

Development Solutions Carter

Carter Tract Traffic Impact Analysis

Project Number: 1260.001.000

December 2017



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December 8, 2017

Mr. Greg Rich
Development Solutions Carter, LLC
12222 Merit Drive, Suite 1020
Dallas, Texas 75251

RE: Carter Tract Traffic Impact Analysis
RPS Klotz Associates Project No. 1260.001.000

Dear Mr. Rich,

RPS Klotz Associates is pleased to present this report of our Traffic Impact Analysis for the proposed Carter Tract Residential Development located in the northwest corner of the intersection of RM 12 and RM 150 in the City of Dripping Springs, Hays County, Texas. This report documents the methodology, data collection, field investigation, and necessary analysis to determine the impact on adjacent roadways and intersections due to the proposed development.

If you have any questions concerning this study, please contact me at your convenience. Thank you for the opportunity to work with you on this important project.

Sincerely,

A handwritten signature in black ink that reads "Elizabeth Shelton". The signature is written in a cursive, flowing style.

Elizabeth Shelton, PE
Project Manager
RPS Klotz Associates
Texas P.E. Firm Registration No. F-929

Attachment

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Project Number: 1260.001.000

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12/08/2017

Executive Summary

This report presents a summary of findings for a Traffic Impact Analysis (TIA) performed by RPS Klotz Associates for the Carter Tract in the City of Dripping Springs, Hays County, Texas. The proposed development is located in the northwest corner of the intersection of RM 12 and RM 150, east of Mt. Gainor Road within the City of Dripping Springs and its extraterritorial jurisdiction in Hays County, Texas. The Carter Tract is proposed to have a total of 240 residential lots with a scheduled completion year of 2021. Carter Tract is anticipated to have ingress/egress to Mt. Gainor Road and Caliterra Parkway.

Within the study area prior to Carter Tract's opening year, the Caliterra development is anticipated to be complete in year 2021. As part of this development, Caliterra Parkway has been constructed. Caliterra Parkway is a two-lane approach which intersects RM 12 from the west, approximately 1,000 feet north of the intersection of RM 12 and RM 150. A private driveway forms the westbound approach of the intersection of RM 12 and Caliterra Parkway. At the intersection of Caliterra Parkway and RM 12, the previously completed Caliterra TIA recommended a northbound left turn lane, a southbound right turn lane, and a traffic signal. The northbound left-turn lane and the southbound right-turn lane at RM 12 and Caliterra Parkway have been constructed.

The TIA involved the following six components: 1) site investigation and data collection, 2) trip generation, 3) trip distribution, 4) trip assignment, 5) traffic operational analysis, and 6) roadway capacity analysis. A traffic analysis model, Synchro, was utilized to determine various Measures of Effectiveness (MoE's), such as Delay and Level Of Service (LOS), for the existing and proposed conditions.

The results of the 2021 Build Condition intersection capacity analysis indicate a need for mitigation at the intersections of US 290 at RM 12 and RM 150 at RM 12. At the intersection of US 290 at RM 12, all approaches will be widened to create dual left turn lanes. The northbound and southbound approaches currently have a left only, shared left/thru lane, and shared thru/right lane. These approaches will be widened to become two left turn lanes, a dedicated thru lane, and a dedicated right turn lane. In addition, a right turn lane from westbound on US 290 to northbound on RM 12 will be added.

At the intersection of RM 150 at RM 12, installation of a traffic signal is recommended. The Carter Tract development is responsible for a pro-rata shared amount of \$47,195.60 for the recommended improvement. Also, the Carter Tract and Caliterra developments are 100% responsible for the proposed

traffic signal at the intersection of RM 12 at Caliterra Parkway and for the connector between the two developments.

It is planned for Mt. Gainor Road to be widened to two, twelve foot lanes with a three foot shoulder. The Carter Tract development is anticipated to produce 4.8% of the Mt. Gainor Road daily traffic once the development is in-place. The cost of these improvements is anticipated to be \$2,055,000 and the Carter Tract development's pro-rate share amount is \$98,640.

A roadway capacity analysis was completed for three roadway segments in the study area. The segments are Mt. Gainor Road north of the proposed Carter Tract Driveway, Creek Road / CR 190 over Onion Creek, and the proposed roadway between the Carter Tract and Caliterra developments. The results of the roadway capacity analysis indicate that no operational issues are anticipated due to the build-out of the Carter Tract as all roadway segments are anticipated to operate at LOS C or better.

Table of Contents

Executive Summary.....	i
Table of Contents.....	iii
List of Tables	iv
1 Study Purpose and Objective	1
2 Methodology	1
3 Existing Roadway Conditions.....	2
4 Proposed Conditions	3
5 Background Conditions.....	4
6 Data Collection	4
7 Trip Generation.....	5
8 Trip Distribution.....	6
9 Trip Assignment.....	6
10 Analysis and Results.....	8
11 Roadway Capacity Analysis.....	14
12 Mitigation Measures	15
13 Conclusions and Recommendations	17
14 References.....	19
Appendix A	
Appendix B	
Appendix C	
Appendix D	
Appendix E	

List of Tables

Table 1:	Trip Generation	5
Table 2:	Trip Distribution	6
Table 3:	Definitions of Level Of Service (LOS) Criteria	9
Table 4:	Two Lane Highways - Definitions of Level Of Service (LOS) Criteria	9
Table 5:	Arterial - Definitions of Level Of Service (LOS) Criteria.....	10
Table 6:	Analysis Results for 2016 Existing Condition	11
Table 7:	Analysis Results for 2021 No Build and Build Conditions AM Peak Hour	12
Table 8:	Analysis Results for 2021 No Build and Build Conditions PM Peak Hour	13
Table 9:	24-Hour Bi-Directional Traffic Volumes	14
Table 10:	2021 Build Condition Roadway Capacity Analysis Results – Mt. Gainor Road and Carter Tract Road.....	15
Table 11:	Pro-Rata Share Amount – Carter Tract Development	16
Table 12:	Analysis Results for No Build, Build Without Mitigation, and Build With Mitigation Conditions AM Peak Hour	17
Table 13:	Analysis Results for No Build, Build Without Mitigation, and Build With Mitigation Conditions PM Peak Hour	17

1 Study Purpose and Objective

This report presents a summary of findings of the traffic impact analysis (TIA) performed by RPS Klotz Associates for the proposed Carter Tract Residential Development (Carter Tract) located in the northwest corner of the intersection of RM 12 and RM 150, east of Mt. Gainor Road within the City of Dripping Springs and its extraterritorial jurisdiction in Hays County, Texas. The site location map for the study area is shown in Appendix A – Exhibit 1. A study area map is shown in Appendix A – Exhibit 2 and the proposed site plan is shown in Appendix A – Exhibit 3. The existing intersection lane configurations (year 2016) are shown in Appendix A – Exhibit 4.

The scope of this study included the following:

- Site investigation and data collection,
- Estimating the number of trips to be generated by the proposed development,
- Distribution of the Carter Tract’s new trips to the proposed opening year 2021,
- Evaluating the intersections within the study area using *Synchro, Version 8 (1)* software for the anticipated opening year 2021,
- Evaluating the roadway capacity of Mt. Gainor Road / CR 220 north of the Carter Tract driveway, Creek Road / CR 190 on the bridge over Onion Creek, and the proposed roadway between the Carter Tract development and the Caliterra Development, and
- Recommendations on roadway or intersection improvements, if any, to mitigate significant impacts caused by the proposed development.

The opening year is 2021 and it is assumed full build-out and occupancy of the Carter Tract development. Analysis was completed for the year 2016 Existing Conditions and opening year 2021. Information regarding the proposed site layout was obtained from Development Solutions Carter, LLC.

2 Methodology

This study primarily consists of the major components listed below.

- Data Collection: AM (7:00 am to 9 am) and PM (4:00 pm to 6:00 pm) peak hour turning movement counts (TMCs) were performed and automatic traffic recorders (ATRs) were used to collect traffic volumes for a 24-hour period.

- Trip Generation: An estimate of new trips generated by the proposed development was determined using the *Institute of Transportation Engineers (ITE) Trip Generation Handbook, 9th Edition (2)*.
- Trip Distribution: The origin and destination of project-related trips were determined by evaluating existing traffic patterns on roadways within the study area and as defined in the scope as provided by the City of Dripping Springs.
- Trip Assignment: New trips were assigned to the roadway network for opening year 2021.
- Analysis: An operational analysis of the surrounding roadway network was completed for the 2016 Existing Condition, 2021 No Build Condition, and 2021 Build Condition. The focus of this analysis was to examine potential traffic impacts related to the development of the proposed sites and recommend improvements to mitigate any significant impacts.
- Roadway Capacity Analysis: An operational analysis of three roadway segments was completed for Mt. Gainor Road / CR 220 north of the Carter Tract driveway, Creek Road / CR 190 on the bridge over Onion Creek, and the proposed roadway between the Carter Tract development and the Caliterra Development.

3 Existing Roadway Conditions

A field investigation was completed to examine existing roadway conditions that included roadway geometry, signage, striping, traffic control and general geometric considerations for the study area.

RM 12, within the study area, is a north-south two lane roadway with minimal shoulders and a v-ditch for drainage. The lane widths vary between 10 and 12 feet in both directions. A southbound left turn lane is present at its intersection with RM 150 and in the northbound and southbound direction a right and left turn lane is present at its intersection with US 290. The posted speed limit along RM 12 is 45 mph near US 290 and 50 mph near RM 150.

US 290, within the study area, is an east-west five lane roadway with a two-way left turn lane (TWLTL) and curb and gutter. The lanes are 12 to 13 feet wide including the TWLTL. US 290 is signalized at its intersection with RM 12. There will be an installation of a traffic signal on US 290 at its intersection with Roger Hanks Parkway and will be included in the 2021 No Build and Build Conditions. The posted speed limit is 45 mph.

RM 150, within the study area, is an east-west two-lane roadway with minimal shoulders and a v-ditch for drainage. RM 150 intersects RM 12 from the east, directly across from a driveway accessing a cemetery. The lanes are 10 feet in both directions. At its intersection with RM 12, RM 150 creates a T-intersection with a right and left turn lane onto RM 12. The posted speed limit along RM 150 is 55 mph.

Caliterra Parkway, within the study area, is an east-west 35 foot roadway with minimal shoulders and curb and gutter for drainage. Caliterra Parkway intersects RM 12 from the west, across from a private driveway. At its intersection with RM 12, it widens to become a four lane roadway separated by a 16 foot median. There is a northbound left-turn lane and a southbound right-turn lane for vehicles on RM 12 turning onto Caliterra Parkway. The posted speed limit along Caliterra Parkway is 30 mph.

Roger Hanks Parkway, within the study area, is a north-south two lane roadway with minimal shoulders and a v-ditch for drainage. At its intersection with US 290, it becomes a four lane roadway with a dedicated right and left turn. The lane widths are 12 feet and the northbound right turn is channelized at its intersection with Creek Road / CR 190. The posted speed limit along Roger Hanks Parkway is 35 mph.

Mt. Gainor Road, within the study area, is a north-south two lane roadway with minimal shoulders and a v-ditch for drainage. The lane widths are 10 feet and the posted speed limit is 40 mph.

Creek Road / CR 190, within the study area, is an east-west two-lane roadway with minimal shoulders and a v-ditch for drainage. The lanes are 11 feet wide in both directions and the posted speed limit is 35 mph. Onion Creek runs under Creek Road / CR 190 west of its intersection with Roger Hanks Parkway and has a bridge for approximately 250 feet to cross the creek. TxDOT will be expanding the Onion Creek Bridge to two 11 feet wide lanes with 5 feet shoulders on each side as part of TxDOT project 091433064.

4 Proposed Conditions

The subject of this study is the proposed Carter Tract to be constructed in the northwest corner of the intersection of RM 12 and RM 150, east of Mt. Gainor Road. The site is currently undeveloped. The Carter Tract is proposed to have a total of 240 residential lots and will a scheduled completion year of 2021. Carter Tract is anticipated to have ingress/egress to Mt. Gainor Road and Caliterra Parkway via a connector road. Roadway design plans are under development for the roadway connecting the Carter

Tract and Caliterra developments. This connection will be financed/constructed by the developer and negotiations are ongoing with the land owner of the property between the developments.

5 Background Conditions

Within the study area prior to Carter Tract's opening year, the Caliterra development has begun construction. The Caliterra development will primarily consist of approximately 600 single family homes and 200 apartments constructed on previously vacant land. Per the *ITE Trip Generation Manual*, 534 trips will be generated in the AM peak hour and 646 in the PM peak hour. As part of this development, Caliterra Parkway will be constructed. Caliterra Parkway will be located at approximately 1,000 feet north of the intersection of RM 12 and RM 150.

The Caliterra Parkway at RM 12 intersection is a four legged intersection with a private driveway as the westbound approach. At this intersection, the Caliterra TIA recommended a northbound left turn lane, a southbound right turn lane, and a traffic signal. The northbound left-turn lane and the southbound right-turn lane at RM 12 and Caliterra Parkway have been constructed. The Caliterra Parkway approach has a dedicated left and right turn lane. This intersection configuration was used for the purposes of this study.

6 Data Collection

The traffic data utilized in this report was obtained from three sources. One source is data collected as part of this study on September 22, 2016. These locations include TMCs for the AM and PM peak periods at the intersection of RM 12 at Caliterra Parkway, Roger Hanks Parkway at Creek Road / CR 190, and US 290 at Creek Road / CR 190. In addition, 24-hour bi-directional traffic counts were collected on Creek Road / CR 190 near the Onion Creek Bridge using ATRs.

Also utilized was data previously collected in year 2015. These locations included TMCs for the AM and PM peak periods at the signalized intersection of US 290 at RM 12 and the unsignalized intersection of RM 12 at RM 150. Also collected were 24-hour Bi-directional counts on Mt. Gainor Road.

The third source is the City of Dripping Springs. TMCs for the AM and PM peak periods were provided for the unsignalized intersection of Roger Hanks Parkway at US 290. This data was also collected in year 2015.

The intersection of Caliterra Parkway at RM 12 was collected to determine the extent to which the Caliterra development is complete. The traffic volumes indicate that minimal completion of the development has occurred and therefore no adjustments were made to the Caliterra development’s trip generation. For the purposes of this report, the observed traffic volume utilizing Caliterra Parkway was considered as background traffic.

All TMCs and bi-directional counts are shown in Appendix B. For the purposes of this report, the exhibits and analysis only utilized 2016 traffic volumes. If year 2016 data was not available, a growth rate of 10% was applied to the year 2015 traffic volumes to develop year 2016 traffic volumes. Appendix A – Exhibits 5 and 6 show the 2016 Existing Conditions traffic volumes for the AM and PM peak hours, respectively.

7 Trip Generation

Based on the proposed land use, project-generated trips were estimated utilizing the data from the *ITE Trip Generation Handbook, 9th Edition*. The proposed land use for this project most closely relates to “single-family detached housing” (Land Use Code 210).

Pass-by trips are trips made as an intermediate stop on the way from an origin to a primary destination that is attracted from traffic passing on an adjacent street. This phenomenon is highest for retail/shopping areas and is unlikely to occur at a residential development. It was assumed that none of the peak hour trips to the Carter Tract development will be of a pass-by nature. Internal capture is used to account for vehicles that visit two or more different land uses during the same trip. Internal capture rates reflect those trips already in the vicinity of the study area due to existing development and represent vehicles visiting multiple businesses/establishments during the same trip. Based on engineering judgment, internal capture was not considered as part of this study. The results of the trip generation are shown in Table 1.

Table 1: Trip Generation

Time Period	Entering	Exiting	Total
Weekday	1,153	1,152	2,305
Weekday, AM Peak Hour of the Adjacent Street	44	130	174
Weekday, PM Peak Hour of the Adjacent Street	143	84	227

8 Trip Distribution

Existing traffic data and the trip distribution provided by the City of Dripping Springs was used to determine the origins and destinations of site-related trips for the future conditions in year 2021. Table 2 presents a summary of the trip origins and destinations.

The trip distribution shown below was utilized to develop the Carter Tract and Caliterra development’s trip distribution. In the 2021 No Build Condition, connectivity to the west was not assumed for the Caliterra development. Appendix A – Exhibit 7 illustrates a detailed summary of the study area trip distribution for the Caliterra development in the 2021 No Build Condition. Appendix A – Exhibits 8 and 9 illustrates a detailed summary of the study area Build Condition trip distribution for the Caliterra development and Carter Tract in the AM and PM peak hours, respectively. The Build Condition trip distribution assumes connectivity between the Carter Tract and Caliterra development.

Table 2: Trip Distribution

Origin			Destination		
From	AM ¹	PM ²	To	AM ¹	PM ²
East on US 290	50%	50%	East on US 290	50%	50%
West on US 290	15%	15%	West on US 290	15%	15%
North on RM 12	15%	15%	North on RM 12	15%	15%
South on RM 12	10%	10%	South on RM 12	10%	10%
East on RM 150	10%	10%	East on RM 150	10%	10%
Total	100%	100%	Total	100%	100%

1. AM refers to the AM peak hour of the adjacent street.

2. PM refers to the PM peak hour of the adjacent street.

9 Trip Assignment

Trips were assigned to the roadway network in accordance with the trip distribution patterns previously discussed. Trips to and from the Carter Tract and Caliterra Developments were assigned to each study area roadway, existing and proposed driveways, and all study intersections. Appendix A – Exhibits 10 and 11 illustrates a detailed summary of the study area trip assignment traffic volumes for the Caliterra development in the 2021 No Build Condition for the AM and PM peak hours, respectively.

A 2021 No Build traffic network was developed by applying a growth rate of 10 percent per year until 2020 and 5 percent per year until 2021 to the year 2016 traffic volumes in order to estimate future year 2021 traffic volumes. The Caliterra development's No Build Condition trip assignment traffic volumes were added to the observed traffic volumes to develop the 2021 No Build Condition traffic volumes. Appendix A – Exhibits 12 and 13 shows the 2021 No Build Condition AM and PM peak hour traffic volumes, respectively.

Appendix A – Exhibits 14 and 15 shows the 2021 Build Condition's AM and PM peak hour trip assignment for the Caliterra development in the AM and PM peak hours, respectively. Appendix A - Exhibits 16 and 17 show the 2021 Build Condition's AM and PM peak hour trip assignment traffic volumes for the Carter Tract, respectively.

A 2021 Build traffic network was developed by applying a growth rate of 10 percent per year until 2020 and 5 percent per year until 2021 to the year 2016 traffic volumes in order to estimate future year 2021 traffic volumes. The Caliterra development's trip assignment traffic volumes were added to the existing traffic volumes to develop the 2021 Build Condition traffic volumes.

To determine the opening year 2021 Build Condition peak hour traffic volumes, full build-out of the proposed Carter Tract was assumed. The trips generated by the Carter Tract were added to the observed 2021 No Build traffic volumes along with the Caliterra build conditions traffic volumes to determine the 2021 Build Condition. A conservative analysis scenario of 75% of the Carter Tract trips were assumed to utilize Mt. Gainor Road. Appendix A – Exhibits 18 and 19 show the AM and PM peak hour 2021 Build Condition, respectively.

10 Analysis and Results

The background traffic volumes were appropriately adjusted to include added vehicle trips and/or growth factors. A detailed operational analysis using techniques outlined in the *Highway Capacity Manual 2010 (HCM 2010)* (3) was conducted for the AM and PM peak hours of the 2016 Existing Conditions, 2021 No Build Condition, and 2021 Build Conditions. For purposes of traffic operational analyses, geometric conditions within the study area were input into the traffic model, *Synchro*. A detailed operational analysis was undertaken to evaluate each intersection's peak-hour capacity and LOS. All of the various scenarios, including existing, background, and proposed conditions for this study area were analyzed.

Measures of Effectiveness (MoE's) such as intersection delay and LOS associated with this delay were utilized to evaluate existing and proposed conditions. The intersection delay is the average control delay for the signalized intersection and is calculated by taking a volumes-weighted average of all the delays. LOS refers to the operational conditions within a traffic stream and their perception by motorists in terms of delay, freedom to maneuver, traffic interruptions, comfort, convenience and safety. There are six LOS capacity conditions for each roadway facility. These are designated from "A" to "F," with "A" representing a free-flow optimal condition and "F" representing a congested forced flow condition. The general criteria associated with each LOS reported for unsignalized and signalized intersections are presented in Table 3.

LOS at unsignalized intersections is determined by the average total delay experienced by a vehicle on each intersection approach. The LOS breakpoints for stop-controlled intersections are different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. In addition, a number of driver behavior considerations combine to make delays at signalized intersections less arduous than delays at unsignalized intersections. Also, there is often much more variability in the amount of delay experienced by individual drivers at an unsignalized intersection versus that at signalized intersections. Hence, it is considered that the control delay threshold for any given LOS would be less for an unsignalized intersection than it would be for a signalized intersection. An unsignalized intersection which operates at a poor LOS can be improved through either signalization, geometric improvements to the intersection, or a combination of both.

Table 3: Definitions of Level Of Service (LOS) Criteria

Level Of Service	Delay Range for Unsignalized Intersections (sec/veh)	Delay Range for Signalized Intersections (sec/veh)	Description
A	≤10	≤10	Very low delays, nearly free traffic flow
B	>10 and ≤15	>10 and ≤20	Good traffic flow, more vehicles stop than LOS A
C	>15 and ≤25	>20 and ≤35	Stable traffic flow, significant number of vehicles stop
D	>25 and ≤35	>35 and ≤55	Noticeable traffic congestion, longer delays and queue lengths
E	>35 and ≤50	>55 and ≤80	Unstable traffic flow, significant congestion, traffic near roadway capacity
F	>50	>80	Unacceptable delay, extremely unstable flow, heavy congestion, traffic exceeds capacity

For LOS on two lane highways, the speed and delay due to passing restrictions are important to motorist. The LOS for two lane highway determined by the percent time spent following (PTSF). The general criteria associated with each LOS reported for two lane highways are presented in Table 4.

Table 4: Two Lane Highways - Definitions of Level Of Service (LOS) Criteria

Level Of Service	Percent Time Spent Following (%)
A	≤40
B	>40 - 55
C	>55 - 70
D	>70 - 85
E	>85
F	Demand flow exceeds capacity of the segment

The LOS for the Arterial Level Of Service analysis is defined as travel speed as a percentage of Base Free-Flow Speed. The general criteria associated with each LOS reported for the Arterial Level Of Service are presented in Table 5.

Table 5: Arterial - Definitions of Level Of Service (LOS) Criteria

Level Of Service	Travel Speed as a Percentage of Base Free-Flow Speed (%)
A	<85
B	>67 - 85
C	>50 - 67
D	>40 - 50
E	>30 - 40
F	≥ 30

Year 2016 AM and PM Peak Hour Results

Table 6 presents the delay and LOS results for the 2016 Existing Condition at each study intersection for the AM and PM Peak Hour. Detailed Synchro output of the 2016 Existing Condition is included in Appendix C. TxDOT signal timing sheets for the intersection of US 290 and RM 12 were used in the synchro analysis for all conditions and are included in Appendix E.

Examining the AM and PM peak hour results for the 2016 Existing Condition with regard to operational issues indicates that the intersection of US 290 at RM 12 operates at LOS D during both the AM and PM peak hours. All other study area intersections operate at LOS A. The stop controlled approaches at unsignalized intersections operate at LOS C or better with the exception of Roger Hanks Parkway. The stop controlled approach on Roger Hanks Parkway is operating at LOS D.

Table 6: Analysis Results for 2016 Existing Condition

Intersection	Traffic Control Type	2016 Existing Condition			
		AM Peak Hour ²		PM Peak Hour ³	
		MoE ¹	LOS	MoE ¹	LOS
US 290 at RM 12 (overall)	Signal	46.5	D	53.6	D
Eastbound		38.5	D	55.0	E
Westbound		43.8	D	39.7	D
Northbound		59.5	E	59.2	E
Southbound		52.4	D	71.0	E
RM 12 at Caliterra Parkway (overall)	Stop	0.3	A	0.4	A
Eastbound		12.9	B	14.4	B
RM 12 at RM 150	Stop	4.3	B	4.3	B
Westbound		13.8	B	13.1	B
US 290 at Roger Hanks Parkway (overall)	Stop	0.8	A	0.7	A
Northbound		25.3	D	25.1	D
US 290 at Creek Road / CR 190 (overall)	Stop	0.5	A	0.8	A
Northbound		17.4	C	16.5	C
Roger Hanks Parkway at Creek Road / CR 190 (overall)	Stop	3.6	A	4.0	A
Westbound		9.3	A	9.1	A

1. MoE is seconds delay per vehicle.
2. AM refers to the AM peak hour of the adjacent street.
3. PM refers to the PM peak hour of the adjacent street.

Year 2021 AM Peak Hour Results

For analyzing future year 2021 No Build Condition, a growth rate of 10 percent per year until 2020 and 5 percent per year until 2021 was applied to the year 2016 traffic volumes. To determine the year 2021 Build Condition peak hour traffic conditions, full build-out of the proposed Carter Tract was assumed. Traffic generated by the two developments were added to the 2021 No Build peak hour traffic volumes and distributed throughout the study area. The site generated traffic was with 75 percent of the site traffic accessing from the west and 25 percent accessing from the Caliterra development for a move conservative analysis scenario. Table 7 presents the delay and LOS results for the 2021 No Build and 2021 Build Conditions AM peak hour at each study intersection. Detailed Synchro outputs of the AM Peak Hour for 2021 No Build and 2021 Build Conditions are included in Appendix C.

The results of the 2021 No Build Condition for the AM peak hour indicate all study intersections will operate at the acceptable LOS C or higher with the exception of the intersections of US 290 at RM 12 and US 290 at Roger Hanks Parkway. These intersections are anticipated to operate at LOS F and LOS E, respectively, a poor LOS. In both the No Build and Build Conditions, the stop controlled approach of US 290 at Creek Road / CR 190 is operating at LOS E.

Table 7: Analysis Results for 2021 No Build and Build Conditions AM Peak Hour

Intersection	Traffic Control Type	No Build		Build	
		AM Peak Hour ²		AM Peak Hour ²	
		MoE ¹	LOS	MoE ¹	LOS
US 290 at RM 12 (overall)	Signal	285.7	F	290.6	F
Eastbound		295.3	F	309.4	F
Westbound		290.1	F	298.2	F
Northbound		367.2	F	358.1	F
Southbound		125.4	F	127.8	F
RM 12 at Caliterra Parkway (overall)	Signal	32.0	C	25.6	C
Eastbound		97.6	F	51.2	D
Northbound		17.7	B	22.5	C
Southbound		11.3	B	13.0	B
RM 12 at RM 150 (overall)	Stop	9.4	A	9.7	A
Westbound		34.6	D	36.1	E
US 290 at Roger Hanks Parkway (overall)	Signal	65.4	E	73.0	E
Eastbound		110.0	F	120.5	F
Westbound		10.4	B	16.7	B
Northbound		36.1	D	38.4	D
US 290 at Creek Road / CR 190	Stop	1.1	A	1.5	A
Northbound		41.1	E	48.7	E
Roger Hanks Parkway at Creek Road / CR 190 (overall)	Stop	3.8	A	2.7	A
Westbound		9.9	A	11.5	B
Carter Tract Driveway (overall)	Stop	-	-	5.8	A
Westbound		-	-	8.9	A

1. MoE is seconds delay per vehicle.
2. AM refers to the AM peak hour of the adjacent street.

Year 2021 PM Peak Hour Results

Table 8 presents the delay and LOS results for the 2021 No Build and 2021 Build Conditions during the PM peak hour at each study intersection. Detailed Synchro output of the PM Peak Hour for 2021 No Build and 2021 Build Conditions are included in Appendix C.

Table 8: Analysis Results for 2021 No Build and Build Conditions PM Peak Hour

Intersection	Traffic Control Type	No Build		Build	
		PM Peak Hour ²		PM Peak Hour ²	
		MoE ¹	LOS	MoE ¹	LOS
US 290 at RM 12 (overall)	Signal	256.7	F	280.7	F
Eastbound		265.8	F	267.4	F
Westbound		225.6	F	325.1	F
Northbound		267.4	F	181.0	F
Southbound		281.6	F	321.7	F
RM 12 at Caliterra Parkway (overall)	Signal	49.0	D	36.9	D
Eastbound		99.1	F	43.3	D
Northbound		11.2	B	11.9	B
Southbound		53.8	D	50.6	D
RM 12 at RM 150 (overall)	Stop	12.1	B	13.4	B
Westbound		53.7	F	56.3	F
US 290 at Roger Hanks Parkway (overall)	Signal	101.4	F	115.2	F
Eastbound		161.8	F	191.8	F
Westbound		41.8	D	41.0	D
Northbound		32.8	C	34.2	C
US 290 at Creek Road / CR 190	Stop	1.9	A	2.4	A
Northbound		40.2	E	49.3	E
Roger Hanks Parkway at Creek Road / CR 190 (overall)	Stop	4.2	A	2.7	A
Westbound		9.6	A	11.3	B
Carter Tract Driveway (overall)	Stop	-	-	5.3	A
Westbound		-	-	9.0	A

1. MoE is seconds delay per vehicle.
2. PM refers to the PM peak hour of the adjacent street.

The results of the 2021 No Build Condition in the PM peak hour indicate all study intersections will operate at the acceptable LOS C or better with the exception of the intersections of US 290 at RM 12 and US 290 at Roger Hanks Parkway. These intersections are anticipated to operate at LOS F, a poor

Level Of Service. The stop controlled approach of Creek Road / CR 190 at US 290 is operating at LOS E during the 2021 No Build and Build Conditions.

11 Roadway Capacity Analysis

Roadway capacity analysis was completed for three roadway segments in the study area. The segments are Mt. Gainor Road north of the proposed Carter Tract Driveway, Creek Road / CR 190 over Onion Creek, and the proposed roadway between the Carter Tract and Caliterra developments. Creek Road / CR 190 over Onion Creek is a one lane bridge in the Existing Conditions. TxDOT will be expanding the Onion Creek Bridge to two 11 feet wide lanes with 5 feet shoulders on each side as part of TxDOT project 091433064. The speed limit on the proposed roadway between the Carter Tract and Caliterra development was assumed to be 40 mph, the same as on Mt. Gainor Road.

The roadway capacity analysis was completed using the two-lane portion in the software program HCS 2010 (4). The anticipated 24-hour bi-direction traffic volumes are shown below in Table 9. Onion Creek Bridge is located just north of the Carter Tract Rd at Mt. Gainor Rd intersection. Therefore, Onion Creek Bridge segment is anticipated to operate similarly to the Mt. Gainor Road north of the proposed Carter Tract Driveway segment.

Table 9: 24-Hour Bi-Directional Traffic Volumes

Segment	2021 No Build Traffic Volumes (veh)	Carter Tract Daily Site Traffic* (veh)	Caliterra Dev. Daily Site Traffic** (veh)	2021 Build Traffic Volumes (veh)
Mt. Gainor Road north of the proposed Carter Tract Driveway	1,058	1,729	340	3,127
Carter Tract Rd btw Carter Tract and Caliterra Developments	739	576	340	1,655

*Assumes 75% of the Carter Tract daily traffic will utilize Mt. Gainor Road and 25% will utilize the roadway between Carter Tract and Caliterra Developments.

**Assumes 5% of the Caliterra Development daily traffic will utilize Mt. Gainor Road and the roadway between the developments.

Table 10 shows the results of the roadway capacity of the 2021 Build Conditions. Detailed information from *HCS 2010* for the roadway capacity analysis for 2021 Build Conditions are included in Appendix D. The results of the roadway capacity analysis indicate that no capacity issues are anticipated due to the

build-out of the Carter Tract development. It is anticipated that all roadway segments will operate at LOS C or better, an acceptable threshold for Level Of Service.

Table 10: 2021 Build Condition Roadway Capacity Analysis Results – Mt. Gainor Road and Carter Tract Road

Segment	LOS	PTSF (%)
Mt. Gainor Road north of the proposed Carter Tract Driveway	C	59.9
Carter Tract Road between Carter Tract and Caliterra Developments	B	45.4

12 Mitigation Measures

The capacity analysis indicated that the Carter Tract will significantly impact two study area intersections. The intersections are RM 12 at RM 150 and US 290 at RM 12.

To mitigate the impact on the signalized intersection of US 290 at RM 12, all approaches will be widened to create dual left turn lanes. The northbound and southbound approaches currently have a shared left/thru lane. On these approaches, this shared lane be widened to become two lanes, a dedicated left turn lane and a dedicated thru lane. Therefore, the northbound and southbound approaches will have a two left turn lanes, a dedicated thru lane, and a dedicated right turn lane. In addition, a right turn lane from westbound on US 290 to northbound on RM 12 will be added. Appendix A – Exhibit 20 shows the existing and proposed configuration at the intersection of US 290 at RM 12.

To mitigate the impact of the Carter Tract Development at the intersection of RM 12 at RM 150, a traffic signal is recommended. Prior to the installation of a traffic signal, a traffic signal warrant analysis should be completed.

In the Caliterra TIA, a traffic signal at the intersection of RM 12 and Caliterra Parkway, northbound left turn lane and southbound right turn lane were recommended. The Carter Tract and Caliterra developments are 100% responsible for the cost of this traffic signal. Table 11 shows the pro-rata share amount for the Carter Tract Development. Tables 12 and 13 show the intersection LOS and delays at the intersections with proposed mitigation measures for AM and PM peaks respectively. Detailed Synchro outputs for the AM and PM peak hours for the Mitigated 2021 Build Condition are included in Appendix C.

The capacity results for Mt. Gainor Road do not indicate a need for roadway improvements. However, this analysis does not take into account development on vacant land along Mt. Gainor Road near the Carter Tract development. Based on traffic data projections provided by the City of Dripping Springs, the daily traffic on Mt. Gainor Road volume is anticipated to be 35,297 vehicles per day in year 2021. Therefore, the improvement to widen Mt. Gainor Road to two, twelve foot lanes with three foot shoulders from the Carter Tract development’s driveway to the Onion Creek Bridge has been identified by the City of Dripping Springs. The cost of this improvement is anticipated to be \$2,055,000. The Carter Tract development is responsible for 4.8% of the daily traffic volumes resulting in a pro-rate share amount of \$98,640.

Table 11: Pro-Rata Share Amount – Carter Tract Development

Intersection	Improvement	Estimated Cost (\$)	Carter Tract AM / PM Impact (%)	Carter Tract Pro-Rata Share Amount
RM 12 at RM 150	Traffic Signal	250,000	2.2	\$5,500.00
US 290 at RM 12	Dual SBL Lanes	300,230.40	1.96	\$5,886.87
	Dual WBL Lanes	300,230.40	3.46	\$10,402.59
	Dual NBL Lanes	300,230.40	0.47	\$1,404.26
	Dual EBL Lanes	300,230.40	4.53	\$13,599.29
	WB Right Turn Lanes	300,230.40	3.46	\$10,402.59
Mt. Gainor Road	Widen Roadway	2,055,000.00	4.8	\$98,640.00
			Total	\$145,835.60

*Based on a cost estimate prepared by HDR. The estimate didn’t identify the cost by improvement; therefore it was assumed each improvement would be 1/5 of the total cost of \$1,501,152.

Table 12: Analysis Results for No Build, Build Without Mitigation, and Build With Mitigation Conditions AM Peak Hour

Intersection	No Build		Build Without Mitigation		Build With Mitigation	
	AM Peak Hour ²		AM Peak Hour ²		AM Peak Hour ²	
	MoE ¹	LOS	MoE ¹	LOS	MoE ¹	LOS
<i>RM 12 at RM 150³</i>	34.6	D	36.1	E	15.2	B
<i>US 290 at RM 12</i>	258.7	F	290.6	F	238.2	F

1. MoE is seconds delay per vehicle.
2. AM refers to the AM peak hour of the adjacent street.
3. In the No Build and Build Without Mitigation, stop controlled approach LOS is shown.

Table 13: Analysis Results for No Build, Build Without Mitigation, and Build With Mitigation Conditions PM Peak Hour

Intersection	No Build		Build Without Mitigation		Build With Mitigation	
	PM Peak Hour ²		PM Peak Hour ²		PM Peak Hour ²	
	MoE ¹	LOS	MoE ¹	LOS	MoE ¹	LOS
<i>RM 12 at RM 150³</i>	53.7	F	56.3	F	19.0	B
<i>US 290 at RM 12</i>	256.7	F	280.7	F	220.3	F

1. MoE is seconds delay per vehicle.
2. PM refers to the PM peak hour of the adjacent street.
3. In the No Build and Build Without Mitigation, the stop controlled approach LOS is shown.

13 Conclusions and Recommendations

A Traffic Impact Analysis was completed for the Carter Tract development. The proposed development is located in the northwest corner of the intersection of RM 12 and RM 150, east of Mt. Gainor Road within the City of Dripping Springs and its extraterritorial jurisdiction in Hays County, Texas. The Carter Tract is proposed to have a total of 240 residential lots and with a scheduled completion year of 2021. Carter Tract is anticipated to have ingress/egress to Mt. Gainor Road and Caliterra Parkway via a connector road.

Within the study area prior to Carter Tract’s opening year, the Caliterra development is anticipated to be complete in year 2021. As part of this development, Caliterra Parkway was constructed. Caliterra Parkway is a two-lane approach which intersects RM 12 from the west, approximately 1,000 feet north

of the intersection of RM 12 and RM 150. A private driveway forms the westbound approach of the intersection of RM 12 and Caliterra Parkway. At the intersection of Caliterra Parkway and RM 12, the previously completed Caliterra TIA recommended a northbound left turn lane, a southbound right turn lane, and a traffic signal. The northbound left-turn lane and the southbound right-turn lane at RM 12 and Caliterra Parkway have been constructed.

The TIA involved the following five components: 1) site investigation and data collection, 2) trip generation, 3) trip distribution, 4) traffic operational analysis, and 5) roadway capacity analysis. A traffic analysis model, Synchro, was utilized to determine various Measures of Effectiveness (MoE's), such as Delay and Level Of Service (LOS), for the existing and proposed conditions.

The results of the 2021 Build Condition intersection capacity analysis indicate a need for mitigation at the intersections of US 290 at RM 12 and RM 150 at RM 12. At the intersection of US 290 at RM 12, all approaches will be widened to create dual left turn lanes. The northbound and southbound approaches currently have a left only, shared left/thru lane, and shared thru/right lane. These approaches will be widened to become two left turn lanes, a dedicated thru lane, and a dedicated right turn lane. In addition, a right turn lane from westbound on US 290 to northbound on RM 12 will be added.

Installation of a traffic signal at the intersection of RM 12 at RM 150 and the creation of dual left turn lanes on all approaches and a westbound right turn lane at US 290 at RM 12 are proposed as mitigation measures for this project. It was determined that Carter Tract development is responsible for a pro-rata share amount of \$47,195.60 for these improvements. In addition, the Carter Tract and Caliterra developments are 100% responsible for the traffic signal at the intersection of Caliterra Parkway at RM 12 and the connector road between the developments.

It is planned for Mt. Gainor Road to be widened to two, twelve foot lanes with a three foot shoulder. The Carter Tract development is anticipated to be 4.8% at the daily traffic once the development is in-place. The cost of these improvements is anticipated to be \$2,055,000 and the Carter Tract development's pro-rated share amount is \$98,640.

A roadway capacity analysis was completed for two roadway segments in the study area. The segments are Mt. Gainor Road north of the proposed Carter Tract Driveway and the proposed roadway between the Carter Tract and Caliterra developments. The results of the roadway capacity analysis indicate that no operational issues are anticipated due to the build-out of the Carter Tract. It is anticipated that all

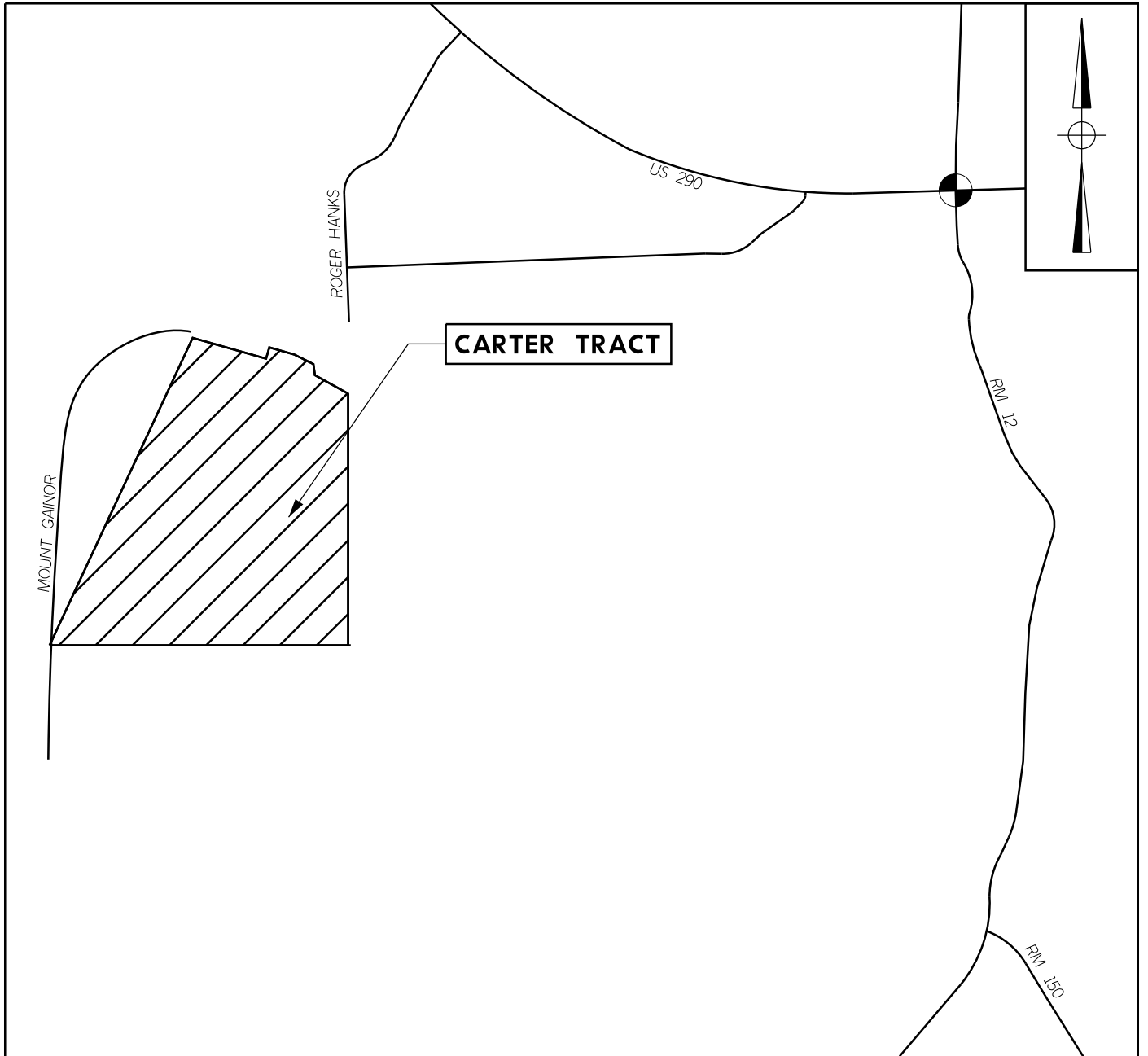
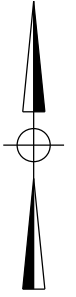
roadway segments will operate at LOS C or better, an acceptable threshold for Level Of Service. The results of the analysis for the signalized intersections at Onion Creek utilized accurately depict the field conditions indicated these intersections will operate at LOS B, an acceptable LOS.

14 References

1. Synchro, Version 8.0, Traffic Signal Coordination Software, Trafficware Ltd., Sugar Land, TX, 2012.
2. Trip Generation, 9th Edition, Institute of Transportation Engineers, Washington, DC, 2012.
3. Highway Capacity Manual 2010, Transportation Research Board, National Research Council, Washington, DC, 2010.
4. HCS 2010, Release 6.8, McTrans Center, Gainesville, FL, 2016.

Appendix A

Exhibits



CARTER TRACT

MOUNT GAINOR

ROGER HANKS

US 290

FM 12

FM 150

LEGEND



SIGNALIZED INTERSECTION



SITE LOCATION

NOTES:
THIS DRAWING SHOWS ONLY THE LOCATIONS RELEVANT TO THIS STUDY.
THE LOCATIONS OF ALL ITEMS SHOWN IN THIS EXHIBIT ARE APPROXIMATE.

HAYS COUNTY VICINITY MAP
N.T.S.



STUDY LOCATION

RPS klotz associates

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SITE LOCATION MAP

**Carter Tract Residential Development
Traffic Impact Analysis**

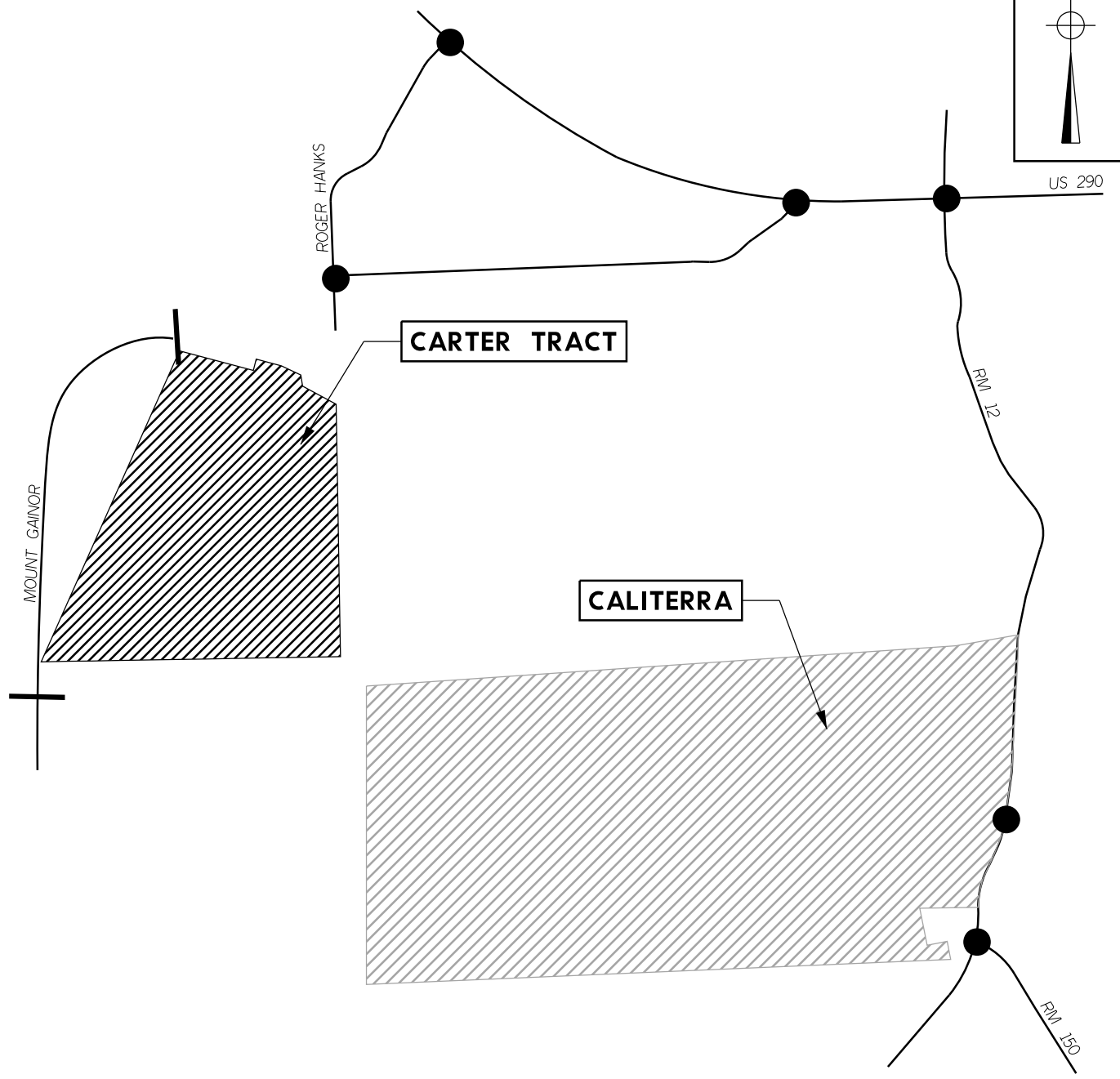
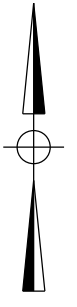
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Exhibit

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LEGEND

-  INTERSECTION TURNING MOVEMENT COUNTS
-  24-HR TUBE COUNTS
-  SITE LOCATION

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STUDY AREA

**Carter Tract Residential Development
Traffic Impact Analysis**

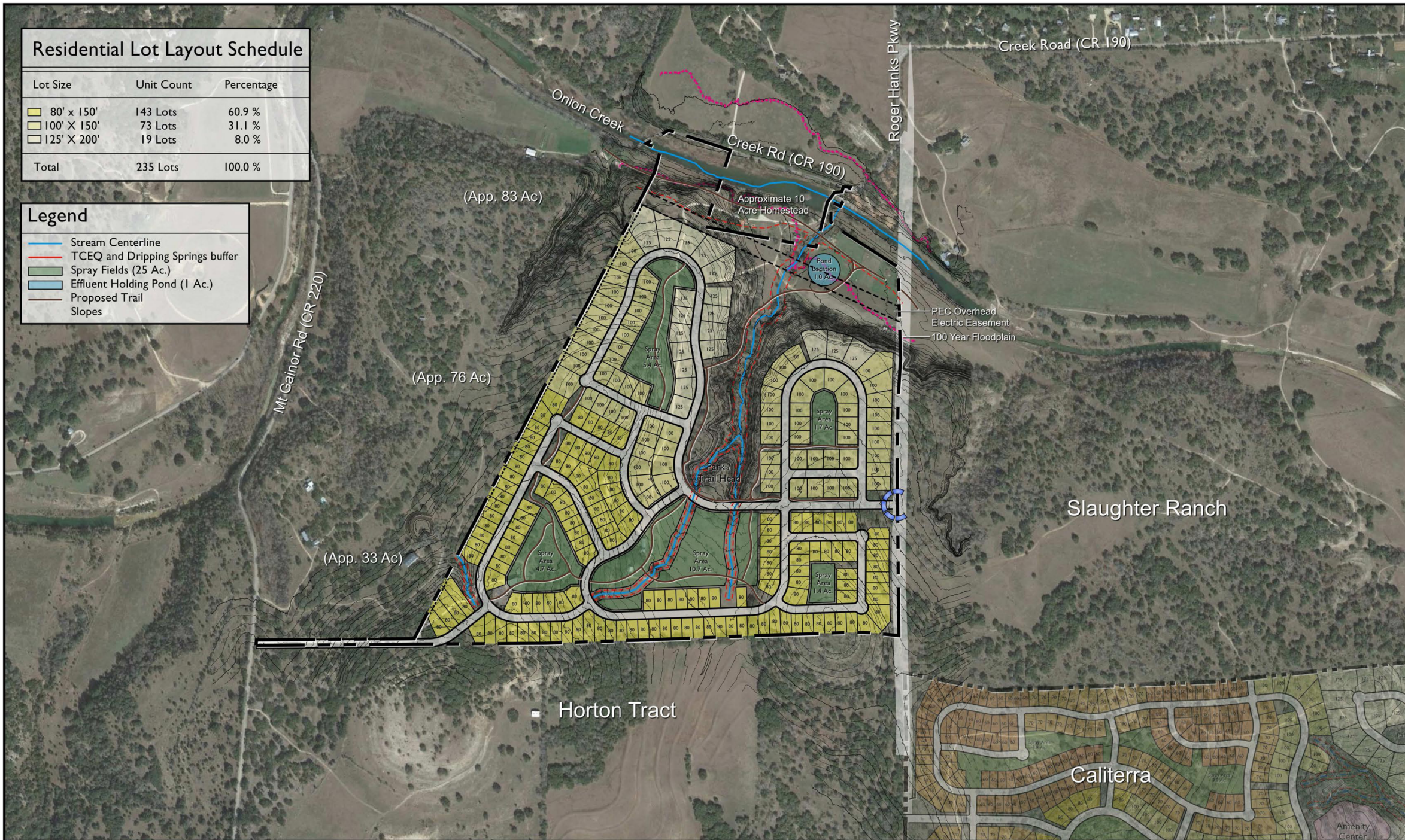
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Residential Lot Layout Schedule

Lot Size	Unit Count	Percentage
80' x 150'	143 Lots	60.9 %
100' x 150'	73 Lots	31.1 %
125' x 200'	19 Lots	8.0 %
Total	235 Lots	100.0 %

Legend

- Stream Centerline
- TCEQ and Dripping Springs buffer
- Spray Fields (25 Ac.)
- Effluent Holding Pond (1 Ac.)
- Proposed Trail
- Slopes



Carter Tract
Hays County, Texas

Conceptual Lot Layout - C

SCALE : 1" = 300'
0 150 300 600
DATE : 10-19-2015



Aerial Photography circa January 2015
2' Contour Interval

712 Congress Avenue, Suite 300
Austin, TX 78701
Tel: (512) 480-0032 Fax: (512) 480-0617
www.rviplanning.com



All information furnished regarding this property is from sources deemed reliable. However, RVI has not made an independent investigation of these sources and no warranty or representation is made by RVI as to the accuracy thereof and same is submitted subject to errors, omissions, land plan changes, or other conditions. This land plan is conceptual in nature and does not represent any regulatory approval. Land plan is subject to change. The developer has reserved the right, without notice, to make changes to this map and other aspects of the development to comply with governmental requirements and to fulfill its marketing objectives.

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SITE PLAN

Carter Tract
Traffic Impact Analysis

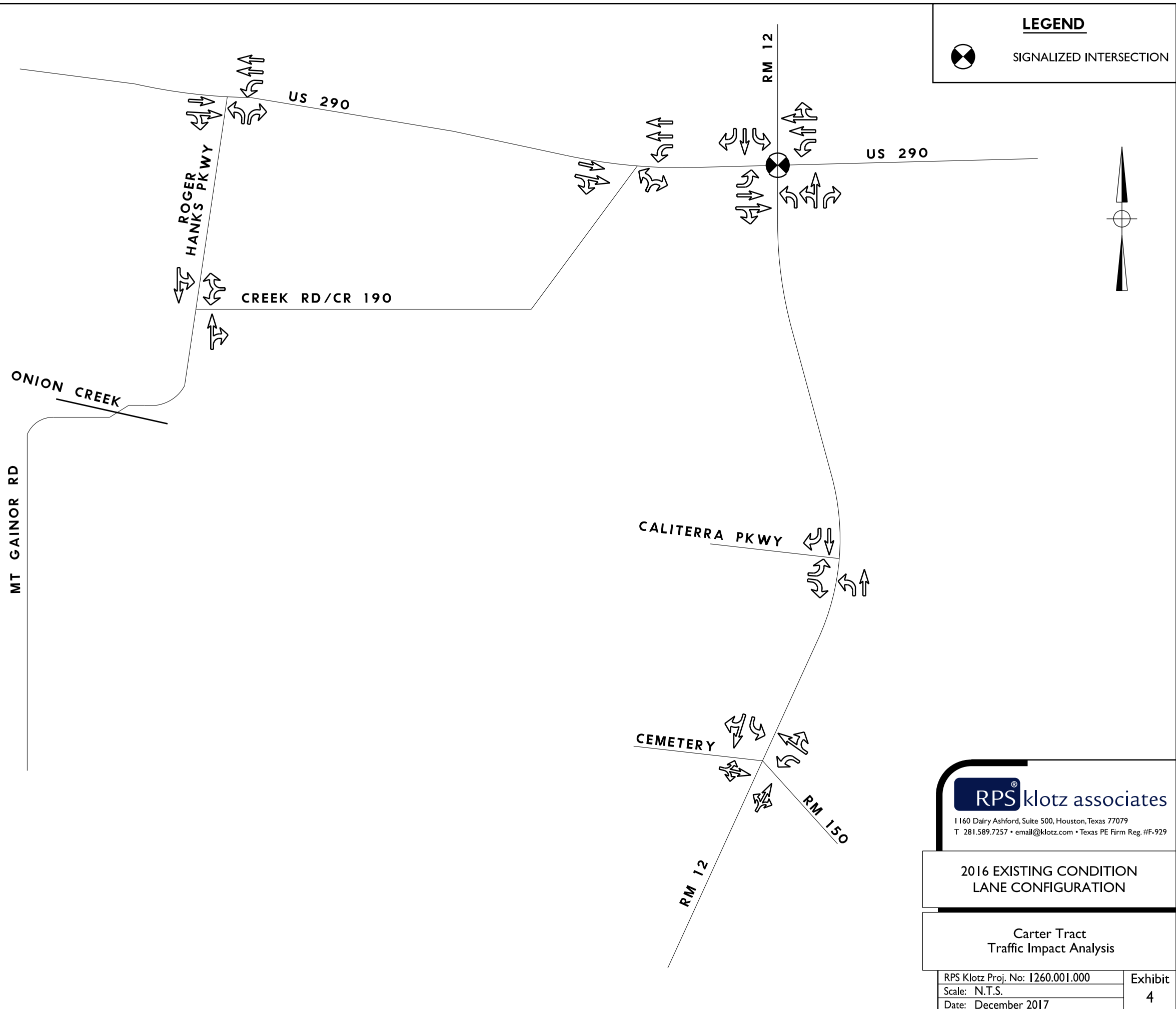
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LEGEND
SIGNALIZED INTERSECTION

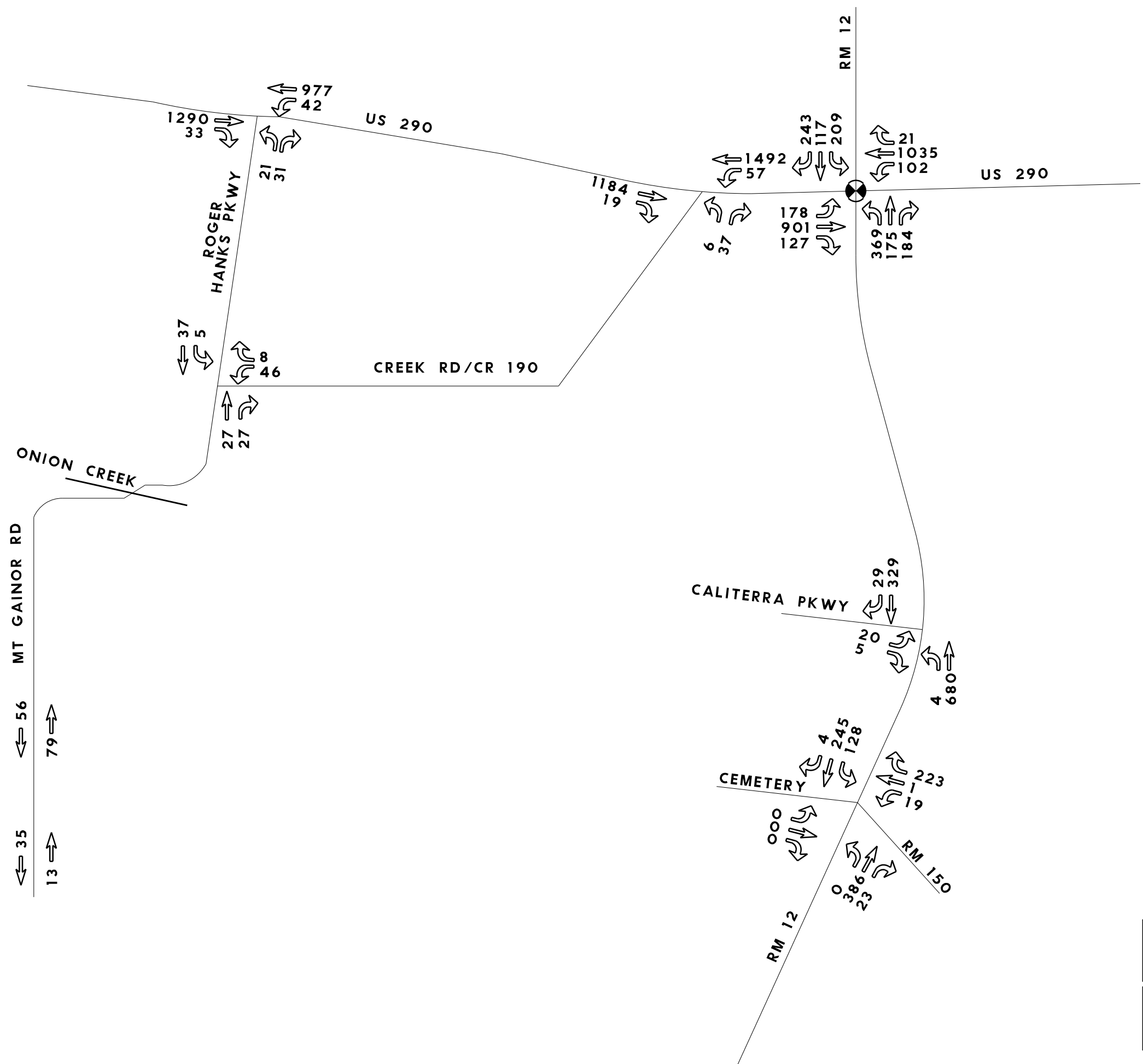
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**2016 EXISTING CONDITION
LANE CONFIGURATION**

**Carter Tract
Traffic Impact Analysis**

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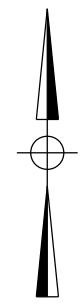
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LEGEND

⊗ SIGNALIZED INTERSECTION

XXX TRAFFIC VOLUME



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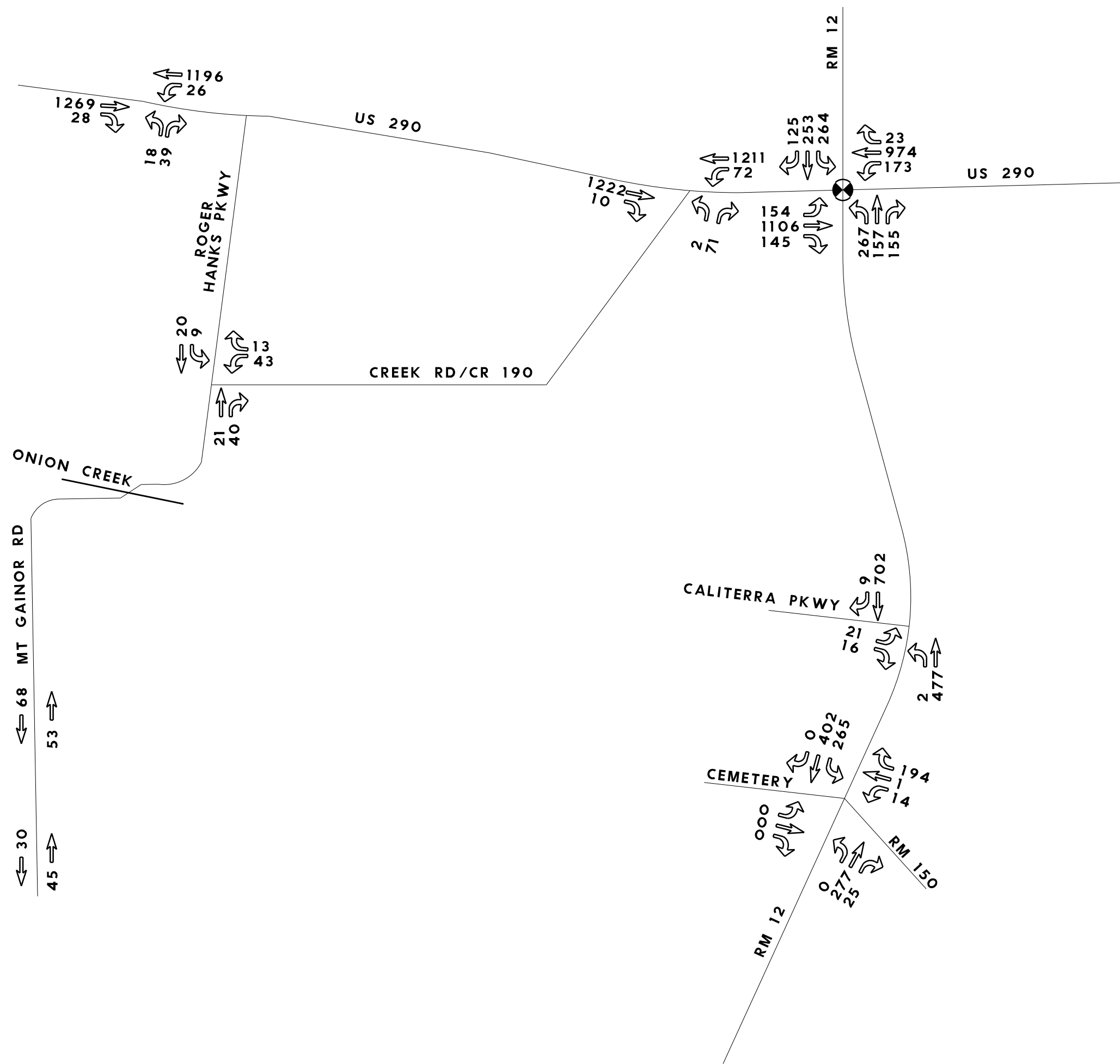
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2016 EXISTING CONDITION
 AM PEAK HOUR

Carter Tract
 Traffic Impact Analysis

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2016 EXISTING CONDITION
PM PEAK HOUR

Carter Tract
Traffic Impact Analysis

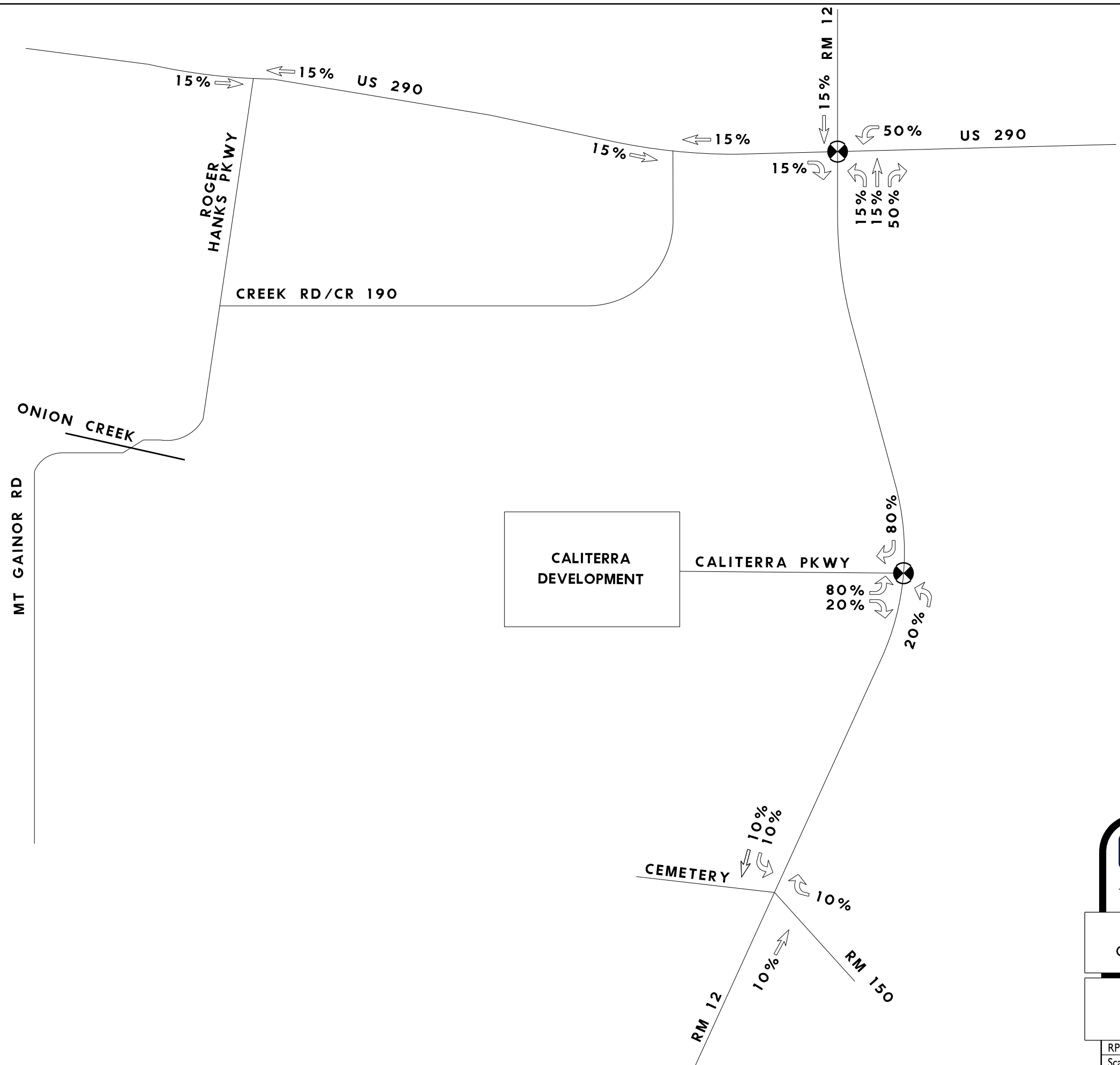
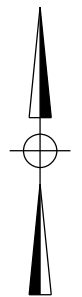
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LEGEND

 SIGNALIZED INTERSECTION

XX% TRAFFIC DISTRIBUTION



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**2021 NO BUILD CONDITION
 CALITERRA TRIP DISTRIBUTION**

**Carter Tract
 Traffic Impact Analysis**

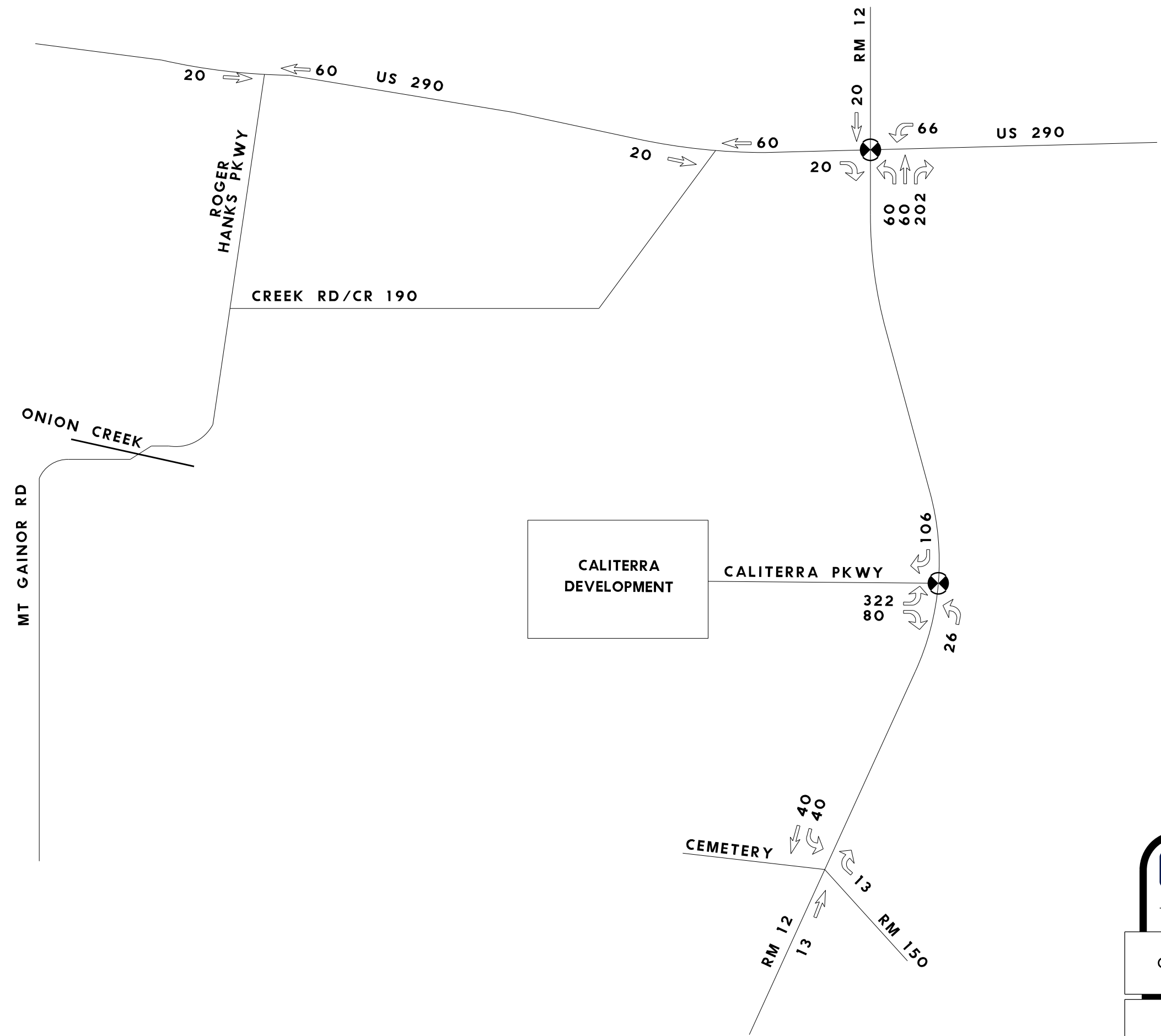
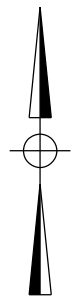
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LEGEND

 SIGNALIZED INTERSECTION

XXX TRAFFIC VOLUMES



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2021 NO BUILD CONDITION
CALITERRA TRIP ASSIGNMENT
AM PEAK HOUR

Carter Tract
Traffic Impact Analysis

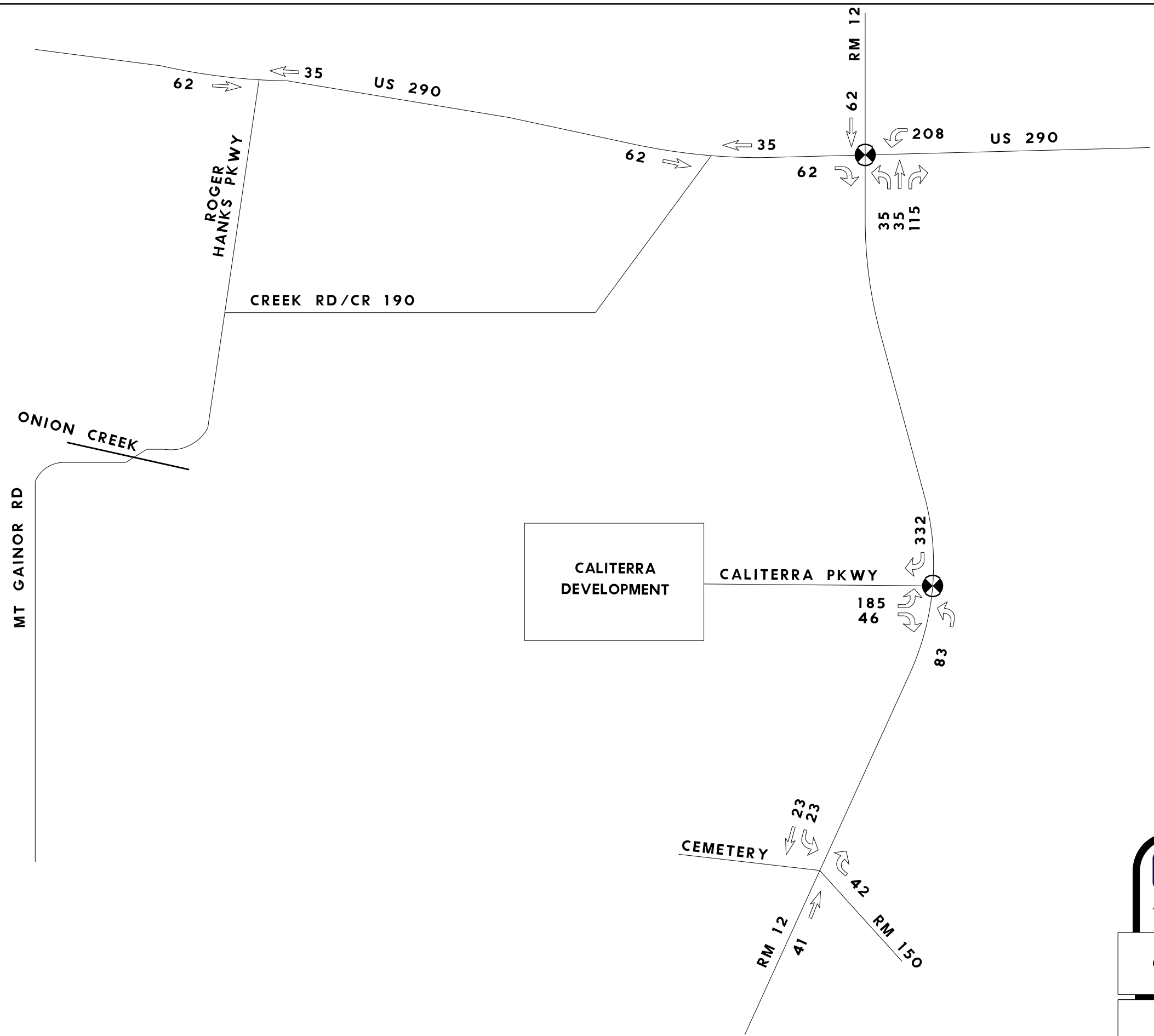
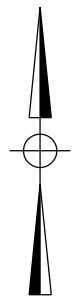
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 SIGNALIZED INTERSECTION

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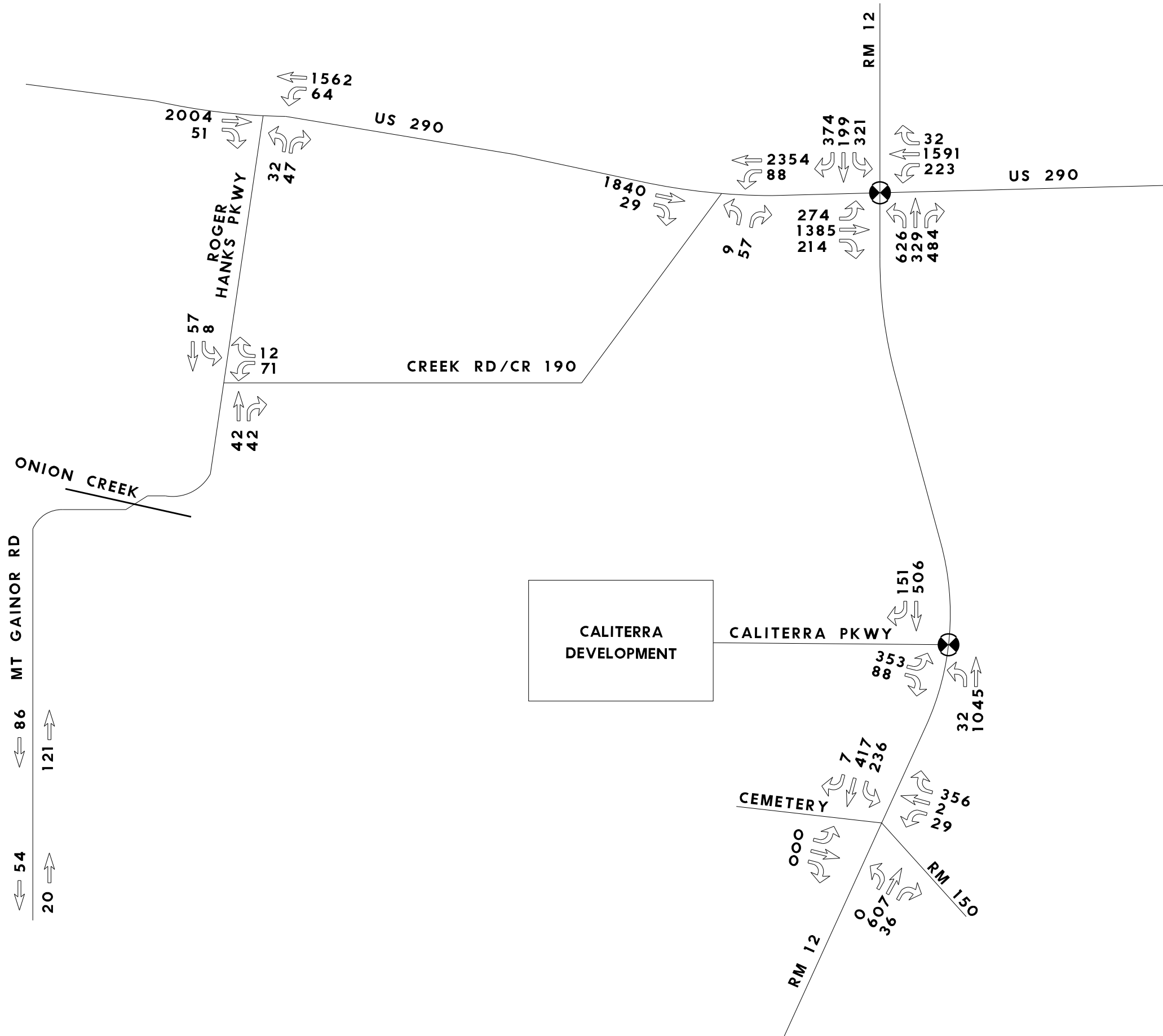
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2021 NO BUILD CONDITION
CALITERRA TRIP ASSIGNMENT
PM PEAK HOUR

Carter Tract
Traffic Impact Analysis

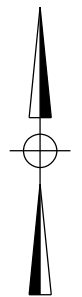
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LEGEND

- SIGNALIZED INTERSECTION
- XXX** TRAFFIC VOLUMES



CALITERRA DEVELOPMENT

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2021 NO BUILD CONDITION
 AM PEAK HOUR


Carter Tract
 Traffic Impact Analysis

NOTE: INCLUDES CALITERRA DEVELOPMENT'S TRIP GENERATION

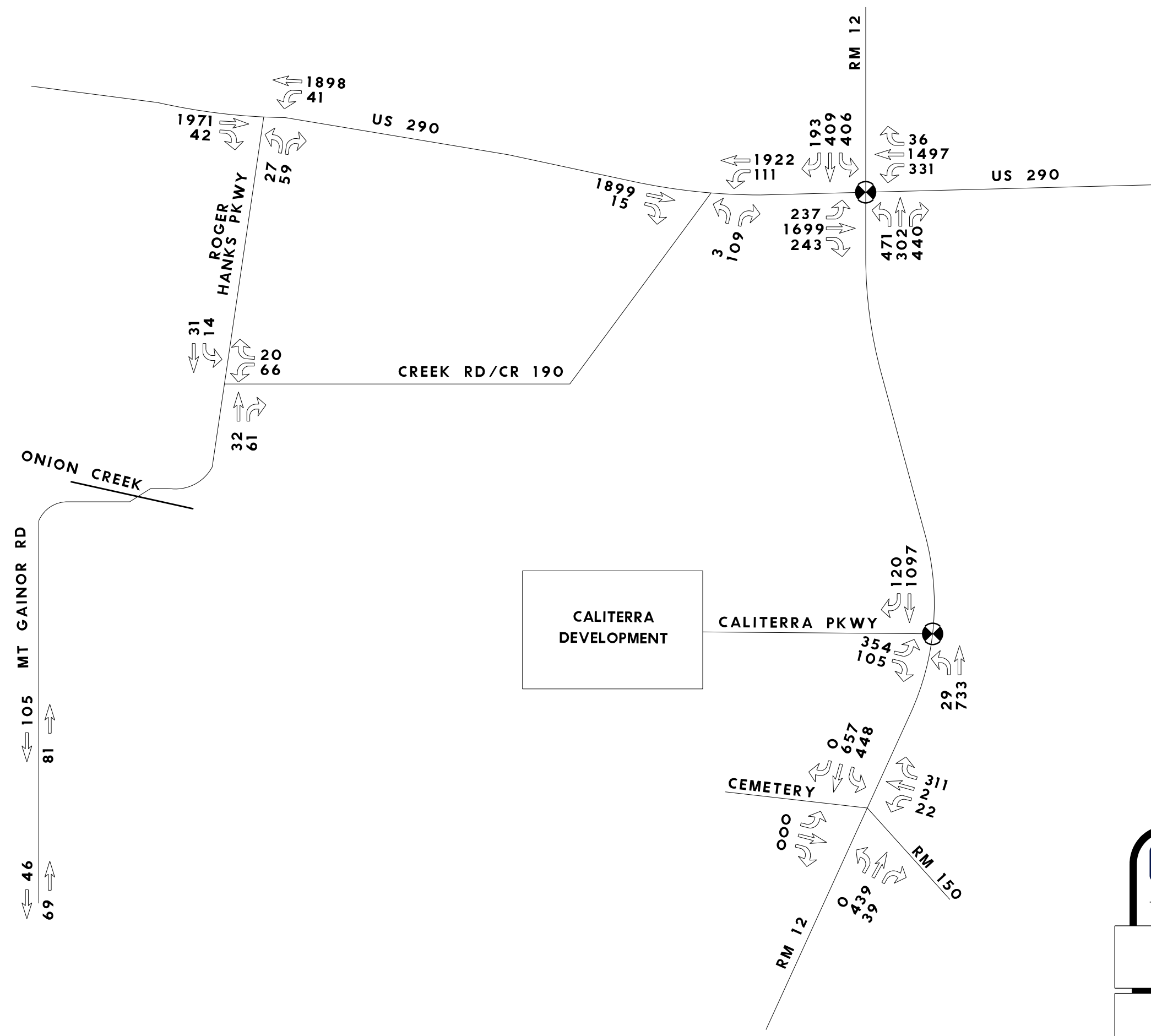
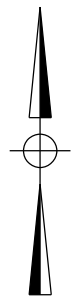
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LEGEND

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XXX TRAFFIC VOLUME



CALITERRA DEVELOPMENT

NOTE: INCLUDES CALITERRA DEVELOPMENT'S TRIP GENERATION

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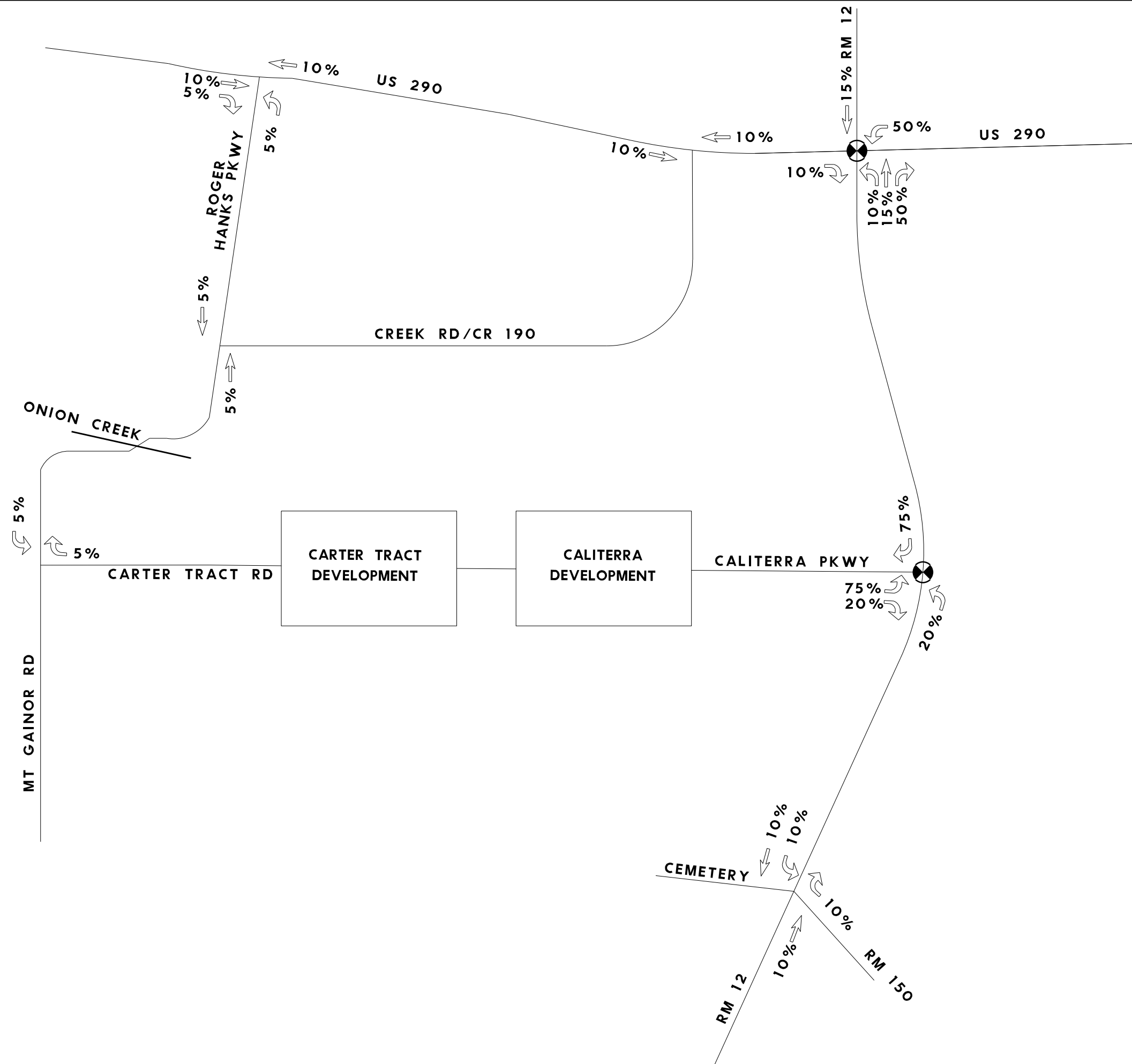
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2021 NO BUILD CONDITION
 PM PEAK HOUR

Carter Tract
 Traffic Impact Analysis

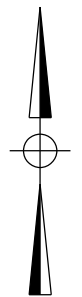
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LEGEND

- SIGNALIZED INTERSECTION
- XX%** TRAFFIC DISTRIBUTION



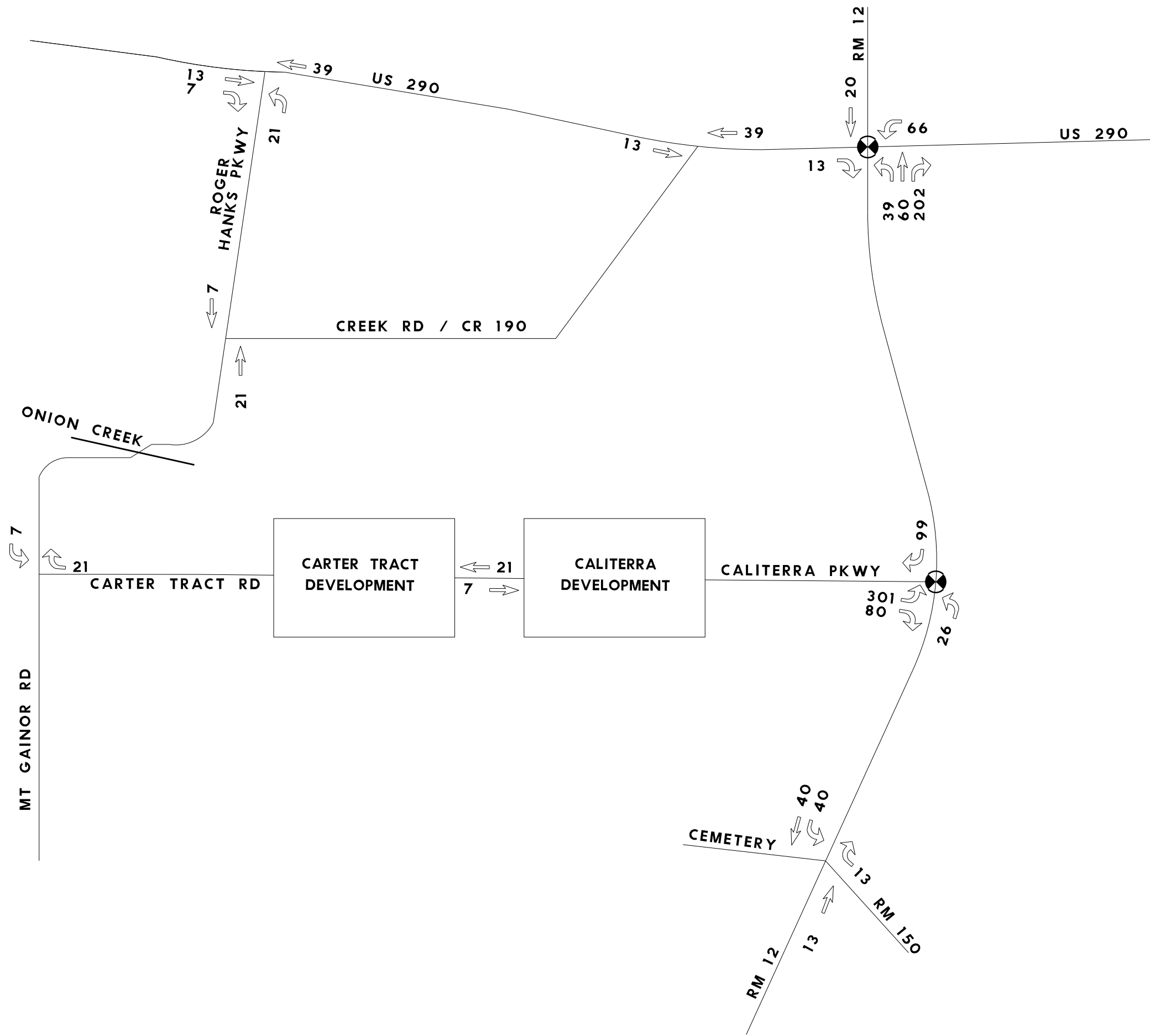
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**2021 BUILD CONDITION
 CALITERRA TRIP DISTRIBUTION**

**Carter Tract
 Traffic Impact Analysis**

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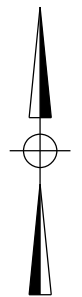
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XXX TRAFFIC VOLUME



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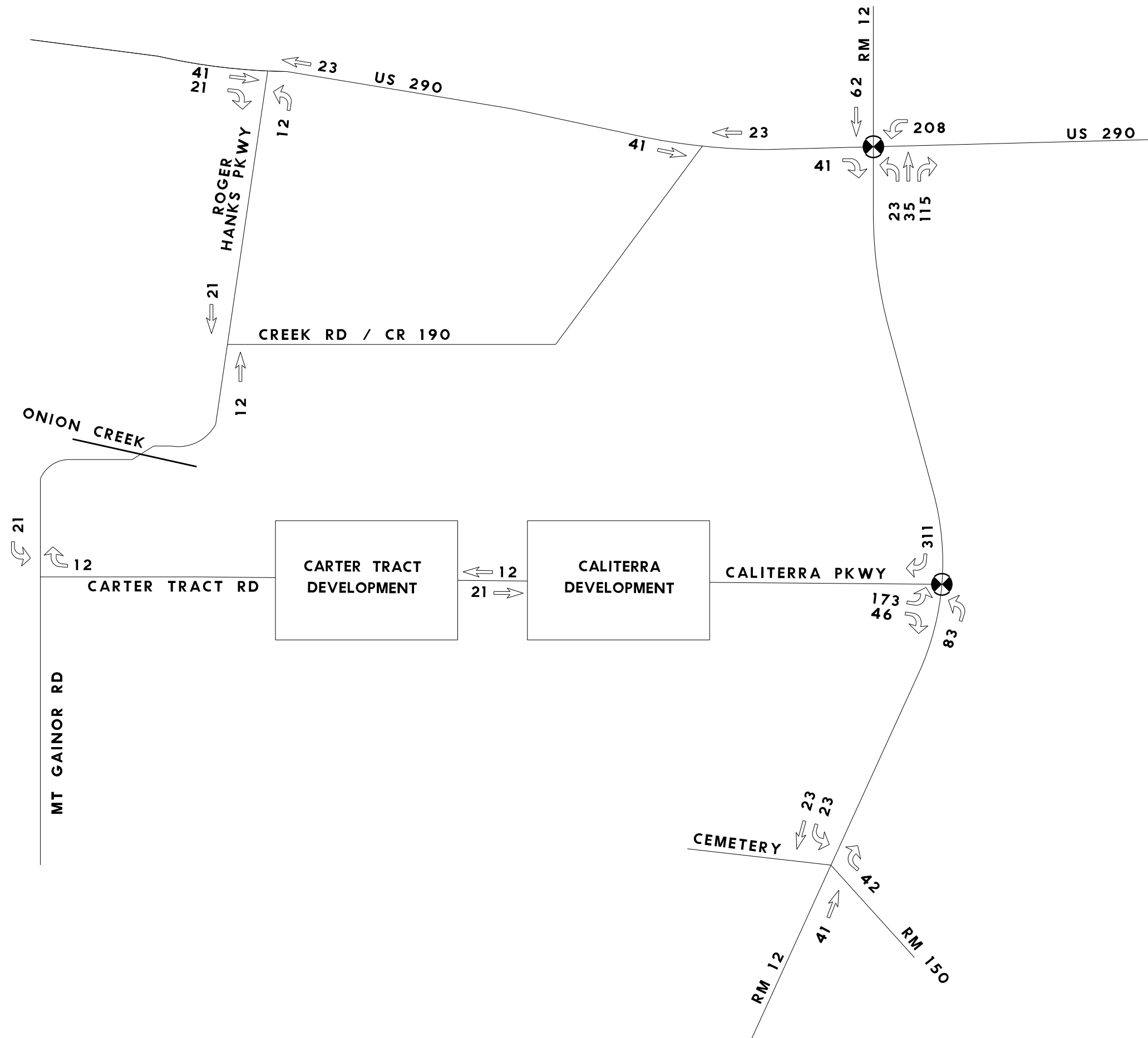
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2021 BUILD CONDITION
 CALITERRA TRIP ASSIGNMENT
 AM PEAK HOUR

Carter Tract
 Traffic Impact Analysis

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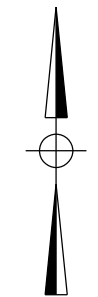
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LEGEND

⊗ SIGNALIZED INTERSECTION

XXX TRAFFIC VOLUME



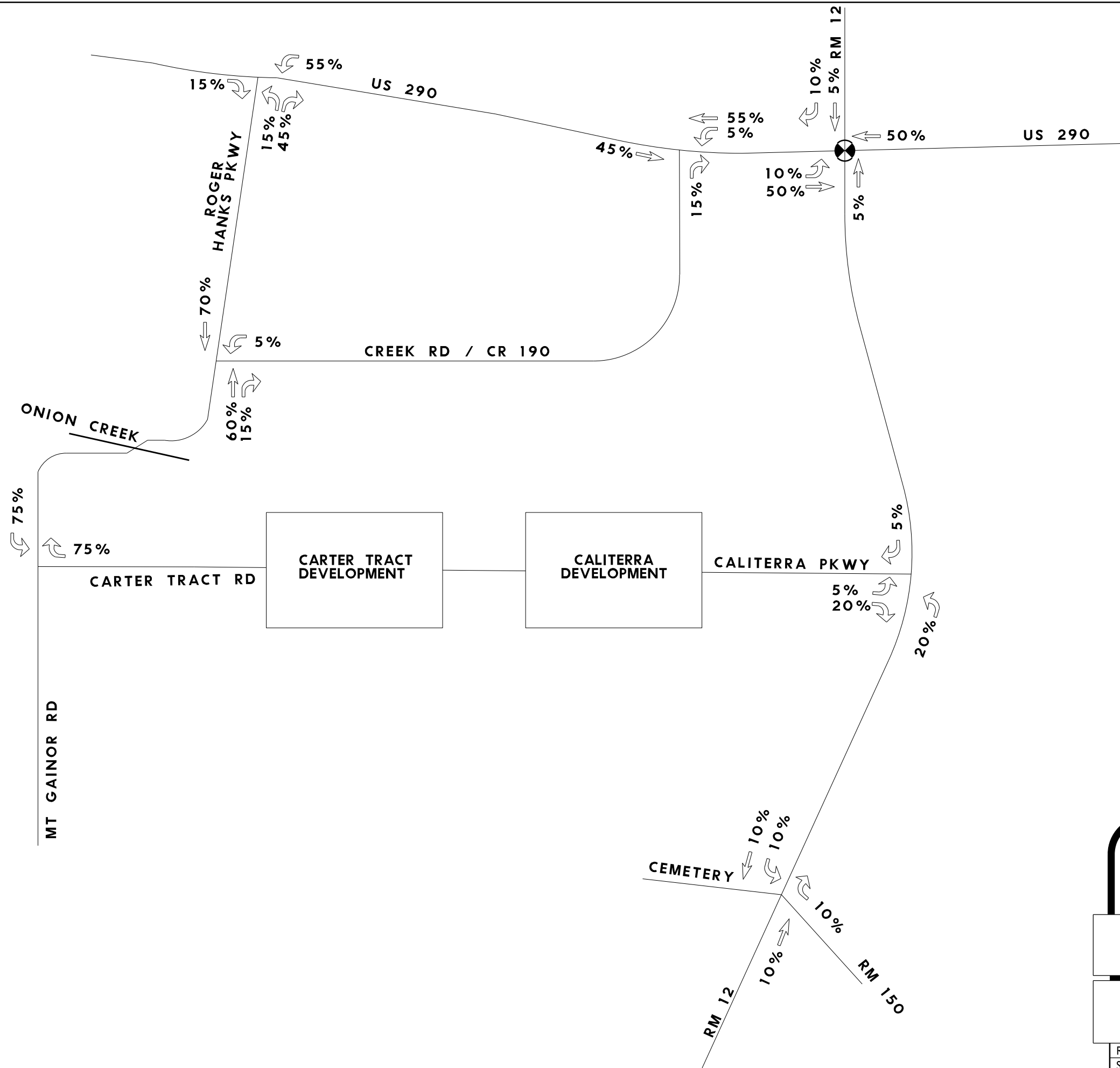
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**2021 BUILD CONDITION
 CALITERRA TRIP ASSIGNMENT
 PM PEAK HOUR**

**Carter Tract
 Traffic Impact Analysis**

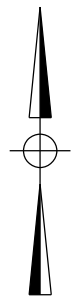
RPS Klotz Proj. No: 1260.001.000	Exhibit
Scale: N.T.S.	14
Date: December 2017	

12/7/2017 10:23:05 AM
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LEGEND

- SIGNALIZED INTERSECTION
- XX%** TRAFFIC DISTRIBUTION



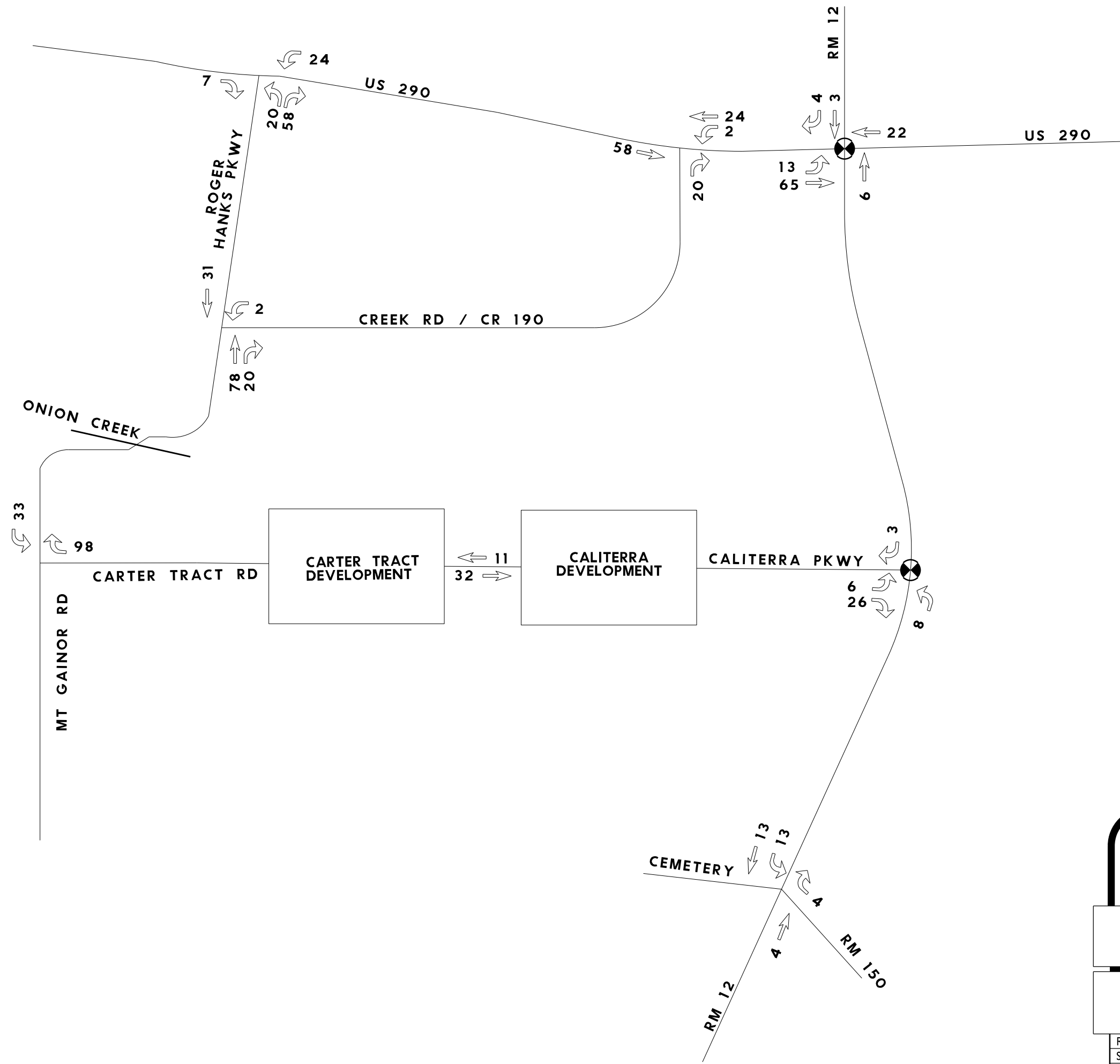
RPS klotz associates
 1160 Dairy Ashford, Suite 500, Houston, Texas 77079
 T 281.589.7257 • email@klotz.com • Texas PE Firm Reg. #F-929

CARTER TRACT TRIP DISTRIBUTION


Carter Tract
 Traffic Impact Analysis

RPS Klotz Proj. No: 1260.001.000	Exhibit
Scale: N.T.S.	15
Date: December 2017	

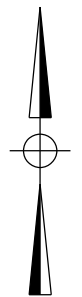
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 J:\1260.001.000\07.00 CADD\Exhibit 16 - Trip Assignment_AM.dgn



LEGEND

 SIGNALIZED INTERSECTION

XXX TRAFFIC VOLUME



RPS klotz associates

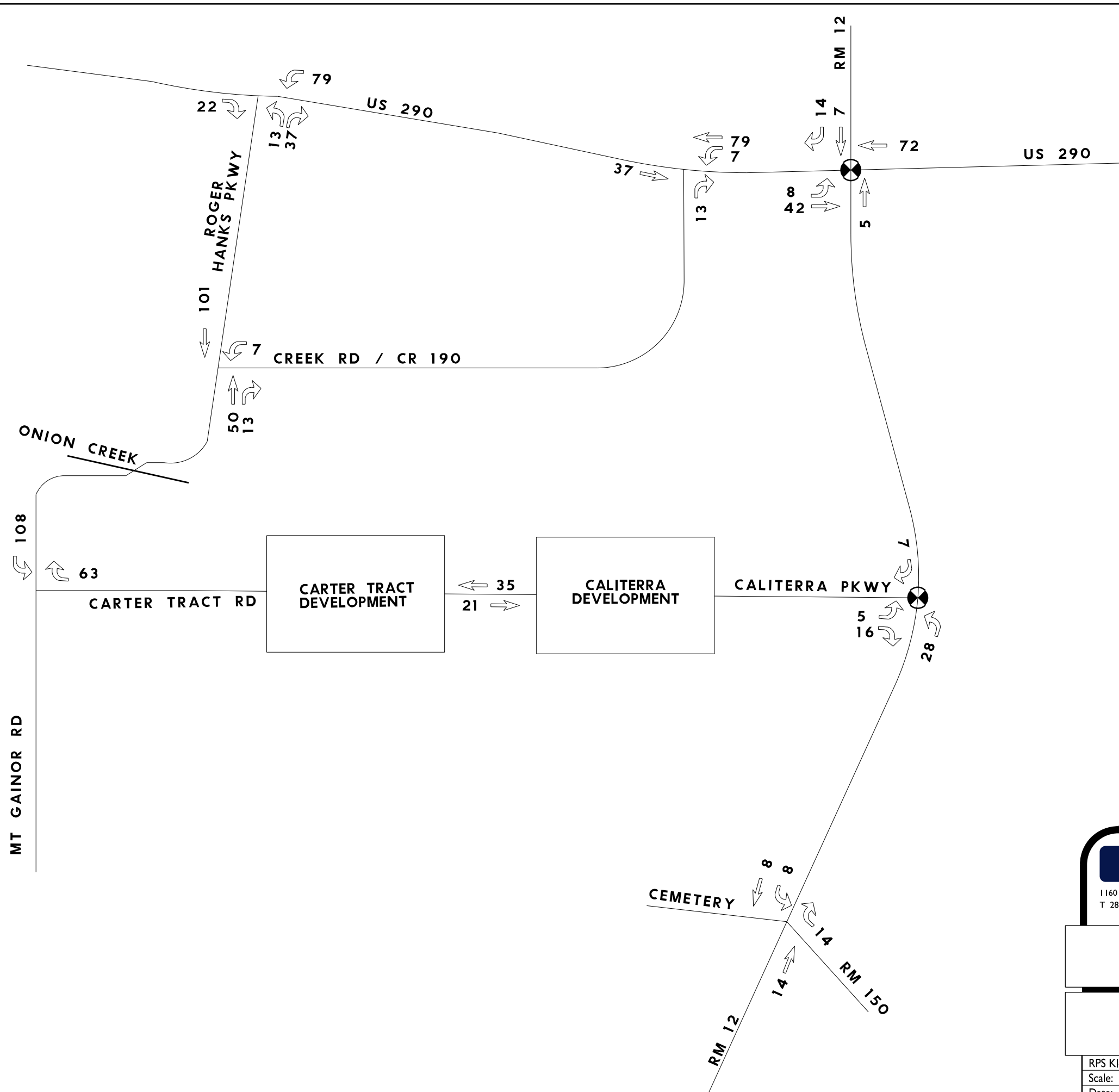
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**CARTER TRACT
 TRIP ASSIGNMENT
 AM PEAK HOUR**

**Carter Tract
 Traffic Impact Analysis**

RPS Klotz Proj. No: 1260.001.000	Exhibit
Scale: N.T.S.	16
Date: December 2017	

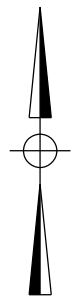
12/7/2017 10:23:07 AM
 J:\1260.001.000\07.00 CADD\Exhibit 17 - Trip Assignment_PM.dgn



LEGEND

SIGNALIZED INTERSECTION

XXX TRAFFIC VOLUME



RPS klotz associates

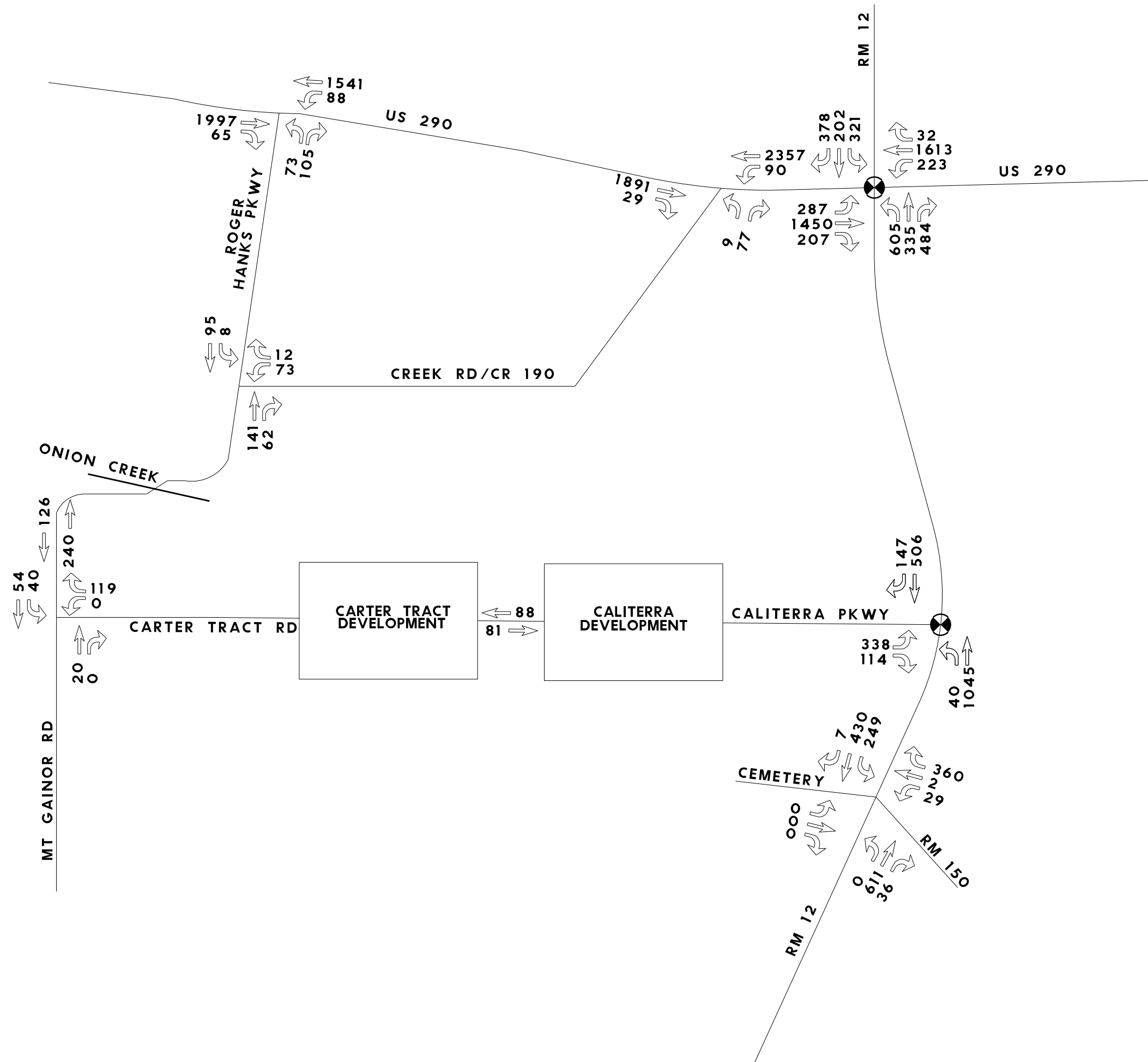
1160 Dairy Ashford, Suite 500, Houston, Texas 77079
 T 281.589.7257 • email@klotz.com • Texas PE Firm Reg. #F-929

CARTER TRACT TRIP ASSIGNMENT PM PEAK HOUR

Carter Tract Traffic Impact Analysis

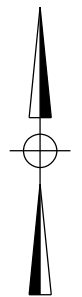
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Scale: N.T.S.	17
Date: December 2017	

12/7/2017 10:23:07 AM
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LEGEND

- SIGNALIZED INTERSECTION
- XXX** TRAFFIC VOLUME



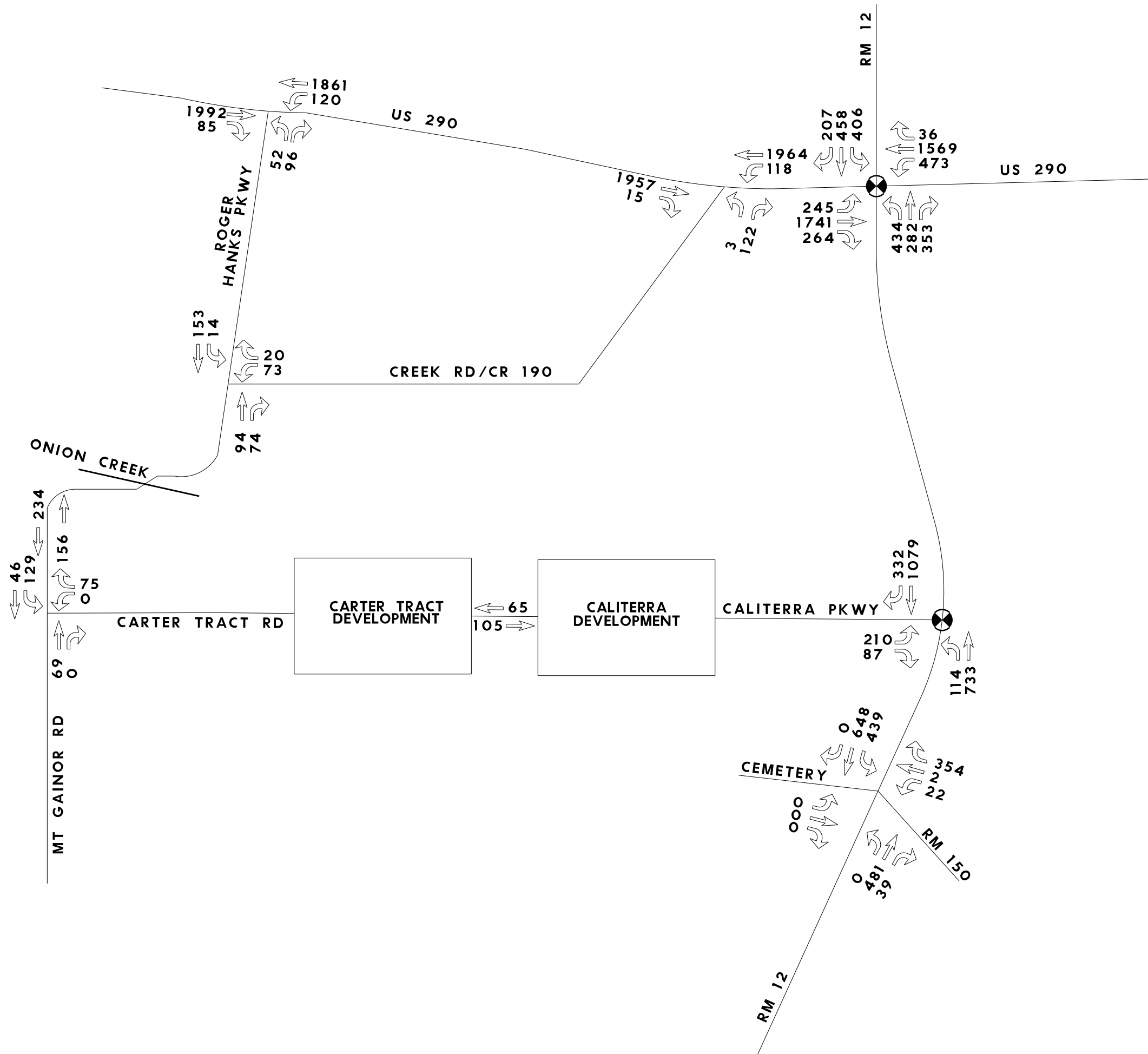
RPS klotz associates
 1160 Dairy Ashford, Suite 500, Houston, Texas 77079
 T 281.589.7257 • email@klotz.com • Texas PE Firm Reg. #F-929

2021 BUILD CONDITION
 AM PEAK HOUR

Carter Tract
 Traffic Impact Analysis

RPS Klotz Proj. No: 1260.001.000	Exhibit
Scale: N.T.S.	18
Date: December 2017	

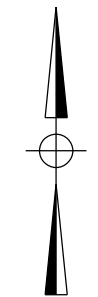
12/7/2017 10:23:08 AM
 J:\1260.001.000\07.00 CADD\Exhibit 19 - 2021 Build PM Peak.dgn



LEGEND

⊗ SIGNALIZED INTERSECTION

XXX TRAFFIC VOLUME



RPS klotz associates

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2021 BUILD CONDITION
 PM PEAK HOUR

Carter Tract
 Traffic Impact Analysis

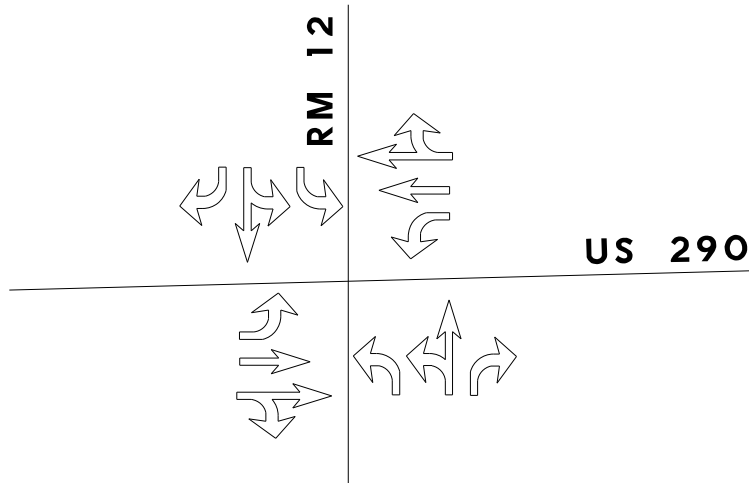
RPS Klotz Proj. No: 1260.001.000	Exhibit
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Date: December 2017	

LEGEND

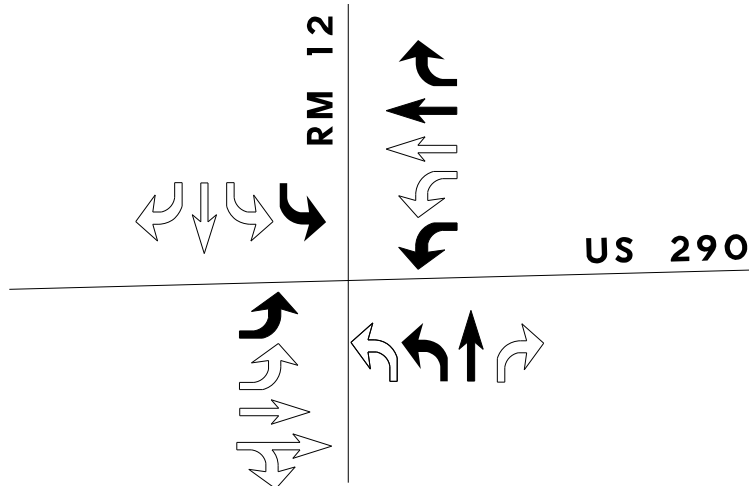
- EXISTING LANE
- MODIFIED LANE



Existing Lane Configuration



Proposed Lane Configuration



RPS klotz associates

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T 281.589.7257 • email@klotz.com • Texas PE Firm Reg. #F-929

US 290 PROPOSED CONFIGURATION




Carter Tract Residential Development Traffic Impact Analysis

RPS Klotz Proj. No: 1260.001.000	Exhibit 20
Scale: N.T.S.	
Date: December 2017	

Appendix B

Traffic Data

Table B2. Turning Movement Counts for RR 12 at US 290
PM Peak Period

Location:	RR 12 at US 290	<table border="1"> <thead> <tr> <th colspan="12">Peak Hour Turning Movements/Percentages</th> </tr> </thead> <tbody> <tr> <td colspan="4">584</td> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">Ranch Road 12</td> <td colspan="4"></td> <td colspan="4">1063</td> </tr> <tr> <td>20%</td> <td>39%</td> <td>41%</td> <td>0%</td> <td>↳</td> <td>21</td> <td>2%</td> <td>↖</td> <td>885</td> <td>83%</td> <td rowspan="3"></td> </tr> <tr> <td>114</td> <td>230</td> <td>240</td> <td>0</td> <td>↗</td> <td>157</td> <td>15%</td> <td>↘</td> <td>0</td> <td>0%</td> </tr> <tr> <td>↳</td> <td>↓</td> <td>↳</td> <td>↻</td> <td colspan="4">US 290</td> </tr> <tr> <td colspan="4"></td> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">US 290</td> <td colspan="4"></td> <td colspan="4">527</td> </tr> <tr> <td colspan="4"></td> <td>0%</td> <td>0</td> <td>↻</td> <td>↻</td> <td>0</td> <td>↖</td> <td>143</td> <td>↗</td> <td>141</td> </tr> <tr> <td colspan="4"></td> <td>11%</td> <td>140</td> <td>↓</td> <td>0</td> <td>243</td> <td>46%</td> <td>27%</td> <td>27%</td> </tr> <tr> <td colspan="4"></td> <td>79%</td> <td>1005</td> <td>→</td> <td>0%</td> <td>46%</td> <td>27%</td> <td>27%</td> </tr> <tr> <td colspan="4"></td> <td>10%</td> <td>132</td> <td>↓</td> <td colspan="4"></td> </tr> <tr> <td colspan="2">Date:</td> <td colspan="10">May 27, 2015</td> <td rowspan="3" style="text-align: center;">  North </td> </tr> <tr> <td colspan="2">Peak Period:</td> <td colspan="10">4:00 PM - 6:00 PM</td> </tr> <tr> <td colspan="2">Peak Hour:</td> <td colspan="10">4:00 PM - 5:00 PM</td> </tr> </tbody> </table>												Peak Hour Turning Movements/Percentages												584				Ranch Road 12					1063				20%	39%	41%	0%	↳	21	2%	↖	885	83%		114	230	240	0	↗	157	15%	↘	0	0%	↳	↓	↳	↻	US 290								US 290					527								0%	0	↻	↻	0	↖	143	↗	141					11%	140	↓	0	243	46%	27%	27%					79%	1005	→	0%	46%	27%	27%					10%	132	↓					Date:		May 27, 2015										 North	Peak Period:		4:00 PM - 6:00 PM										Peak Hour:		4:00 PM - 5:00 PM									
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Date Collected:	May 27, 2015																																																																																																																																																																			
Collected by:	GRAM Traffic																																																																																																																																																																			

Time	Movement	Southbound				Westbound				Northbound				Eastbound			
		left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn
4:00 PM	4:15 PM	58	66	47	0	34	213	6	0	67	47	34	0	46	165	41	0
4:15 PM	4:30 PM	51	42	28	0	46	250	7	0	62	25	29	0	40	270	52	0
4:30 PM	4:45 PM	57	68	24	0	40	200	5	0	51	36	33	0	31	292	22	0
4:45 PM	5:00 PM	74	54	15	0	37	222	3	0	63	35	45	0	23	278	17	0
5:00 PM	5:15 PM	57	61	24	0	52	194	3	0	49	33	40	0	62	191	51	0
5:15 PM	5:30 PM	73	59	21	0	54	242	7	0	52	39	32	0	23	233	39	0
5:30 PM	5:45 PM	57	45	35	0	49	213	7	0	54	42	37	0	39	201	38	0
5:45 PM	6:00 PM	54	60	21	0	57	254	3	0	66	31	35	0	36	201	40	0
Total		481	455	215	0	369	1788	41	0	464	288	285	0	300	1831	300	0
Peak Hour Total		240	230	114	0	157	885	21	0	243	143	141	0	140	1005	132	0
Peak Turn Percent		41%	39%	20%	0%	15%	83%	2%	0%	46%	27%	27%	0%	11%	79%	10%	0%
Peak Approach Total		584				1063				527				1277			

Peak Hour:	4:00 PM	-	5:00 PM
Peak 15 Minutes:	4:15 PM	-	4:30 PM
Peak Hour Factor (PHF):	0.96		

Table B3. Turning Movement Counts for RR 12 at FM 150
AM Peak Period

Location:	RR 12 at FM 150	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="12">Peak Hour Turning Movements/Percentages</th> </tr> </thead> <tbody> <tr> <td colspan="6" style="text-align: center;">343</td> <td colspan="6" style="text-align: center;">Ranch Road 12</td> <td colspan="6"></td> </tr> <tr> <td>1%</td> <td>65%</td> <td>34%</td> <td>0%</td> <td colspan="3"></td> <td>↳</td> <td>203</td> <td>92%</td> <td colspan="3"></td> <td colspan="3"></td> </tr> <tr> <td>4</td> <td>223</td> <td>116</td> <td>0</td> <td colspan="3"></td> <td>↖</td> <td>1</td> <td>0%</td> <td colspan="3"></td> <td colspan="3" style="text-align: right;">221</td> </tr> <tr> <td>↙</td> <td>↓</td> <td>↳</td> <td>↻</td> <td colspan="3"></td> <td>↘</td> <td>17</td> <td>8%</td> <td colspan="3"></td> <td colspan="3"></td> </tr> <tr> <td colspan="6"></td> <td colspan="6"></td> <td colspan="6" style="text-align: center;">FM 150</td> </tr> <tr> <td colspan="6"></td> <td colspan="6"></td> <td>↻</td> <td>↖</td> <td>↑</td> <td>↗</td> <td colspan="3"></td> </tr> <tr> <td colspan="6"></td> <td colspan="6"></td> <td>0</td> <td>0</td> <td>351</td> <td>21</td> <td colspan="3"></td> </tr> <tr> <td colspan="6"></td> <td colspan="6"></td> <td>0%</td> <td>0%</td> <td>94%</td> <td>6%</td> <td colspan="3"></td> </tr> <tr> <td colspan="6"></td> <td colspan="6"></td> <td colspan="6" style="text-align: center;">372</td> </tr> <tr> <td colspan="6"></td> <td colspan="6"></td> <td colspan="6" style="text-align: right;">North</td> </tr> <tr> <td colspan="6"></td> <td colspan="6"></td> <td colspan="6" style="text-align: right;">North</td> </tr> </tbody> </table>												Peak Hour Turning Movements/Percentages												343						Ranch Road 12												1%	65%	34%	0%				↳	203	92%							4	223	116	0				↖	1	0%				221			↙	↓	↳	↻				↘	17	8%																			FM 150																		↻	↖	↑	↗																0	0	351	21																0%	0%	94%	6%																372																		North																		North					
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Collected by:	GRAM Traffic																																																																																																																																																																																																																											

Date:	May 27, 2015
Peak Period:	7:00 AM - 9:00 AM
Peak Hour:	8:00 AM - 9:00 AM

Time	Southbound				Westbound				Northbound				Eastbound			
	left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn
7:00 AM - 7:15 AM	21	29	0	0	1	0	49	0	0	101	1	0	0	0	0	0
7:15 AM - 7:30 AM	22	42	1	0	0	0	47	0	0	97	1	0	0	0	0	0
7:30 AM - 7:45 AM	26	47	0	0	7	0	49	0	0	88	1	0	0	0	0	0
7:45 AM - 8:00 AM	25	57	0	0	2	0	48	0	0	97	4	0	0	0	0	0
8:00 AM - 8:15 AM	26	53	0	0	4	0	46	0	0	107	5	0	0	0	0	0
8:15 AM - 8:30 AM	26	48	0	0	3	0	62	0	0	78	7	0	0	0	0	0
8:30 AM - 8:45 AM	34	60	0	0	7	1	49	0	0	81	4	0	0	0	0	0
8:45 AM - 9:00 AM	30	62	4	0	3	0	46	0	0	85	5	0	0	0	0	0
Total	210	398	5	0	27	1	396	0	0	734	28	0	0	0	0	0
Peak Hour Total	116	223	4	0	17	1	203	0	0	351	21	0	0	0	0	0
Peak Turn Percent	34%	65%	1%	0%	8%	0%	92%	0%	0%	94%	6%	0%	0%	0%	0%	0%
Peak Approach Total	343				221				372				0			

Peak Hour:	8:00 AM - 9:00 AM
Peak 15 Minutes:	8:00 AM - 8:15 AM
Peak Hour Factor (PHF):	0.97

Table B4. Turning Movement Counts for RR 12 at FM 150
PM Peak Period

Location:	RR 12 at FM 150	<table border="1"> <thead> <tr> <th colspan="12">Peak Hour Turning Movements/Percentages</th> </tr> </thead> <tbody> <tr> <td colspan="6">606</td> <td colspan="6">190</td> </tr> <tr> <td>0%</td> <td>60%</td> <td>40%</td> <td>0%</td> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">Ranch Road 12</td> <td>↳</td> <td>176</td> <td>93%</td> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">FM 150</td> <td>↳</td> <td>1</td> <td>1%</td> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">275</td> <td>↳</td> <td>13</td> <td>7%</td> <td rowspan="4" style="writing-mode: vertical-rl; transform: rotate(180deg);">North</td> </tr> <tr> <td>0</td> <td>365</td> <td>241</td> <td>0</td> <td>↵</td> <td>0</td> <td>0%</td> <td>↵</td> <td>0</td> <td>0%</td> <td>↵</td> <td>252</td> <td>8%</td> </tr> <tr> <td>↳</td> <td>↓</td> <td>↳</td> <td>↵</td> <td>↵</td> <td>0</td> <td>0%</td> <td>↵</td> <td>0</td> <td>0%</td> <td>↵</td> <td>92%</td> <td>8%</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0</td> <td>0%</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="2">Date:</td> <td colspan="10">May 27, 2015</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">Peak Period:</td> <td colspan="10">4:00 PM - 6:00 PM</td> <td colspan="2"></td> </tr> <tr> <td colspan="2">Peak Hour:</td> <td colspan="10">5:00 PM - 6:00 PM</td> <td colspan="2"></td> </tr> </tbody> </table>												Peak Hour Turning Movements/Percentages												606						190						0%	60%	40%	0%	Ranch Road 12	↳	176	93%	FM 150	↳	1	1%	275	↳	13	7%	North	0	365	241	0	↵	0	0%	↵	0	0%	↵	252	8%	↳	↓	↳	↵	↵	0	0%	↵	0	0%	↵	92%	8%						0	0%							Date:		May 27, 2015												Peak Period:		4:00 PM - 6:00 PM												Peak Hour:		5:00 PM - 6:00 PM											
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Collected by:	GRAM Traffic																																																																																																																																						

Time	Movement	Southbound				Westbound				Northbound				Eastbound				
		left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	
4:00 PM	4:15 PM	32	60	0	0	4	0	40	0	0	52	1	0	0	0	0	0	0
4:15 PM	4:30 PM	42	106	0	0	5	0	46	0	0	67	5	0	0	0	0	0	0
4:30 PM	4:45 PM	50	87	0	0	4	0	29	0	0	52	5	0	0	0	0	0	0
4:45 PM	5:00 PM	74	102	0	0	2	0	34	0	0	71	6	0	0	0	0	0	0
5:00 PM	5:15 PM	61	77	0	0	4	0	38	0	0	48	6	0	0	0	0	0	0
5:15 PM	5:30 PM	51	86	0	0	2	1	51	0	0	67	3	0	0	0	0	0	0
5:30 PM	5:45 PM	61	104	0	0	2	0	37	0	0	70	5	0	0	0	0	0	0
5:45 PM	6:00 PM	68	98	0	0	5	0	50	0	0	67	9	0	0	0	0	0	0
Total		439	720	0	0	28	1	325	0	0	494	40	0	0	0	0	0	0
Peak Hour Total		241	365	0	0	13	1	176	0	0	252	23	0	0	0	0	0	0
Peak Turn Percent		40%	60%	0%	0%	7%	1%	93%	0%	0%	92%	8%	0%	0%	0%	0%	0%	0%
Peak Approach Total		606				190				275				0				

Peak Hour:	5:00 PM	-	6:00 PM
Peak 15 Minutes:	5:45 PM	-	6:00 PM
Peak Hour Factor (PHF):	0.90		

**Table B5. Turning Movement Counts for RR 12 at Caliterra Pkwy
AM Peak Period**

Location:	RR 12 at Caliterra Pkwy	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="12">Peak Hour Turning Movements/Percentages</th> </tr> </thead> <tbody> <tr> <td colspan="6" style="text-align: center;">360</td> <td colspan="6" style="text-align: center;">Ranch Road 12</td> <td colspan="6" style="text-align: center;">Caliterra Parkway</td> </tr> <tr> <td style="text-align: center;">8%</td> <td style="text-align: center;">91%</td> <td style="text-align: center;">1%</td> <td style="text-align: center;">0%</td> <td colspan="6" rowspan="4" style="border-left: 1px solid black; border-right: 1px solid black; text-align: center; vertical-align: middle;">Ranch Road 12</td> <td style="text-align: center;">↖</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0%</td> <td colspan="6" rowspan="4" style="border-left: 1px solid black; border-right: 1px solid black; text-align: center; vertical-align: middle;">Caliterra Parkway</td> </tr> <tr> <td style="text-align: center;">↖</td> <td style="text-align: center;">↘</td> <td style="text-align: center;">↙</td> <td style="text-align: center;">↗</td> <td style="text-align: center;">↖</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0%</td> <td style="text-align: center;">↖</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0%</td> </tr> <tr> <td style="text-align: center;">29</td> <td style="text-align: center;">329</td> <td style="text-align: center;">2</td> <td style="text-align: center;">0</td> <td style="text-align: center;">↖</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0%</td> <td style="text-align: center;">↖</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0%</td> </tr> <tr> <td style="text-align: center;">↖</td> <td style="text-align: center;">↘</td> <td style="text-align: center;">↙</td> <td style="text-align: center;">↗</td> <td style="text-align: center;">↖</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0%</td> <td style="text-align: center;">↖</td> <td style="text-align: center;">0</td> <td style="text-align: center;">0%</td> </tr> <tr> <td colspan="6" style="text-align: center;">25</td> <td colspan="6" style="text-align: center;">685</td> <td colspan="6" style="text-align: center;">North</td> </tr> <tr> <td colspan="6" style="text-align: center;">0%</td> <td colspan="6" style="text-align: center;">0</td> <td colspan="6" style="text-align: center;">↗</td> </tr> <tr> <td colspan="6" style="text-align: center;">80%</td> <td colspan="6" style="text-align: center;">20</td> <td colspan="6" style="text-align: center;">↘</td> </tr> <tr> <td colspan="6" style="text-align: center;">0%</td> <td colspan="6" style="text-align: center;">0</td> <td colspan="6" style="text-align: center;">↘</td> </tr> <tr> <td colspan="6" style="text-align: center;">20%</td> <td colspan="6" style="text-align: center;">5</td> <td colspan="6" style="text-align: center;">↘</td> </tr> <tr> <td colspan="6">Date:</td> <td colspan="6">September 22, 2016</td> <td colspan="6" rowspan="3" style="text-align: center; vertical-align: middle;">North</td> </tr> <tr> <td colspan="6">Peak Period:</td> <td colspan="6">7:00 AM - 9:00 AM</td> </tr> <tr> <td colspan="6">Peak Hour:</td> <td colspan="6">8:00 AM - 9:00 AM</td> </tr> </tbody> </table>												Peak Hour Turning Movements/Percentages												360						Ranch Road 12						Caliterra Parkway						8%	91%	1%	0%	Ranch Road 12						↖	0	0%	Caliterra Parkway						↖	↘	↙	↗	↖	0	0%	↖	0	0%	29	329	2	0	↖	0	0%	↖	0	0%	↖	↘	↙	↗	↖	0	0%	↖	0	0%	25						685						North						0%						0						↗						80%						20						↘						0%						0						↘						20%						5						↘						Date:						September 22, 2016						North						Peak Period:						7:00 AM - 9:00 AM						Peak Hour:						8:00 AM - 9:00 AM					
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North-South street:	Ranch Road 12																																																																																																																																																																																																																															
East-West street:	Caliterra Parkway																																																																																																																																																																																																																															
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Collected by:	CJ Hensch																																																																																																																																																																																																																															

Time	Southbound				Westbound				Northbound				Eastbound			
	left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn
7:00 AM - 7:15 AM	0	68	4	0	0	0	2	0	2	119	0	0	1	0	0	0
7:15 AM - 7:30 AM	0	63	4	0	0	0	0	0	1	192	0	0	2	0	1	0
7:30 AM - 7:45 AM	0	80	8	0	0	0	0	0	1	168	0	0	3	0	1	0
7:45 AM - 8:00 AM	0	95	7	0	0	0	0	0	1	164	0	1	0	0	0	0
8:00 AM - 8:15 AM	0	75	10	0	0	0	0	0	0	166	0	1	4	0	3	0
8:15 AM - 8:30 AM	0	77	5	0	0	0	0	0	0	193	0	0	2	0	0	0
8:30 AM - 8:45 AM	1	92	5	0	0	0	0	0	1	157	0	0	7	0	1	0
8:45 AM - 9:00 AM	1	85	9	0	0	0	0	0	3	164	0	0	7	0	1	0
Total	2	635	52	0	0	0	2	0	9	1323	0	2	26	0	7	0
Peak Hour Total	2	329	29	0	0	0	0	0	4	680	0	1	20	0	5	0
Peak Turn Percent	1%	91%	8%	0%	0%	0%	0%	0%	1%	99%	0%	0%	80%	0%	20%	0%
Peak Approach Total	360				0				685				25			

Peak Hour:	8:00 AM	-	9:00 AM
Peak 15 Minutes:	8:15 AM	-	8:30 AM
Peak Hour Factor (PHF):	0.97		

**Table B6. Turning Movement Counts for RR 12 at Caliterra Pkwy
PM Peak Period**

Location:	RR 12 at Caliterra Pkwy
City & State:	Dripping Springs, TX
North-South street:	Ranch Road 12
East-West street:	Caliterra Parkway
Peak Period:	4:00 PM - 6:00 PM
Date Collected:	September 22, 2016
Collected by:	CJ Hensch

Peak Hour Turning Movements/Percentages									
714					Ranch Road 12				
1%	98%	0%	0%		↳	2	100%		
9	702	3	0		↖	0	0%		2
↳	↓	↳	↵		↙	0	0%		
					Caliterra Parkway				
					↶	0	0%	↗	0
					↵	0	0%	↖	2
					↘	0	0%	↗	477
					↙	0	0%	↖	0
					479				
					North				
Date:					September 22, 2016				
Peak Period:					4:00 PM - 6:00 PM				
Peak Hour:					5:00 PM - 6:00 PM				

Time	Movement	Southbound				Westbound				Northbound				Eastbound			
		left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn
4:00 PM	4:15 PM	0	151	3	0	0	0	1	0	0	95	0	0	5	0	0	0
4:15 PM	4:30 PM	0	138	7	0	0	0	0	0	0	108	0	0	7	0	3	0
4:30 PM	4:45 PM	1	149	1	0	0	0	0	0	0	101	0	0	5	0	0	0
4:45 PM	5:00 PM	0	177	5	0	0	0	0	0	0	117	0	0	1	0	2	0
5:00 PM	5:15 PM	0	178	1	0	0	0	0	0	0	96	0	0	7	0	1	0
5:15 PM	5:30 PM	0	173	3	0	0	0	2	0	0	118	0	0	8	0	10	0
5:30 PM	5:45 PM	1	159	2	0	0	0	0	0	2	142	0	0	2	0	0	0
5:45 PM	6:00 PM	2	192	3	0	0	0	0	0	0	121	0	0	4	0	5	0
Total		4	1317	25	0	0	0	3	0	2	898	0	0	39	0	21	0
Peak Hour Total		3	702	9	0	0	0	2	0	2	477	0	0	21	0	16	0
Peak Turn Percent		0%	98%	1%	0%	0%	0%	100%	0%	0%	100%	0%	0%	57%	0%	43%	0%
Peak Approach Total		714				2				479				37			

Peak Hour:	5:00 PM	-	6:00 PM
Peak 15 Minutes:	5:45 PM	-	6:00 PM
Peak Hour Factor (PHF):	0.94		

Table B7. Turning Movement Counts for US 290 at Roger Hanks Pkwy
AM Peak Period

Location:	US 290 at Roger Hanks Pkwy
City & State:	Dripping Springs, TX
North-South street:	US 290
East-West street:	Roger Hanks Parkway
Peak Period:	7:00 AM - 9:00 AM
Date Collected:	April 15, 2015
Collected by:	HDR

Peak Hour Turning Movements/Percentages												
1203					US 290	Roger Hanks Parkway						
2%	98%	0%	0%	↳		0	0%	0				
30	1173	0	0	↖		0	0%					
↳	↓	↳	↗	↘		0	0%					
				↙	0	0%						
					927							
					↘	0	0%	↖	0	0%		
					40%	19	↳	0	39	888	96%	0
					0%	0	↖	0	0%	4%	96%	0%
					60%	28	↳	0				
					North							
Date:	April 15, 2015											
Peak Period:	7:00 AM - 9:00 AM											
Peak Hour:	8:00 AM - 9:00 AM											

Time	Movement	Southbound				Westbound				Northbound				Eastbound				
		left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	
7:00 AM	7:15 AM	0	167	3	0	0	0	0	0	1	81	0	0	0	0	0	6	0
7:15 AM	7:30 AM	0	199	1	0	0	0	0	0	1	122	0	0	1	0	4	0	0
7:30 AM	7:45 AM	0	209	1	0	0	0	0	0	4	152	0	0	0	0	12	0	0
7:45 AM	8:00 AM	0	194	1	0	0	0	0	0	9	152	0	0	5	0	7	0	0
8:00 AM	8:15 AM	0	221	4	0	0	0	0	0	6	172	0	0	4	0	7	0	0
8:15 AM	8:30 AM	0	292	4	0	0	0	0	0	5	276	0	0	6	0	6	0	0
8:30 AM	8:45 AM	0	353	11	0	0	0	0	0	14	275	0	0	6	0	7	0	0
8:45 AM	9:00 AM	0	307	11	0	0	0	0	0	14	165	0	0	3	0	8	0	0
Total		0	1942	36	0	0	0	0	0	54	1395	0	0	25	0	57	0	0
Peak Hour Total		0	1173	30	0	0	0	0	0	39	888	0	0	19	0	28	0	0
Peak Turn Percent		0%	98%	2%	0%	0%	0%	0%	0%	4%	96%	0%	0%	40%	0%	60%	0%	0%
Peak Approach Total		1203				0				927				47				

Peak Hour:	8:00 AM	-	9:00 AM
Peak 15 Minutes:	8:30 AM	-	8:45 AM
Peak Hour Factor (PHF):	0.82		

**Table B8. Turning Movement Counts for US 290 at Roger Hanks Pkwy
PM Peak Period**

Location:	US 290 at Roger Hanks Pkwy
City & State:	Dripping Springs, TX
North-South street:	US 290
East-West street:	Roger Hanks Parkway
Peak Period:	3:00 PM - 5:00 PM
Date Collected:	April 15, 2015
Collected by:	HDR


Peak Hour Turning Movements/Percentages										
1179					US 290	↖ 0 0% ↗ 0 0% ↘ 0 0% ↙ 0 0%				0
2%	98%	0%	0%	Roger Hanks Parkway						
25	1154	0	0	↘ 0 0%		↗ 24 2%	↖ 1087 98%	↙ 0 0%		
↙	↓	↖	↗	1111						
									↖	
									North	
Date:	April 15, 2015									
Peak Period:	3:00 PM - 5:00 PM									
Peak Hour:	3:45 PM - 4:45 PM									

Time	Movement	Southbound				Westbound				Northbound				Eastbound			
		left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn
3:00 PM	3:15 PM	0	181	5	0	0	0	0	0	4	198	0	0	3	0	6	0
3:15 PM	3:30 PM	0	207	6	0	0	0	0	0	7	201	0	0	6	0	9	0
3:30 PM	3:45 PM	0	198	6	0	0	0	0	0	6	238	0	0	5	0	7	0
3:45 PM	4:00 PM	0	222	5	0	0	0	0	0	4	249	0	0	4	0	9	0
4:00 PM	4:15 PM	0	249	3	0	0	0	0	0	2	274	0	0	6	0	9	0
4:15 PM	4:30 PM	0	435	8	0	0	0	0	0	7	286	0	0	2	0	12	0
4:30 PM	4:45 PM	0	248	9	0	0	0	0	0	11	278	0	0	4	0	5	0
4:45 PM	5:00 PM	0	210	4	0	0	0	0	0	4	245	0	0	4	0	6	0
Total		0	1950	46	0	0	0	0	0	45	1969	0	0	34	0	63	0
Peak Hour Total		0	1154	25	0	0	0	0	0	24	1087	0	0	16	0	35	0
Peak Turn Percent		0%	98%	2%	0%	0%	0%	0%	0%	2%	98%	0%	0%	31%	0%	69%	0%
Peak Approach Total		1179				0				1111				51			

Peak Hour:	3:45 PM	-	4:45 PM
Peak 15 Minutes:	4:15 PM	-	4:30 PM
Peak Hour Factor (PHF):	0.78		

**Table B10. Turning Movement Counts for Roger Hanks Pkwy at Creek Rd
PM Peak Period**

Location:	Roger Hanks Pkwy at Creek Rd
City & State:	Dripping Springs, TX
North-South street:	Roger Hanks Parkway
East-West street:	Creek Road
Peak Period:	4:00 PM - 6:00 PM
Date Collected:	September 22, 2016
Collected by:	HDR


Peak Hour Turning Movements/Percentages										
29					Roger Hanks Parkway					56
0%	69%	31%	0%	⤴		13	23%			
0	20	9	0	⤵		0	0%			
⤴	↓	⤵	↻	⤴		43	77%			
						0	0%			
					Creek Road					
					↻	⤴	↑	⤵		
					0	0	21	40		
					0%	0%	34%	66%		
					61					
Date:		September 22, 2016								 North
Peak Period:		4:00 PM - 6:00 PM								
Peak Hour:		4:45 PM - 5:45 PM								

Time	Movement	Southbound				Westbound				Northbound				Eastbound				
		left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	
4:00 PM	4:15 PM	3	6	0	0	6	0	2	0	0	7	7	0	0	0	0	0	0
4:15 PM	4:30 PM	4	12	0	0	13	0	0	0	0	2	3	0	0	0	0	0	0
4:30 PM	4:45 PM	6	11	0	0	8	0	2	0	0	4	6	0	0	0	0	0	0
4:45 PM	5:00 PM	3	6	0	0	16	0	4	0	0	1	5	0	0	0	0	0	0
5:00 PM	5:15 PM	3	4	0	0	7	0	3	0	0	6	9	0	0	0	0	0	0
5:15 PM	5:30 PM	2	5	0	0	10	0	4	0	0	4	13	0	0	0	0	0	0
5:30 PM	5:45 PM	1	5	0	0	10	0	2	0	0	10	13	0	0	0	0	0	0
5:45 PM	6:00 PM	3	3	0	0	10	0	3	0	0	5	11	0	0	0	0	0	0
Total		25	52	0	0	80	0	20	0	0	39	67	0	0	0	0	0	0
Peak Hour Total		9	20	0	0	43	0	13	0	0	21	40	0	0	0	0	0	0
Peak Turn Percent		31%	69%	0%	0%	77%	0%	23%	0%	0%	34%	66%	0%	0%	0%	0%	0%	0%
Peak Approach Total		29				56				61				0				

Peak Hour:	4:45 PM	-	5:45 PM
Peak 15 Minutes:	5:30 PM	-	5:45 PM
Peak Hour Factor (PHF):	0.89		

**Table B11. Turning Movement Counts for US 290 at Creek Rd
AM Peak Period**

Location:	US 290 at Creek Rd
City & State:	Dripping Springs, TX
North-South street:	Creek Road
East-West street:	US 290
Peak Period:	7:00 AM - 9:00 AM
Date Collected:	September 22, 2016
Collected by:	CJ Hensch


Peak Hour Turning Movements/Percentages											
					Creek Road					1549	
						↖	0	0%			
0%						↕	1492	96%			
0						↗	57	4%			
0											
↘											
					US 290						
					↖	0	0%	↗	37	86%	
0%					↕	6	0%	↘	0	0%	
1203					98%	1184	→				
					2%	19	↘				
										43	
Date:					September 22, 2016					 North	
Peak Period:					7:00 AM - 9:00 AM						
Peak Hour:					8:00 AM - 9:00 AM						

Time	Movement	Southbound				Westbound				Northbound				Eastbound			
		left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn
7:00 AM	7:15 AM	0	0	0	0	6	168	0	0	0	0	19	0	0	185	2	0
7:15 AM	7:30 AM	0	0	0	0	11	277	0	0	1	0	18	0	0	229	4	0
7:30 AM	7:45 AM	0	0	0	0	16	342	0	0	1	0	17	0	0	278	2	0
7:45 AM	8:00 AM	0	0	0	0	11	302	0	0	2	0	7	0	0	274	3	0
8:00 AM	8:15 AM	0	0	0	0	15	317	0	0	2	0	11	0	0	248	3	0
8:15 AM	8:30 AM	0	0	0	0	12	411	0	0	1	0	6	0	0	301	8	0
8:30 AM	8:45 AM	0	0	0	0	18	401	0	0	1	0	10	0	0	339	3	0
8:45 AM	9:00 AM	0	0	0	0	12	363	0	0	2	0	10	0	0	296	5	0
Total		0	0	0	0	101	2581	0	0	10	0	98	0	0	2150	30	0
Peak Hour Total		0	0	0	0	57	1492	0	0	6	0	37	0	0	1184	19	0
Peak Turn Percent		0%	0%	0%	0%	4%	96%	0%	0%	14%	0%	86%	0%	0%	98%	2%	0%
Peak Approach Total		0				1549				43				1203			

Peak Hour:	8:00 AM	-	9:00 AM
Peak 15 Minutes:	8:30 AM	-	8:45 AM
Peak Hour Factor (PHF):	0.91		

**Table B12. Turning Movement Counts for US 290 at Creek Rd
PM Peak Period**

Location:	US 290 at Creek Rd
City & State:	Dripping Springs, TX
North-South street:	Creek Road
East-West street:	US 290
Peak Period:	4:00 PM - 6:00 PM
Date Collected:	September 22, 2016
Collected by:	CJ Hensch

Peak Hour Turning Movements/Percentages												
					Creek Road					1283		
0%	0%	0%	0%	↖		0	0%	↗	1211		94%	
0	0	0	0	↘		72	6%	↙	0		0%	
↖	↘	↗	↙	US 290								
					Creek Road					1232		
0%	0	↘					↖	0	0%			
0%	99%	1222	↗					↘	71		97%	
1%	10	↘					↖	2	0%			
					Creek Road					73		
Date:	September 22, 2016									 North		
Peak Period:	4:00 PM - 6:00 PM											
Peak Hour:	5:00 PM - 6:00 PM											

Time	Movement	Southbound				Westbound				Northbound				Eastbound			
		left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn	left	thru	right	u-turn
4:00 PM	4:15 PM	0	0	0	0	7	339	0	0	1	0	9	0	0	265	6	0
4:15 PM	4:30 PM	0	0	0	0	18	314	0	0	0	0	8	0	0	418	4	0
4:30 PM	4:45 PM	0	0	0	0	12	249	0	0	0	0	11	0	0	349	2	0
4:45 PM	5:00 PM	0	0	0	0	19	244	0	0	1	0	8	0	0	266	2	0
5:00 PM	5:15 PM	0	0	0	0	19	309	0	0	0	0	20	0	0	276	3	0
5:15 PM	5:30 PM	0	0	0	0	23	331	0	0	1	0	18	0	0	320	3	0
5:30 PM	5:45 PM	0	0	0	0	14	292	0	0	1	0	13	0	0	317	1	0
5:45 PM	6:00 PM	0	0	0	0	16	279	0	0	0	0	20	0	0	309	3	0
Total		0	0	0	0	128	2357	0	0	4	0	107	0	0	2520	24	0
Peak Hour Total		0	0	0	0	72	1211	0	0	2	0	71	0	0	1222	10	0
Peak Turn Percent		0%	0%	0%	0%	6%	94%	0%	0%	3%	0%	97%	0%	0%	99%	1%	0%
Peak Approach Total		0				1283				73				1232			

Peak Hour:	5:00 PM	-	6:00 PM
Peak 15 Minutes:	5:15 PM	-	5:30 PM
Peak Hour Factor (PHF):	0.93		

Table B13. 24 Hour Volumes - NB CR 190 near Onion Creek

Date Began:
09/22/16

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	0	0	0	0	0
1:00	1	0	0	0	1
2:00	0	0	0	1	1
3:00	0	0	0	1	1
4:00	1	0	0	0	1
5:00	0	1	1	1	3
6:00	1	2	5	9	17
7:00	4	5	10	13	32
8:00	13	16	27	23	79
9:00	10	7	5	9	31
10:00	9	8	10	9	36
11:00	13	4	7	7	31
12:00	9	8	10	9	36
13:00	10	11	11	11	43
14:00	16	4	1	14	35
15:00	14	8	9	12	43
16:00	10	24	19	21	74
17:00	9	17	14	13	53
18:00	17	16	9	7	49
19:00	14	13	11	12	50
20:00	10	7	7	10	34
21:00	6	7	2	4	19
22:00	4	3	0	1	8
23:00	1	0	3	2	6
TOTAL:					683

Figure B13. 24 Hour Volumes - NB CR 190 near Onion Creek

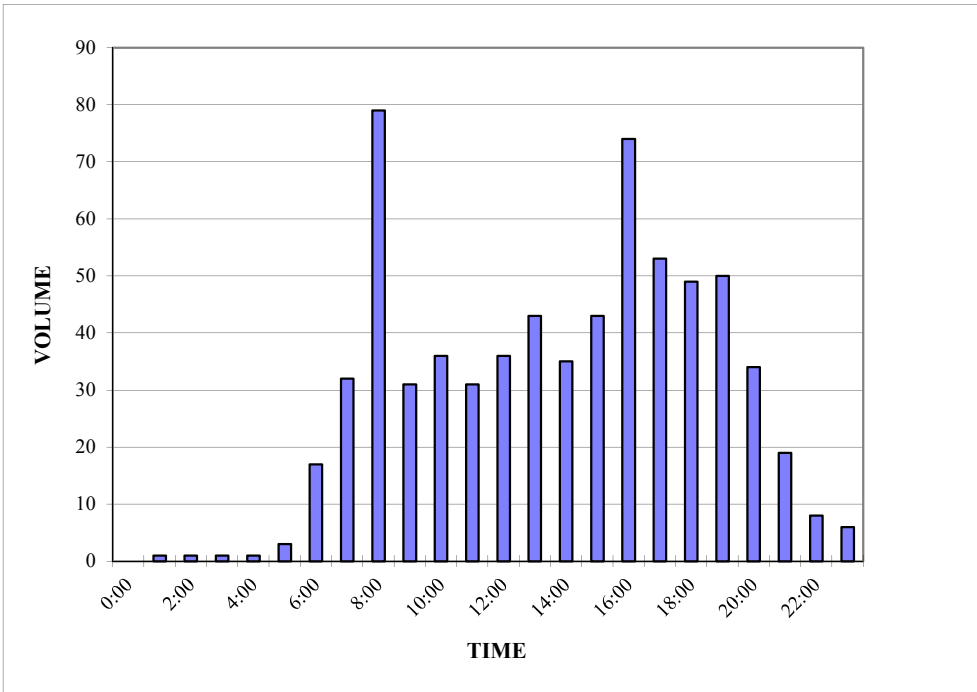


Table B14. 24 Hour Volumes - SB CR 190 near Onion Creek

Date Began:
09/22/16

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	0	0	0	0	0
1:00	0	0	0	0	0
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	0	2	1	3	6
5:00	1	2	3	9	15
6:00	4	11	12	15	42
7:00	14	12	17	8	51
8:00	13	16	12	15	56
9:00	12	11	10	14	47
10:00	11	9	13	7	40
11:00	11	8	8	7	34
12:00	13	10	11	14	48
13:00	9	14	9	10	42
14:00	9	4	10	13	36
15:00	8	2	14	17	41
16:00	12	6	10	6	34
17:00	13	18	19	18	68
18:00	15	12	13	4	44
19:00	14	9	12	3	38
20:00	6	0	5	3	14
21:00	1	0	1	2	4
22:00	2	0	3	1	6
23:00	0	1	2	0	3
TOTAL:					669

Figure B14. 24 Hour Volumes - SB CR 190 near Onion Creek

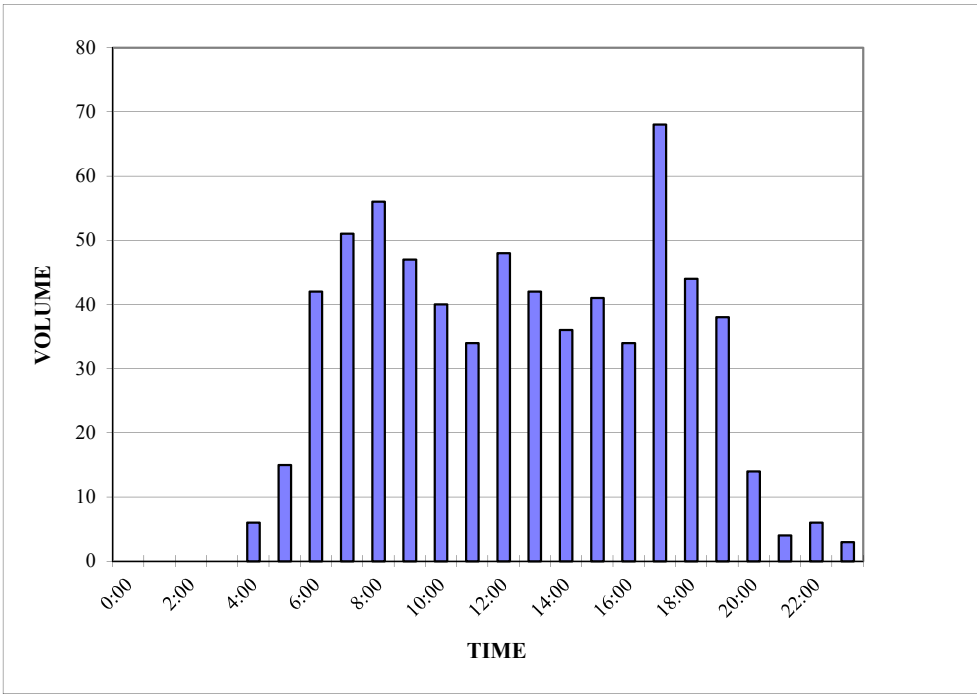


Table B15. 24 Hour Volumes - NB CR 220/Mt Gainor Rd

Date Began:
05/27/15

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	1	0	0	0	1
1:00	0	1	0	0	1
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	0	0	0	0	0
5:00	0	0	1	0	1
6:00	0	0	1	0	1
7:00	1	5	3	3	12
8:00	1	4	8	2	15
9:00	4	3	5	3	15
10:00	3	1	3	4	11
11:00	2	1	4	4	11
12:00	3	2	6	3	14
13:00	4	8	1	6	19
14:00	6	2	1	3	12
15:00	7	9	3	3	22
16:00	2	17	15	7	41
17:00	4	13	12	8	37
18:00	10	8	7	10	35
19:00	2	1	2	2	7
20:00	5	2	1	0	8
21:00	0	0	0	0	0
22:00	0	0	0	0	0
23:00	0	0	0	0	0
TOTAL:					263

Figure B15. 24 Hour Volumes - NB CR 220/Mt Gainor Rd

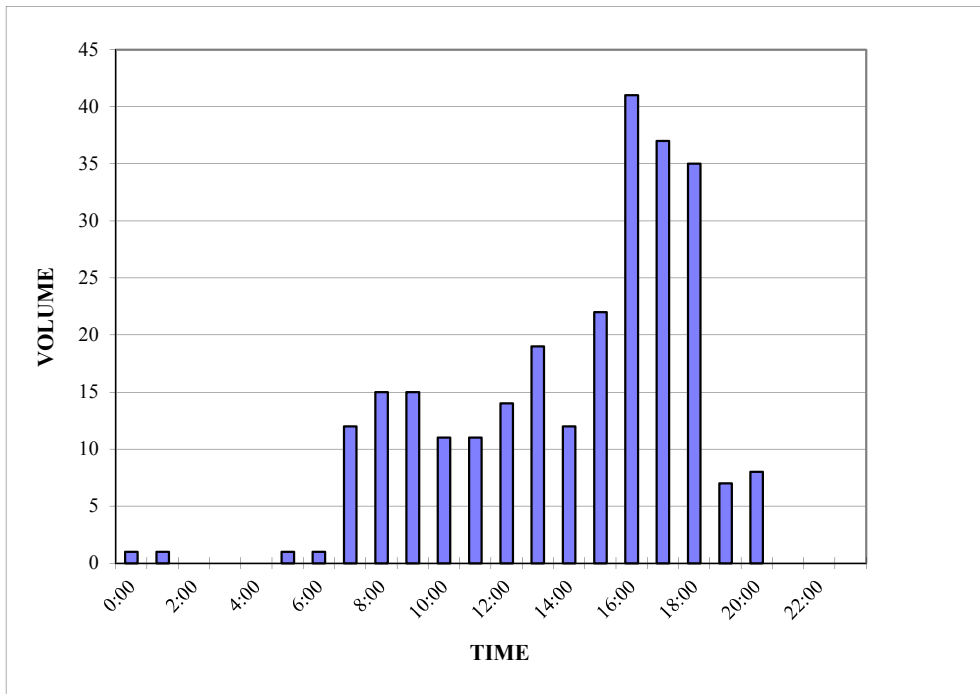
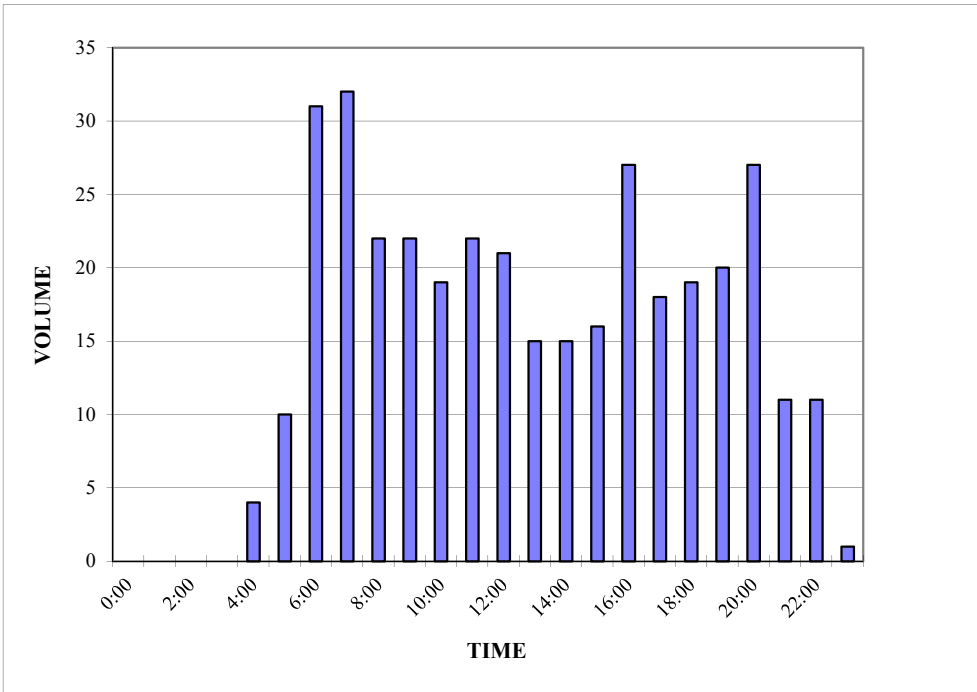


Table B16. 24 Hour Volumes - SB CR 220/Mt Gainor Rd

Date Began:
05/27/15

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	0	0	0	0	0
1:00	0	0	0	0	0
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	0	3	0	1	4
5:00	0	4	4	2	10
6:00	8	4	6	13	31
7:00	4	8	9	11	32
8:00	7	4	8	3	22
9:00	3	5	8	6	22
10:00	0	4	6	9	19
11:00	6	6	2	8	22
12:00	6	7	4	4	21
13:00	5	4	4	2	15
14:00	3	5	2	5	15
15:00	1	6	7	2	16
16:00	6	8	8	5	27
17:00	4	3	6	5	18
18:00	9	5	3	2	19
19:00	7	5	5	3	20
20:00	5	13	5	4	27
21:00	6	2	0	3	11
22:00	4	1	5	1	11
23:00	0	0	1	0	1
TOTAL:					363

Figure B16. 24 Hour Volumes - SB CR 220/Mt Gainor Rd

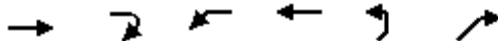


Appendix C

Intersection Capacity Analysis – Synchro Results

HCM Unsignalized Intersection Capacity Analysis
1: Creek Rd & US 290

2016 Existing Condition AM Peak Hour
08/09/2017



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	1184	19	57	1492	6	37
Future Volume (Veh/h)	1184	19	57	1492	6	37
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	1301	21	63	1640	7	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1322		2258	661
vC1, stage 1 conf vol					1312	
vC2, stage 2 conf vol					946	
vCu, unblocked vol			1322		2258	661
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			88		96	90
cM capacity (veh/h)			519		171	405
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NE 1
Volume Total	867	455	63	820	820	48
Volume Left	0	0	63	0	0	7
Volume Right	0	21	0	0	0	41
cSH	1700	1700	519	1700	1700	337
Volume to Capacity	0.51	0.27	0.12	0.48	0.48	0.14
Queue Length 95th (ft)	0	0	10	0	0	12
Control Delay (s)	0.0	0.0	12.9	0.0	0.0	17.4
Lane LOS			B	C		
Approach Delay (s)	0.0		0.5	17.4		
Approach LOS				C		
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			51.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
3: RM 12 & US 290

2016 Existing Condition AM Peak Hour
08/09/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	178	901	127	102	1035	21	369	175	184	209	117	243
Future Volume (vph)	178	901	127	102	1035	21	369	175	184	209	117	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1770	3473		1770	3528		1681	1738	1583	1681	1744	1583
Flt Permitted	0.10	1.00		0.10	1.00		0.95	0.98	1.00	0.95	0.99	1.00
Satd. Flow (perm)	180	3473		192	3528		1681	1738	1583	1681	1744	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	191	969	137	110	1113	23	397	188	198	225	126	261
RTOR Reduction (vph)	0	9	0	0	1	0	0	0	155	0	0	236
Lane Group Flow (vph)	191	1097	0	110	1135	0	290	295	43	173	178	25
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Over	Split	NA	Over
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6								
Actuated Green, G (s)	51.9	41.4		46.7	38.8		21.7	21.7	7.9	15.0	15.0	10.5
Effective Green, g (s)	51.9	41.4		46.7	38.8		21.7	21.7	7.9	15.0	15.0	10.5
Actuated g/C Ratio	0.47	0.38		0.42	0.35		0.20	0.20	0.07	0.14	0.14	0.10
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	236	1307		194	1244		331	342	113	229	237	151
v/s Ratio Prot	c0.08	c0.32		0.04	c0.32		c0.17	0.17	0.03	c0.10	0.10	0.02
v/s Ratio Perm	0.30			0.20								
v/c Ratio	0.81	0.84		0.57	0.91		0.88	0.86	0.38	0.76	0.75	0.16
Uniform Delay, d1	24.7	31.3		22.8	34.0		42.8	42.7	48.7	45.7	45.7	45.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.3	6.6		2.3	11.6		21.3	18.9	0.8	11.8	11.2	0.2
Delay (s)	42.0	37.8		25.1	45.6		64.2	61.6	49.5	57.6	56.9	45.9
Level of Service	D	D		C	D		E	E	D	E	E	D
Approach Delay (s)		38.5			43.8			59.5			52.4	
Approach LOS		D			D			E			D	

Intersection Summary

HCM 2000 Control Delay	46.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: RM 12/RM12 & Cemetery/RM 150

2016 Existing Condition AM Peak Hour
 08/09/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (veh/h)	0	0	0	19	1	223	0	386	23	128	245	4
Future Volume (Veh/h)	0	0	0	19	1	223	0	386	23	128	245	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	0	0	20	1	230	0	398	24	132	253	4
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage (veh)											2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1160	941	255	927	931	410	257			422		
vC1, stage 1 conf vol	519	519		410	410							
vC2, stage 2 conf vol	640	422		517	521							
vCu, unblocked vol	1160	941	255	927	931	410	257			422		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	95	100	64	100			88		
cM capacity (veh/h)	159	377	784	418	412	642	1308			1137		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1	SB 2						
Volume Total	0	20	231	422	132	257						
Volume Left	0	20	0	0	132	0						
Volume Right	0	0	230	24	0	4						
cSH	1700	418	640	1308	1137	1700						
Volume to Capacity	0.00	0.05	0.36	0.00	0.12	0.15						
Queue Length 95th (ft)	0	4	41	0	10	0						
Control Delay (s)	0.0	14.1	13.8	0.0	8.6	0.0						
Lane LOS	A	B	B		A							
Approach Delay (s)	0.0	13.8		0.0	2.9							
Approach LOS	A	B										
Intersection Summary												
Average Delay			4.3									
Intersection Capacity Utilization			58.7%		ICU Level of Service					B		
Analysis Period (min)			15									



Movement	NBL	NBR	SET	SER	NWL	NWT	
Lane Configurations	↰	↱	↕↔		↰	↕↕	
Traffic Volume (veh/h)	21	31	1290	33	42	977	
Future Volume (Veh/h)	21	31	1290	33	42	977	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	
Hourly flow rate (vph)	26	38	1573	40	51	1191	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type							
			TWLTL				TWLTL
			2				2
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	2290	806			1613		
vC1, stage 1 conf vol	1593						
vC2, stage 2 conf vol	698						
vCu, unblocked vol	2290	806			1613		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)	5.8						
tF (s)	3.5	3.3			2.2		
p0 queue free %	81	88			87		
cM capacity (veh/h)	139	325			400		

Direction, Lane #	NB 1	NB 2	SE 1	SE 2	NW 1	NW 2	NW 3
Volume Total	26	38	1049	564	51	596	596
Volume Left	26	0	0	0	51	0	0
Volume Right	0	38	0	40	0	0	0
cSH	139	325	1700	1700	400	1700	1700
Volume to Capacity	0.19	0.12	0.62	0.33	0.13	0.35	0.35
Queue Length 95th (ft)	16	10	0	0	11	0	0
Control Delay (s)	36.7	17.6	0.0	0.0	15.3	0.0	0.0
Lane LOS	E	C			C		
Approach Delay (s)	25.3	0.0		0.6			
Approach LOS	D						

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	46	8	27	27	5	37
Future Volume (Veh/h)	46	8	27	27	5	37
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	58	10	34	34	6	46
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	109	51			34	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	109	51			34	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	99			100	
cM capacity (veh/h)	885	1017			1578	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	68	68	52
Volume Left	58	0	6
Volume Right	10	34	0
cSH	902	1700	1578
Volume to Capacity	0.08	0.04	0.00
Queue Length 95th (ft)	6	0	0
Control Delay (s)	9.3	0.0	0.9
Lane LOS	A		A
Approach Delay (s)	9.3	0.0	0.9
Approach LOS	A		

Intersection Summary			
Average Delay		3.6	
Intersection Capacity Utilization		16.2%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 23: RM12/RM 12 & Caliterra Pkwy

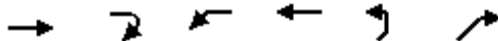
2016 Existing Condition AM Peak Hour
 08/09/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	20	5	4	680	329	29
Future Volume (Veh/h)	20	5	4	680	329	29
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	21	5	4	701	339	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	None	
Median storage (veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1048	339	369			
vC1, stage 1 conf vol	339					
vC2, stage 2 conf vol	709					
vCu, unblocked vol	1048	339	369			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	95	99	100			
cM capacity (veh/h)	442	703	1190			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	21	5	4	701	339	30
Volume Left	21	0	4	0	0	0
Volume Right	0	5	0	0	0	30
cSH	442	703	1190	1700	1700	1700
Volume to Capacity	0.05	0.01	0.00	0.41	0.20	0.02
Queue Length 95th (ft)	4	1	0	0	0	0
Control Delay (s)	13.6	10.2	8.0	0.0	0.0	0.0
Lane LOS	B	B	A			
Approach Delay (s)	12.9	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay	0.3					
Intersection Capacity Utilization	45.8%		ICU Level of Service		A	
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis
1: Creek Rd & US 290

2016 Existing Condition PM Peak Hour
08/09/2017



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	1222	10	72	1211	2	71
Future Volume (Veh/h)	1222	10	72	1211	2	71
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1314	11	77	1302	2	76
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh)	2		2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1325		2124	662
vC1, stage 1 conf vol					1320	
vC2, stage 2 conf vol					805	
vCu, unblocked vol			1325		2124	662
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			85		99	81
cM capacity (veh/h)			517		178	404
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NE 1
Volume Total	876	449	77	651	651	78
Volume Left	0	0	77	0	0	2
Volume Right	0	11	0	0	0	76
cSH	1700	1700	517	1700	1700	391
Volume to Capacity	0.52	0.26	0.15	0.38	0.38	0.20
Queue Length 95th (ft)	0	0	13	0	0	18
Control Delay (s)	0.0	0.0	13.2	0.0	0.0	16.5
Lane LOS			B	C		
Approach Delay (s)	0.0		0.7	16.5		
Approach LOS				C		
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			52.6%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
3: RM 12 & US 290

2016 Existing Condition PM Peak Hour
08/09/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	1106	145	173	974	23	267	157	155	264	253	125
Future Volume (vph)	154	1106	145	173	974	23	267	157	155	264	253	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3478		1770	3527		1681	1746	1583	1681	1761	1583
Flt Permitted	0.10	1.00		0.10	1.00		0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	188	3478		188	3527		1681	1746	1583	1681	1761	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	160	1152	151	180	1015	24	278	164	161	275	264	130
RTOR Reduction (vph)	0	9	0	0	1	0	0	0	148	0	0	118
Lane Group Flow (vph)	160	1294	0	180	1038	0	217	225	13	247	292	12
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Over	Split	NA	Over
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6								
Actuated Green, G (s)	51.4	41.1		48.6	39.7		17.1	17.1	8.9	18.9	18.9	10.3
Effective Green, g (s)	51.4	41.1		48.6	39.7		17.1	17.1	8.9	18.9	18.9	10.3
Actuated g/C Ratio	0.47	0.37		0.44	0.36		0.16	0.16	0.08	0.17	0.17	0.09
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	235	1299		211	1272		261	271	128	288	302	148
v/s Ratio Prot	0.06	c0.37		c0.07	0.29		c0.13	0.13	0.01	0.15	c0.17	0.01
v/s Ratio Perm	0.25			0.31								
v/c Ratio	0.68	1.00		0.85	0.82		0.83	0.83	0.10	0.86	0.97	0.08
Uniform Delay, d1	21.7	34.4		25.4	31.8		45.1	45.0	46.8	44.2	45.2	45.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.3	24.0		26.0	5.9		18.9	18.2	0.1	20.8	42.2	0.1
Delay (s)	28.0	58.4		51.3	37.7		63.9	63.2	47.0	65.0	87.4	45.6
Level of Service	C	E		D	D		E	E	D	E	F	D
Approach Delay (s)		55.0			39.7			59.2			71.0	
Approach LOS		E			D			E			E	

Intersection Summary

HCM 2000 Control Delay	53.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: RM 12 & Cemetery/RM 150

2016 Existing Condition PM Peak Hour
 08/09/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (veh/h)	0	0	0	14	1	194	0	277	25	265	402	0
Future Volume (Veh/h)	0	0	0	14	1	194	0	277	25	265	402	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			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
Hourly flow rate (vph)	0	0	0	16	1	216	0	308	28	294	447	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage (veh)											2	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1574	1371	447	1357	1357	322	447			336		
vC1, stage 1 conf vol	1035	1035		322	322							
vC2, stage 2 conf vol	538	336		1035	1035							
vCu, unblocked vol	1574	1371	447	1357	1357	322	447			336		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	92	100	70	100			76		
cM capacity (veh/h)	72	211	612	205	224	719	1113			1223		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1	SB 2						
Volume Total	0	16	217	336	294	447						
Volume Left	0	16	0	0	294	0						
Volume Right	0	0	216	28	0	0						
cSH	1700	205	712	1113	1223	1700						
Volume to Capacity	0.00	0.08	0.30	0.00	0.24	0.26						
Queue Length 95th (ft)	0	6	32	0	24	0						
Control Delay (s)	0.0	24.1	12.3	0.0	8.9	0.0						
Lane LOS	A	C	B		A							
Approach Delay (s)	0.0	13.1		0.0	3.5							
Approach LOS	A	B										
Intersection Summary												
Average Delay			4.3									
Intersection Capacity Utilization			59.3%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 19: Roger Hanks Pkwy & US 290

2016 Existing Condition PM Peak Hour
 08/09/2017



Movement	NBL	NBR	SET	SER	NWL	NWT	
Lane Configurations	↰	↱	↕↔		↰	↕↕	
Traffic Volume (veh/h)	18	39	1269	28	26	1196	
Future Volume (Veh/h)	18	39	1269	28	26	1196	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	
Hourly flow rate (vph)	23	50	1627	36	33	1533	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			TWLTL		TWLTL		
Median storage (veh)			2		2		
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	2478	832			1663		
vC1, stage 1 conf vol	1645						
vC2, stage 2 conf vol	832						
vCu, unblocked vol	2478	832			1663		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)	5.8						
tF (s)	3.5	3.3			2.2		
p0 queue free %	82	84			91		
cM capacity (veh/h)	129	313			383		
Direction, Lane #	NB 1	NB 2	SE 1	SE 2	NW 1	NW 2	NW 3
Volume Total	23	50	1085	578	33	766	766
Volume Left	23	0	0	0	33	0	0
Volume Right	0	50	0	36	0	0	0
cSH	129	313	1700	1700	383	1700	1700
Volume to Capacity	0.18	0.16	0.64	0.34	0.09	0.45	0.45
Queue Length 95th (ft)	16	14	0	0	7	0	0
Control Delay (s)	38.9	18.7	0.0	0.0	15.3	0.0	0.0
Lane LOS	E	C			C		
Approach Delay (s)	25.1	0.0		0.3			
Approach LOS	D						
Intersection Summary							
Average Delay			0.7				
Intersection Capacity Utilization			46.0%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis
 20: Onion Creek/Roger Hanks Pkwy & Creek Rd

2016 Existing Condition PM Peak Hour
 08/09/2017



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	43	13	21	40	9	20
Future Volume (Veh/h)	43	13	21	40	9	20
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	48	15	24	45	10	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	88	46			24	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	88	46			24	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	99			99	
cM capacity (veh/h)	907	1023			1591	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	63	69	32			
Volume Left	48	0	10			
Volume Right	15	45	0			
cSH	932	1700	1591			
Volume to Capacity	0.07	0.04	0.01			
Queue Length 95th (ft)	5	0	0			
Control Delay (s)	9.1	0.0	2.3			
Lane LOS	A		A			
Approach Delay (s)	9.1	0.0	2.3			
Approach LOS	A					
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			18.2%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 23: RM 12 & Caliterra Pkwy

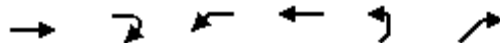
2016 Existing Condition PM Peak Hour
 08/09/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	16	2	477	702	9
Future Volume (Veh/h)	21	16	2	477	702	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	22	17	2	507	747	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	None	
Median storage (veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1258	747	757			
vC1, stage 1 conf vol	747					
vC2, stage 2 conf vol	511					
vCu, unblocked vol	1258	747	757			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	94	96	100			
cM capacity (veh/h)	398	413	854			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	22	17	2	507	747	10
Volume Left	22	0	2	0	0	0
Volume Right	0	17	0	0	0	10
cSH	398	413	854	1700	1700	1700
Volume to Capacity	0.06	0.04	0.00	0.30	0.44	0.01
Queue Length 95th (ft)	4	3	0	0	0	0
Control Delay (s)	14.6	14.1	9.2	0.0	0.0	0.0
Lane LOS	B	B	A			
Approach Delay (s)	14.4	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			46.9%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
1: Creek Rd & US 290

2021 No Build AM Peak Hour
08/09/2017



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	1840	29	88	2354	9	57
Future Volume (Veh/h)	1840	29	88	2354	9	57
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	2022	32	97	2587	10	63
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh	2		2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2054		3526	1027
vC1, stage 1 conf vol					2038	
vC2, stage 2 conf vol					1488	
vCu, unblocked vol			2054		3526	1027
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			64		84	73
cM capacity (veh/h)			269		64	232
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NE 1
Volume Total	1348	706	97	1294	1294	73
Volume Left	0	0	97	0	0	10
Volume Right	0	32	0	0	0	63
cSH	1700	1700	269	1700	1700	170
Volume to Capacity	0.79	0.42	0.36	0.76	0.76	0.43
Queue Length 95th (ft)	0	0	39	0	0	48
Control Delay (s)	0.0	0.0	25.7	0.0	0.0	41.1
Lane LOS	D			E		
Approach Delay (s)	0.0		0.9		41.1	
Approach LOS				E		
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			75.8%		ICU Level of Service	
Analysis Period (min)			15			
						D

HCM Signalized Intersection Capacity Analysis
3: RM 12 & US 290

2021 No Build AM Peak Hour
08/09/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	274	1385	214	223	1591	32	626	329	484	321	199	374
Future Volume (vph)	274	1385	214	223	1591	32	626	329	484	321	199	374
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.98	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1770	3468		1770	3529		1681	1742	1583	1681	1748	1583
Flt Permitted	0.12	1.00		0.12	1.00		0.95	0.98	1.00	0.95	0.99	1.00
Satd. Flow (perm)	219	3468		219	3529		1681	1742	1583	1681	1748	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	295	1489	230	240	1711	34	673	354	520	345	214	402
RTOR Reduction (vph)	0	11	0	0	1	0	0	0	229	0	0	252
Lane Group Flow (vph)	295	1708	0	240	1744	0	505	522	291	276	283	150
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Over	Split	NA	Over
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6								
Actuated Green, G (s)	43.0	34.0		43.0	34.0		24.0	24.0	9.0	19.0	19.0	9.0
Effective Green, g (s)	43.0	34.0		43.0	34.0		24.0	24.0	9.0	19.0	19.0	9.0
Actuated g/C Ratio	0.39	0.31		0.39	0.31		0.22	0.22	0.08	0.17	0.17	0.08
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	212	1071		212	1090		366	380	129	290	301	129
v/s Ratio Prot	0.11	0.49		0.09	c0.49		c0.30	0.30	c0.18	c0.16	0.16	0.10
v/s Ratio Perm	0.43			0.35								
v/c Ratio	1.39	1.59		1.13	1.60		1.38	1.37	2.26	0.95	0.94	1.17
Uniform Delay, d1	28.1	38.0		28.1	38.0		43.0	43.0	50.5	45.0	44.9	50.5
Progression Factor	0.97	1.12		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	178.9	268.0		101.9	274.2		187.2	184.1	590.4	41.8	38.6	130.7
Delay (s)	206.0	310.6		130.0	312.2		230.2	227.1	640.9	86.9	83.6	181.2
Level of Service	F	F		F	F		F	F	F	F	F	F
Approach Delay (s)		295.3			290.1			367.2			125.4	
Approach LOS		F			F			F			F	



















Intersection Summary

HCM 2000 Control Delay	285.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.46		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	120.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

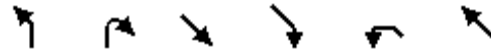
HCM Unsignalized Intersection Capacity Analysis
 16: RM 12 & Cemetery/RM 150

2021 No Build AM Peak Hour
 08/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	29	2	356	0	607	36	236	417	7
Future Volume (Veh/h)	0	0	0	29	2	356	0	607	36	236	417	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	0	0	30	2	367	0	626	37	243	430	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage (veh)												2
Upstream signal (ft)												1269
pX, platoon unblocked	0.94	0.94	0.94	0.94	0.94		0.94					
vC, conflicting volume	1932	1582	434	1560	1568	644	437			663		
vC1, stage 1 conf vol	920	920		644	644							
vC2, stage 2 conf vol	1012	663		916	923							
vCu, unblocked vol	1962	1588	359	1565	1572	644	363			663		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	86	99	22	100			74		
cM capacity (veh/h)	8	175	640	212	224	473	1118			926		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1	SB 2						
Volume Total	0	30	369	663	243	437						
Volume Left	0	30	0	0	243	0						
Volume Right	0	0	367	37	0	7						
cSH	1700	212	470	1118	926	1700						
Volume to Capacity	0.00	0.14	0.79	0.00	0.26	0.26						
Queue Length 95th (ft)	0	12	176	0	26	0						
Control Delay (s)	0.0	24.7	35.4	0.0	10.3	0.0						
Lane LOS	A	C	E		B							
Approach Delay (s)	0.0	34.6		0.0	3.7							
Approach LOS	A	D										
Intersection Summary												
Average Delay			9.4									
Intersection Capacity Utilization			88.6%		ICU Level of Service				E			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
 19: Roger Hanks Pkwy & US 290

2021 No Build AM Peak Hour
 08/09/2017



Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	32	47	2004	51	64	1562
Future Volume (vph)	32	47	2004	51	64	1562
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3526		1770	3539
Flt Permitted	0.95	1.00	1.00		0.06	1.00
Satd. Flow (perm)	1770	1583	3526		103	3539
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	39	57	2444	62	78	1905
RTOR Reduction (vph)	0	46	2	0	0	0
Lane Group Flow (vph)	39	11	2504	0	78	1905
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Actuated Green, G (s)	22.0	22.0	66.0		76.0	76.0
Effective Green, g (s)	22.0	22.0	66.0		76.0	76.0
Actuated g/C Ratio	0.20	0.20	0.60		0.69	0.69
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	354	316	2115		131	2445
v/s Ratio Prot	c0.02		c0.71		0.02	c0.54
v/s Ratio Perm		0.01			0.39	
v/c Ratio	0.11	0.04	1.18		0.60	0.78
Uniform Delay, d1	36.0	35.5	22.0		27.4	11.4
Progression Factor	1.00	1.00	1.00		2.29	0.70
Incremental Delay, d2	0.6	0.2	88.0		0.4	0.2
Delay (s)	36.6	35.7	110.0		63.3	8.2
Level of Service	D	D	F		E	A
Approach Delay (s)	36.1		110.0			10.4
Approach LOS	D		F			B

Intersection Summary

HCM 2000 Control Delay	65.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 20: Onion Creek/Roger Hanks Pkwy & Creek Rd

2021 No Build AM Peak Hour
 08/09/2017



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	71	12	42	42	8	57
Future Volume (Veh/h)	71	12	42	42	8	57
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	89	15	53	53	10	71
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	170	80			53	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	170	80			53	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	98			99	
cM capacity (veh/h)	814	981			1553	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	104	106	81			
Volume Left	89	0	10			
Volume Right	15	53	0			
cSH	835	1700	1553			
Volume to Capacity	0.12	0.06	0.01			
Queue Length 95th (ft)	11	0	0			
Control Delay (s)	9.9	0.0	0.9			
Lane LOS	A		A			
Approach Delay (s)	9.9	0.0	0.9			
Approach LOS	A					
Intersection Summary						
Average Delay			3.8			
Intersection Capacity Utilization			21.1%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
23: RM 12 & Caliterra Pkwy

2021 No Build AM Peak Hour
08/09/2017



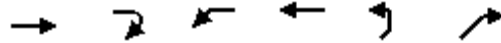
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	353	88	32	1045	506	151
Future Volume (vph)	353	88	32	1045	506	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	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	1863	1863	1583
Flt Permitted	0.95	1.00	0.36	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	665	1863	1863	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	364	91	33	1077	522	156
RTOR Reduction (vph)	0	74	0	0	0	61
Lane Group Flow (vph)	364	17	33	1077	522	95
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	19.0	19.0	69.0	69.0	60.6	60.6
Effective Green, g (s)	19.0	19.0	69.0	69.0	60.6	60.6
Actuated g/C Ratio	0.19	0.19	0.69	0.69	0.61	0.61
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	336	300	485	1285	1128	959
v/s Ratio Prot	c0.21		0.00	c0.58	0.28	
v/s Ratio Perm		0.01	0.05			0.06
v/c Ratio	1.08	0.06	0.07	0.84	0.46	0.10
Uniform Delay, d1	40.5	33.2	6.2	11.4	10.8	8.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	73.2	0.1	0.1	6.6	1.4	0.2
Delay (s)	113.7	33.2	6.3	18.0	12.2	8.5
Level of Service	F	C	A	B	B	A
Approach Delay (s)	97.6			17.7	11.3	
Approach LOS	F			B	B	

Intersection Summary			
HCM 2000 Control Delay	32.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
1: Creek Rd & US 290

2021 No Build PM Peak Hour
08/09/2017



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑		↙	↑↑	↘	
Traffic Volume (veh/h)	1899	15	111	1922	3	109
Future Volume (Veh/h)	1899	15	111	1922	3	109
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	2042	16	119	2067	3	117
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh)	2		2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2058		3322	1029
vC1, stage 1 conf vol					2050	
vC2, stage 2 conf vol					1272	
vCu, unblocked vol			2058		3322	1029
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			56		95	49
cM capacity (veh/h)			268		66	231
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NE 1
Volume Total	1361	697	119	1034	1034	120
Volume Left	0	0	119	0	0	3
Volume Right	0	16	0	0	0	117
cSH	1700	1700	268	1700	1700	218
Volume to Capacity	0.80	0.41	0.44	0.61	0.61	0.55
Queue Length 95th (ft)	0	0	54	0	0	74
Control Delay (s)	0.0	0.0	28.7	0.0	0.0	40.2
Lane LOS	D			E		
Approach Delay (s)	0.0		1.6			40.2
Approach LOS				E		
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			76.0%	ICU Level of Service		D
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
3: RM 12 & US 290

2021 No Build PM Peak Hour
08/09/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	1699	243	331	1497	36	471	302	440	406	409	193
Future Volume (vph)	237	1699	243	331	1497	36	471	302	440	406	409	193
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3473		1770	3527		1681	1750	1583	1681	1762	1583
Flt Permitted	0.10	1.00		0.11	1.00		0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	182	3473		203	3527		1681	1750	1583	1681	1762	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	247	1770	253	345	1559	38	491	315	458	423	426	201
RTOR Reduction (vph)	0	10	0	0	1	0	0	0	257	0	0	131
Lane Group Flow (vph)	247	2013	0	345	1596	0	398	408	201	381	468	70
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Over	Split	NA	Over
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6								
Actuated Green, G (s)	54.3	41.0		45.7	36.7		19.0	19.0	9.0	17.0	17.0	13.3
Effective Green, g (s)	54.3	41.0		45.7	36.7		19.0	19.0	9.0	17.0	17.0	13.3
Actuated g/C Ratio	0.49	0.37		0.42	0.33		0.17	0.17	0.08	0.15	0.15	0.12
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	281	1294		212	1176		290	302	129	259	272	191
v/s Ratio Prot	0.11	c0.58		c0.13	0.45		c0.24	0.23	0.13	0.23	c0.27	0.04
v/s Ratio Perm	0.33			0.54								
v/c Ratio	0.88	1.56		1.63	1.36		1.37	1.35	1.56	1.47	1.72	0.37
Uniform Delay, d1	29.9	34.5		27.9	36.6		45.5	45.5	50.5	46.5	46.5	44.5
Progression Factor	0.79	1.29		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	250.4		302.8	166.2		188.0	178.3	285.1	231.8	339.4	0.4
Delay (s)	26.8	295.0		330.7	202.9		233.5	223.8	335.6	278.3	385.9	44.9
Level of Service	C	F		F	F		F	F	F	F	F	D
Approach Delay (s)		265.8			225.6			267.4			281.6	
Approach LOS		F			F			F			F	



















Intersection Summary

HCM 2000 Control Delay	256.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.55		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	136.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

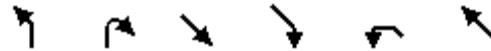
HCM Unsignalized Intersection Capacity Analysis
 16: RM 12 & Cemetery/RM 150

2021 No Build PM Peak Hour
 08/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	22	2	311	0	439	39	448	657	0
Future Volume (Veh/h)	0	0	0	22	2	311	0	439	39	448	657	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			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
Hourly flow rate (vph)	0	0	0	24	2	346	0	488	43	498	730	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			TWLTL	
Median storage (veh)												2
Upstream signal (ft)												1269
pX, platoon unblocked	0.52	0.52	0.52	0.52	0.52		0.52					
vC, conflicting volume	2582	2257	730	2236	2236	510	730			531		
vC1, stage 1 conf vol	1726	1726		510	510							
vC2, stage 2 conf vol	856	531		1726	1726							
vCu, unblocked vol	3576	2952	23	2911	2911	510	23			531		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	0	93	39	100			52		
cM capacity (veh/h)	0	20	549	22	30	564	830			1036		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1	SB 2						
Volume Total	0	24	348	531	498	730						
Volume Left	0	24	0	0	498	0						
Volume Right	0	0	346	43	0	0						
cSH	1700	22	511	830	1036	1700						
Volume to Capacity	0.00	1.07	0.68	0.00	0.48	0.43						
Queue Length 95th (ft)	0	77	128	0	67	0						
Control Delay (s)	0.0	458.0	25.8	0.0	11.6	0.0						
Lane LOS	A	F	D		B							
Approach Delay (s)	0.0	53.7		0.0	4.7							
Approach LOS	A	F										
Intersection Summary												
Average Delay			12.1									
Intersection Capacity Utilization			89.4%		ICU Level of Service				E			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
 19: Roger Hanks Pkwy & US 290

2021 No Build PM Peak Hour
 08/09/2017



Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	27	59	1971	42	41	1898
Future Volume (vph)	27	59	1971	42	41	1898
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3528		1770	3539
Flt Permitted	0.95	1.00	1.00		0.06	1.00
Satd. Flow (perm)	1770	1583	3528		110	3539
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	35	76	2527	54	53	2433
RTOR Reduction (vph)	0	58	1	0	0	0
Lane Group Flow (vph)	35	18	2580	0	53	2433
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Actuated Green, G (s)	26.0	26.0	62.0		72.0	72.0
Effective Green, g (s)	26.0	26.0	62.0		72.0	72.0
Actuated g/C Ratio	0.24	0.24	0.56		0.65	0.65
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	418	374	1988		132	2316
v/s Ratio Prot	c0.02		c0.73		0.01	c0.69
v/s Ratio Perm		0.01			0.25	
v/c Ratio	0.08	0.05	1.30		0.40	1.05
Uniform Delay, d1	32.7	32.4	24.0		25.9	19.0
Progression Factor	1.00	1.00	1.00		2.32	0.91
Incremental Delay, d2	0.4	0.2	137.8		0.1	24.1
Delay (s)	33.1	32.7	161.8		60.3	41.4
Level of Service	C	C	F		E	D
Approach Delay (s)	32.8		161.8			41.8
Approach LOS	C		F			D

Intersection Summary

HCM 2000 Control Delay	101.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 20: Onion Creek/Roger Hanks Pkwy & Creek Rd

2021 No Build PM Peak Hour
 08/09/2017



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	66	20	32	61	14	31
Future Volume (Veh/h)	66	20	32	61	14	31
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.80	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	74	25	36	69	16	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	138	70			36	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	138	70			36	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	97			99	
cM capacity (veh/h)	847	992			1575	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	99	105	51			
Volume Left	74	0	16			
Volume Right	25	69	0			
cSH	880	1700	1575			
Volume to Capacity	0.11	0.06	0.01			
Queue Length 95th (ft)	9	0	1			
Control Delay (s)	9.6	0.0	2.3			
Lane LOS	A		A			
Approach Delay (s)	9.6	0.0	2.3			
Approach LOS	A					
Intersection Summary						
Average Delay			4.2			
Intersection Capacity Utilization		20.6%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
 23: RM 12 & Caliterra Pkwy

2021 No Build PM Peak Hour
 08/09/2017



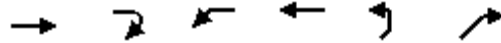
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	354	105	29	733	1097	120
Future Volume (vph)	354	105	29	733	1097	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	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	1863	1863	1583
Flt Permitted	0.95	1.00	0.06	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	114	1863	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	377	112	31	780	1167	128
RTOR Reduction (vph)	0	90	0	0	0	51
Lane Group Flow (vph)	377	22	31	780	1167	77
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	19.1	19.1	67.5	67.5	59.2	59.2
Effective Green, g (s)	19.1	19.1	67.5	67.5	59.2	59.2
Actuated g/C Ratio	0.19	0.19	0.68	0.68	0.60	0.60
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	342	306	116	1275	1118	950
v/s Ratio Prot	c0.21		0.01	c0.42	c0.63	
v/s Ratio Perm		0.01	0.18			0.05
v/c Ratio	1.10	0.07	0.27	0.61	1.04	0.08
Uniform Delay, d1	39.8	32.5	24.3	8.4	19.7	8.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	79.1	0.1	1.2	2.2	39.1	0.2
Delay (s)	118.8	32.6	25.5	10.6	58.8	8.4
Level of Service	F	C	C	B	E	A
Approach Delay (s)	99.1			11.2	53.8	
Approach LOS	F			B	D	

Intersection Summary			
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	98.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 1: Creek Rd & US 290

2021 Build AM Peak Hour
 08/09/2017



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	1891	29	90	2357	9	77
Future Volume (Veh/h)	1891	29	90	2357	9	77
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	2078	32	99	2590	10	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh)	2		2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2110		3587	1055
vC1, stage 1 conf vol					2094	
vC2, stage 2 conf vol					1493	
vCu, unblocked vol			2110		3587	1055
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			61		83	62
cM capacity (veh/h)			256		60	222
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NE 1
Volume Total	1385	725	99	1295	1295	95
Volume Left	0	0	99	0	0	10
Volume Right	0	32	0	0	0	85
cSH	1700	1700	256	1700	1700	173
Volume to Capacity	0.81	0.43	0.39	0.76	0.76	0.55
Queue Length 95th (ft)	0	0	43	0	0	71
Control Delay (s)	0.0	0.0	27.6	0.0	0.0	48.7
Lane LOS			D	E		
Approach Delay (s)	0.0		1.0	48.7		
Approach LOS				E		
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			77.1%	ICU Level of Service	D	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
3: RM 12 & US 290

2021 Build AM Peak Hour
08/09/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	287	1450	207	223	1613	32	605	335	484	321	202	378
Future Volume (vph)	287	1450	207	223	1613	32	605	335	484	321	202	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1770	3473		1770	3529		1681	1743	1583	1681	1749	1583
Flt Permitted	0.12	1.00		0.12	1.00		0.95	0.99	1.00	0.95	0.99	1.00
Satd. Flow (perm)	219	3473		219	3529		1681	1743	1583	1681	1749	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	309	1559	223	240	1734	34	651	360	520	345	217	406
RTOR Reduction (vph)	0	10	0	0	1	0	0	0	230	0	0	252
Lane Group Flow (vph)	309	1772	0	240	1767	0	495	516	290	276	286	154
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Over	Split	NA	Over
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6								
Actuated Green, G (s)	43.1	34.0		43.1	34.0		24.0	24.0	9.1	18.9	18.9	9.1
Effective Green, g (s)	43.1	34.0		43.1	34.0		24.0	24.0	9.1	18.9	18.9	9.1
Actuated g/C Ratio	0.39	0.31		0.39	0.31		0.22	0.22	0.08	0.17	0.17	0.08
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	214	1073		214	1090		366	380	130	288	300	130
v/s Ratio Prot	0.12	c0.51		0.09	0.50		0.29	c0.30	c0.18	c0.16	0.16	0.10
v/s Ratio Perm	0.45			0.35								
v/c Ratio	1.44	1.65		1.12	1.62		1.35	1.36	2.23	0.96	0.95	1.18
Uniform Delay, d1	28.0	38.0		28.0	38.0		43.0	43.0	50.5	45.2	45.1	50.5
Progression Factor	1.58	0.71		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	202.2	293.4		98.0	283.6		175.6	177.4	577.1	41.0	39.0	136.3
Delay (s)	246.6	320.3		126.0	321.6		218.6	220.4	627.5	86.2	84.1	186.7
Level of Service	F	F		F	F		F	F	F	F	F	F
Approach Delay (s)		309.4			298.2			358.1			127.8	
Approach LOS		F			F			F			F	




















Intersection Summary

HCM 2000 Control Delay	290.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.48		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	121.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

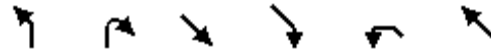
HCM Unsignalized Intersection Capacity Analysis
 16: RM 12 & Cemetery/RM 150

2021 Build AM Peak Hour
 08/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	29	2	360	0	611	36	249	430	7
Future Volume (Veh/h)	0	0	0	29	2	360	0	611	36	249	430	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	0	0	30	2	371	0	630	37	257	443	7
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			TWLTL		
Median storage (veh)										2		
Upstream signal (ft)										1269		
pX, platoon unblocked	0.93	0.93	0.93	0.93	0.93		0.93					
vC, conflicting volume	1981	1628	446	1606	1612	648	450			667		
vC1, stage 1 conf vol	960	960		648	648							
vC2, stage 2 conf vol	1020	667		957	964							
vCu, unblocked vol	2018	1637	366	1614	1621	648	370			667		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	85	99	21	100			72		
cM capacity (veh/h)	7	162	631	198	211	470	1104			923		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1	SB 2						
Volume Total	0	30	373	667	257	450						
Volume Left	0	30	0	0	257	0						
Volume Right	0	0	371	37	0	7						
cSH	1700	198	467	1104	923	1700						
Volume to Capacity	0.00	0.15	0.80	0.00	0.28	0.26						
Queue Length 95th (ft)	0	13	183	0	29	0						
Control Delay (s)	0.0	26.4	36.9	0.0	10.4	0.0						
Lane LOS	A	D	E		B							
Approach Delay (s)	0.0	36.1		0.0	3.8							
Approach LOS	A	E										
Intersection Summary												
Average Delay			9.7									
Intersection Capacity Utilization			89.8%		ICU Level of Service				E			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
 19: Roger Hanks Pkwy & US 290

2021 Build AM Peak Hour
 08/09/2017



Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	73	105	1997	65	88	1541
Future Volume (vph)	73	105	1997	65	88	1541
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3523		1770	3539
Flt Permitted	0.95	1.00	1.00		0.06	1.00
Satd. Flow (perm)	1770	1583	3523		105	3539
Peak-hour factor, PHF	0.82	0.82	0.82	0.82	0.82	0.82
Adj. Flow (vph)	89	128	2435	79	107	1879
RTOR Reduction (vph)	0	65	2	0	0	0
Lane Group Flow (vph)	89	63	2512	0	107	1879
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Actuated Green, G (s)	22.0	22.0	65.0		76.0	76.0
Effective Green, g (s)	22.0	22.0	65.0		76.0	76.0
Actuated g/C Ratio	0.20	0.20	0.59		0.69	0.69
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	354	316	2081		148	2445
v/s Ratio Prot	c0.05		c0.71		0.03	c0.53
v/s Ratio Perm		0.04			0.47	
v/c Ratio	0.25	0.20	1.21		0.72	0.77
Uniform Delay, d1	37.1	36.7	22.5		27.7	11.2
Progression Factor	1.00	1.00	1.00		1.20	1.38
Incremental Delay, d2	1.7	1.4	98.0		1.4	0.2
Delay (s)	38.8	38.1	120.5		34.4	15.7
Level of Service	D	D	F		C	B
Approach Delay (s)	38.4		120.5			16.7
Approach LOS	D		F			B

Intersection Summary

HCM 2000 Control Delay	73.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 20: Onion Creek/Roger Hanks Pkwy & Creek Rd

2021 Build AM Peak Hour
 08/09/2017



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	73	12	141	62	8	95
Future Volume (Veh/h)	73	12	141	62	8	95
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	91	15	176	78	10	119
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	354	215			176	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	354	215			176	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	98			99	
cM capacity (veh/h)	639	825			1400	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	106	254	129			
Volume Left	91	0	10			
Volume Right	15	78	0			
cSH	660	1700	1400			
Volume to Capacity	0.16	0.15	0.01			
Queue Length 95th (ft)	14	0	1			
Control Delay (s)	11.5	0.0	0.6			
Lane LOS	B		A			
Approach Delay (s)	11.5	0.0	0.6			
Approach LOS	B					
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utilization			23.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 22: Mt Gainor Rd & Carter Tract Rd

2021 Build AM Peak Hour
 08/09/2017



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	119	20	0	40	54
Future Volume (Veh/h)	0	119	20	0	40	54
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	129	22	0	43	59
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	167	22			22	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	167	22			22	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	88			97	
cM capacity (veh/h)	801	1055			1593	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	129	22	102			
Volume Left	0	0	43			
Volume Right	129	0	0			
cSH	1055	1700	1593			
Volume to Capacity	0.12	0.01	0.03			
Queue Length 95th (ft)	10	0	2			
Control Delay (s)	8.9	0.0	3.2			
Lane LOS	A		A			
Approach Delay (s)	8.9	0.0	3.2			
Approach LOS	A					
Intersection Summary						
Average Delay			5.8			
Intersection Capacity Utilization			25.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
23: RM 12 & Caliterra Pkwy

2021 Build AM Peak Hour
08/09/2017



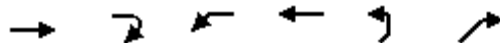
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	338	114	40	1045	506	147
Future Volume (vph)	338	114	40	1045	506	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	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	1863	1863	1583
Flt Permitted	0.95	1.00	0.33	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	622	1863	1863	1583
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	348	118	41	1077	522	152
RTOR Reduction (vph)	0	92	0	0	0	67
Lane Group Flow (vph)	348	26	41	1077	522	85
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	19.5	19.5	58.5	58.5	50.1	50.1
Effective Green, g (s)	19.5	19.5	58.5	58.5	50.1	50.1
Actuated g/C Ratio	0.22	0.22	0.65	0.65	0.56	0.56
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	383	342	434	1210	1037	881
v/s Ratio Prot	c0.20		0.00	c0.58	0.28	
v/s Ratio Perm		0.02	0.06			0.05
v/c Ratio	0.91	0.07	0.09	0.89	0.50	0.10
Uniform Delay, d1	34.4	28.1	7.2	13.1	12.3	9.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	24.6	0.1	0.1	10.0	1.7	0.2
Delay (s)	59.0	28.2	7.3	23.1	14.0	9.6
Level of Service	E	C	A	C	B	A
Approach Delay (s)	51.2			22.5	13.0	
Approach LOS	D			C	B	

Intersection Summary			
HCM 2000 Control Delay	25.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
1: Creek Rd & US 290

2021 Build PM Peak Hour
08/09/2017



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑		↵	↑↑	↵	
Traffic Volume (veh/h)	1957	15	118	1964	3	122
Future Volume (Veh/h)	1957	15	118	1964	3	122
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	2104	16	127	2112	3	131
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL		TWLTL			
Median storage veh)	2		2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			2120		3422	1060
vC1, stage 1 conf vol					2112	
vC2, stage 2 conf vol					1310	
vCu, unblocked vol			2120		3422	1060
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			50		95	41
cM capacity (veh/h)			254		60	220
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NE 1
Volume Total	1403	717	127	1056	1056	134
Volume Left	0	0	127	0	0	3
Volume Right	0	16	0	0	0	131
cSH	1700	1700	254	1700	1700	208
Volume to Capacity	0.83	0.42	0.50	0.62	0.62	0.65
Queue Length 95th (ft)	0	0	65	0	0	96
Control Delay (s)	0.0	0.0	32.6	0.0	0.0	49.3
Lane LOS	D			E		
Approach Delay (s)	0.0		1.8			49.3
Approach LOS	D			E		
Intersection Summary						
Average Delay			2.4			
Intersection Capacity Utilization			78.8%	ICU Level of Service		D
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
3: RM 12 & US 290

2021 Build PM Peak Hour
08/09/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗	↖	↗	↖
Traffic Volume (vph)	245	1741	264	473	1569	36	434	282	353	406	458	207
Future Volume (vph)	245	1741	264	473	1569	36	434	282	353	406	458	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	0.95	0.95	1.00
Frt	1.00	0.98		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3469		1770	3527		1681	1750	1583	1681	1762	1583
Flt Permitted	0.10	1.00		0.11	1.00		0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	182	3469		204	3527		1681	1750	1583	1681	1762	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	255	1814	275	493	1634	38	452	294	368	423	477	216
RTOR Reduction (vph)	0	11	0	0	1	0	0	0	222	0	0	131
Lane Group Flow (vph)	255	2078	0	493	1671	0	366	380	146	381	519	85
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Over	Split	NA	Over
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6								
Actuated Green, G (s)	54.4	41.0		45.6	36.6		19.0	19.0	9.0	17.0	17.0	13.4
Effective Green, g (s)	54.4	41.0		45.6	36.6		19.0	19.0	9.0	17.0	17.0	13.4
Actuated g/C Ratio	0.49	0.37		0.41	0.33		0.17	0.17	0.08	0.15	0.15	0.12
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	283	1292		212	1173		290	302	129	259	272	192
v/s Ratio Prot	0.11	c0.60		c0.19	0.47		c0.22	0.22	0.09	0.23	c0.29	0.05
v/s Ratio Perm	0.34			c0.77								
v/c Ratio	0.90	1.61		2.33	1.42		1.26	1.26	1.13	1.47	1.91	0.44
Uniform Delay, d1	30.6	34.5		27.8	36.7		45.5	45.5	50.5	46.5	46.5	44.8
Progression Factor	1.53	0.57		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	274.2		611.0	195.9		142.6	140.3	118.5	231.8	422.1	0.6
Delay (s)	50.8	293.8		638.8	232.6		188.1	185.8	169.0	278.3	468.6	45.4
Level of Service	D	F		F	F		F	F	F	F	F	D
Approach Delay (s)		267.4			325.1			181.0			321.7	
Approach LOS		F			F			F			F	




















Intersection Summary

HCM 2000 Control Delay	280.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.92		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	146.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 16: RM 12 & Cemetery/RM 150

2021 Build PM Peak Hour
 08/09/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	22	2	354	0	481	39	439	648	0
Future Volume (Veh/h)	0	0	0	22	2	354	0	481	39	439	648	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			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
Hourly flow rate (vph)	0	0	0	24	2	393	0	534	43	488	720	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							None			TWLTL		
Median storage (veh)										2		
Upstream signal (ft)										1269		
pX, platoon unblocked	0.53	0.53	0.53	0.53	0.53		0.53					
vC, conflicting volume	2646	2273	720	2252	2252	556	720			577		
vC1, stage 1 conf vol	1696	1696		556	556							
vC2, stage 2 conf vol	950	577		1696	1696							
vCu, unblocked vol	3643	2946	41	2906	2906	556	41			577		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	3	94	26	100			51		
cM capacity (veh/h)	0	13	551	25	32	531	838			996		
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1	SB 2						
Volume Total	0	24	395	577	488	720						
Volume Left	0	24	0	0	488	0						
Volume Right	0	0	393	43	0	0						
cSH	1700	25	493	838	996	1700						
Volume to Capacity	0.00	0.97	0.80	0.00	0.49	0.42						
Queue Length 95th (ft)	0	74	188	0	69	0						
Control Delay (s)	0.0	394.9	35.7	0.0	12.0	0.0						
Lane LOS	A	F	E		B							
Approach Delay (s)	0.0	56.3		0.0	4.9							
Approach LOS	A	F										
Intersection Summary												
Average Delay			13.4									
Intersection Capacity Utilization			93.8%		ICU Level of Service			F				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
 19: Roger Hanks Pkwy & US 290

2021 Build PM Peak Hour
 08/09/2017



Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	52	96	1992	85	120	1861
Future Volume (vph)	52	96	1992	85	120	1861
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3517		1770	3539
Flt Permitted	0.95	1.00	1.00		0.06	1.00
Satd. Flow (perm)	1770	1583	3517		111	3539
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	67	123	2554	109	154	2386
RTOR Reduction (vph)	0	64	3	0	0	0
Lane Group Flow (vph)	67	59	2660	0	154	2386
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Actuated Green, G (s)	26.0	26.0	61.0		72.0	72.0
Effective Green, g (s)	26.0	26.0	61.0		72.0	72.0
Actuated g/C Ratio	0.24	0.24	0.55		0.65	0.65
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	418	374	1950		148	2316
v/s Ratio Prot	c0.04		c0.76		0.05	c0.67
v/s Ratio Perm		0.04			0.63	
v/c Ratio	0.16	0.16	1.36		1.04	1.03
Uniform Delay, d1	33.3	33.3	24.5		33.0	19.0
Progression Factor	1.00	1.00	1.00		1.20	1.22
Incremental Delay, d2	0.8	0.9	167.3		33.5	15.7
Delay (s)	34.2	34.2	191.8		73.3	38.9
Level of Service	C	C	F		E	D
Approach Delay (s)	34.2		191.8			41.0
Approach LOS	C		F			D

Intersection Summary

HCM 2000 Control Delay	115.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 20: Onion Creek/Roger Hanks Pkwy & Creek Rd

2021 Build PM Peak Hour
 08/09/2017



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	73	20	94	74	14	153
Future Volume (Veh/h)	73	20	94	74	14	153
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	82	22	106	83	16	172
Pedestrians	3					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	354	150			109	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	354	150			109	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	98			99	
cM capacity (veh/h)	635	894			1478	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	104	189	188			
Volume Left	82	0	16			
Volume Right	22	83	0			
cSH	676	1700	1478			
Volume to Capacity	0.15	0.11	0.01			
Queue Length 95th (ft)	14	0	1			
Control Delay (s)	11.3	0.0	0.7			
Lane LOS	B		A			
Approach Delay (s)	11.3	0.0	0.7			
Approach LOS	B					
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utilization			31.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 22: Mt Gainor Rd & Carter Tract Rd

2021 Build PM Peak Hour
 08/09/2017



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	75	69	0	129	46
Future Volume (Veh/h)	0	75	69	0	129	46
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	82	75	0	140	50
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	405	75			75	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	405	75			75	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	92			91	
cM capacity (veh/h)	547	986			1524	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	82	75	190			
Volume Left	0	0	140			
Volume Right	82	0	0			
cSH	986	1700	1524			
Volume to Capacity	0.08	0.04	0.09			
Queue Length 95th (ft)	7	0	8			
Control Delay (s)	9.0	0.0	5.8			
Lane LOS	A		A			
Approach Delay (s)	9.0	0.0	5.8			
Approach LOS	A					
Intersection Summary						
Average Delay			5.3			
Intersection Capacity Utilization		27.5%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
 23: RM 12 & Caliterra Pkwy

2021 Build PM Peak Hour
 08/09/2017



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	210	87	114	733	1079	332
Future Volume (vph)	210	87	114	733	1079	332
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	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	1863	1863	1583
Flt Permitted	0.95	1.00	0.07	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	128	1863	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	223	93	121	780	1148	353
RTOR Reduction (vph)	0	78	0	0	0	147
Lane Group Flow (vph)	223	15	121	780	1148	206
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	14.7	14.7	63.3	63.3	52.4	52.4
Effective Green, g (s)	14.7	14.7	63.3	63.3	52.4	52.4
Actuated g/C Ratio	0.16	0.16	0.70	0.70	0.58	0.58
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	289	258	179	1310	1084	921
v/s Ratio Prot	c0.13		0.04	c0.42	c0.62	
v/s Ratio Perm		0.01	0.44			0.13
v/c Ratio	0.77	0.06	0.68	0.60	1.06	0.22
Uniform Delay, d1	36.0	31.8	21.8	6.8	18.8	9.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.0	0.1	9.7	2.0	44.4	0.6
Delay (s)	48.1	31.9	31.5	8.8	63.2	9.6
Level of Service	D	C	C	A	E	A
Approach Delay (s)	43.3			11.9	50.6	
Approach LOS	D			B	D	

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Synchro Results – With Mitigation Measures

HCM Signalized Intersection Capacity Analysis
3: RM 12 & US 290

2021 Build AM Peak Hour
08/09/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	287	1450	207	223	1613	32	605	335	484	321	202	378
Future Volume (vph)	287	1450	207	223	1613	32	605	335	484	321	202	378
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95		0.97	0.91	0.91	0.91	0.91	1.00	0.91	0.91	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.99	1.00	0.95	0.99	1.00
Satd. Flow (prot)	3433	3473		3433	3389	1441	3221	1682	1583	3221	1683	1583
Flt Permitted	0.12	1.00		0.12	1.00	1.00	0.95	0.99	1.00	0.95	0.99	1.00
Satd. Flow (perm)	425	3473		425	3389	1441	3221	1682	1583	3221	1683	1583
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	309	1559	223	240	1734	34	651	360	520	345	217	406
RTOR Reduction (vph)	0	10	0	0	0	21	0	0	278	0	0	251
Lane Group Flow (vph)	309	1772	0	240	1737	10	586	425	242	310	252	156
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	Over	Split	NA	Over
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6		6						
Actuated Green, G (s)	43.8	34.0		43.8	34.0	34.0	24.0	24.0	9.8	18.2	18.2	9.8
Effective Green, g (s)	43.8	34.0		43.8	34.0	34.0	24.0	24.0	9.8	18.2	18.2	9.8
Actuated g/C Ratio	0.40	0.31		0.40	0.31	0.31	0.22	0.22	0.09	0.17	0.17	0.09
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	437	1073		437	1047	445	702	366	141	532	278	141
v/s Ratio Prot	0.06	0.51		0.05	c0.51		0.18	c0.25	c0.15	0.10	c0.15	0.10
v/s Ratio Perm	0.22			0.17		0.01						
v/c Ratio	0.71	1.65		0.55	1.66	0.02	0.83	1.16	1.72	0.58	0.91	1.10
Uniform Delay, d1	26.4	38.0		25.8	38.0	26.4	41.1	43.0	50.1	42.4	45.1	50.1
Progression Factor	1.43	0.71		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	293.4		0.8	300.8	0.1	8.1	98.6	351.0	1.1	30.0	106.0
Delay (s)	38.1	320.3		26.6	338.8	26.5	49.2	141.6	401.1	43.4	75.1	156.1
Level of Service	D	F		C	F	C	D	F	F	D	E	F
Approach Delay (s)		278.6			296.7			194.4			98.9	
Approach LOS		F			F			F			F	

Intersection Summary

HCM 2000 Control Delay	238.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	102.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
16: RM 12 & Cemetery/RM 150

2021 Build AM Peak Hour
08/09/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗			↕		↖	↗	
Traffic Volume (vph)	0	0	0	29	2	360	0	611	36	249	430	7
Future Volume (vph)	0	0	0	29	2	360	0	611	36	249	430	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	9	9	12	12	12	12	12	12	12	12	12
Total Lost time (s)				5.0	5.0			5.0		5.0	5.0	
Lane Util. Factor				1.00	1.00			1.00		1.00	1.00	
Fr _t				1.00	0.85			0.99		1.00	1.00	
Fl _t Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1770	1585			1849		1770	1858	
Fl _t Permitted				0.76	1.00			1.00		0.28	1.00	
Satd. Flow (perm)				1410	1585			1849		521	1858	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	30	2	371	0	630	37	257	443	7
RTOR Reduction (vph)	0	0	0	0	332	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	30	41	0	0	665	0	257	450	0
Turn Type				Perm	NA			NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)				9.4	9.4			56.5		70.6	70.6	
Effective Green, g (s)				9.4	9.4			56.5		70.6	70.6	
Actuated g/C Ratio				0.10	0.10			0.63		0.78	0.78	
Clearance Time (s)				5.0	5.0			5.0		5.0	5.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				147	165			1160		534	1457	
v/s Ratio Prot					c0.03			c0.36		c0.05	0.24	
v/s Ratio Perm				0.02						0.33		
v/c Ratio				0.20	0.25			0.57		0.48	0.31	
Uniform Delay, d ₁				36.9	37.0			9.7		5.7	2.8	
Progression Factor				1.00	1.00			1.00		1.95	0.47	
Incremental Delay, d ₂				0.7	0.8			2.1		0.6	0.5	
Delay (s)				37.6	37.8			11.8		11.8	1.8	
Level of Service				D	D			B		B	A	
Approach Delay (s)		0.0			37.8			11.8			5.4	
Approach LOS		A			D			B			A	

Intersection Summary

HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: RM 12 & US 290

2021 Build PM Peak Hour
08/09/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	245	1741	264	473	1569	36	434	282	353	406	458	207
Future Volume (vph)	245	1741	264	473	1569	36	434	282	353	406	458	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.95		0.97	0.91	0.91	0.91	0.91	1.00	0.91	0.91	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3469		3433	3389	1441	3221	1684	1583	3221	1688	1583
Flt Permitted	0.10	1.00		0.10	1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	353	3469		363	3389	1441	3221	1684	1583	3221	1688	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	255	1814	275	493	1634	38	452	294	368	423	477	216
RTOR Reduction (vph)	0	11	0	0	0	22	0	0	249	0	0	135
Lane Group Flow (vph)	255	2078	0	493	1638	12	407	339	119	381	519	81
Turn Type	pm+pt	NA		pm+pt	NA	Perm	Split	NA	Over	Split	NA	Over
Protected Phases	5	2		1	6		3	3	1	4	4	5
Permitted Phases	2			6		6						
Actuated Green, G (s)	51.2	41.0		48.8	39.8	39.8	19.0	19.0	9.0	17.0	17.0	10.2
Effective Green, g (s)	51.2	41.0		48.8	39.8	39.8	19.0	19.0	9.0	17.0	17.0	10.2
Actuated g/C Ratio	0.47	0.37		0.44	0.36	0.36	0.17	0.17	0.08	0.15	0.15	0.09
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	449	1292		412	1226	521	556	290	129	497	260	146
v/s Ratio Prot	0.05	c0.60		c0.10	0.48		0.13	c0.20	0.08	0.12	c0.31	0.05
v/s Ratio Perm	0.21			0.43		0.01						
v/c Ratio	0.57	1.61		1.20	1.34	0.02	0.73	1.17	0.92	0.77	2.00	0.55
Uniform Delay, d1	23.7	34.5		28.9	35.1	22.6	43.1	45.5	50.2	44.6	46.5	47.7
Progression Factor	1.70	1.56		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	274.2		109.9	156.9	0.1	4.3	106.6	55.4	10.8	461.7	2.6
Delay (s)	40.3	328.0		138.8	192.0	22.7	47.4	152.1	105.5	55.4	508.2	50.3
Level of Service	D	F		F	F	C	D	F	F	E	F	D
Approach Delay (s)		296.7			177.2			98.5			265.0	
Approach LOS		F			F			F			F	

Intersection Summary

HCM 2000 Control Delay	220.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.54		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	129.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: RM 12 & Cemetery/RM 150

2021 Build PM Peak Hour
 08/09/2017



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕		↖	↗	
Traffic Volume (vph)	0	0	0	22	2	354	0	481	39	439	648	0
Future Volume (vph)	0	0	0	22	2	354	0	481	39	439	648	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	9	9	12	12	12	12	12	12	12	12	12
Total Lost time (s)				5.0	5.0			5.0		5.0	5.0	
Lane Util. Factor				1.00	1.00			1.00		1.00	1.00	
Fr _t				1.00	0.85			0.99		1.00	1.00	
Fl _t Protected				0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)				1770	1585			1844		1770	1863	
Fl _t Permitted				0.76	1.00			1.00		0.26	1.00	
Satd. Flow (perm)				1410	1585			1844		484	1863	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	24	2	393	0	534	43	488	720	0
RTOR Reduction (vph)	0	0	0	0	354	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	24	41	0	0	575	0	488	720	0
Turn Type				Perm	NA			NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)				8.9	8.9			45.3		71.1	71.1	
Effective Green, g (s)				8.9	8.9			45.3		71.1	71.1	
Actuated g/C Ratio				0.10	0.10			0.50		0.79	0.79	
Clearance Time (s)				5.0	5.0			5.0		5.0	5.0	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				139	156			928		679	1471	
v/s Ratio Prot					c0.03			0.31		c0.17	0.39	
v/s Ratio Perm				0.02						c0.40		
v/c Ratio				0.17	0.26			0.62		0.72	0.49	
Uniform Delay, d ₁				37.2	37.5			16.1		8.8	3.2	
Progression Factor				1.00	1.00			1.00		2.82	0.71	
Incremental Delay, d ₂				0.6	0.9			3.1		1.4	0.4	
Delay (s)				37.8	38.4			19.2		26.2	2.7	
Level of Service				D	D			B		C	A	
Approach Delay (s)		0.0			38.4			19.2			12.2	
Approach LOS		A			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	96.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 19: Roger Hanks Pkwy & US 290

2021 Build PM Peak Hour
 08/09/2017



Movement	NBL	NBR	SET	SER	NWL	NWT
Lane Configurations						
Traffic Volume (vph)	52	96	1992	85	120	1861
Future Volume (vph)	52	96	1992	85	120	1861
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3517		1770	3539
Flt Permitted	0.95	1.00	1.00		0.06	1.00
Satd. Flow (perm)	1770	1583	3517		111	3539
Peak-hour factor, PHF	0.78	0.78	0.78	0.78	0.78	0.78
Adj. Flow (vph)	67	123	2554	109	154	2386
RTOR Reduction (vph)	0	64	3	0	0	0
Lane Group Flow (vph)	67	59	2660	0	154	2386
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	4		2		1	6
Permitted Phases		4			6	
Actuated Green, G (s)	26.0	26.0	61.0		72.0	72.0
Effective Green, g (s)	26.0	26.0	61.0		72.0	72.0
Actuated g/C Ratio	0.24	0.24	0.55		0.65	0.65
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	5.0	5.0	5.0		5.0	5.0
Lane Grp Cap (vph)	418	374	1950		148	2316
v/s Ratio Prot	c0.04		c0.76		0.05	c0.67
v/s Ratio Perm		0.04			0.63	
v/c Ratio	0.16	0.16	1.36		1.04	1.03
Uniform Delay, d1	33.3	33.3	24.5		33.0	19.0
Progression Factor	1.00	1.00	1.00		1.67	1.26
Incremental Delay, d2	0.8	0.9	167.3		51.0	19.1
Delay (s)	34.2	34.2	191.8		106.2	43.1
Level of Service	C	C	F		F	D
Approach Delay (s)	34.2		191.8			46.9
Approach LOS	C		F			D

Intersection Summary			
HCM 2000 Control Delay		118.0	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio		1.04	
Actuated Cycle Length (s)		110.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization		83.6%	ICU Level of Service E
Analysis Period (min)		15	

c Critical Lane Group

Appendix D

Roadway Capacity Results – HCS and Synchro Results

Phone: Fax:
E-Mail:

----- Directional Two-Lane Highway Segment Analysis -----

Analyst RPS Klotz Associates
Agency/Co. City of Dripping Springs
Date Performed 11/1/2016
Analysis Time Period Daily
Highway Mt. Gainor Road
From/To North of Carter Tract Road
Jurisdiction City of Dripping Springs
Analysis Year 2021 Build Conditions
Description Carter Tract TIA

----- Input Data -----

Highway class	Class 2	Peak hour factor, PHF	0.89
Shoulder width	2.0 ft	% Trucks and buses	2 %
Lane width	10.0 ft	% Trucks crawling	0.0 %
Segment length	0.7 mi	Truck crawl speed	0.0 mi/hr
Terrain type	Level	% Recreational vehicles	0 %
Grade: Length	- mi	% No-passing zones	80 %
Up/down	- %	Access point density	0 /mi

Analysis direction volume, Vd 234 veh/h
Opposing direction volume, Vo 156 veh/h

----- Average Travel Speed -----

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.4	1.6
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor, (note-5) fHV	0.992	0.988
Grade adj. factor, (note-1) fg	1.00	1.00
Directional flow rate, (note-2) vi	265 pc/h	177 pc/h

Free-Flow Speed from Field Measurement:

Field measured speed, (note-3) S FM - mi/h
Observed total demand, (note-3) V - veh/h

Estimated Free-Flow Speed:

Base free-flow speed, (note-3) BFFS 45.0 mi/h
Adj. for lane and shoulder width, (note-3) fLS 5.3* mi/h
Adj. for access point density, (note-3) fA 0.0 mi/h

Free-flow speed, FFSd 39.7 mi/h

Adjustment for no-passing zones, fnp 3.4 mi/h
Average travel speed, ATSD 32.8 mi/h
Percent Free Flow Speed, PFFS 82.7 %

-----Percent Time-Spent-Following-----

Direction	Analysis(d)	Opposing (o)	
PCE for trucks, ET	1.1	1.1	
PCE for RVs, ER	1.0	1.0	
Heavy-vehicle adjustment factor, fHV	0.998	0.998	
Grade adjustment factor,(note-1) fg	1.00	1.00	
Directional flow rate,(note-2) vi	263 pc/h	176 pc/h	
Base percent time-spent-following,(note-4) BPTSFD	27.2	%	
Adjustment for no-passing zones, fnp	54.6		
Percent time-spent-following, PTSFD	59.9	%	

-----Level of Service and Other Performance Measures-----

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.15	
Peak 15-min vehicle-miles of travel, VMT15	46	veh-mi
Peak-hour vehicle-miles of travel, VMT60	164	veh-mi
Peak 15-min total travel time, TT15	1.4	veh-h
Capacity from ATS, CdATS	0	veh/h
Capacity from PTSF, CdPTSF	1697	veh/h
Directional Capacity	1697	veh/h

-----Passing Lane Analysis-----

Total length of analysis segment, Lt	0.7	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSD (from above)	32.8	mi/h
Percent time-spent-following, PTSFD (from above)	59.9	
Level of service, LOSd (from above)	C	

-----Average Travel Speed with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

-----Percent Time-Spent-Following with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

-----Level of Service and Other Performance Measures with Passing Lane-----

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

-----Bicycle Level of Service-----

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	262.9
Effective width of outside lane, We	12.00
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	4.16
Bicycle LOS	D

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i (v_d or v_o) $\geq 1,700$ pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for $v > 200$ veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

Phone: Fax:
E-Mail:

----- Directional Two-Lane Highway Segment Analysis -----

Analyst RPS Klotz Associates
Agency/Co. City of Dripping Springs
Date Performed 11/1/2016
Analysis Time Period Daily
Highway Carter Tract Road
From/To North of Carter Tract Road
Jurisdiction City of Dripping Springs
Analysis Year 2021 Build Conditions
Description Carter Tract TIA

----- Input Data -----

Highway class	Class 2	Peak hour factor, PHF	0.89
Shoulder width	2.0 ft	% Trucks and buses	2 %
Lane width	12.0 ft	% Trucks crawling	0.0 %
Segment length	0.5 mi	Truck crawl speed	0.0 mi/hr
Terrain type	Level	% Recreational vehicles	0 %
Grade: Length	- mi	% No-passing zones	80 %
Up/down	- %	Access point density	0 /mi

Analysis direction volume, Vd 105 veh/h
Opposing direction volume, Vo 65 veh/h

----- Average Travel Speed -----

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.8	1.9
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor, (note-5) fHV	0.984	0.982
Grade adj. factor, (note-1) fg	1.00	1.00
Directional flow rate, (note-2) vi	120 pc/h	74 pc/h

Free-Flow Speed from Field Measurement:

Field measured speed, (note-3) S FM	-	mi/h
Observed total demand, (note-3) V	-	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed, (note-3) BFFS	45.0	mi/h
Adj. for lane and shoulder width, (note-3) fLS	4.2*	mi/h
Adj. for access point density, (note-3) fA	0.0	mi/h
Free-flow speed, FFSd	40.8	mi/h
Adjustment for no-passing zones, fnp	2.2	mi/h
Average travel speed, ATSD	37.1	mi/h
Percent Free Flow Speed, PFFS	90.9	%

-----Percent Time-Spent-Following-----

Direction	Analysis(d)	Opposing (o)	
PCE for trucks, ET	1.1	1.1	
PCE for RVs, ER	1.0	1.0	
Heavy-vehicle adjustment factor, fHV	0.998	0.998	
Grade adjustment factor,(note-1) fg	1.00	1.00	
Directional flow rate,(note-2) vi	118 pc/h	73 pc/h	
Base percent time-spent-following,(note-4) BPTSFD	13.5	%	
Adjustment for no-passing zones, fnp	51.6		
Percent time-spent-following, PTSFD	45.4	%	

-----Level of Service and Other Performance Measures-----

Level of service, LOS	B	
Volume to capacity ratio, v/c	0.07	
Peak 15-min vehicle-miles of travel, VMT15	15	veh-mi
Peak-hour vehicle-miles of travel, VMT60	53	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	0	veh/h
Capacity from PTSF, CdPTSF	1697	veh/h
Directional Capacity	1697	veh/h

-----Passing Lane Analysis-----

Total length of analysis segment, Lt	0.5	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSD (from above)	37.1	mi/h
Percent time-spent-following, PTSFD (from above)	45.4	
Level of service, LOSd (from above)	B	

-----Average Travel Speed with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

-----Percent Time-Spent-Following with Passing Lane-----

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

-----Level of Service and Other Performance Measures with Passing Lane-----

Level of service including passing lane, LOSpl	A	
Peak 15-min total travel time, TT15	-	veh-h

-----Bicycle Level of Service-----

Posted speed limit, Sp	40
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	118.0
Effective width of outside lane, We	20.65
Effective speed factor, St	4.17
Bicycle LOS Score, BLOS	2.34
Bicycle LOS	B

Notes:

1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If v_i (v_d or v_o) $\geq 1,700$ pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for $v > 200$ veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

Appendix E

TxDOT Signal Timing Sheets – US 290 at RM 12

City of Dripping Springs - US 290 @ RM 12 13815

Configuration Phase Sequence Page 1

Phase Ring (MM)1-1-1

Phase															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	1	1	2	2	2	2	1	1	2	2	1	1	2	2

Hardware Alternate Sequence Enable: No

Phase Ring Sequence

Sequence	Ring	Phase															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	Barrier Mode	B		B		B		B		B							
1	1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0
1	2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0
2	1	2	1	3	4	10	9	13	14	0	0	0	0	0	0	0	0
2	2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0
3	1	1	2	4	3	9	10	14	13	0	0	0	0	0	0	0	0
3	2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0
4	1	2	1	4	3	10	9	14	13	0	0	0	0	0	0	0	0
4	2	5	6	7	8	11	12	15	16	0	0	0	0	0	0	0	0
5	1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0
5	2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0
6	1	2	1	3	4	10	9	13	14	0	0	0	0	0	0	0	0
6	2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0
7	1	1	2	4	3	9	10	14	13	0	0	0	0	0	0	0	0
7	2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0
8	1	2	1	4	3	10	9	14	13	0	0	0	0	0	0	0	0
8	2	6	5	7	8	12	11	15	16	0	0	0	0	0	0	0	0
9	1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0
9	2	5	6	8	7	11	12	16	15	0	0	0	0	0	0	0	0
10	1	2	1	3	4	10	9	13	14	0	0	0	0	0	0	0	0
10	2	5	6	8	7	11	12	16	15	0	0	0	0	0	0	0	0
11	1	1	2	4	3	9	10	14	13	0	0	0	0	0	0	0	0
11	2	5	6	8	7	11	12	16	15	0	0	0	0	0	0	0	0
12	1	2	1	4	3	10	9	14	13	0	0	0	0	0	0	0	0
12	2	5	6	8	7	11	12	16	15	0	0	0	0	0	0	0	0
13	1	1	2	3	4	9	10	13	14	0	0	0	0	0	0	0	0
13	2	6	5	8	7	12	11	16	15	0	0	0	0	0	0	0	0
14	1	2	1	3	4	10	9	13	14	0	0	0	0	0	0	0	0
14	2	6	5	8	7	12	11	16	15	0	0	0	0	0	0	0	0
15	1	1	2	4	3	9	10	14	13	0	0	0	0	0	0	0	0
15	2	6	5	8	7	12	11	16	15	0	0	0	0	0	0	0	0
16	1	2	1	4	3	10	9	14	13	0	0	0	0	0	0	0	0
16	2	6	5	8	7	12	11	16	15	0	0	0	0	0	0	0	0

Phase Compatibility (MM)1-1-2

Phase 1	Phase 2
1	5
1	6

2	5
2	6
3	7
3	8
4	7
4	8
9	11
9	12
10	11
10	12
13	15
13	16
14	15
14	16

Phase Direction Descriptions

Phase	Description
-------	-------------

Overlap Direction Descriptions

Overlap	Description
---------	-------------

Administration (MM)1-7-1

Enable CRC Check: No
 CRC: 0000
 Request Download Program Data: No
 Enable Automatic Backup to Datakey: No

City of Dripping Springs - US 290 @ RM 12 13815

Configuration Phase Sequence Page 2

In Use(MM)1-2		Exclusive Ped(MM)1-2		Backup Prevent(MM)1-1-3			Simultaneous Gap(MM)1-1-4		Disable(MM)1-1-4
Phases In Use	Phase	Phase	Phase	Phase	Timing Phase	Backup	Phase	Must Gap with Phase	Phase
1				1	2	Yes			
2				5	6	Yes			
3									
4									
5									
6									

Load Switch Assignments (MMU Channel) (MM)1-3									
Phase	Overlap	Type	Dim				Auto		Flash Together
			R	Y	G	D	R	Y	
1	1	V				+	Yes		
2	2	V				+	Yes		Yes
3	3	V				+	Yes		
4	4	V				+	Yes		Yes
5	5	V				-	Yes		

6	6	V				-	Yes		Yes
7	7	V				-	Yes		
8	8	V				-	Yes		Yes
9	2	P				+			
10	4	P				+			
11	6	P				-			
12	3	P				-			
13	1	O				+	Yes		
14	2	O				-	Yes		Yes
15	3	O				+	Yes		
16	4	O				-	Yes		Yes

City of Dripping Springs - US 290 @ RM 12 13815

Configuration Port 1 (SDLC)

SDLC Options (MM)1-4-1

Bus Interface Terminal/Facilities

BIU	Term and Facility Enable	Detector Rack Enable
1	Yes	Yes
2	Yes	No
3	No	No
4	No	No
5	No	No
6	No	No
7	No	No
8	No	No

Enable TS2/MMU Type Cabinet: Yes
 Enable MMU Extended Status: No
 Enable SDLC Stop Time: No
 Enable 3 Critical RFE's Lockup: No
 MMU To CU SDLC External Start: Enabled
 Diagnostics (Test Fixture) Enable: No

Secondary To Secondary Addressing

ID	Term and Facility Enable	Detector Rack Enable
1	No	No
2	No	No
3	No	No
4	No	No
5	No	No
6	No	No
7	No	No
8	No	No

Secondary To Secondary Addressing MMU: No
 Secondary To Secondary Addressing Diagnostics: No

MMU Program (MM)1-4-2

Channel Can Serve with Channel	
Channel 1	Channel 2
1	5
1	6
1	11
1	14
1	16
2	5
2	6
2	9
2	11
2	14
3	12
4	10
5	9
5	14
5	16
6	9
6	11
6	16
9	11
9	14
10	14
10	16
11	16
12	14
12	16
14	16

Color Check Enable (MM)1-4-3

Enable Color Check: No

Color Check Enable

MMU Channel	Green	Yellow	Red
1	Yes	Yes	Yes
2	Yes	Yes	Yes
3	Yes	Yes	Yes
4	Yes	Yes	Yes
5	Yes	Yes	Yes
6	Yes	Yes	Yes
7	Yes	Yes	Yes
8	Yes	Yes	Yes
9	Yes	Yes	Yes
10	Yes	Yes	Yes
11	Yes	Yes	Yes
12	Yes	Yes	Yes
13	Yes	Yes	Yes
14	Yes	Yes	Yes
15	Yes	Yes	Yes
16	Yes	Yes	Yes

City of Dripping Springs - US 290 @ RM 12 13815

Configuration Communications

Ethernet Port Configuration (MM)1-5-1

Controller IP: 10.151.117.226
 Subnet Mask: 255.255.254.0
 Default Gateway IP: 10.151.116.1
 Server IP: 10.70.10.1

NTCIP Parameters (MM)1-5-5

Backup Time: 0
 UDP Port: 501
 Ethernet Priority: 1
 Port 2 Priority: 4
 Port 3A Priority: 2
 Port 3B Priority: 3

Note for 2070: Port 2 is C50S, Port 3A is C21S, and Port 3B is C22S

Port Configuration (MM)1-5-2 to 1-5-4

Port	Protocol	Enable	Data Rate	Data Parity Stop	Modem Setup String	User String	Com Port Address	System Detector 9-1	Telemetry Response Delay	Duplex Half/Full	Flow Control	AB34 18 NTCIP Group Address	AB34 18 NTCIP Single Flag Enable	RTS to CTS Delay	RTS Turn Off Delay	Droup out Time	Early RTS	FSK Hardware
2	Terminal	No	9600	8 N 1	None		0	0	0.0	Half	Yes	0	No	0.0	0.0	10	No	Yes
3A	NTCIP	Yes	9600	8 N 1	None		1	0	0.0	Full	No	0	No	0.0	0.0	10	No	Yes
3B	ECPIP	No	1200	8 N 1	None		0	0	0.9	Full	Yes	0	No	14.0	2.0	10	No	Yes

ECPIP Parameters (MM)1-5-6

Expanded System Detector Address: 0

Local System Detector

Local System Detector	Number

City of Dripping Springs - US 290 @ RM 12 13815

Configuration Logging/Display

Enable Event Logs (MM)1-6-1

Critical RFE's: Yes
 3 Critical RFE's in 24 Hours: Yes
 MMU Flash Faults: Yes
 Local Flash Faults: Yes
 Non-Critical RFE's (Det/Test): Yes
 Detector Errors: Yes
 Coordination Errors: Yes
 Controller Download: Yes
 Preempt: Yes
 TSP: Yes
 Power On/Off: Yes
 Low Battery: Yes
 Access: Yes
 Data Change: Yes

Alarm Logs (MM)1-6-1

Enabled: 12345678910111213141516

Display Options (MM)1-7-2

Key Click Enable: No
 Backlight Enable: Yes

Yellow	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Red Max	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
ACT B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SEC/ACT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Int	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Time B4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cars Wt	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
STPT Duc	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

City of Dripping Springs - US 290 @ RM 12 13815

Controller Overlaps
Vehicle Overlaps (MM)2-2

Overlap	Type	Lag Green	Yellow	Red	Advance Green
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Phases

Overlap	Phase	Included	Protect	Modifier	Ped Protect	Not Overlap	Lag X Phase	Lag 2 Phase	Flash Green
B	5	Yes	No	No	No	No	No	No	0
D	1	Yes	No	No	No	No	No	No	0

Guaranteed Minimum Time Data (MM) 2-4
Phase Time Data

Phase	Min Green	Walk	Ped Clear	Yellow	Red Clear	Overlap Green
A01	5	0	7	3.0	0.0	5
B02	5	0	7	3.0	0.0	5
C03	5	0	7	3.0	0.0	5
D04	5	0	7	3.0	0.0	5
E05	5	0	7	3.0	0.0	5
F06	5	0	7	3.0	0.0	5
G07	5	0	7	3.0	0.0	5
H08	5	0	7	3.0	0.0	5
I09	5	0	7	3.0	0.0	5
J10	5	0	7	3.0	0.0	5
K11	5	0	7	3.0	0.0	5
L12	5	0	7	3.0	0.0	5
M13	5	0	7	3.0	0.0	5
N14	5	0	7	3.0	0.0	5
O15	5	0	7	3.0	0.0	5
P16	5	0	7	3.0	0.0	5

Controller Pedestrian Overlaps

Pedestrian Overlaps (MM) 2-3	
Included Phase	Ped Overlap

Controller Start/Fash (MM) 2-5

Startup

Phase	Phase Setting
2	G
6	G

Overlap
A
B
C
D

Flash > Mon: No
Flash Time: 0
All Red: 6
Power Start Sequence: 1

Automatic Flash

Entry Phase
4

Exit Phase
2
6

Overlap Exit
A
B
C
D

Flash > Mon: No
Exit Flash Interval: W
Minimum Auto Flash: 8
Minimum Recall: No
Cycle Through Phase: No

Controller Options

Controller Options (MM)2-6-1

Phase	Flashing Green Phase	Guaranteed Passage	No n Act 1	No n Act 2	Dual Entry	Condition al Service	Condition al Reservice	Ped Reservice	Rest In Walk	Flashing Walk	Ped Clear Yellow	Ped Clear Red	IGR N + Veh Ext
2	No	No	Yes	No	Yes	No	No	No	No	No	No	No	No
4	No	No	No	Yes	No	No	No	No	No	No	No	No	No
6	No	No	Yes	No	Yes	No	No	No	No	No	No	No	No
8	No	No	No	Yes	No	No	No	No	No	No	No	No	No

Ped Clear Protect: Off

Red Revert: 2.0

Act Pre-Time (MM)2-7

Pre-Time Mode Enable: No

Free Input Enables Pre-Timed: Yes

Pre-Timed Phase

Phase Recall Options (MM)2-8

Plan	Phase	Lock Detector	Vehicle Recall	Ped Recall	Max Recall	Soft Recall	No Rest	AI Calc
1	2	No	Yes	No	No	No	No	No
1	6	No	Yes	No	No	No	No	No
1	9	Yes	No	No	No	No	No	No
1	10	Yes	No	No	No	No	No	No
1	11	Yes	No	No	No	No	No	No
1	12	Yes	No	No	No	No	No	No
1	13	Yes	No	No	No	No	No	No
1	14	Yes	No	No	No	No	No	No
1	15	Yes	No	No	No	No	No	No
1	16	Yes	No	No	No	No	No	No
2	1	Yes	No	No	No	No	No	No
2	2	Yes	No	No	No	No	No	No
2	3	Yes	No	No	No	No	No	No
2	4	Yes	No	No	No	No	No	No
2	5	Yes	No	No	No	No	No	No
2	6	Yes	No	No	No	No	No	No
2	7	Yes	No	No	No	No	No	No
2	8	Yes	No	No	No	No	No	No
2	9	Yes	No	No	No	No	No	No
2	10	Yes	No	No	No	No	No	No
2	11	Yes	No	No	No	No	No	No
2	12	Yes	No	No	No	No	No	No
2	13	Yes	No	No	No	No	No	No
2	14	Yes	No	No	No	No	No	No
2	15	Yes	No	No	No	No	No	No
2	16	Yes	No	No	No	No	No	No
3	1	Yes	No	No	No	No	No	No
3	2	Yes	No	No	No	No	No	No

3	3	Yes	No	No	No	No	No	No
3	4	Yes	No	No	No	No	No	No
3	5	Yes	No	No	No	No	No	No
3	6	Yes	No	No	No	No	No	No
3	7	Yes	No	No	No	No	No	No
3	8	Yes	No	No	No	No	No	No
3	9	Yes	No	No	No	No	No	No
3	10	Yes	No	No	No	No	No	No
3	11	Yes	No	No	No	No	No	No
3	12	Yes	No	No	No	No	No	No
3	13	Yes	No	No	No	No	No	No
3	14	Yes	No	No	No	No	No	No
3	15	Yes	No	No	No	No	No	No
3	16	Yes	No	No	No	No	No	No
4	1	Yes	No	No	No	No	No	No
4	2	Yes	No	No	No	No	No	No
4	3	Yes	No	No	No	No	No	No
4	4	Yes	No	No	No	No	No	No
4	5	Yes	No	No	No	No	No	No
4	6	Yes	No	No	No	No	No	No
4	7	Yes	No	No	No	No	No	No
4	8	Yes	No	No	No	No	No	No
4	9	Yes	No	No	No	No	No	No
4	10	Yes	No	No	No	No	No	No
4	11	Yes	No	No	No	No	No	No
4	12	Yes	No	No	No	No	No	No
4	13	Yes	No	No	No	No	No	No
4	14	Yes	No	No	No	No	No	No
4	15	Yes	No	No	No	No	No	No
4	16	Yes	No	No	No	No	No	No

City of Dripping Springs - US 290 @ RM 12 13815

Coordination Options

Coordination Options (MM)3-1

Manual Pattern: Auto
 ECPI Coord: Yes
 System Source: SYS
 System Format: STD
 Splits In: Seconds
 Offsets In: Seconds
 Transition: Smooth
 Max Select: MAXINH
 Dwell/Add Time: 0
 Dly Coord Wz-Lz: No
 Force Off: Fixed
 Offset Reference: Lead
 Use Ped Time: Yes
 Ped Recall: No

Ped Resv: No
 Local Zero Ovr: No
 Fo Add Ini Green: No
 Re-sync Count: 0
 Multisync: No

Split Demand (MM)3-5

Demand 1	Demand 2
Phase	Phase

Demand	Detector	Call Time	Cycle Count
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Auto Perm Minimum Green (Seconds) (MM)3-4

Phase	Min Green
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City of Dripping Springs - US 290 @ RM 12 13815

Coordination Pattern Data

Pattern Data (MM)3-2								
Pattern	Split Pattern	TS2	Cycle	Std(COS)	Offset Value	Splits In	Offsets In	Actuated Coord
1	1	0-1	110	111	0	Seconds	Seconds	No
2	2	0-2	110	121	0	Seconds	Seconds	No
3	3	0-3	100	131	0	Seconds	Seconds	No
4	4	1-1	90	141	0	Seconds	Seconds	No
12	12	3-3	110	121	0	Seconds	Seconds	No

Pattern	Timing Plan	Actuated Walk Rest	Sequence	Phase Reservice	Action Plan	XArt Pattern	Vehicle Perm 1	Vehicle Perm 2	Vehicle Perm 3
1	0	No	0	No	0	0	0	0	0
2	0	No	0	No	0	0	0	0	0
3	0	No	0	No	0	0	0	0	0
4	0	No	0	No	0	0	0	0	0
12	0	No	0	No	0	0	0	0	0

Pattern	Ring Split Ext 1	Ring Split Ext 2	Ring Split Ext 3	Ring Split Ext 4	Split Demand Pattern 1	Split Demand Pattern 2	Ring Displ 2	Ring Displ 3	Ring Displ 4
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0

Split Preference Phases

Pattern	Phase	Preference 1	Preference 2
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Special Functions		
Pattern	Function	Output

Split Pattern Data (MM)3-3

Coord Phases		
Split Pattern	Phase	Split
1	1	15
1	2	40
1	3	30
1	4	25
1	5	15
1	6	40
2	1	15
2	2	47
2	3	25
2	4	23
2	5	20
2	6	42
3	1	15
3	2	42
3	3	23
3	4	20
3	5	15
3	6	42
4	1	15
4	2	37
4	3	20
4	4	18
4	5	15
4	6	37
12	1	18
12	2	33
12	3	27
12	4	32
12	5	15
12	6	36

Split/Modes		Phase															
Split Pattern	Mode	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Coord	X					X										
2	Coord	X					X										
3	Coord	X					X										
4	Coord	X					X										
12	Coord	X					X										

City of Dripping Springs - US 290 @ RM 12 13815

Preemptor Preempt Plan (MM)4-1

Preempt Phases

Preempt	Phase	Track Clear Veh	Dwell Veh	Dwell Ped	Cycling Veh	Cycling Ped	Exit Phase	Exit Calls	Special Function
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Preempt Overlaps

Preempt	Overlap	Track Clear	Enable Trailing	Dwell Overlap	Cycling Overlap
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Preempt	Enable	Preempt Override	Interlock Enable	Detector Lock	Delay	Inhibit	Override Flash	Duration	CLR > GRN
1	No	Yes	No	Yes	0	0	No	0	No
2	No	Yes	No	Yes	0	0	No	0	No
3	No	Yes	No	Yes	0	0	No	0	No
4	No	Yes	No	Yes	0	0	No	0	No
5	No	Yes	No	Yes	0	0	No	0	No
6	No	Yes	No	Yes	0	0	No	0	No
7	No	Yes	No	Yes	0	0	No	0	No
8	No	Yes	No	Yes	0	0	No	0	No
9	No	Yes	No	Yes	0	0	No	0	No
10	No	Yes	No	Yes	0	0	No	0	No

Preempt	Term Overlap Asap	PC Through Yellow	Terminate Phase	Ped Dark	Track Clearance Re-service	Dwell Flash	Linked Pmt	Flash Exit Color	Preempt To Coord
1	No	No	No	No	No	Off	0	Red	No
2	No	No	No	No	No	Off	0	Green	No
3	No	No	No	No	No	Off	0	Green	No
4	No	No	No	No	No	Off	0	Green	No
5	No	No	No	No	No	Off	0	Green	No
6	No	No	No	No	No	Off	0	Green	No
7	No	No	No	No	No	Off	0	Green	No
8	No	No	No	No	No	Off	0	Green	No
9	No	No	No	No	No	Off	0	Green	No
10	No	No	No	No	No	Off	0	Green	No

Preempt	Exit Timing Plan	Reservice	Free During Pmt Ring 1	Free During Pmt Ring 2	Free During Pmt Ring 3	Free During Pmt Ring 4
1	0	0	No	No	No	No
2	0	0	No	No	No	No
3	0	0	No	No	No	No
4	0	0	No	No	No	No
5	0	0	No	No	No	No
6	0	0	No	No	No	No
7	0	0	No	No	No	No
8	0	0	No	No	No	No
9	0	0	No	No	No	No
10	0	0	No	No	No	No

Preempt	Entrance Walk	Entrance Ped Clear	Entrance Min Green	Entrance Yellow	Entrance Red	Track Clear Min Green	Gate Down Ext Green	Gate Down Max Green	Track Clear Yellow	Track Clear Red
1	0	255	5	4.0	1.0	0	0	0	4.0	1.0
2	0	255	5	4.0	1.0	0	0	0	4.0	1.0
3	0	255	5	4.0	1.0	0	0	0	4.0	1.0
4	0	255	5	4.0	1.0	0	0	0	4.0	1.0
5	0	255	5	4.0	1.0	0	0	0	4.0	1.0

6	0	255	5	4.0	1.0	0	0	0	4.0	1.0
7	0	255	5	4.0	1.0	0	0	0	4.0	1.0
8	0	255	5	4.0	1.0	0	0	0	4.0	1.0
9	0	255	5	4.0	1.0	0	0	0	4.0	1.0
10	0	255	5	4.0	1.0	0	0	0	4.0	1.0

Preempt	Min Dwell Time	Extend Preempt Input Time	Max Preempt Call Time	Exit Yellow Time	Exit Red Time	Preempt Active Out	Preempt Active Dwell	Other Priority Preempt	Non-Priority Preempt
1	0	0.0	0	4.0	1.0	On	No	Off	Off
2	0	0.0	0	4.0	1.0	On	No	Off	Off
3	0	0.0	0	4.0	1.0	On	No	Off	Off
4	0	0.0	0	4.0	1.0	On	No	Off	Off
5	0	0.0	0	4.0	1.0	On	No	Off	Off
6	0	0.0	0	4.0	1.0	On	No	Off	Off
7	0	0.0	0	4.0	1.0	On	No	Off	Off
8	0	0.0	0	4.0	1.0	On	No	Off	Off
9	0	0.0	0	4.0	1.0	On	No	Off	Off
10	0	0.0	0	4.0	1.0	On	No	Off	Off

City of Dripping Springs - US 290 @ RM 12 13815

Preemptor Preempt Filtering

Enable Preempt Filtering and TSP/SCP (MM)4-2		
Input	Solid	Pulsing
3	Preemption -3	Preemption -7
4	Preemption -4	Preemption -8
5	Preemption -5	Preemption -9
6	Preemption -6	Preemption -10

City of Dripping Springs - US 290 @ RM 12 13815

**Time Base Clock/Calendar
Clock/Calendar Options (MM)5-1**

Enable Action Plan: 0
 Sync Reference Time: 12:00 AM
 Sync Reference: Reference Time
 Day Light Savings: USDLS
 Time Reset Input Set Time: 3:30:00
 Standard Time From GMT: 0

City of Dripping Springs - US 290 @ RM 12 13815

Time Base Action Plan

Action Plan (MM)5-2											
Plan	Pattern	Veh Det Plan	Flash	Red Reset	Controller Seq	Timing Plan	System Override	Detector Log	Veh Det Diag Plan	Ped Det Diag Plan	Dimming Enable
1	1	0	No	No	0	0	No	None	0	0	No
2	2	0	No	No	0	0	No	None	0	0	No
3	3	0	No	No	0	0	No	None	0	0	No
4	4	0	No	No	0	0	No	None	0	0	No
12	12	0	No	No	0	0	No	None	0	0	No
100	254 - FREE	0	No	No	0	0	No	None	0	0	No

Action Plan Phases										
Plan	Phase	Red Rcl	Walk 2	Vex 2	Veh Rcl	Max Rcl	Max 2	Max 3	CS Inhibit	Omit

Action Plan Special Functions	
Plan	Function

Action Plan Auxiliary Functions	
Plan	Function

Logic Statement Control		
Plan	LP	Statement Control

City of Dripping Springs - US 290 @ RM 12 13815

Time Base Day Plan/Schedule

Day Plan (MM)5-3

Plan	Event	Action Plan	Start Time
1	1	100	12:00 AM
1	2	1	6:00 AM
1	3	3	9:00 AM
1	4	2	2:30 PM
1	5	12	2:45 PM
1	6	2	3:30 PM
1	7	4	7:00 PM
1	8	100	9:00 PM
2	1	100	12:00 AM
2	2	4	7:00 AM
2	3	3	11:00 AM
2	4	4	6:00 PM
2	5	100	9:00 PM

Schedule (MM)5-4

Schedule Number	Day Plan Number	Months	Days of Week	Days of Month
1	1	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sept, Oct, Nov, Dec	Mon, Tues, Wed, Thurs, Fri	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31
2	2	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sept, Oct, Nov, Dec	Sun, Sat	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31

City of Dripping Springs - US 290 @ RM 12 13815

Time Base Exceptions

Exception Day Program (MM)5-5					
Day	Fixed/Float	Month	Day of Week/Month	Week of Month/Year	Day Plan
1	FLOAT	0	0	0	0
2	FLOAT	0	0	0	0
3	FLOAT	0	0	0	0
4	FLOAT	0	0	0	0
5	FLOAT	0	0	0	0
6	FLOAT	0	0	0	0
7	FLOAT	0	0	0	0
8	FLOAT	0	0	0	0
9	FLOAT	0	0	0	0
10	FLOAT	0	0	0	0
11	FLOAT	0	0	0	0
12	FLOAT	0	0	0	0
13	FLOAT	0	0	0	0
14	FLOAT	0	0	0	0
15	FLOAT	0	0	0	0
16	FLOAT	0	0	0	0
17	FLOAT	0	0	0	0
18	FLOAT	0	0	0	0
19	FLOAT	0	0	0	0
20	FLOAT	0	0	0	0
21	FLOAT	0	0	0	0
22	FLOAT	0	0	0	0
23	FLOAT	0	0	0	0
24	FLOAT	0	0	0	0
25	FLOAT	0	0	0	0
26	FLOAT	0	0	0	0
27	FLOAT	0	0	0	0
28	FLOAT	0	0	0	0
29	FLOAT	0	0	0	0
30	FLOAT	0	0	0	0

31	FLOAT	0	0	0	0
32	FLOAT	0	0	0	0
33	FLOAT	0	0	0	0
34	FLOAT	0	0	0	0
35	FLOAT	0	0	0	0
36	FLOAT	0	0	0	0

City of Dripping Springs - US 290 @ RM 12 13815

Detectors

Detectors Page 1

Vehicle Detectors Setup (MM)6-1

Vehicle Plan	Detector Number	Called
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Vehicle Detector Setup (MM)6-2 continued

Detector Number	ECPI	TS2 Detector	Detector Description
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Vehicle Detector Setup (MM)6-2 continued

Detector Number	Vehicle Plan	Assigned Phase	Switch Phase	Extend Time	Delay Time	Queue Limit	Yellow Lock	Added Option	Call Option	Passage Option	Queue Option	NTCIP Occupancy	NTCIP Volume	ECPI
1	1	5	0	0.0	10.0	0	No	No	Yes	Yes	No	No	No	No
1	2	1	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
1	3	1	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
1	4	1	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
2	1	2	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
2	2	2	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
2	3	2	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
2	4	2	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
3	2	3	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
3	3	3	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
3	4	3	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
4	1	4	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
4	2	4	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
4	3	4	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
4	4	4	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
5	1	1	0	0.0	10.0	0	No	No	Yes	Yes	No	No	No	No
5	2	5	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
5	3	5	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
5	4	5	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
6	1	6	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
6	2	6	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
6	3	6	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
6	4	6	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
7	1	3	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
7	2	7	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
7	3	7	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
7	4	7	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
8	2	8	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
8	3	8	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No

8	4	8	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
9	2	9	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
9	3	9	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
9	4	9	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
10	2	10	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
10	3	10	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
10	4	10	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
11	2	11	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
11	3	11	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
11	4	11	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
12	2	12	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
12	3	12	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
12	4	12	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
13	2	13	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
13	3	13	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
13	4	13	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
14	2	14	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
14	3	14	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
14	4	14	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
15	2	15	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
15	3	15	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
15	4	15	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
16	2	16	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
16	3	16	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No
16	4	16	0	0.0	0.0	0	No	No	Yes	Yes	No	No	No	No

Ped and System Detector Options (MM)6-4

Phase Ped Detector

Local Ped Detector	Number
1	1
2	2
3	8
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16

Local System Detector

Local System Detector	Number
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Detectors

Detectors Page 2

Log - Speed Detector Setup (MM)6-5

NTCIP Log Period: 60 ECPI Log Period: TBAP Length Unit: Inch

Speed Detector	Local Detector	One/Two Detector	Vehicle Length	Trap Length	Enable Log
1	0	1	0	0	No
2	0	1	0	0	No
3	0	1	0	0	No
4	0	1	0	0	No
5	0	1	0	0	No
6	0	1	0	0	No
7	0	1	0	0	No
8	0	1	0	0	No
9	0	1	0	0	No
10	0	1	0	0	No
11	0	1	0	0	No
12	0	1	0	0	No
13	0	1	0	0	No
14	0	1	0	0	No
15	0	1	0	0	No
16	0	1	0	0	No

Vehicle Detector Diagnostics (MM)6-6

Plan	Detector	Counts	Act	Pres	Multiplier	Failed Time	Failed Call Delay
1	1	0	0	0	1	255	0
1	2	0	0	0	1	255	0
1	3	0	0	0	1	255	0
1	4	0	0	0	1	255	0
1	5	0	0	0	1	255	0
1	6	0	0	0	1	255	0
1	7	0	0	0	1	255	0
1	8	0	0	0	1	255	0
1	9	0	0	0	1	255	0
1	10	0	0	0	1	255	0
1	11	0	0	0	1	255	0
1	12	0	0	0	1	255	0
1	13	0	0	0	1	255	0
1	14	0	0	0	1	255	0
1	15	0	0	0	1	255	0
1	16	0	0	0	1	255	0
1	17	0	0	0	1	255	0
1	18	0	0	0	1	255	0
1	19	0	0	0	1	255	0
1	20	0	0	0	1	255	0

1	21	0	0	0	1	255	0
1	22	0	0	0	1	255	0
1	23	0	0	0	1	255	0
1	24	0	0	0	1	255	0
1	25	0	0	0	1	255	0
1	26	0	0	0	1	255	0
1	27	0	0	0	1	255	0
1	28	0	0	0	1	255	0
1	29	0	0	0	1	255	0
1	30	0	0	0	1	255	0
1	31	0	0	0	1	255	0
1	32	0	0	0	1	255	0
1	33	0	0	0	1	255	0
1	34	0	0	0	1	255	0
1	35	0	0	0	1	255	0
1	36	0	0	0	1	255	0
1	37	0	0	0	1	255	0
1	38	0	0	0	1	255	0
1	39	0	0	0	1	255	0
1	40	0	0	0	1	255	0
1	41	0	0	0	1	255	0
1	42	0	0	0	1	255	0
1	43	0	0	0	1	255	0
1	44	0	0	0	1	255	0
1	45	0	0	0	1	255	0
1	46	0	0	0	1	255	0
1	47	0	0	0	1	255	0
1	48	0	0	0	1	255	0
1	49	0	0	0	1	255	0
1	50	0	0	0	1	255	0
1	51	0	0	0	1	255	0
1	52	0	0	0	1	255	0
1	53	0	0	0	1	255	0
1	54	0	0	0	1	255	0
1	55	0	0	0	1	255	0
1	56	0	0	0	1	255	0
1	57	0	0	0	1	255	0
1	58	0	0	0	1	255	0
1	59	0	0	0	1	255	0
1	60	0	0	0	1	255	0
1	61	0	0	0	1	255	0
1	62	0	0	0	1	255	0
1	63	0	0	0	1	255	0
1	64	0	0	0	1	255	0
2	1	0	0	0	1	255	0
2	2	0	0	0	1	255	0
2	3	0	0	0	1	255	0
2	4	0	0	0	1	255	0
2	5	0	0	0	1	255	0

2	6	0	0	0	1	255	0
2	7	0	0	0	1	255	0
2	8	0	0	0	1	255	0
2	9	0	0	0	1	255	0
2	10	0	0	0	1	255	0
2	11	0	0	0	1	255	0
2	12	0	0	0	1	255	0
2	13	0	0	0	1	255	0
2	14	0	0	0	1	255	0
2	15	0	0	0	1	255	0
2	16	0	0	0	1	255	0
2	17	0	0	0	1	255	0
2	18	0	0	0	1	255	0
2	19	0	0	0	1	255	0
2	20	0	0	0	1	255	0
2	21	0	0	0	1	255	0
2	22	0	0	0	1	255	0
2	23	0	0	0	1	255	0
2	24	0	0	0	1	255	0
2	25	0	0	0	1	255	0
2	26	0	0	0	1	255	0
2	27	0	0	0	1	255	0
2	28	0	0	0	1	255	0
2	29	0	0	0	1	255	0
2	30	0	0	0	1	255	0
2	31	0	0	0	1	255	0
2	32	0	0	0	1	255	0
2	33	0	0	0	1	255	0
2	34	0	0	0	1	255	0
2	35	0	0	0	1	255	0
2	36	0	0	0	1	255	0
2	37	0	0	0	1	255	0
2	38	0	0	0	1	255	0
2	39	0	0	0	1	255	0
2	40	0	0	0	1	255	0
2	41	0	0	0	1	255	0
2	42	0	0	0	1	255	0
2	43	0	0	0	1	255	0
2	44	0	0	0	1	255	0
2	45	0	0	0	1	255	0
2	46	0	0	0	1	255	0
2	47	0	0	0	1	255	0
2	48	0	0	0	1	255	0
2	49	0	0	0	1	255	0
2	50	0	0	0	1	255	0
2	51	0	0	0	1	255	0
2	52	0	0	0	1	255	0
2	53	0	0	0	1	255	0
2	54	0	0	0	1	255	0

2	55	0	0	0	1	255	0
2	56	0	0	0	1	255	0
2	57	0	0	0	1	255	0
2	58	0	0	0	1	255	0
2	59	0	0	0	1	255	0
2	60	0	0	0	1	255	0
2	61	0	0	0	1	255	0
2	62	0	0	0	1	255	0
2	63	0	0	0	1	255	0
2	64	0	0	0	1	255	0
3	1	0	0	0	1	255	0
3	2	0	0	0	1	255	0
3	3	0	0	0	1	255	0
3	4	0	0	0	1	255	0
3	5	0	0	0	1	255	0
3	6	0	0	0	1	255	0
3	7	0	0	0	1	255	0
3	8	0	0	0	1	255	0
3	9	0	0	0	1	255	0
3	10	0	0	0	1	255	0
3	11	0	0	0	1	255	0
3	12	0	0	0	1	255	0
3	13	0	0	0	1	255	0
3	14	0	0	0	1	255	0
3	15	0	0	0	1	255	0
3	16	0	0	0	1	255	0
3	17	0	0	0	1	255	0
3	18	0	0	0	1	255	0
3	19	0	0	0	1	255	0
3	20	0	0	0	1	255	0
3	21	0	0	0	1	255	0
3	22	0	0	0	1	255	0
3	23	0	0	0	1	255	0
3	24	0	0	0	1	255	0
3	25	0	0	0	1	255	0
3	26	0	0	0	1	255	0
3	27	0	0	0	1	255	0
3	28	0	0	0	1	255	0
3	29	0	0	0	1	255	0
3	30	0	0	0	1	255	0
3	31	0	0	0	1	255	0
3	32	0	0	0	1	255	0
3	33	0	0	0	1	255	0
3	34	0	0	0	1	255	0
3	35	0	0	0	1	255	0
3	36	0	0	0	1	255	0
3	37	0	0	0	1	255	0
3	38	0	0	0	1	255	0
3	39	0	0	0	1	255	0

3	40	0	0	0	1	255	0
3	41	0	0	0	1	255	0
3	42	0	0	0	1	255	0
3	43	0	0	0	1	255	0
3	44	0	0	0	1	255	0
3	45	0	0	0	1	255	0
3	46	0	0	0	1	255	0
3	47	0	0	0	1	255	0
3	48	0	0	0	1	255	0
3	49	0	0	0	1	255	0
3	50	0	0	0	1	255	0
3	51	0	0	0	1	255	0
3	52	0	0	0	1	255	0
3	53	0	0	0	1	255	0
3	54	0	0	0	1	255	0
3	55	0	0	0	1	255	0
3	56	0	0	0	1	255	0
3	57	0	0	0	1	255	0
3	58	0	0	0	1	255	0
3	59	0	0	0	1	255	0
3	60	0	0	0	1	255	0
3	61	0	0	0	1	255	0
3	62	0	0	0	1	255	0
3	63	0	0	0	1	255	0
3	64	0	0	0	1	255	0
4	1	0	0	0	1	255	0
4	2	0	0	0	1	255	0
4	3	0	0	0	1	255	0
4	4	0	0	0	1	255	0
4	5	0	0	0	1	255	0
4	6	0	0	0	1	255	0
4	7	0	0	0	1	255	0
4	8	0	0	0	1	255	0
4	9	0	0	0	1	255	0
4	10	0	0	0	1	255	0
4	11	0	0	0	1	255	0
4	12	0	0	0	1	255	0
4	13	0	0	0	1	255	0
4	14	0	0	0	1	255	0
4	15	0	0	0	1	255	0
4	16	0	0	0	1	255	0
4	17	0	0	0	1	255	0
4	18	0	0	0	1	255	0
4	19	0	0	0	1	255	0
4	20	0	0	0	1	255	0
4	21	0	0	0	1	255	0
4	22	0	0	0	1	255	0
4	23	0	0	0	1	255	0
4	24	0	0	0	1	255	0

4	25	0	0	0	1	255	0
4	26	0	0	0	1	255	0
4	27	0	0	0	1	255	0
4	28	0	0	0	1	255	0
4	29	0	0	0	1	255	0
4	30	0	0	0	1	255	0
4	31	0	0	0	1	255	0
4	32	0	0	0	1	255	0
4	33	0	0	0	1	255	0
4	34	0	0	0	1	255	0
4	35	0	0	0	1	255	0
4	36	0	0	0	1	255	0
4	37	0	0	0	1	255	0
4	38	0	0	0	1	255	0
4	39	0	0	0	1	255	0
4	40	0	0	0	1	255	0
4	41	0	0	0	1	255	0
4	42	0	0	0	1	255	0
4	43	0	0	0	1	255	0
4	44	0	0	0	1	255	0
4	45	0	0	0	1	255	0
4	46	0	0	0	1	255	0
4	47	0	0	0	1	255	0
4	48	0	0	0	1	255	0
4	49	0	0	0	1	255	0
4	50	0	0	0	1	255	0
4	51	0	0	0	1	255	0
4	52	0	0	0	1	255	0
4	53	0	0	0	1	255	0
4	54	0	0	0	1	255	0
4	55	0	0	0	1	255	0
4	56	0	0	0	1	255	0
4	57	0	0	0	1	255	0
4	58	0	0	0	1	255	0
4	59	0	0	0	1	255	0
4	60	0	0	0	1	255	0
4	61	0	0	0	1	255	0
4	62	0	0	0	1	255	0
4	63	0	0	0	1	255	0
4	64	0	0	0	1	255	0

Pedestrian Detector Diagnostics (MM)6-7					
Plan	Detector	Counts	Act	Pres	Multiplier