown in Figure 4C-4 of the TMUTCD.

Warrant 3 Condition B is not satisfied.

Warrant 4: Pedestrian Volume

	Required*	Existing
100 or more for each of any four hours		**0%**
OR		
190 or more during any one hour		**0%**

* For predominant pedestrian crossing speeds less than 3.5 ft/sec, the pedestrian volume may be reduced as much as 50 percent.

Gap Requirements

YES	NO	Is the nearest signal located more than 300 feet away?
YES	NO	For traffic flow which is not platooned, are there less than 60 gaps per hour of adequate length for the pedestrians to cross the street?

Warrant 4 is N/A.

Warrant 5: School Crossing

YES NO Is the number of adequate gaps in traffic stream during the period when the children are using the crossing less than the number of minutes in the same period?

Warrant 5 is N/A.

Warrant 6: Coordinate Systems

YES NO Are the adjacent signals in a signal system?
YES NO Would the resultant spacing be 1000 feet or more?

Warrant 6 is N/A.

Warrant 7: Crash Experience

YES NO Is 80% or more of one of Warrants #1, #2, or #3 met?
YES NO Have there been more than five accidents susceptible to correction by a traffic signal in 12 months?

Warrant 7 is N/A.

Warrant 8: Roadway Network

YES NO Does the major street having an existing or immediately projected entering volume of > 1000 vehicles per hour of a typical weekday?

YES NO Do 5-year projected traffic volumes meet Warrants 1, 2, or 3?

YES NO Is there an entering traffic volume of at least 1000 vehicles per hour for each of any 5 hours on a Saturday or Sunday?

Warrant 8 is N/A.

Summary:

Warrants satisfied: none

Warrants not satisfied: 1, 2, 3

Warrants not applicable: 4, 5, 6, 7, 8

Warrants not included in study: none

Warrant 2 - Four Hour Vehicular Volumes

85th % speed: <= 40 mph
Population: >= 10,000

Major Street Lanes: 2
Minor Street Lanes: 2

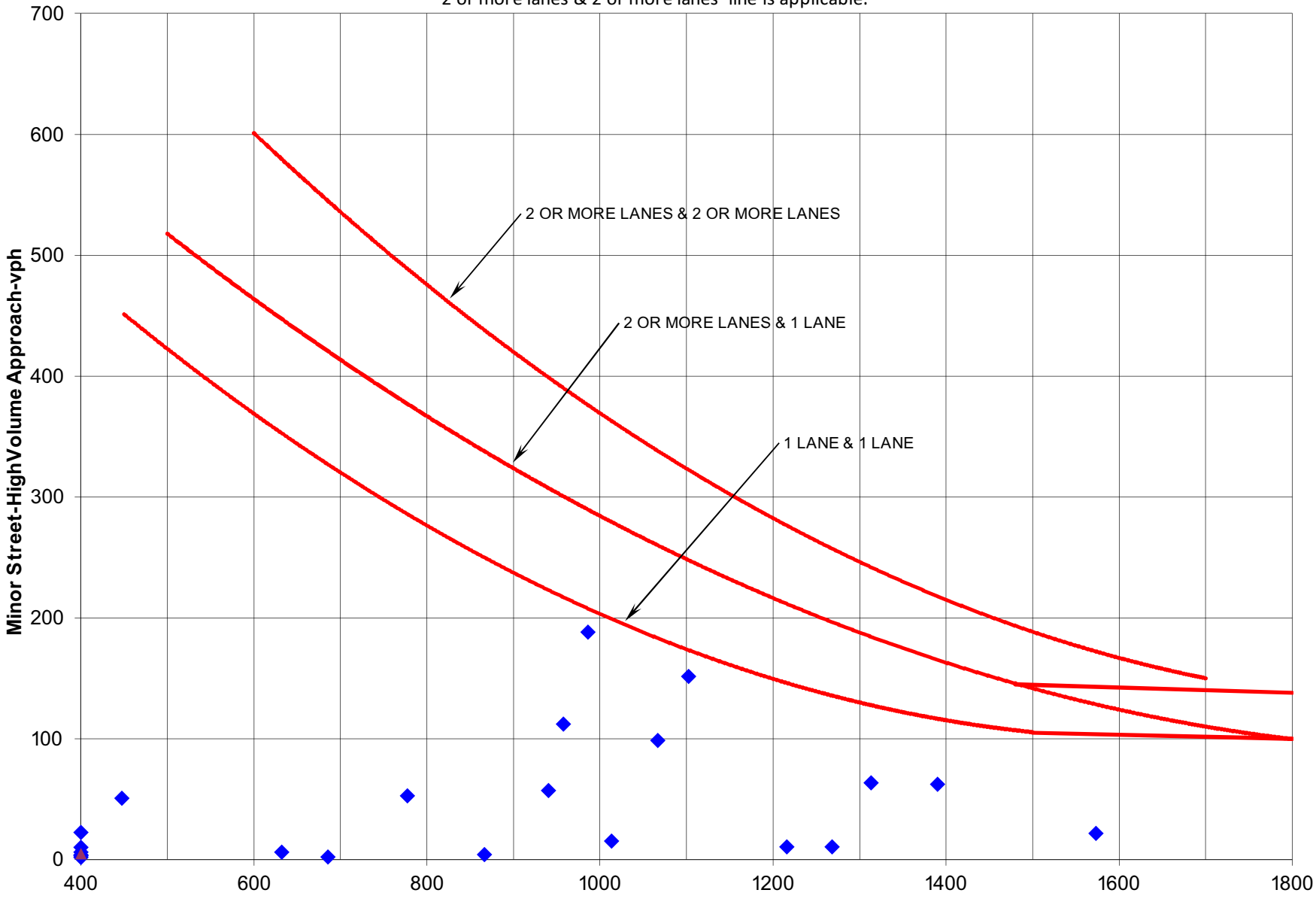
Use Figure: 4C-1 2&2

Rank	Major Street Volume	Minor Street Volume	Figure 4C-1			Figure 4C-2		
			1&1	2&1	2&2	1&1	2&1	2&2
1	222.752	3.9558	-	-	N	-	-	-
2	56.3912	1.875	-	-	N	-	-	-
3	49.7334	2.9154	-	-	N	-	-	-
4	91.3494	6.2424	-	-	N	-	-	-
5	118.2168	22.5	-	-	N	-	-	-
6	318.9874	3.7462	-	-	N	-	-	-
7	685.6236	2.0808	-	-	N	-	-	-
8	866.6532	4.1616	-	-	N	-	-	-
9	1216.132	10.404	-	-	N	-	-	-
10	986.1504	188.327	-	-	N	-	-	-
11	940.2316	57.0732	-	-	N	-	-	-
12	777.1788	52.9116	-	-	N	-	-	-
13	1102.2288	151.452	-	-	N	-	-	-
14	1066.6234	98.7424	-	-	N	-	-	-
15	1013.1514	15.1982	-	-	N	-	-	-
16	1268.0988	10.404	-	-	N	-	-	-
17	1389.9744	62.2752	-	-	N	-	-	-
18	1573.0848	21.8484	-	-	N	-	-	-
19	1313.4686	63.5328	-	-	N	-	-	-
20	957.9108	112.0656	-	-	N	-	-	-
21	632.4144	6.2424	-	-	N	-	-	-
22	447.372	50.8308	-	-	N	-	-	-
23	334.5934	9.9962	-	-	N	-	-	-
24	224.1052	4.5808	-	-	N	-	-	-
			0	0	0	0	0	0
Warrant 2 is not satisfied.			N	N	N	N	N	N

Warrant 3

Figure 4C-3 Peak Hour Warrant

'2 or more lanes & 2 or more lanes' line is applicable.

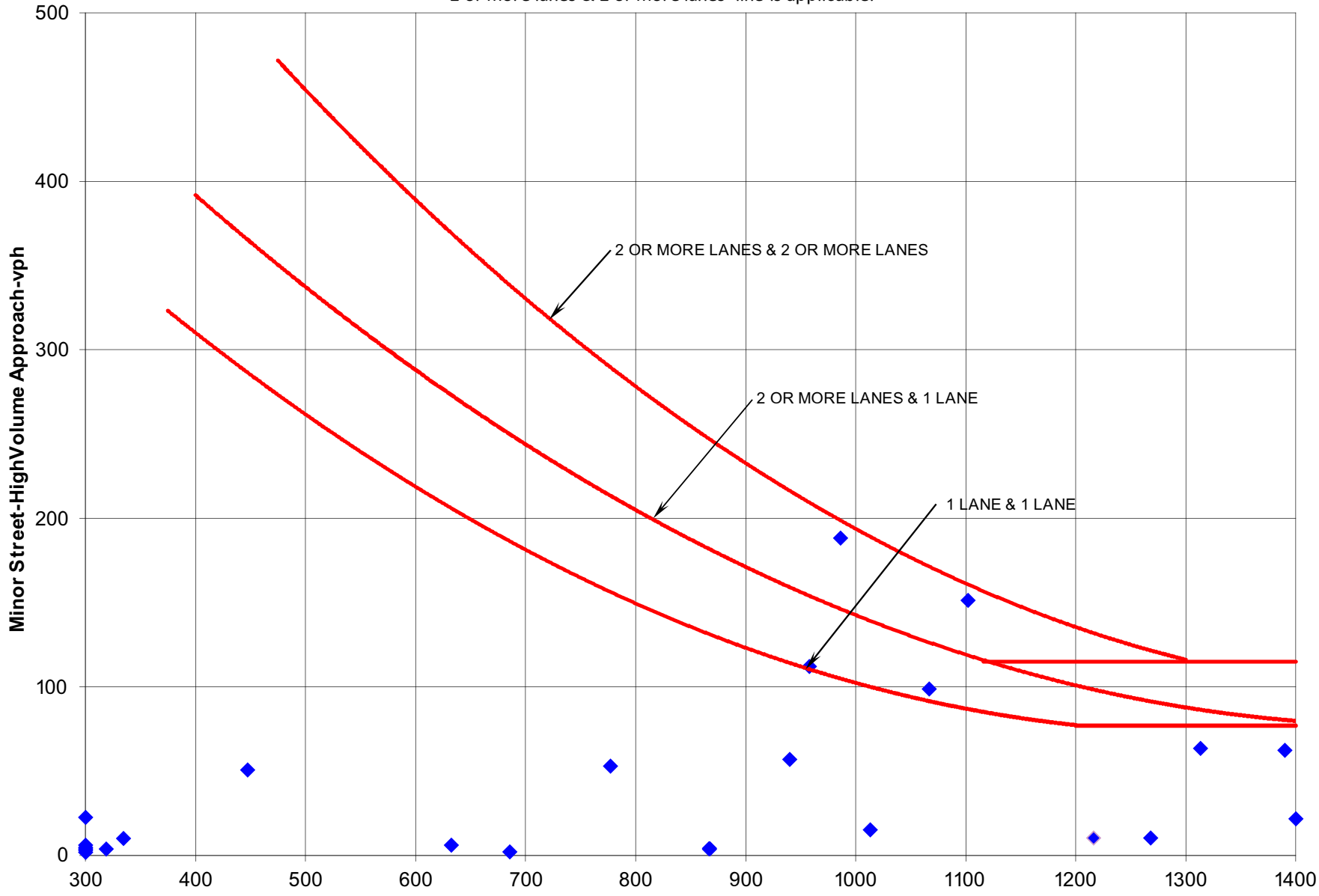


* If data point is outside graph boundaries, it is plotted at the maximum shown value(s).

Warrant 2

Figure 4C-1 Four Hour Volume Warrant

'2 or more lanes & 2 or more lanes' line is applicable.



* If data point is outside graph boundaries, it is plotted at the maximum shown value(s).

General Description of Intersection

2025 With Project

Project Number:	19008
Name of Major Roadway:	Litchfield Road
Direction:	N/S
# of NB Lanes:	2
# of SB Lanes:	2
85th percentile speed:	40 *mph*
Control #:	
Section #:	
Route #:	
Name of Minor Roadway:	Grant Street
Direction:	E/W
# of EB Lanes:	2
# of WB Lanes:	1
85th percentile speed:	25 *mph*
Control #:	
Section #:	
Route #:	
City:	Goodyear
Population:	80,000
County:	
District:	
Data Source:	24-hour approach
Date of Survey:	11/28/2018 *(press Ctrl + ;)*
Day of Week:	Wednesday
Weather:	Sunny
Surface Conditions:	Dry / Smooth

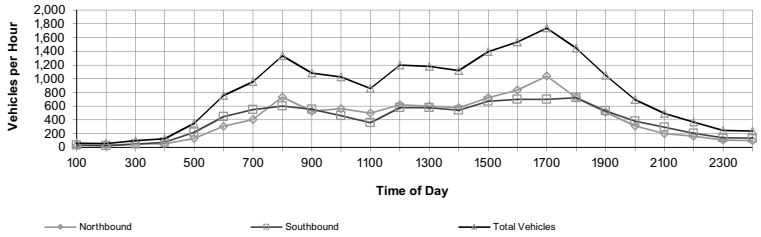
Enter Traffic Volumes:

Automated Traffic Counts

Street: **Litchfield Road**
Location: **Grant Street**

City/State: **Goodyear, AZ**
Project #: **19 008**
Date: **11/28/2018**
Day of Week: **Wednesday**
Data Source: **24-hour approach**

24-Hour Volume: **19 ,404**



Time	Northbound		Southbound	
	Vehicles	Peds	Vehicles	Peds
12:00 AM				
12:15 AM				
12:30 AM				
12:45 AM				
1:00 AM	29		33	
1:15 AM				
1:30 AM				
1:45 AM				
2:00 AM	32		23	
2:15 AM				
2:30 AM				
2:45 AM				
3:00 AM	52		48	
3:15 AM				
3:30 AM				
3:45 AM				
4:00 AM	54		74	
4:15 AM				
4:30 AM				
4:45 AM				
5:00 AM	132		220	
5:15 AM				
5:30 AM				
5:45 AM				
6:00 AM	309		448	
6:15 AM				
6:30 AM				
6:45 AM				
7:00 AM	407		550	
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM	733		600	
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM	529		555	
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM	563		464	
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM	500		358	
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM	618		579	

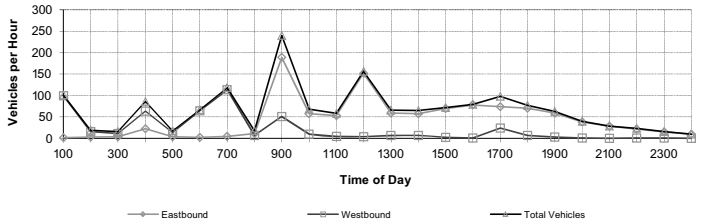
Time	Northbound		Southbound	
	Vehicles	Peds	Vehicles	Peds
12:00 PM				
12:15 PM				
12:30 PM				
12:45 PM				
1:00 PM	600		577	
1:15 PM				
1:30 PM				
1:45 PM				
2:00 PM	578		539	
2:15 PM				
2:30 PM				
2:45 PM				
3:00 PM	723		672	
3:15 PM				
3:30 PM				
3:45 PM				
4:00 PM	836		698	
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM	1037		700	
5:15 PM				
5:30 PM				
5:45 PM				
6:00 PM	723		721	
6:15 PM				
6:30 PM				
6:45 PM				
7:00 PM	515		532	
7:15 PM				
7:30 PM				
7:45 PM				
8:00 PM	312		382	
8:15 PM				
8:30 PM				
8:45 PM				
9:00 PM	199		295	
9:15 PM				
9:30 PM				
9:45 PM				
10:00 PM	162		207	
10:15 PM				
10:30 PM				
10:45 PM				
11:00 PM	105		142	
11:15 PM				
11:30 PM				
11:45 PM				
12:00 AM	100		136	
	9,849		9,555	
			24-Hour Volume	19,404

Equipment ID#:

Automated Traffic Counts

Street: **Grant Street**
Location: **Litchfield Road**

City/State: **Goodyear, AZ**
Project #:
Date: **11/28/2018**
Day of Week: **Wednesday**
Data Source: **24-hour approach**



24-Hour Volume: **1,604**

Time	Eastbound		Westbound	
	Vehicles	Peds	Vehicles	Peds
12:00 AM				
12:15 AM				
12:30 AM				
12:45 AM				
1:00 AM	2		99	
1:15 AM				
1:30 AM				
1:45 AM				
2:00 AM	3		16	
2:15 AM				
2:30 AM				
2:45 AM				
3:00 AM	4		11	
3:15 AM				
3:30 AM				
3:45 AM				
4:00 AM	23		64	
4:15 AM				
4:30 AM				
4:45 AM				
5:00 AM	4		14	
5:15 AM				
5:30 AM				
5:45 AM				
6:00 AM	2		64	
6:15 AM				
6:30 AM				
6:45 AM				
7:00 AM	5		114	
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM	11		7	
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM	189		51	
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM	58		10	
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM	53		5	
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM	152		4	

Time	Eastbound		Westbound	
	Vehicles	Peds	Vehicles	Peds
12:00 PM				
12:59 PM				
12:30 PM				
12:45 PM				
1:00 PM	59		7	
1:59 PM				
1:30 PM				
1:45 PM				
2:00 PM	58		7	
2:59 PM				
2:30 PM				
2:45 PM				
3:00 PM	70		2	
3:59 PM				
3:30 PM				
3:45 PM				
4:00 PM	78		1	
4:59 PM				
4:30 PM				
12:00 AM				
5:00 PM	74		24	
5:59 PM				
5:30 PM				
5:45 PM				
6:00 PM	70		7	
6:59 PM				
6:30 PM				
6:45 PM				
7:00 PM	59		3	
7:59 PM				
7:30 PM				
7:45 PM				
8:00 PM	39		1	
8:59 PM				
8:30 PM				
8:45 PM				
9:00 PM	29		0	
9:59 PM				
9:30 PM				
9:45 PM				
10:00 PM	22		1	
10:59 PM				
10:30 PM				
10:45 PM				
11:00 PM	15		1	
11:59 PM				
11:30 PM				
11:45 PM				
12:00 AM	10		0	
	1,089		514	
	24-Hour Volume		1,604	

Equipment ID#:

TRAFFIC SURVEY - COUNT ANALYSIS
2009 MUTCD WARRANTS

2019 With Project

County: _____ **District No.:** _____

City: Goodyear **Population:** 80,000 **Survey Date:** 11/28/2018

	Route #	Name	Control	Section	85% Speed
Major		Litchfield Road		-	40
Minor		Grant Street		-	25

Warrant 1: Eight- Hour Volumes

Condition A

Number of Lanes			Major Street Both Approaches Required		Minor Street High Volume Approach Required	
Major	Street	Minor Street	Urban	Rural*	Urban	Rural
1		1	500	350	150	105
2 or more		1	600	420	150	105
2 or more		2 or more	**600**	420	**200**	140
1		2 or more	500	350	200	140

*Criteria when the 85th percentile speed is greater than 40 mph or when the population is less than 10,000

Warrant 1

Time		Volume		Criteria		
				Major	Minor	
Begin	End	Major	Minor	>= 600	>= 200	Both Meet
12:00 AM	1:00 AM	62.13034	99.392114	N	N	N
1:00 AM	2:00 AM	54.71454	16.064485	N	N	N
2:00 AM	3:00 AM	100.662	11.486857	N	N	N
3:00 AM	4:00 AM	128.1791	63.682914	N	N	N
4:00 AM	5:00 AM	352.1228	13.564485	N	N	N
5:00 AM	6:00 AM	756.9839	64.2908	Y	N	N
6:00 AM	7:00 AM	956.8552	113.5816	Y	N	N
7:00 AM	8:00 AM	1333.081	11.486857	Y	N	N
8:00 AM	9:00 AM	1083.716	188.86843	Y	N	N
9:00 AM	10:00 AM	1027.293	57.939485	Y	N	N
10:00 AM	11:00 AM	858.0682	53.344743	Y	N	N
11:00 AM	12:00 PM	1196.654	151.99343	Y	N	N
12:00 PM	1:00 PM	1177.183	59.05025	Y	N	N
1:00 PM	2:00 PM	1117.755	57.985867	Y	N	N
2:00 PM	3:00 PM	1395.01	69.553532	Y	N	N
3:00 PM	4:00 PM	1534.644	78.296899	Y	N	N
4:00 PM	5:00 PM	1736.813	74.183413	Y	N	N
5:00 PM	6:00 PM	1444.386	70.182329	Y	N	N
6:00 PM	7:00 PM	1047.463	59.478799	Y	N	N
7:00 PM	8:00 PM	693.1627	38.675978	Y	N	N
8:00 PM	9:00 PM	493.9348	28.682053	N	N	N
9:00 PM	10:00 PM	369.3531	22.190387	N	N	N
10:00 PM	11:00 PM	247.17	15.031291	N	N	N
11:00 PM	12:00 AM	236.8291	9.6321092	N	N	N

Total number of hours, both the major (both approaches) and minor (high volume approach) met: 0

Hours Required: 8

Condition A is not satisfied

Warrant 1 not satisfied.

Warrant 1: Eight- Hour Volumes

Condition B

Number of Lanes			Major Street Both Approaches Required		Minor Street High Volume Approach Required	
Major	Street	Minor Street	Urban	Rural*	Urban	Rural*
1		1	750	525	75	53
2 or more		1	900	630	75	53
2 or more		2 or more	**900**	630	**100**	70
1		2 or more	750	525	100	70

*Criteria when the 85th percentile speed is greater than 40 mph or when the population is less than 10,000

Warrant 2

Time		Volume		Criteria		
Begin	End	Major	Minor	Major >= 900	Minor >=100	Both Meet
12:00 AM	1:00 AM	62.13034	99.392114	N	N	N
1:00 AM	2:00 AM	54.71454	16.064485	N	N	N
2:00 AM	3:00 AM	100.662	11.486857	N	N	N
3:00 AM	4:00 AM	128.1791	63.682914	N	N	N
4:00 AM	5:00 AM	352.1228	13.564485	N	N	N
5:00 AM	6:00 AM	756.9839	64.2908	N	N	N
6:00 AM	7:00 AM	956.8552	113.5816	Y	Y	Y
7:00 AM	8:00 AM	1333.081	11.486857	Y	N	N
8:00 AM	9:00 AM	1083.716	188.86843	Y	Y	Y
9:00 AM	10:00 AM	1027.293	57.939485	Y	N	N
10:00 AM	11:00 AM	858.0682	53.344743	N	N	N
11:00 AM	12:00 PM	1196.654	151.99343	Y	Y	Y
12:00 PM	1:00 PM	1177.183	59.05025	Y	N	N
1:00 PM	2:00 PM	1117.755	57.985867	Y	N	N
2:00 PM	3:00 PM	1395.01	69.553532	Y	N	N
3:00 PM	4:00 PM	1534.644	78.296899	Y	N	N
4:00 PM	5:00 PM	1736.813	74.183413	Y	N	N
5:00 PM	6:00 PM	1444.386	70.182329	Y	N	N
6:00 PM	7:00 PM	1047.463	59.478799	Y	N	N
7:00 PM	8:00 PM	693.1627	38.675978	N	N	N
8:00 PM	9:00 PM	493.9348	28.682053	N	N	N
9:00 PM	10:00 PM	369.3531	22.190387	N	N	N
10:00 PM	11:00 PM	247.17	15.031291	N	N	N
11:00 PM	12:00 AM	236.8291	9.6321092	N	N	N

Total number of hours, both the major (both approaches) and minor (high volume approach) met: 3

Hours Required: 8

Condition B is not satisfied

Warrant 1 not satisfied.

Warrant 2: Four Hour Vehicular Volumes

This warrant is similar to Warrant 1A, except that the required traffic volumes must be present for at least four hours of an average day. The traffic volumes required are based on curves (Figure 4C-2) shown in the MUTCD.

*** The required traffic is only present for two hours.**

Warrant 2 is not satisfied

Warrant 3, Condition A- Peak Hour Delay

This warrant is intended for application where traffic conditions will cause undue delay to traffic entering or crossing the major street. The peak hour delay warrant is satisfied when the following conditions exist for one hour (any four consecutive 15-minute periods) of an average weekday:

(1) The total delay by the traffic on a side street controlled by a stop sign equals or exceeds four vehicle-hours for a one-lane approach and five vehicle-hours for a two-lane approach, **and**

(2) the volume on the side street (one direction) equals or exceeds 100 vph for one moving lane of traffic and 150 vph for two moving lanes, **and**

(3) the total traffic volume serviced during 1 hour equals or exceeds 800 vph for an intersection with four (or more) approaches or 650 vph for three approaches.

***Part 1 - not satisfied**
***Part 2 - satisfied**
***Part 3 - satisfied**

Warrant 3, Condition B - Peak Hour Volume

This warrant applies to traffic entering from the minor street which encounters undue delay crossing the main street. This w is satisfied when the main street and side street traffic volumes satisfy the curves shown in Figure 4C-4 of the TMUTCD.

Warrant 3 Condition B is not satisfied.

Warrant 4: Pedestrian Volume

Required*	Existing
100 or more for each of any four hours	**0%**
OR	
190 or more during any one hour	**0%**

* For predominant pedestrian crossing speeds less than 3.5 ft/sec, the pedestrian volume may be reduced as much as 50 percent.

Gap Requirements

YES	NO	Is the nearest signal located more than 300 feet away?
YES	NO	For traffic flow which is not platooned, are there less than 60 gaps per hour of adequate length for the pedestrians to cross the street?

Warrant 4 is N/A.

Warrant 5: School Crossing

YES NO Is the number of adequate gaps in traffic stream during the period when the children are using the crossing less than the number of minutes in the same period?

Warrant 5 is N/A.

Warrant 6: Coordinate Systems

YES NO Are the adjacent signals in a signal system?
YES NO Would the resultant spacing be 1000 feet or more?

Warrant 6 is N/A.

Warrant 7: Crash Experience

YES NO Is 80% or more of one of Warrants #1, #2, or #3 met?
YES NO Have there been more than five accidents susceptible to correction by a traffic signal in 12 months?

Warrant 7 is N/A.

Warrant 8: Roadway Network

YES NO Does the major street having an existing or immediately projected entering volume of > 1000 vehicles per hour of a typical weekday?

YES NO Do 5-year projected traffic volumes meet Warrants 1, 2, or 3?

YES NO Is there an entering traffic volume of at least 1000 vehicles per hour for each of any 5 hours on a Saturday or Sunday?

Warrant 8 is N/A.

Summary:

Warrants satisfied: none

Warrants not satisfied: 1, 2, 3

Warrants not applicable: 4, 5, 6, 7, 8

Warrants not included in study: none

Warrant 2 - Four Hour Vehicular Volumes

85th % speed: <= 40 mph
Population: >= 10,000

Major Street Lanes: 2
Minor Street Lanes: 2

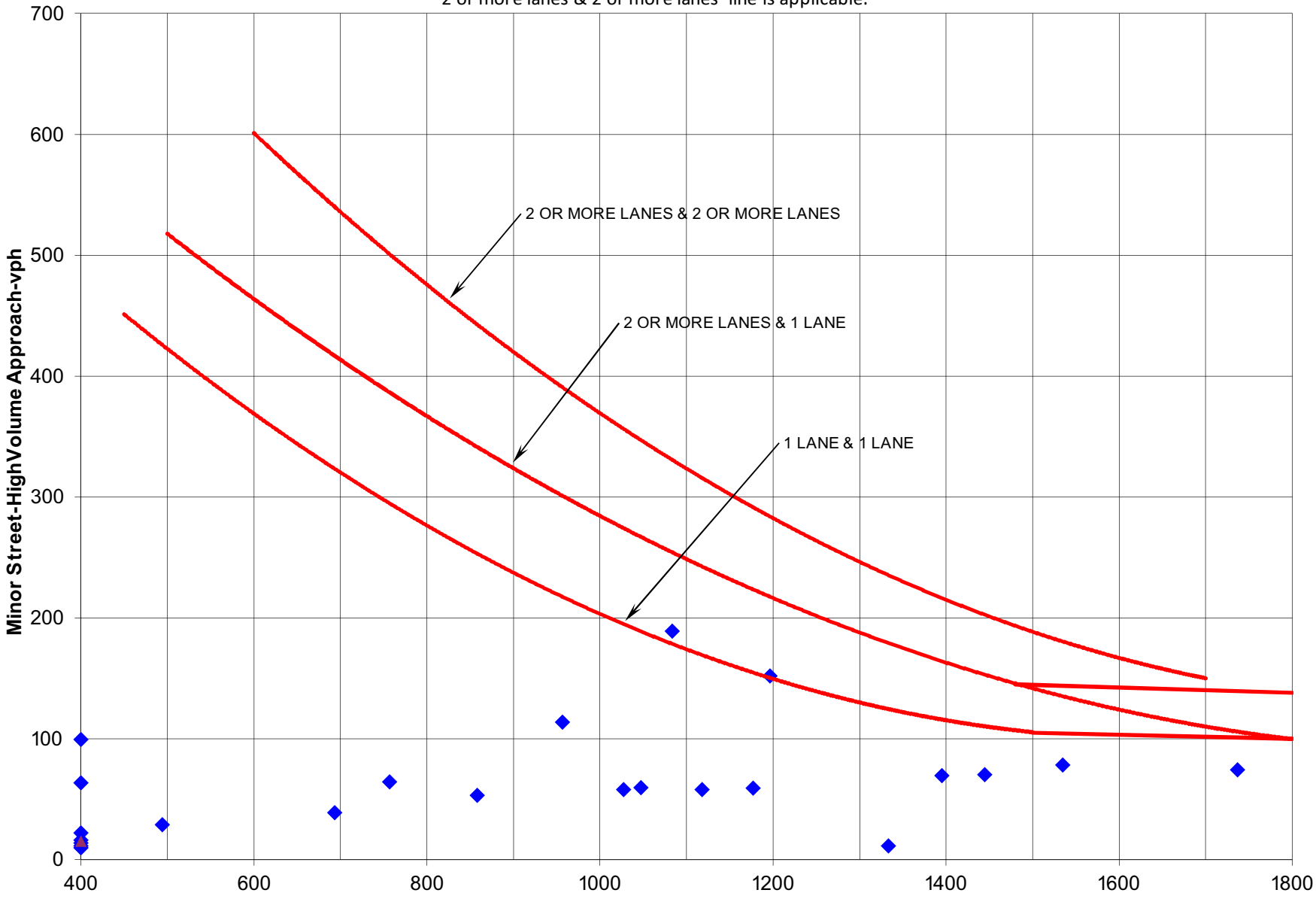
Use Figure: 4C-1 2&2

Rank	Major Street Volume	Minor Street Volume	Figure 4C-1			Figure 4C-2		
			1&1	2&1	2&2	1&1	2&1	2&2
1	236.8291368	9.63210922	-	-	N	-	-	-
2	62.13034039	99.392114	-	-	N	-	-	-
3	54.71454071	16.0644853	-	-	N	-	-	-
4	100.6619674	11.4868567	-	-	N	-	-	-
5	128.1790814	63.6829137	-	-	N	-	-	-
6	352.1228143	13.5644853	-	-	N	-	-	-
7	756.983855	64.2907997	-	-	N	-	-	-
8	956.8551612	113.581599	-	-	N	-	-	-
9	1333.080521	11.4868567	-	-	N	-	-	-
10	1083.715787	188.868428	-	-	Y	-	-	-
11	1027.293277	57.9394853	-	-	N	-	-	-
12	858.0681937	53.3447427	-	-	N	-	-	-
13	1196.653902	151.993428	-	-	Y	-	-	-
14	1177.183067	59.0502501	-	-	N	-	-	-
15	1117.755355	57.9858666	-	-	N	-	-	-
16	1395.009602	69.5535316	-	-	N	-	-	-
17	1534.644052	78.2968993	-	-	N	-	-	-
18	1736.812729	74.1834127	-	-	N	-	-	-
19	1444.385972	70.182329	-	-	N	-	-	-
20	1047.463047	59.4787985	-	-	N	-	-	-
21	693.1626596	38.6759782	-	-	N	-	-	-
22	493.9348371	28.6820535	-	-	N	-	-	-
23	369.3530993	22.1903872	-	-	N	-	-	-
24	247.1700472	15.0312913	-	-	N	-	-	-
			0	0	2	0	0	0
Warrant 2 is not satisfied.			N	N	N	N	N	N

Warrant 3

Figure 4C-3 Peak Hour Warrant

'2 or more lanes & 2 or more lanes' line is applicable.

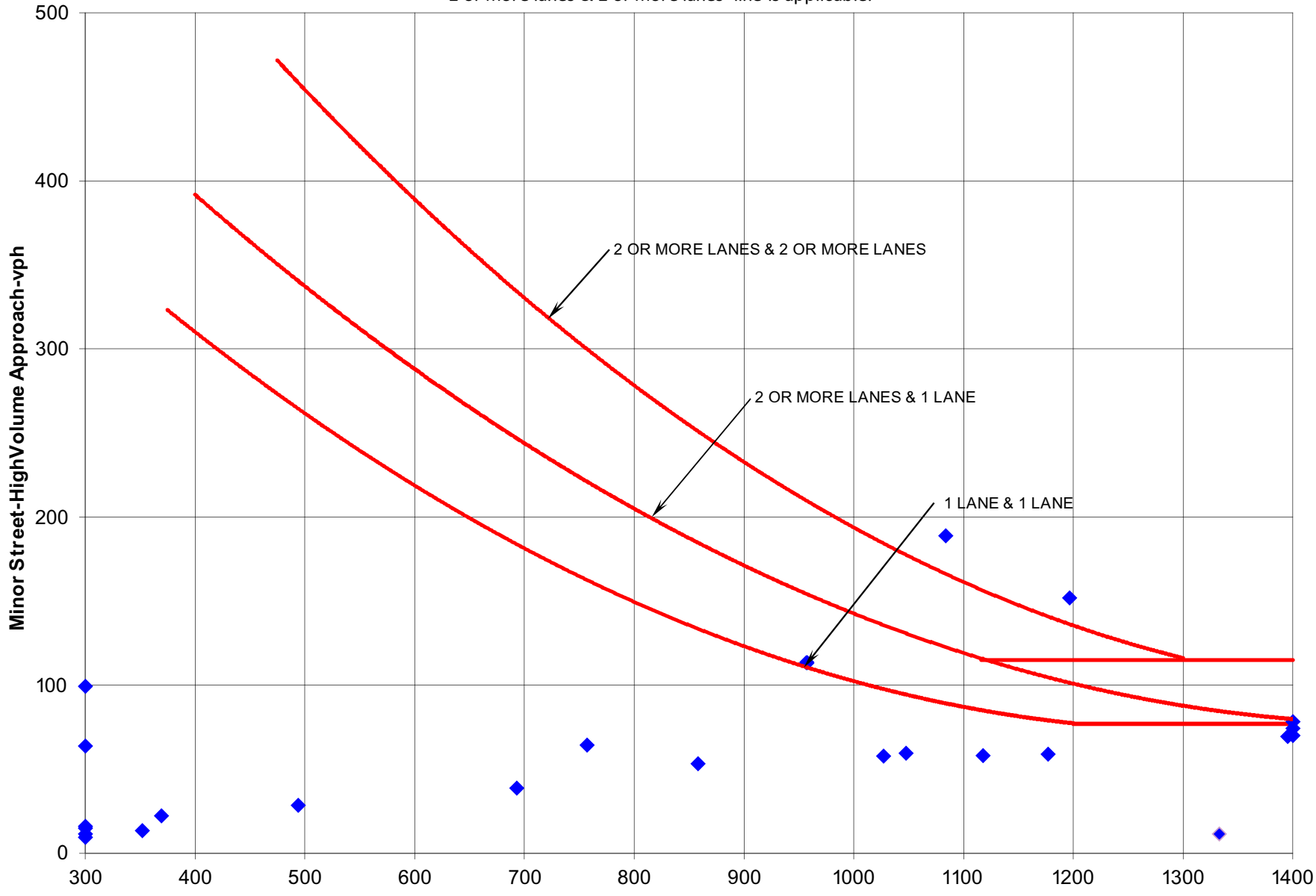


* If data point is outside graph boundaries, it is plotted at the maximum shown value(s).

Warrant 2

Figure 4C-1 Four Hour Volume Warrant

'2 or more lanes & 2 or more lanes' line is applicable.



* If data point is outside graph boundaries, it is plotted at the maximum shown value(s).

PROJECT RAPID
CAMINO ORO/GRANT STREET
TRAFFIC IMPACT ANALYSIS

APPENDIX

Comment Resolution

Project Rapid
TIA Dated 17 December 2018
Comment Resolution

1/11/2019

Item No.	Page No.	Reviewer	Code	Comment	Response
				City of Goodyear	
1	30	Goodyear	D	Table 10 - This intersection appears to meet the peak hour warrant in 2020 & 2025.	None of the analyzed warrants (#1, #2, and #3) meet in 2020 or 2025, without and with the project. Traffic Signal Warrant Analysis Appendix Figures 4C-3 show that Warrant 3 is below the thresholds for roadways 40 mph and under. Warrant #3A meets the two volume related requirements and is under the threshold for the delay related requirement. For Warrant #3A, all three of the requirements must be above their thresholds for the warrant to be met
2	38	Goodyear	A	• Check intersection numbering • Will need a signing and striping plan sheet to illustrate the revision to the existing signing and striping at Camino Oro & Grant	• Intersection numbering updated • Figure 6 shows the proposed intersection changes with the project at the intersection of Camino Oro/Grant Street

A - Will Revise
B - Consultant to Evaluate
C - Goodyear to Evaluate
D - See Response

Project Rapid
TIA Dated 11 January 2019
Comment Resolution

1/17/2019

Item No.	Page No.	Reviewer	Code	Comment	Response
				City of Goodyear	
1	14	Wendy Ledezma	A	Sugggest making the intersection of Camino Oro/Grant Street an all way stop due to the amount of turning traffic.	Report has been revised to show the new configuration of Camino Oro/Grant Street.
2	14	Wendy Ledezma	A	Update sketch to show new parking lot shown on site plan.	Report has been revised to include new driveways and parking areas.

A - Will Revise
B - Consultant to Evaluate
C - Goodyear to Evaluate
D - See Response