



Burleson Public Library

WEEKLY REPORT

FEBRUARY 21, 2020

TO: MAYOR SHETTER AND COUNCIL MEMBERS
FROM: BRYAN LANGLEY, CITY MANAGER

Burleson
T E X A S 

Weekly Report | February 21, 2020

I. Council Schedule

Meetings

- **Monday, March 2:** City Council Meeting. City Hall Council Chambers, 141 W. Renfro St., 5:30 p.m. Work session, 7 p.m. regular session

Work Session Items/Report & Discussion Items

March 2

- Receive a report, hold a discussion, and give staff direction regarding a higher education facility in the City of Burlison. (Staff Presenter: Bryan Langley, City Manager)
- Receive a report, hold a discussion, and provide staff direction regarding a presentation given by Ash + Lime concerning the programming and planning research for the Mayor Vera Calvin Plaza in Old Town. (Staff Presenter: Joni Van Noy, Old Town Administrator)
- Receive a report, hold a discussion and give staff direction regarding design options for roadway medians. (Staff Presenter: Marc Marchand, Director of Recreation & Lifelong Learning)
- Receive a report, hold a discussion and give staff direction regarding BRICK cardio equipment. (Staff Presenter: Marc Marchand, Director of Recreation & Lifelong Learning)

II. General Information and Status Updates

A. Mayor Vera Calvin Plaza in Old Town Weekly Update

Construction of the Mayor Vera Calvin Plaza remains on schedule and within budget.

- Substantial Completion is currently on track for 5/13/2020

Construction activity for next week, February 24 - 28, will include:

- Continue electric branch/site circuits (98% complete)
- Continue irrigation installation
 - Landscape/French drains complete
- Continue low voltage installation for lighting
- Continue railing installation
- Shade structure electrical rough in
- Mech/Elec rough-in Restroom/storage building
- Form site foundations for pour #2
 - Pour #2 2/26
- Paint continues

ROW Parking/Storm Line Extension:

- Work has begun in the right of way to construct parking (47 new stalls), sidewalks, and streetscape

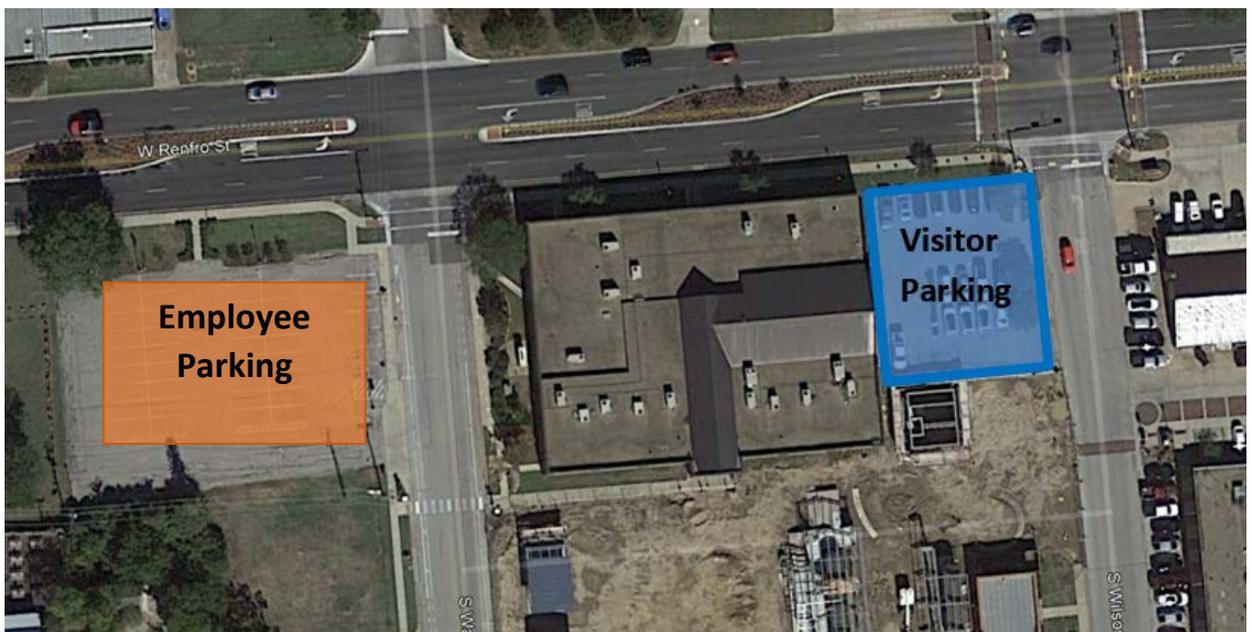
- City staff and Contractor, Hill & Wilkinson, have coordinated with local businesses to plan work in phases that lessens impact as much as possible
- This work will continue in stages until early March
- CURRENT STAGE: Wilson St ROW: 1/6 - 2/28
 - Parking stalls, sidewalks, lights and landscape
 - 23 new parking stalls
 - 4 adjacent to City Hall
 - 1 ADA
- NEXT STAGE: Wilson S. Re-pave: 2/20 - 2/28
 - ROAD CLOSURE
 - Sidewalks and access to parking lots to remain open
- NEXT STAGE: Bufford St. ROW: 2/26 - 3/20
 - Parking stalls, sidewalks, lights and landscape
 - 15 new parking stalls
 - 2 ADA

B. City Hall Parking Change

Beginning as early as February 26 (depending on weather and construction), the current visitor sidewalk for access to the front entrance of City Hall will be removed. Prior to removal, a new sidewalk will be constructed to allow visitors access to the front entrance.

To ensure as much parking as possible for City Hall visitors, **we are asking that employees not park on the East side of City Hall** from 2/26 – 3/25 (dates pending weather and construction).

Appropriate signage and communication will aid in this transition.



C. Benefit in Old Town

A benefit for Raven Goff is scheduled from 1 to 5 p.m. on Sunday, February 23, at the Old Texas Brewing Company on Ellison Street.

Ellison Street will be blocked off between Main Street and Wilson Street from 8 a.m. until 6 p.m.

A Public Event Permit has been issued for the event and local businesses have been contacted.



D. Shuttle Services in Old Town

First Baptist Church will begin offering shuttle services in the Old Town area beginning Friday, February 21. They intend to observe usage during a 6-week trial period with shuttle services offered on Fridays and Saturdays from 6 – 9 p.m. The alley adjacent to Old Texas Brewing Co. will be the area utilized for patron pick up/drop off. Shuttle services will be free; however donations will be accepted. If the services are utilized, FBC would like to offer shuttle services long-term, church leaders have mentioned applying for a grant and/or negotiating a contract with the City of Burleson to continue services for the Old Town area. Discussions with city management and City Council would occur at such time FBC requests any long term agreement.

E. Traffic Signal Study at FM 1902 & CR 910

A traffic signal study has recently been completed for the intersection of FM 1902 & CR 910, near Bluebird Meadows Subdivision. The study results indicate that the intersection meets state criteria for a traffic signal and dedicated turn lanes at the intersection for safety. FM 1902 is a Texas Department of Transportation roadway. City staff is scheduling meetings with TxDOT to discuss the results of the study and the necessary steps to get these improvements in place. A full copy of the report is available starting on page 7.

F. City’s Popular Annual Financial Report (PAFR) changes

In prior years, the Finance Department has prepared a Popular Annual Financial Report (PAFR) in addition to other financial documents. After reviewing this statement, staff does not believe this document is as useful as other financial reports that are currently available, and as such, we are proposing that this report no longer be prepared. Instead, staff will focus on improving the quarterly financial report to make it even more useful for the city council and public. Additionally, we will also incorporate some enhanced financial information into the annual report that is provided at the CityFest event, on social media and on the city’s website.

III. Upcoming Road Construction/Closures

Upcoming Road Construction/Closures			
Project & Limits	Current Status	Traffic Affected	Estimated Completion
Renfro Street Medians in Old Town: Johnson to IH35W	Substantially Complete. Oncor street lights scheduled for painting.	Temporary lane closures may be necessary while Oncor paints street lights.	Project Final Completion paperwork underway
Old Town Quiet Zones: RR xings at Commerce, Renfro, Ellison, Eldred	<i>UPRR work complete. Contractor will be proceeding with final pavement.</i>	Lane closures as necessary while median on Renfro is completed.	Start in June 2019, End in February 2020.
NW Renfro Improvements: Wilshire Blvd. To Alsbury Blvd	<i>Pavement Marking across SH174 to be rescheduled for traffic control and warmer pavement temperature.</i>	Temporary lane closures on SH174 when restriping intersection is rescheduled	Early 2020

IV. Upcoming Community Events

- **Saturday, March 7 from 10 a.m. - 2 p.m.: Historic Home Tours & Demonstrations** at Russell Farm Art Center, 405 W. County Road 714
- **Saturday, March 13 from 7 – 9:30 p.m.: Senior Activity Center Friday Night Dance** at the Senior Activity Center, 216 SW Johnson Ave.

V. Attachments

- A. Traffic Signal Study at FM 1902 & CR 910.....page 7

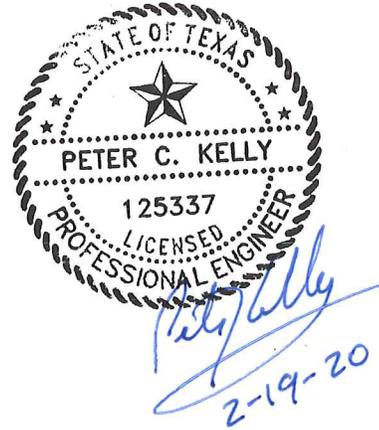
Memorandum

To: Paul Mitchell, P.E.
Engineering Services
City of Burleson

From: Pete Kelly, P.E.
Kimley-Horn and Associates, Inc.

Date: February 19, 2020

Re: Signal Warrant Analysis for FM 1902 & CR 910
Burleson, Texas



PURPOSE

Kimley-Horn was retained by the City of Burleson, Texas to perform a traffic signal warrant analysis at the intersection of FM 1902 and CR 910. FM 1902 is a two-lane undivided roadway, with the intersection located south of Caddo Grove Elementary School and RC Loflin Middle School. The intersection is currently operating with two-way stop-control at CR 910.

The purpose of this memo is to conduct an intersection evaluation and traffic signal warrant analysis for the project intersection to determine the most appropriate traffic control method. Two-way stop control (existing) will be analyzed based on existing traffic data.

EXISTING CONDITIONS

The following sections provide a summary of existing conditions along FM 1902 and its minor cross-street, CR 910.

FM 1902

FM 1902 is currently a two-lane undivided facility at the CR 910 intersection with a posted speed of 50 mph. According to the Burleson Master Thoroughfare Plan, FM 1902 is a Commercial Minor Arterial (MiA-90).

CR 910/Caddo Road

CR 910 is a two-lane undivided facility on both sides of FM 1902. The eastbound and westbound approaches of CR 910 are stop-controlled at FM 1902. According to the Burleson Master Thoroughfare Plan, CR 910 is a Commercial Major Collector (MaC-70).

Exhibit 1.A presents the existing lane use configurations and traffic control devices at the intersection.

TRAFFIC VOLUMES

Intersection turning movement counts (24-hour), and pedestrian counts were collected for the study intersection on Wednesday, January 29, 2020. Additionally, 24-hour machine tube and speed counts were collected along FM 1902 during the same time period as the turning movement counts.

Exhibit 1.B presents AM and PM peak hour turning movement counts at the intersection. Copies of the raw count sheets have been provided in the **Appendix**.

EXISTING OBSERVATIONS

Field observations were conducted on Thursday, February 6, 2020, during the AM Peak hour. The following observations were made:

Operations

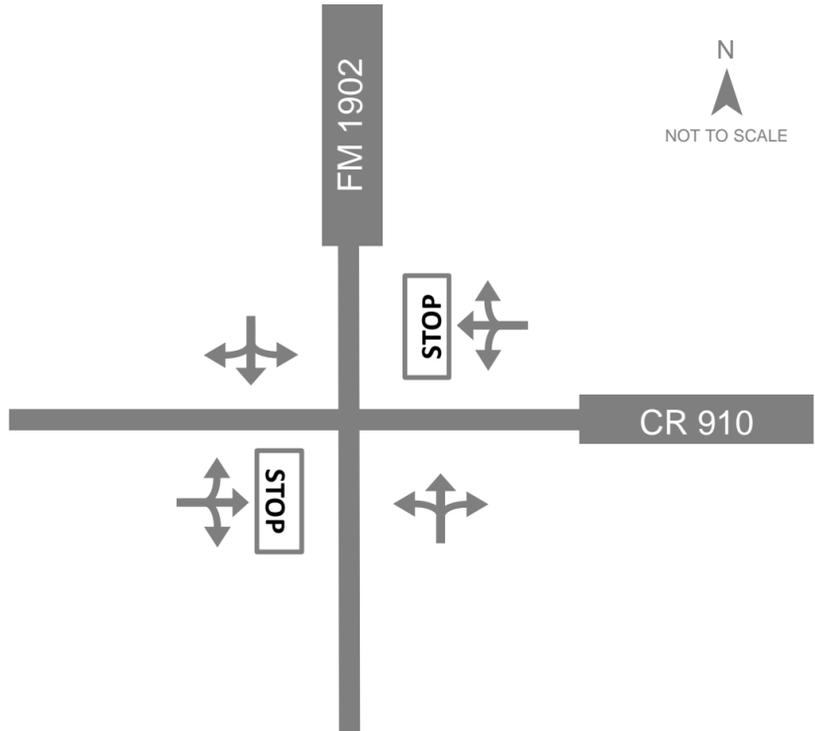
The southbound left-turn and westbound right-turn movements were observed to experience significant delays waiting for gaps to complete turning movements at the intersection. Queues of up to six vehicles were observed multiple times at the southbound approach due to the southbound left-turn movement. Queues of up to eight vehicles were observed multiple times during the same time period. The northbound approach experienced little to no queuing, and only three vehicles were observed at the eastbound approach during the observation period.

Safety

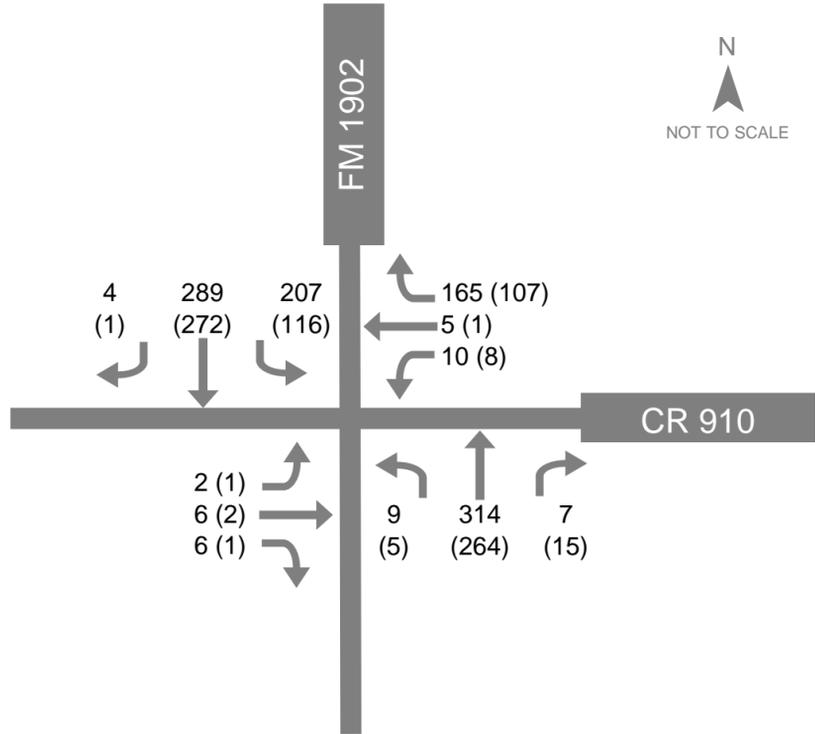
The intersection turning radii are tight and require very slow speeds to complete turning maneuvers safely. In addition, ditches exist along both sides of CR 910 very close to the roadway. Several school buses were observed making turning movements very slowly to avoid other vehicles and the adjacent ditches.

The speed limit is 50 mph along FM 1902, which poses a rear-end crash risk for vehicles stopped in queues at the intersection. Several vehicles were observed decelerating rapidly in order to stop behind queued vehicles at the intersection.

LEGEND	
XX	AM Peak Hour
(XX)	PM Peak Hour



A. Existing Lane Configurations and Traffic Control



B. Existing Traffic Volumes

AUXILIARY LANES

Both left and right-turn auxiliary lane needs were evaluated at the intersection based on Existing (2020) volumes. Results for these findings are summarized in the discussion below.

Right-Turn Deceleration Lanes

TxDOT design criteria states that a right-turn deceleration lane is needed when the right turn volume at an intersection exceeds 60 vehicles on roadways with a speed limit of 45 mph or below. The westbound right-turn volume on CR 910 exceeds this threshold and a westbound right-turn is warranted.

Recommendation: It is recommended that a westbound right-turn lane be constructed to enhance the safety of the intersection and mitigate the existing queueing and delays that were observed.

Left-Turn Deceleration Lanes

Left-turn deceleration lane criteria were obtained from guidelines established by the American Association of State Highway Officials (AASHTO), which utilizes the advancing and opposing volume, as well as the left turn percentage. Based on the anticipated values, a southbound left-turn lane is warranted at the intersection.

Recommendation: It is recommended that a southbound left-turn lane be constructed to enhance the safety of the intersection and mitigate the existing queueing and delays that were observed.

The left-turn lane analysis sheet is provided in the **Appendix**.

STUDY PROCEDURE

The *Texas Manual on Uniform Traffic Control Devices* (Texas MUTCD) states that the installation of a signal should be based on an engineering study. The Texas MUTCD also defines nine (9) warrants, or justifying set of conditions. At least one of which should be fully satisfied before signalization is considered as an option for traffic control. Factors included in the evaluation of these warrants include vehicle and pedestrian traffic volumes, the number of traffic lanes, the prevailing traffic speeds, traffic accident experience, and measured delay for minor street traffic. Following is the list of the nine warrants that can be considered:

- Warrant 1: Eight-Hour Vehicular Volume
- Warrant 2: Four-Hour Vehicular Volume
- Warrant 3: Peak Hour Vehicular Volume
- Warrant 4: Pedestrian Volume
- Warrant 5: School Crossing
- Warrant 6: Coordinated Signal System
- Warrant 7: Crash Experience
- Warrant 8: Roadway Network
- Warrant 9: Intersection Near a Grade Crossing

Of the nine identified warrants, only Warrant 1, Warrant 2, Warrant 3, and Warrant 7 were applicable to this study corridor. Warrants 4, 5, 6, 8, and 9 were not analyzed further. Additional details on the specific warrants analyzed is provided in the next section.

In addition to the warrant analysis, the study intersections were analyzed using *Synchro 9* to determine existing capacity and level of service based on different intersection control and how they compare with each other.

TRAFFIC SIGNAL WARRANT ANALYSIS

Warrant analyses were performed for the study intersection using Existing (2020) traffic volumes to determine if a traffic signal is warranted. Based on the information available for this study, the warrants that were examined in detail were Warrant 1 (Eight-Hour Volumes), Warrant 2 (Four-Hour Volumes), Warrant 3 (Peak Hour Volumes), and Warrant 7 (Crash Experience). These warrants were analyzed using the criteria specified in the Texas MUTCD.

- Warrant 1 requires that either a minimum vehicular volume or interruption of continuous traffic condition is met for at least eight (8) hours of an average day. Also, there is a third condition which requires that a combination of the first two conditions be met for eight (8) hours on an average day. Reductions can be made to warranting volumes based on the posted or 85th percentile speed and population of the area. The Texas MUTCD defines the volumes required for the major and minor street approaches.
- Warrant 2 requires that the vehicles per hour on the major street and the corresponding vehicles per hour on the higher volume minor street approach exceed a provided threshold for any four (4) hours on an average day. The Texas MUTCD defines the volumes required for the major and minor street approaches. As with Warrant 1, reductions can be made to warranting volumes based on the posted or 85th percentile speed and population of the area.
- Warrant 3 requires that:
 - The total stopped time delay experienced by the traffic on one minor-street approach controlled by a stop sign equals or exceeds four (4) vehicle-hours for a one-lane approach or five (5) vehicle-hours for a two lane approach; and
 - The volume on the same minor street approach equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and
 - The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.
 - Alternatively, Warrant 3 is also satisfied if the vehicles per hour on the major street and the corresponding vehicles per hour on the higher-volume minor street approach for one hour falls above the curve presented in Figure 4C-3 of the TMUTCD.
 - As with Warrants 1 and 2, reductions can be made to warranting volumes based on the posted or 85th percentile speed and population of the area.
- Warrant 7 requires that five (5) or more reported crashes, of types susceptible to correction by a traffic control signal have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash. If applicable, the vehicular volumes associated with Warrants 1, 2, and 3 are reduced by 80% of the standard levels. If an adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce crash frequency then this warrant can be considered.

SIGNAL WARRANT SUMMARY

Table 1 summarizes the results of the signal warrant study for each analysis scenario. The results of the signal warrant analysis are as follows:

- Based on existing conditions, the intersection currently meets Warrant 3 for a traffic signal. The intersection is close to meeting Warrant 2 and will likely meet Warrant 2 as volumes continue to grow.

Warrant spreadsheets for Existing Conditions are provided in the **Appendix**.

Based on an analysis of crash data provided by TxDOT, it was determined that one crash occurred in 2017 at the intersection which may have been correctible by a traffic signal. Warrant 7 is met after five or more crashes resulting in injuries or greater than \$500 of property damage are reported in a 12-month period. Therefore, Warrant 7 has not been met. Crash data can be found in the **Appendix**.

Table 1. Signal Warrant Analysis

Scenario	Warrant			
	Warrant 1	Warrant 2	Warrant 3	Warrant 7
Existing	Not Satisfied (2 of 8 hours met)	Not Satisfied (2 of 4 hours met)	Satisfied (1 of 1 hour met)	Not Satisfied (1 of 5 crashes met)

INTERSECTION CAPACITY ANALYSIS

Capacity defines the volume of traffic that can be accommodated by a roadway at a specific “level of service.” Capacity is affected by various geometric factors including roadway type (e.g. divided or undivided), number of lanes, lane widths, and grades. Level of service (LOS), which is a measure of the degree of congestion and ranges from LOS A (free flowing) to LOS F (a congested, forced flow condition). LOS C is typically considered to be the minimum acceptable level of service for design and evaluation purposes, while LOS D is considered acceptable for long-term planning due to the uncertainty of study assumptions.

Intersection LOS analysis was performed for existing conditions at the study intersection using the volumes presented in the traffic volumes section.

Intersection capacity analysis was performed during the AM and PM peak hours using *Synchro 10™* software. The analyses were performed to determine anticipated level of service and delay for each intersection control type. *Synchro 10™* output reports for each analysis period can be found in the **Appendix**.

Existing Intersection Capacity Analysis

Table 2 presents the results of the analysis for the study intersections for Existing Conditions during the AM and PM peak hours. Intersection peak hour factors observed during data collection were used in the capacity analysis.

Based on the capacity analysis for the AM and PM peak hours using Existing traffic volumes, the eastbound approach is currently operating at LOS D in the AM peak hour and the westbound approach is operating at LOS C in the AM peak hour. Although the eastbound approach is a dead-

end private road with low traffic volumes, it is showing a higher delay per vehicle due to the HCM control delay methodology. Stop controlled approaches with very few vehicles typically show higher average delay compared to stop-controlled approaches with moderate to high volumes. Both approaches are performing better during the PM peak hour. This is likely due to the school drop-off time at the nearby schools during the AM peak hour.

In addition, based on the existing observations, Synchro is underestimating queue lengths and delay that are currently being experienced at the intersection.

Table 2. Existing Volumes Intersection Capacity Analysis

APPROACH	AM Peak Hour				PM Peak Hour		
	DELAY (Sec/Veh)	LOS	95th Percentile Queue (veh)	Observed Max Queue (veh)	DELAY (Sec/Veh)	LOS	95th Percentile Queue (veh)
EB (CR 910)	32.7	D	1	1	24.8	C	1
WB (Caddo Rd)	19.2	C	3	8	14.5	B	2

THOROUGHFARE CAPACITY ANALYSIS

A thoroughfare capacity analysis was performed to determine the appropriate number of lanes needed to serve existing and future demand along CR 910 (Caddo Road), east of FM 1902.

The traffic condition criteria are based on the volume-to-capacity ratio for traffic volumes and roadway capacity. The roadway capacity values used in this analysis are shown in **Table 3**. Acceptable grades (LOS A, B) are assigned to roadways with V/C ratios below 0.65, while a failing grade (LOS E, F) is attributed to roadways with a V/C ratio over 1.00, indicating that carry capacity has been met or exceeded. An acceptable or tolerable traffic condition is equivalent to LOS D or better.

For this analysis, both FM 407 and Cleveland Gibbs RCR 910 (Caddo Road) was classified as a suburban residential collector based on information provided by NCTCOG. Under the guidance of NCTCOG, an hourly capacity of 525 vehicles per lane for was used.

Table 3. Thoroughfare Level of Service Criteria

V/C Ratio	0.00	0.65	1.00
Traffic Conditions	Acceptable	Tolerable	Failing
V = Peak Hour Directional Volume (vehicles per hour)			
C = Per Lane Directional Capacity (vehicles per hour)			
Per lane directional capacity is assumed to be the following:			
Suburban Residential Collector: 525 per hour per lane (per NCTCOG)			

The results of the thoroughfare capacity analysis are shown in Table 4. Based on the results of the thoroughfare capacity analysis, CR 910 (Caddo Road) is currently operating within acceptable levels of service. It is recommended that this roadway be further evaluated with future volumes in the mobility planning process.

Table 4. Thoroughfare Capacity Analysis Results

Roadway	Direction	AM Peak Hour			PM Peak Hour		
		Vol	V/C Ratio	Traffic Condition	Vol	V/C Ratio	Traffic Condition
CR 910 (Caddo Rd) East of FM 1902	EB	220	0.42	Acceptable	131	0.25	Acceptable
	WB	180	0.34	Acceptable	116	0.22	Acceptable
	Total	400	0.38	Acceptable	247	0.24	Acceptable

RECOMMENDATIONS

Based on the analyses, we offer the following recommendations:

- Auxiliary Lane Analysis – A southbound left-turn lane and westbound right-turn lane are recommended to be installed to enhance the safety of the intersection and to mitigate existing queuing and delays.
- Signal Warrant Analysis – The FM 1902 and CR 910 intersection currently meets Warrant 3 for a traffic signal. The intersection is close to meeting Warrant 2 and will likely meet Warrant 2 as volumes continue to grow in the area. Based on these results, it is recommended that a traffic signal be considered.
- Intersection Capacity Analysis - Based on the capacity analysis for the AM and PM peak hours in existing conditions, the intersection is currently operating at LOS D during the AM peak hour. Based on existing observations, Synchro is underestimating the queues and delays currently being experienced at the intersection.
- Thoroughfare Capacity Analysis - Based on the results of the thoroughfare capacity analysis, CR 910 (Caddo Road) is currently operating within acceptable levels of service. It is recommended that this roadway be further evaluated with future volumes in the mobility planning process.

If you have any questions, please contact me at pete.kelly@kimley-horn.com or by phone at 817-339-2279.

Appendix

Existing Traffic Counts

Left-Turn Lane Analysis

Signal Warrant Summary

Traffic Analysis

Crash Data

Existing Traffic Counts

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: CR 910 @ FM
1902
Site Code:
Start Date: 01/29/2020
Page No: 1

Turning Movement Data

Start Time	FM 1902 Southbound					CR 910 Westbound					FM 1902 Northbound					CR 910 Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
12:00 AM	0	1	0	0	1	0	0	1	0	1	0	4	0	0	4	0	0	0	0	0	6
12:15 AM	1	2	0	0	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5
12:30 AM	2	6	0	0	8	0	0	1	0	1	0	4	1	0	5	0	0	0	0	0	14
12:45 AM	0	3	0	0	3	2	0	0	0	2	0	0	2	0	2	0	0	0	0	0	7
Hourly Total	3	12	0	0	15	2	0	2	0	4	0	10	3	0	13	0	0	0	0	0	32
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
1:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
1:30 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1:45 AM	0	3	0	0	3	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	6
Hourly Total	0	6	0	0	6	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	11
2:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
2:15 AM	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3
2:30 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
2:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Hourly Total	0	5	0	0	5	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	9
3:00 AM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
3:15 AM	0	2	0	0	2	0	0	1	0	1	0	3	1	0	4	0	0	0	0	0	7
3:30 AM	0	8	0	0	8	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	10
3:45 AM	1	3	0	0	4	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0	8
Hourly Total	1	15	0	0	16	0	0	3	0	3	0	8	1	0	9	0	0	0	0	0	28
4:00 AM	0	6	0	0	6	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	9
4:15 AM	2	9	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
4:30 AM	0	4	0	0	4	0	1	1	0	2	0	3	0	0	3	1	0	0	0	1	10
4:45 AM	0	6	0	0	6	0	0	2	0	2	0	5	0	0	5	0	0	0	0	0	13
Hourly Total	2	25	0	0	27	0	1	3	0	4	0	11	0	0	11	1	0	0	0	1	43
5:00 AM	2	13	0	0	15	4	0	3	0	7	0	6	0	0	6	0	0	0	0	0	28
5:15 AM	0	18	0	0	18	0	0	2	0	2	0	7	0	0	7	0	0	0	0	0	27
5:30 AM	2	27	0	0	29	1	0	5	0	6	0	14	0	0	14	0	0	0	0	0	49
5:45 AM	1	15	0	0	16	1	0	1	0	2	0	18	0	0	18	0	0	0	0	0	36
Hourly Total	5	73	0	0	78	6	0	11	0	17	0	45	0	0	45	0	0	0	0	0	140
6:00 AM	2	23	0	0	25	2	0	17	0	19	1	33	1	0	35	0	0	0	0	0	79
6:15 AM	11	28	0	0	39	3	0	19	0	22	0	41	1	0	42	0	0	1	0	1	104
6:30 AM	3	32	0	0	35	1	0	11	0	12	0	23	1	0	24	0	0	0	0	0	71
6:45 AM	6	28	0	0	34	1	0	11	0	12	0	48	2	0	50	0	0	0	0	0	96
Hourly Total	22	111	0	0	133	7	0	58	0	65	1	145	5	0	151	0	0	1	0	1	350
7:00 AM	13	44	1	0	58	2	0	24	0	26	0	40	0	0	40	0	0	1	0	1	125
7:15 AM	30	58	0	0	88	1	1	44	0	46	1	64	3	0	68	0	1	0	0	1	203
7:30 AM	76	82	1	0	159	2	2	51	0	55	3	91	1	0	95	0	1	2	0	3	312
7:45 AM	62	84	1	0	147	3	1	34	0	38	2	83	2	0	87	0	3	1	0	4	276
Hourly Total	181	268	3	0	452	8	4	153	0	165	6	278	6	0	290	0	5	4	0	9	916
8:00 AM	39	65	2	0	106	4	1	36	0	41	3	76	1	0	80	2	1	3	0	6	233
8:15 AM	15	35	1	0	51	0	0	25	0	25	2	39	1	0	42	0	1	1	0	2	120
8:30 AM	5	17	0	0	22	0	1	10	0	11	1	28	2	0	31	0	0	1	0	1	65
8:45 AM	5	34	1	0	40	1	0	9	0	10	0	21	1	0	22	0	1	2	0	3	75
Hourly Total	64	151	4	0	219	5	2	80	0	87	6	164	5	0	175	2	3	7	0	12	493
9:00 AM	5	30	0	0	35	0	0	5	0	5	0	25	3	0	28	0	0	2	0	2	70
9:15 AM	8	21	0	0	29	4	0	4	0	8	0	26	0	0	26	0	0	0	0	0	63
9:30 AM	3	18	0	0	21	1	0	5	0	6	0	15	3	0	18	0	1	0	0	1	46
9:45 AM	5	21	0	0	26	3	0	4	0	7	0	22	0	0	22	2	0	0	0	2	57
Hourly Total	21	90	0	0	111	8	0	18	0	26	0	88	6	0	94	2	1	2	0	5	236
10:00 AM	7	18	0	0	25	3	0	5	0	8	1	25	1	0	27	0	0	0	0	0	60
10:15 AM	7	18	0	0	25	2	0	5	0	7	0	19	1	0	20	0	0	0	0	0	52
10:30 AM	2	19	0	0	21	0	0	6	0	6	0	21	1	0	22	0	0	0	0	0	49
10:45 AM	5	16	0	0	21	1	0	7	0	8	0	19	4	0	23	0	0	0	0	0	52
Hourly Total	21	71	0	0	92	6	0	23	0	29	1	84	7	0	92	0	0	0	0	0	213
11:00 AM	2	27	0	0	29	1	0	5	0	6	0	26	3	0	29	0	0	0	0	0	64
11:15 AM	9	29	0	0	38	3	1	10	0	14	0	20	1	0	21	0	0	0	0	0	73
11:30 AM	6	17	0	0	23	1	0	3	0	4	0	18	2	0	20	1	0	0	0	1	48
11:45 AM	4	27	0	0	31	1	0	10	0	11	0	35	2	0	37	0	0	0	0	0	79
Hourly Total	21	100	0	0	121	6	1	28	0	35	0	99	8	0	107	1	0	0	0	1	264
12:00 PM	7	14	0	0	21	4	0	9	0	13	0	20	4	0	24	0	0	0	0	0	58
12:15 PM	9	25	0	0	34	4	0	7	0	11	0	18	0	0	18	0	0	0	0	0	63

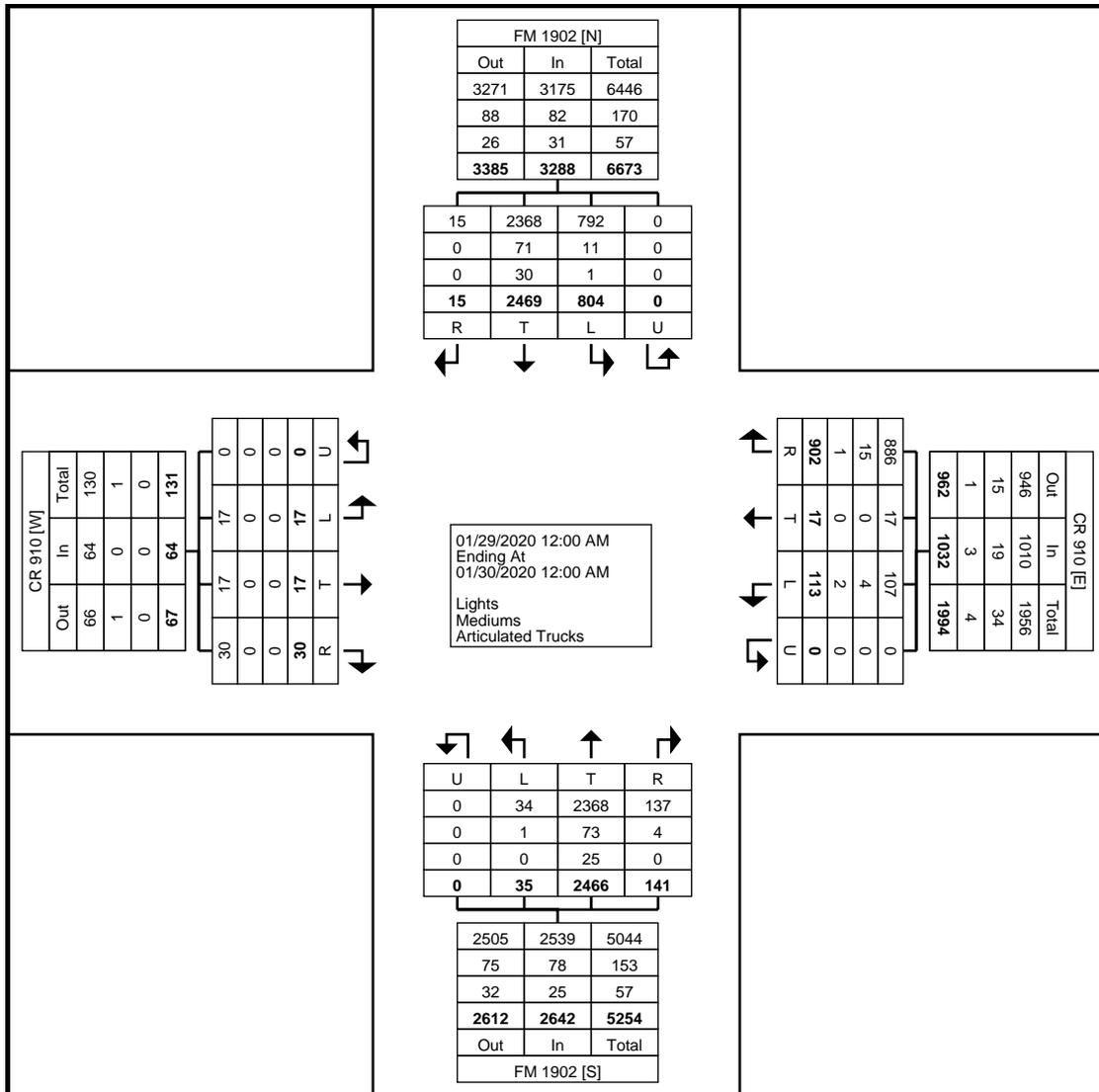
12:30 PM	5	24	0	0	29	1	0	2	0	3	0	26	3	0	29	0	0	0	0	0	61
12:45 PM	6	18	0	0	24	0	0	7	0	7	0	35	2	0	37	0	0	0	0	0	68
Hourly Total	27	81	0	0	108	9	0	25	0	34	0	99	9	0	108	0	0	0	0	0	250
1:00 PM	4	30	0	0	34	0	0	4	0	4	0	22	0	0	22	0	0	0	0	0	60
1:15 PM	7	22	0	0	29	2	0	6	0	8	0	22	0	0	22	0	0	0	0	0	59
1:30 PM	4	28	0	0	32	3	0	5	0	8	0	26	2	0	28	0	0	0	0	0	68
1:45 PM	3	25	1	0	29	3	0	4	0	7	2	22	1	0	25	0	0	1	0	1	62
Hourly Total	18	105	1	0	124	8	0	19	0	27	2	92	3	0	97	0	0	1	0	1	249
2:00 PM	8	36	0	0	44	0	0	7	0	7	1	31	2	0	34	0	0	0	0	0	85
2:15 PM	9	36	0	0	45	2	0	13	0	15	0	33	4	0	37	0	0	0	0	0	97
2:30 PM	12	41	0	0	53	1	0	14	0	15	0	34	6	0	40	0	0	0	0	0	108
2:45 PM	12	28	0	0	40	6	0	19	0	25	0	41	0	0	41	0	0	0	0	0	106
Hourly Total	41	141	0	0	182	9	0	53	0	62	1	139	12	0	152	0	0	0	0	0	396
3:00 PM	5	27	0	0	32	2	0	13	0	15	1	36	1	0	38	0	0	0	0	0	85
3:15 PM	22	45	0	0	67	1	0	18	0	19	0	53	2	0	55	0	0	0	0	0	141
3:30 PM	25	57	0	0	82	1	0	35	0	36	1	59	7	0	67	0	1	0	0	1	186
3:45 PM	20	43	0	0	63	2	0	27	0	29	0	53	4	0	57	1	0	0	0	1	150
Hourly Total	72	172	0	0	244	6	0	93	0	99	2	201	14	0	217	1	1	0	0	2	562
4:00 PM	38	87	0	0	125	2	0	29	0	31	1	44	2	0	47	0	0	0	0	0	203
4:15 PM	35	68	1	0	104	4	1	34	0	39	2	97	5	0	104	1	2	0	0	3	250
4:30 PM	23	57	0	0	80	1	0	23	0	24	1	69	4	0	74	0	0	0	0	0	178
4:45 PM	20	60	0	0	80	1	0	21	0	22	1	54	4	0	59	0	0	1	0	1	162
Hourly Total	116	272	1	0	389	8	1	107	0	116	5	264	15	0	284	1	2	1	0	4	793
5:00 PM	17	59	0	0	76	0	0	16	0	16	1	53	1	0	55	0	0	0	0	0	147
5:15 PM	16	50	0	0	66	1	1	20	0	22	4	79	2	0	85	0	0	2	0	2	175
5:30 PM	14	43	0	0	57	2	1	23	0	26	1	54	6	0	61	1	1	0	0	2	146
5:45 PM	15	53	0	0	68	1	1	21	0	23	1	74	3	0	78	0	0	2	0	2	171
Hourly Total	62	205	0	0	267	4	3	80	0	87	7	260	12	0	279	1	1	4	0	6	639
6:00 PM	13	62	0	0	75	3	2	25	0	30	0	60	2	0	62	0	0	1	0	1	168
6:15 PM	13	55	0	0	68	3	1	7	0	11	2	45	3	0	50	0	0	1	0	1	130
6:30 PM	10	53	3	0	66	1	1	11	0	13	0	53	5	0	58	2	0	5	0	7	144
6:45 PM	7	32	0	0	39	2	0	14	0	16	1	47	3	0	51	0	3	0	0	3	109
Hourly Total	43	202	3	0	248	9	4	57	0	70	3	205	13	0	221	2	3	7	0	12	551
7:00 PM	10	43	1	0	54	2	0	10	0	12	0	37	3	0	40	0	0	2	0	2	108
7:15 PM	11	48	0	0	59	3	0	6	0	9	0	21	3	0	24	0	0	0	0	0	92
7:30 PM	5	24	0	0	29	1	0	4	0	5	1	17	1	0	19	1	0	1	0	2	55
7:45 PM	5	22	0	0	27	0	0	4	0	4	0	24	1	0	25	2	1	0	0	3	59
Hourly Total	31	137	1	0	169	6	0	24	0	30	1	99	8	0	108	3	1	3	0	7	314
8:00 PM	17	61	0	0	78	4	1	12	0	17	0	24	3	0	27	0	0	0	0	0	122
8:15 PM	13	51	0	0	64	0	0	7	0	7	0	16	2	0	18	1	0	0	0	1	90
8:30 PM	4	18	1	0	23	0	0	3	0	3	0	15	1	0	16	0	0	0	0	0	42
8:45 PM	3	15	0	0	18	0	0	6	0	6	0	24	0	0	24	1	0	0	0	1	49
Hourly Total	37	145	1	0	183	4	1	28	0	33	0	79	6	0	85	2	0	0	0	2	303
9:00 PM	1	17	0	0	18	2	0	8	0	10	0	13	2	0	15	0	0	0	0	0	43
9:15 PM	2	9	0	0	11	0	0	7	0	7	0	18	2	0	20	0	0	0	0	0	38
9:30 PM	1	9	0	0	10	0	0	5	0	5	0	10	0	0	10	0	0	0	0	0	25
9:45 PM	3	10	0	0	13	0	0	1	0	1	0	13	0	0	13	0	0	0	0	0	27
Hourly Total	7	45	0	0	52	2	0	21	0	23	0	54	4	0	58	0	0	0	0	0	133
10:00 PM	3	2	0	0	5	0	0	2	0	2	0	6	1	0	7	0	0	0	0	0	14
10:15 PM	3	9	0	0	12	0	0	5	0	5	0	4	0	0	4	0	0	0	0	0	21
10:30 PM	0	11	1	0	12	0	0	3	0	3	0	7	0	0	7	1	0	0	0	1	23
10:45 PM	0	3	0	0	3	0	0	3	0	3	0	7	0	0	7	0	0	0	0	0	13
Hourly Total	6	25	1	0	32	0	0	13	0	13	0	24	1	0	25	1	0	0	0	1	71
11:00 PM	2	6	0	0	8	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	11
11:15 PM	0	2	0	0	2	0	0	1	0	1	0	6	0	0	6	0	0	0	0	0	9
11:30 PM	0	1	0	0	1	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	4
11:45 PM	1	3	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
Hourly Total	3	12	0	0	15	0	0	2	0	2	0	12	1	0	13	0	0	0	0	0	30
Grand Total	804	2469	15	0	3288	113	17	902	0	1032	35	2466	141	0	2642	17	17	30	0	64	7026
Approach %	24.5	75.1	0.5	0.0	-	10.9	1.6	87.4	0.0	-	1.3	93.3	5.3	0.0	-	26.6	26.6	46.9	0.0	-	-
Total %	11.4	35.1	0.2	0.0	46.8	1.6	0.2	12.8	0.0	14.7	0.5	35.1	2.0	0.0	37.6	0.2	0.2	0.4	0.0	0.9	-
Lights	792	2368	15	0	3175	107	17	886	0	1010	34	2368	137	0	2539	17	17	30	0	64	6788
% Lights	98.5	95.9	100.0	-	96.6	94.7	100.0	98.2	-	97.9	97.1	96.0	97.2	-	96.1	100.0	100.0	100.0	-	100.0	96.6
Mediums	11	71	0	0	82	4	0	15	0	19	1	73	4	0	78	0	0	0	0	0	179
% Mediums	1.4	2.9	0.0	-	2.5	3.5	0.0	1.7	-	1.8	2.9	3.0	2.8	-	3.0	0.0	0.0	0.0	-	0.0	2.5
Articulated Trucks	1	30	0	0	31	2	0	1	0	3	0	25	0	0	25	0	0	0	0	0	59
% Articulated Trucks	0.1	1.2	0.0	-	0.9	1.8	0.0	0.1	-	0.3	0.0	1.0	0.0	-	0.9	0.0	0.0	0.0	-	0.0	0.8

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: CR 910 @ FM
1902
Site Code:
Start Date: 01/29/2020
Page No: 3



Turning Movement Data Plot

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: CR 910 @ FM
1902
Site Code:
Start Date: 01/29/2020
Page No: 4

Turning Movement Peak Hour Data (7:15 AM)

Start Time	FM 1902 Southbound					CR 910 Westbound					FM 1902 Northbound					CR 910 Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
7:15 AM	30	58	0	0	88	1	1	44	0	46	1	64	3	0	68	0	1	0	0	1	203
7:30 AM	76	82	1	0	159	2	2	51	0	55	3	91	1	0	95	0	1	2	0	3	312
7:45 AM	62	84	1	0	147	3	1	34	0	38	2	83	2	0	87	0	3	1	0	4	276
8:00 AM	39	65	2	0	106	4	1	36	0	41	3	76	1	0	80	2	1	3	0	6	233
Total	207	289	4	0	500	10	5	165	0	180	9	314	7	0	330	2	6	6	0	14	1024
Approach %	41.4	57.8	0.8	0.0	-	5.6	2.8	91.7	0.0	-	2.7	95.2	2.1	0.0	-	14.3	42.9	42.9	0.0	-	-
Total %	20.2	28.2	0.4	0.0	48.8	1.0	0.5	16.1	0.0	17.6	0.9	30.7	0.7	0.0	32.2	0.2	0.6	0.6	0.0	1.4	-
PHF	0.681	0.860	0.500	0.000	0.786	0.625	0.625	0.809	0.000	0.818	0.750	0.863	0.583	0.000	0.868	0.250	0.500	0.500	0.000	0.583	0.821
Lights	204	269	4	0	477	10	5	160	0	175	9	309	7	0	325	2	6	6	0	14	991
% Lights	98.6	93.1	100.0	-	95.4	100.0	100.0	97.0	-	97.2	100.0	98.4	100.0	-	98.5	100.0	100.0	100.0	-	100.0	96.8
Mediums	3	17	0	0	20	0	0	5	0	5	0	5	0	0	5	0	0	0	0	0	30
% Mediums	1.4	5.9	0.0	-	4.0	0.0	0.0	3.0	-	2.8	0.0	1.6	0.0	-	1.5	0.0	0.0	0.0	-	0.0	2.9
Articulated Trucks	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
% Articulated Trucks	0.0	1.0	0.0	-	0.6	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.3

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: CR 910 @ FM
1902
Site Code:
Start Date: 01/29/2020
Page No: 6

Turning Movement Peak Hour Data (4:00 PM)

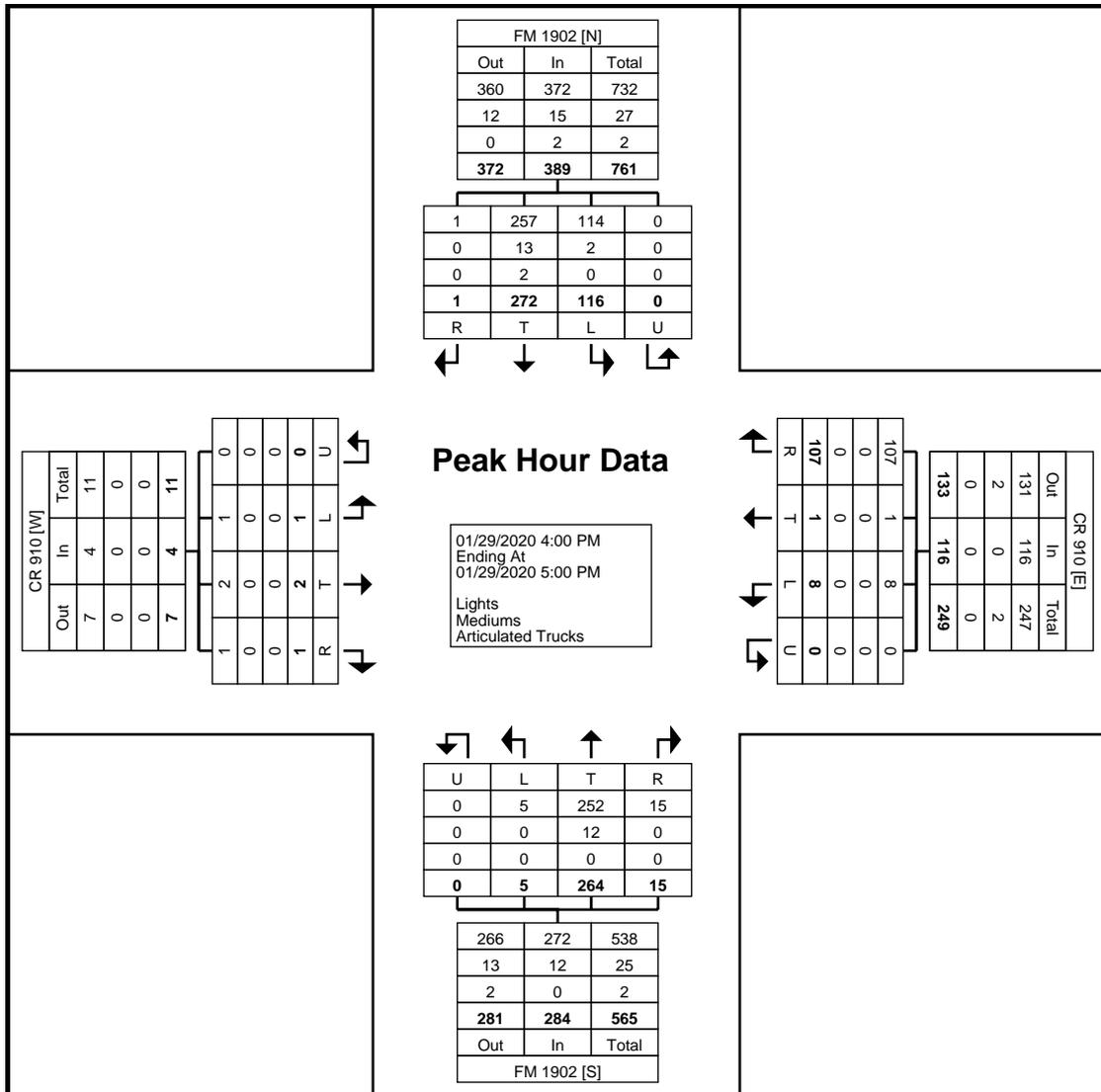
Start Time	FM 1902 Southbound					CR 910 Westbound					FM 1902 Northbound					CR 910 Eastbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
4:00 PM	38	87	0	0	125	2	0	29	0	31	1	44	2	0	47	0	0	0	0	0	203
4:15 PM	35	68	1	0	104	4	1	34	0	39	2	97	5	0	104	1	2	0	0	3	250
4:30 PM	23	57	0	0	80	1	0	23	0	24	1	69	4	0	74	0	0	0	0	0	178
4:45 PM	20	60	0	0	80	1	0	21	0	22	1	54	4	0	59	0	0	1	0	1	162
Total	116	272	1	0	389	8	1	107	0	116	5	264	15	0	284	1	2	1	0	4	793
Approach %	29.8	69.9	0.3	0.0	-	6.9	0.9	92.2	0.0	-	1.8	93.0	5.3	0.0	-	25.0	50.0	25.0	0.0	-	-
Total %	14.6	34.3	0.1	0.0	49.1	1.0	0.1	13.5	0.0	14.6	0.6	33.3	1.9	0.0	35.8	0.1	0.3	0.1	0.0	0.5	-
PHF	0.763	0.782	0.250	0.000	0.778	0.500	0.250	0.787	0.000	0.744	0.625	0.680	0.750	0.000	0.683	0.250	0.250	0.250	0.000	0.333	0.793
Lights	114	257	1	0	372	8	1	107	0	116	5	252	15	0	272	1	2	1	0	4	764
% Lights	98.3	94.5	100.0	-	95.6	100.0	100.0	100.0	-	100.0	100.0	95.5	100.0	-	95.8	100.0	100.0	100.0	-	100.0	96.3
Mediums	2	13	0	0	15	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	27
% Mediums	1.7	4.8	0.0	-	3.9	0.0	0.0	0.0	-	0.0	0.0	4.5	0.0	-	4.2	0.0	0.0	0.0	-	0.0	3.4
Articulated Trucks	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Articulated Trucks	0.0	0.7	0.0	-	0.5	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.3

GRAM Traffic NTX Inc.

1120 W. Lovers Lane

Arlington, Texas, United States 76013
817.265.8968

Count Name: CR 910 @ FM
1902
Site Code:
Start Date: 01/29/2020
Page No: 7



Turning Movement Peak Hour Data Plot (4:00 PM)



Left-Turn Lane Analysis

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

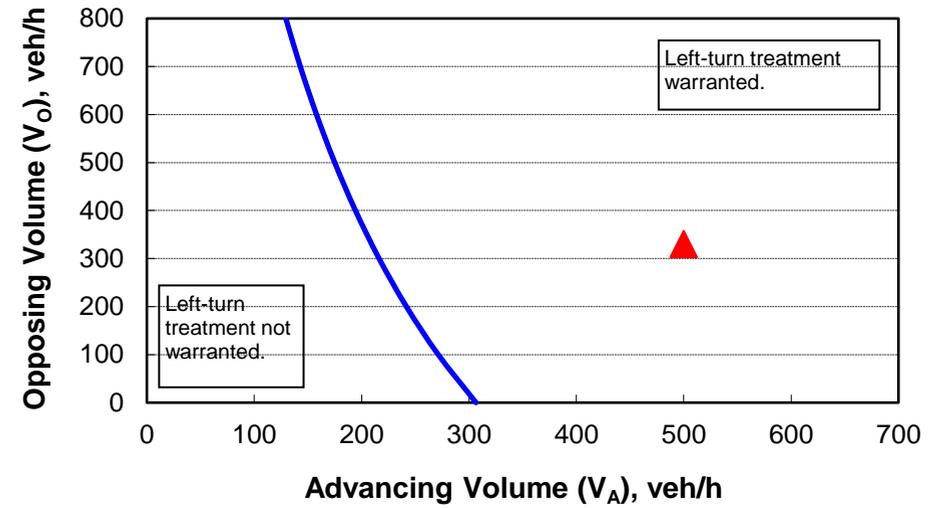
2-lane roadway (English)

INPUT

Variable	Value
85 th percentile speed, mph:	50
Percent of left-turns in advancing volume (V_A), %:	41%
Advancing volume (V_A), veh/h:	500
Opposing volume (V_O), veh/h:	330

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	209
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane, s:	1.9



Signal Warrant Summary

TRAFFIC SIGNAL WARRANT ANALYSIS (2011 TXMUTCD) 2020 Volumes

MAJOR STREET: FM 1902 NB SB # OF APPROACH LANES:

MINOR STREET: CR 910 EB WB # OF APPROACH LANES:

CITY, STATE: Burleson, TX

COMMENTS: Existing Conditions

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N):
 85TH PERCENTILE SPEED OR POSTED SPEED LIMIT GREATER THAN 40 MPH ON MAJOR STREET (Y OR N):

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2	WARRANT 3
			MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	Four-Hour	Peak Hour
THRESHOLD VALUES			350	105		525	53		280	84		420	42			
06:00 AM TO 07:00 AM	284	65					Y		Y				Y			
07:00 AM TO 08:00 AM	742	165	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
08:00 AM TO 09:00 AM	394	87	Y				Y		Y	Y	Y		Y			
09:00 AM TO 10:00 AM	205	26														
10:00 AM TO 11:00 AM	184	29														
11:00 AM TO 12:00 PM	228	35														
12:00 PM TO 01:00 PM	216	34														
01:00 PM TO 02:00 PM	221	27														
02:00 PM TO 03:00 PM	334	62					Y		Y				Y			
03:00 PM TO 04:00 PM	461	99	Y				Y		Y	Y	Y	Y	Y	Y		
04:00 PM TO 05:00 PM	673	116	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
05:00 PM TO 06:00 PM	546	87	Y			Y	Y	Y	Y	Y	Y	Y	Y	Y		
06:00 PM TO 07:00 PM	469	70	Y				Y		Y			Y	Y	Y		
07:00 PM TO 08:00 PM	277	30														
08:00 PM TO 09:00 PM	268	33														
09:00 PM TO 10:00 PM	110	23														
	5,612	988	6	2	2	3	8	3	8	5	5	5	8	5	2	1
			8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
			NOT SATISFIED			NOT SATISFIED			NOT SATISFIED						NOT SATISFIED	SATISFIED

02/06/20
 Kimley-Horn and Associates, Inc.



Existing Volumes Traffic Analysis

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	6	6	10	5	165	9	314	7	207	289	4
Future Vol, veh/h	2	6	6	10	5	165	9	314	7	207	289	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	58	58	58	82	82	82	87	87	87	79	79	79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	10	10	12	6	201	10	361	8	262	366	5

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1382	1282	369	1288	1280	365	371	0	0	369	0	0
Stage 1	893	893	-	385	385	-	-	-	-	-	-	-
Stage 2	489	389	-	903	895	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	121	165	677	141	166	680	1188	-	-	1190	-	-
Stage 1	336	360	-	638	611	-	-	-	-	-	-	-
Stage 2	561	608	-	332	359	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	64	118	677	101	119	680	1188	-	-	1190	-	-
Mov Cap-2 Maneuver	64	118	-	101	119	-	-	-	-	-	-	-
Stage 1	332	260	-	631	604	-	-	-	-	-	-	-
Stage 2	387	601	-	227	259	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	32.7		19.2		0.2		3.7	
HCM LOS	D		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1188	-	-	154	469	1190	-
HCM Lane V/C Ratio	0.009	-	-	0.157	0.468	0.22	-
HCM Control Delay (s)	8.1	0	-	32.7	19.2	8.9	0
HCM Lane LOS	A	A	-	D	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0.5	2.4	0.8	-

Intersection												
Int Delay, s/veh	3.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	2	1	8	1	107	5	264	15	116	272	1
Future Vol, veh/h	1	2	1	8	1	107	5	264	15	116	272	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	33	33	33	74	74	74	68	68	68	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	6	3	11	1	145	7	388	22	149	349	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1134	1072	350	1065	1061	399	350	0	0	410	0	0
Stage 1	648	648	-	413	413	-	-	-	-	-	-	-
Stage 2	486	424	-	652	648	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	180	220	693	200	224	651	1209	-	-	1149	-	-
Stage 1	459	466	-	616	594	-	-	-	-	-	-	-
Stage 2	563	587	-	457	466	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	121	183	693	169	186	651	1209	-	-	1149	-	-
Mov Cap-2 Maneuver	121	183	-	169	186	-	-	-	-	-	-	-
Stage 1	455	391	-	611	589	-	-	-	-	-	-	-
Stage 2	433	582	-	376	391	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	24.8		14.5		0.1		2.6	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1209	-	-	194	534	1149	-
HCM Lane V/C Ratio	0.006	-	-	0.062	0.294	0.129	-
HCM Control Delay (s)	8	0	-	24.8	14.5	8.6	0
HCM Lane LOS	A	A	-	C	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.2	1.2	0.4	-

Crash Data

CRIS Query

Crash Attributes
Crash ID: 15743844
\$1000 Damage to Any One Person's Property: Yes
Active School Zone Flag: NO
Adjusted Average Daily Traffic Amount: 3312
Adjusted Percentage of Average Daily Traffic For Trucks: 16.9
Adjusted Roadway Part: 1 - MAIN/PROPER LANE
Agency: BURLESON POLICE DEPARTMENT
At Intersection Flag: false
Average Daily Traffic Amount: 3312
Average Daily Traffic Year: 2016
Bridge Detail: NOT APPLICABLE
Case ID: 17-001060
City: BURLESON
Commercial Motor Vehicle Flag: No
Construction Zone Flag: No
Construction Zone Workers Present Flag: No
County: JOHNSON
Crash Death Count: 0
Crash Non-Suspected Serious Injury Count: 0
Crash Not Injured Count: 5
Crash Possible Injury Count: 0
Crash Severity: N - NOT INJURED
Crash Suspected Serious Injury Count: 0
Crash Time: 1624
Crash Total Injury Count: 0
Crash Unknown Injury Count: 0
Crash Year: 2017
Crossing Number: No Data
Culvert Type: No Data
Curve Degrees: No Data
Curve Delta Degrees: No Data
Curve Left Right Flag: No Data
Curve Length: No Data
Curve Type: No Data
Day of Week: MONDAY
Feature Crossed by Bridge: No Data
First Harmful Event: MOTOR VEHICLE IN TRANSPORT
Highway Alpha Suffix:
Highway Lane Design: TWO-WAY
Highway Lane Design for HOV, Railroads, and Toll Roads: NO HOV, NO RAILWAY, NOT TOLL ROAD
Highway Number: 1902
Highway System: FARM TO MARKET
Inside Shoulder Width on Divided Highway: 3
Intersecting Highway Alpha Suffix: No Data
Intersecting Highway Number: No Data
Intersecting Highway System: No Data
Intersecting Road Minimum Vertical Clearance: No Data
Intersecting Street Name: N/A
Intersecting Street Number: NO DATA
Intersection Related: NON INTERSECTION
Latitude: 32.46872279
Left Curb Type: NONE
Left Shoulder Type: STABILIZED-SURFACED WITH FLEX
Left Shoulder Use: EMERGENCY ONLY
Left Shoulder Width: 3
Light Condition: 1 - DAYLIGHT
Longitude: -97.41966705
Manner of Collision: SAME DIRECTION - ONE STRAIGHT-ONE STOPPED
Median Type: NO MEDIAN
Median Width: 0
Median Width plus Both Inside Shoulders: 0
Medical Advisory Flag: No
Number of Entering Roads: 2 - THREE ENTERING ROADS - T
Number of Lanes: 2
Number of Standard Highway STOP Signs At the Crossing: No Data
Number of Standard Highway YIELD Signs At the Crossing: No Data
Object Struck: NOT APPLICABLE
On Bridge Service Type: No Data
On System Flag: Yes
Other Factor: SLOWING/STOPPING-FOR TRAFFIC
Outside Shoulder Width on Divided Highway: 3
Percentage of Combo Truck Average Daily Traffic: 13.6
Percentage of Single Unit Truck Average Daily Traffic: 3.3
Physical Feature 1: NOT APPLICABLE
Physical Feature 2: NOT APPLICABLE
Population Group: 25,000 - 49,999 POP
Position Category of The Highway-Rail Crossing: No Data
Private Drive Flag: NO
Property Damages: NONE
Railroad Company: No Data
Railroad Flag: No
Reference Marker Number: 0290
Reference Marker Offset Distance: 0.215
Right Curb Type: NONE
Right of Way Usual Width: 80
Right Shoulder Type: STABILIZED-SURFACED WITH FLEX
Right Shoulder Use: EMERGENCY ONLY
Right Shoulder Width: 3
Road Base Type: FLEX BASE (GRANULAR)
Road Class: FARM TO MARKET
Roadbed Width: 26
Roadway Alignment: 1 - STRAIGHT, LEVEL
Roadway Function: URBAN COLLECTOR
Roadway Part: 1 - MAIN/PROPER LANE
Roadway Relation: ON ROADWAY
Roadway Type: 2 LANE, 2 WAY
Rural Flag: No
Rural Urban Type: URBANIZED (200,000+)
School Bus Flag: No
Speed Limit: 50
Street Name: FM1902
Street Number: 6404
Surface Condition: 2 - WET
Surface Type: No Data

Surface Width: 20
Toll Road Flag: NO
Traffic Control Type: 17 - MARKED LANES
TxDOT Reportable Flag: Yes
Under Bridge Service Type: No Data
Warning Device Code: No Data
Weather Condition: 2 - CLOUDY
Unit 1
9+ Passenger Flag: No Data
Bus Type: No Data
Carrier's Primary Address - Zip:
CMV Actual Gross Weight: No Data
CMV Cargo Body Type: No Data
CMV Carrier ID Type: No Data
CMV Disabling Damage - Power Unit: No Data
CMV GVWR: No Data
CMV Hazmat Release Flag: No Data
CMV Intermodal Shipping Container Permit: No Data
CMV RGVW: No Data
CMV Roadway Access: No Data
CMV Sequence of Events 1: No Data
CMV Sequence of Events 2: No Data
CMV Sequence of Events 3: No Data
CMV Sequence of Events 4: No Data
CMV Total Number of Axles: No Data
CMV Total Number of Tires: No Data
CMV Trailer Disabling Damage: No Data
CMV Trailer GVWR: No Data
CMV Trailer RGVW: No Data
CMV Trailer Type: No Data
CMV Vehicle Operation: No Data
CMV Vehicle Type: No Data
Contributing Factor 1: 22 - FAILED TO CONTROL SPEED
Contributing Factor 2: No Data
Contributing Factor 3: No Data
Driver Alcohol Result: No Data
Driver Alcohol Specimen Type: 96 - NONE
Driver Blood Alcohol Content Test Result: No Data
Driver Drug Specimen Type: 96 - NONE
Driver Drug Test Result: 97 - NOT APPLICABLE
Driver License Class: C - CLASS C
Driver License Endorsements: NONE
Driver License Restrictions: WITH CORRECTIVE LENSES
Driver License State: TX - TEXAS
Driver License Type: 1 - DRIVER LICENSE
Driver Time of Death: No Data
Emergency Responder Flag: No
Financial Responsibility Proof: YES
Financial Responsibility Type: 1 - LIABILITY INSURANCE POLICY
First Harmful Event Involvement: YES
Hazmat Class 1 ID: No Data
Hazmat Class 2 ID: No Data
Hazmat ID Number 1 ID: -1
Hazmat ID Number 2 ID: -1
License Plate State: TX - TEXAS
Possible Contributing Factor 1: No Data
Possible Contributing Factor 2: No Data
Possible Vehicle Defect 1: No Data
Possible Vehicle Defect 2: No Data
Ten Thousand Lbs Flag: No Data
Transporting Hazardous Material Flag: No Data
Unit Death Count: 0
Unit Description: 1 - MOTOR VEHICLE
Unit Non-Suspected Serious Injury Count: 0
Unit Not Injured Count: 2
Unit Possible Injury Count: 0
Unit Suspected Serious Injury Count: 0
Unit Total Injury Count: 0
Unit Unknown Injury Count: 0
Vehicle Body Style: P4 - PASSENGER CAR, 4-DOOR
Vehicle CMV Flag: No
Vehicle Color: BLK - BLACK
Vehicle Damage Rating 1 - Area: FC - FRONT END DAMAGE CONCENTRATED IMPACT
Vehicle Damage Rating 1 - Direction of Force: 12 - 12 O'CLOCK
Vehicle Damage Rating 1 - Severity: 4 - DAMAGED 4
Vehicle Damage Rating 2 - Area: No Data
Vehicle Damage Rating 2 - Direction of Force: No Data
Vehicle Damage Rating 2 - Severity: No Data
Vehicle Defect 1: No Data
Vehicle Defect 2: No Data
Vehicle Defect 3: No Data
Vehicle Hit and Run Flag: No
Vehicle Inventoried Flag: NO
Vehicle Make: MITSUBISHI
Vehicle Model Name: LANCER (MITSUBISHI)
Vehicle Model Year: 2013
Vehicle Parked Flag: NO
Vehicle Towed By: BOBCAT WRECKER SERVICE
Vehicle Towed To: 3505 SPARKS LN CROWLEY, TX 76036
Vehicle Travel Direction: W - WEST
Unit 1, Person 1
Charge: NO CHARGES
Citation: No Data
Person Age: 18
Person Airbag Deployed: 1 - NOT DEPLOYED
Person Alcohol Result: No Data
Person Alcohol Specimen Type Taken: 96 - NONE
Person Blood Alcohol Content Test Result: No Data
Person Death Count: 0
Person Drug Specimen Type: 96 - NONE
Person Drug Test Result: 97 - NOT APPLICABLE
Person Ejected: 1 - NO
Person Ethnicity: W - WHITE
Person Gender: 1 - MALE
Person Helmet: 97 - NOT APPLICABLE
Person Injury Severity: N - NOT INJURED
Person Non-Suspected Serious Injury Count: 0
Person Not Injured Count: 1

Person Possible Injury Count: 0
 Person Restraint Used: 1 - SHOULDER & LAP BELT
 Person Suspected Serious Injury Count: 0
 Person Time of Death: No Data
 Person Total Injury Count: 0
 Person Type: 1 - DRIVER
 Person Unknown Injury Count: 0
 Physical Location of An Occupant: 1 - FRONT LEFT
 Unit 1, Person 2
 Charge: NO CHARGES
 Citation: No Data
 Person Age: 14
 Person Airbag Deployed: 1 - NOT DEPLOYED
 Person Alcohol Result: No Data
 Person Alcohol Specimen Type Taken: No Data
 Person Blood Alcohol Content Test Result: No Data
 Person Death Count: 0
 Person Drug Specimen Type: No Data
 Person Drug Test Result: No Data
 Person Ejected: 1 - NO
 Person Ethnicity: W - WHITE
 Person Gender: 1 - MALE
 Person Helmet: 97 - NOT APPLICABLE
 Person Injury Severity: N - NOT INJURED
 Person Non-Suspected Serious Injury Count: 0
 Person Not Injured Count: 1
 Person Possible Injury Count: 0
 Person Restraint Used: 1 - SHOULDER & LAP BELT
 Person Suspected Serious Injury Count: 0
 Person Time of Death: No Data
 Person Total Injury Count: 0
 Person Type: 2 - PASSENGER/OCCUPANT
 Person Unknown Injury Count: 0
 Physical Location of An Occupant: 3 - FRONT RIGHT
 Unit 2
 9+ Passenger Flag: No Data
 Bus Type: No Data
 Carrier's Primary Address - Zip:
 CMV Actual Gross Weight: No Data
 CMV Cargo Body Type: No Data
 CMV Carrier ID Type: No Data
 CMV Disabling Damage - Power Unit: No Data
 CMV GVWR: No Data
 CMV Hazmat Release Flag: No Data
 CMV Intermodal Shipping Container Permit: No Data
 CMV RGVW: No Data
 CMV Roadway Access: No Data
 CMV Sequence of Events 1: No Data
 CMV Sequence of Events 2: No Data
 CMV Sequence of Events 3: No Data
 CMV Sequence of Events 4: No Data
 CMV Total Number of Axles: No Data
 CMV Total Number of Tires: No Data
 CMV Trailer Disabling Damage: No Data
 CMV Trailer GVWR: No Data
 CMV Trailer RGVW: No Data
 CMV Trailer Type: No Data
 CMV Vehicle Operation: No Data
 CMV Vehicle Type: No Data
 Contributing Factor 1: No Data
 Contributing Factor 2: No Data
 Contributing Factor 3: No Data
 Driver Alcohol Result: No Data
 Driver Alcohol Specimen Type: 96 - NONE
 Driver Blood Alcohol Content Test Result: No Data
 Driver Drug Specimen Type: 96 - NONE
 Driver Drug Test Result: 97 - NOT APPLICABLE
 Driver License Class: C - CLASS C
 Driver License Endorsements: NONE
 Driver License Restrictions: NONE
 Driver License State: TX - TEXAS
 Driver License Type: 1 - DRIVER LICENSE
 Driver Time of Death: No Data
 Emergency Responder Flag: No
 Financial Responsibility Proof: YES
 Financial Responsibility Type: 1 - LIABILITY INSURANCE POLICY
 First Harmful Event Involvement: YES
 Hazmat Class 1 ID: No Data
 Hazmat Class 2 ID: No Data
 Hazmat ID Number 1 ID: -1
 Hazmat ID Number 2 ID: -1
 License Plate State: TX - TEXAS
 Possible Contributing Factor 1: No Data
 Possible Contributing Factor 2: No Data
 Possible Vehicle Defect 1: No Data
 Possible Vehicle Defect 2: No Data
 Ten Thousand Lbs Flag: No Data
 Transporting Hazardous Material Flag: No Data
 Unit Death Count: 0
 Unit Description: 1 - MOTOR VEHICLE
 Unit Non-Suspected Serious Injury Count: 0
 Unit Not Injured Count: 3
 Unit Possible Injury Count: 0
 Unit Suspected Serious Injury Count: 0
 Unit Total Injury Count: 0
 Unit Unknown Injury Count: 0
 Vehicle Body Style: PK - PICKUP
 Vehicle CMV Flag: No
 Vehicle Color: No Data
 Vehicle Damage Rating 1 - Area: BC - BACK END DAMAGE CONCENTRATED IMPACT
 Vehicle Damage Rating 1 - Direction of Force: 6 - 6 O'CLOCK
 Vehicle Damage Rating 1 - Severity: 1 - DAMAGED 1 MINIMUM
 Vehicle Damage Rating 2 - Area: No Data
 Vehicle Damage Rating 2 - Direction of Force: No Data
 Vehicle Damage Rating 2 - Severity: No Data
 Vehicle Defect 1: No Data
 Vehicle Defect 2: No Data
 Vehicle Defect 3: No Data

Vehicle Hit and Run Flag: No
Vehicle Inventoried Flag: NO
Vehicle Make: CHEVROLET
Vehicle Model Name: UNKNOWN (CHEVROLET)
Vehicle Model Year: 2011
Vehicle Parked Flag: NO
Vehicle Towed By: DRIVEN AWAY
Vehicle Towed To: OWNER
Vehicle Travel Direction: W - WEST
Unit 2, Person 1
Charge: NO CHARGES
Citation: No Data
Person Age: 40
Person Airbag Deployed: 1 - NOT DEPLOYED
Person Alcohol Result: No Data
Person Alcohol Specimen Type Taken: 96 - NONE
Person Blood Alcohol Content Test Result: No Data
Person Death Count: 0
Person Drug Specimen Type: 96 - NONE
Person Drug Test Result: 97 - NOT APPLICABLE
Person Ejected: 1 - NO
Person Ethnicity: W - WHITE
Person Gender: 1 - MALE
Person Helmet: 97 - NOT APPLICABLE
Person Injury Severity: N - NOT INJURED
Person Non-Suspected Serious Injury Count: 0
Person Not Injured Count: 1
Person Possible Injury Count: 0
Person Restraint Used: 1 - SHOULDER & LAP BELT
Person Suspected Serious Injury Count: 0
Person Time of Death: No Data
Person Total Injury Count: 0
Person Type: 1 - DRIVER
Person Unknown Injury Count: 0
Physical Location of An Occupant: 1 - FRONT LEFT
Unit 2, Person 2
Charge: NO CHARGES
Citation: No Data
Person Age: 14
Person Airbag Deployed: 1 - NOT DEPLOYED
Person Alcohol Result: No Data
Person Alcohol Specimen Type Taken: No Data
Person Blood Alcohol Content Test Result: No Data
Person Death Count: 0
Person Drug Specimen Type: No Data
Person Drug Test Result: No Data
Person Ejected: 1 - NO
Person Ethnicity: W - WHITE
Person Gender: 1 - MALE
Person Helmet: 97 - NOT APPLICABLE
Person Injury Severity: N - NOT INJURED
Person Non-Suspected Serious Injury Count: 0
Person Not Injured Count: 1
Person Possible Injury Count: 0
Person Restraint Used: 1 - SHOULDER & LAP BELT
Person Suspected Serious Injury Count: 0
Person Time of Death: No Data
Person Total Injury Count: 0
Person Type: 2 - PASSENGER/OCCUPANT
Person Unknown Injury Count: 0
Physical Location of An Occupant: 3 - FRONT RIGHT
Unit 2, Person 3
Charge: NO CHARGES
Citation: No Data
Person Age: 14
Person Airbag Deployed: 1 - NOT DEPLOYED
Person Alcohol Result: No Data
Person Alcohol Specimen Type Taken: No Data
Person Blood Alcohol Content Test Result: No Data
Person Death Count: 0
Person Drug Specimen Type: No Data
Person Drug Test Result: No Data
Person Ejected: 1 - NO
Person Ethnicity: W - WHITE
Person Gender: 1 - MALE
Person Helmet: 97 - NOT APPLICABLE
Person Injury Severity: N - NOT INJURED
Person Non-Suspected Serious Injury Count: 0
Person Not Injured Count: 1
Person Possible Injury Count: 0
Person Restraint Used: 1 - SHOULDER & LAP BELT
Person Suspected Serious Injury Count: 0
Person Time of Death: No Data
Person Total Injury Count: 0
Person Type: 2 - PASSENGER/OCCUPANT
Person Unknown Injury Count: 0
Physical Location of An Occupant: 6 - SECOND SEAT RIGHT