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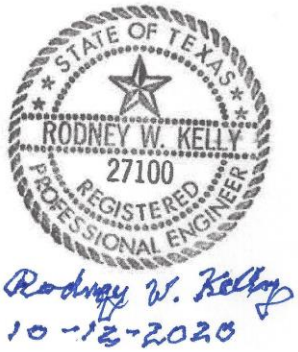
TECHNICAL MEMORANDUM



To: Honeycreek Venetian, LLC
c/o Steve Lenart
Lenart Development Company, LLC

From: Rod Kelly, P.E.
Kelly & Associates

Date: October12, 2020

RE: **Traffic Impact Analysis – Proposed Weston Trails Residential Development in Weston, Texas**

I. INTRODUCTION

A. Purpose

The purpose of this memorandum is to document the results of a traffic impact analysis (TIA) for the proposed Weston Trails residential development in Weston, Texas. This analysis was prepared to determine the possible impacts of the proposed development change on traffic operations at the access street intersections in the vicinity of this development. The analysis summarizes the findings, conclusions, and recommendations of the TIA and will be provided for technical review to fulfill the associated requirements of the local project approval process.

B. Methodology

The study methodology applied to the analysis was as follows:

- Conducted traffic counts to establish existing traffic volumes at the street intersections within the proposed Study Area
- Estimated the vehicle trips in and out of proposed development
- Determined the analysis years based on the proposed phased completion of the residential construction and expected occupancy
- Determined the directions of approach and departure for traffic coming to and leaving the development
- Applied the proposed traffic growth rate to the non-site traffic for the agreed-upon analysis years and determined the non-site traffic volumes for the analysis years
- Combined the highest AM or PM peak hour non-site volumes and the volumes that will be generated by the development at the intersections to be analyzed for the analysis years
- Determined the traffic lane configurations and intersection traffic control for the analysis years
- Entered the above traffic information as input data into Trafficware's "Synchro" traffic analysis software package, for conditions that included the traffic added by the proposed development
- Determined adequacy of access roadway spacing and intersection sight distances
- Tabulated the results and developed impact conclusions and any mitigation recommendations

II. Existing and Proposed Land Use

A. Site Location / Study Area

The residential development is proposed to be located at the northeast quadrant of the intersection of FM 543 and CR 206 in Weston, Texas (See **Figure 1**). The proposed development site plan is shown in **Figure 2**. This TIA was only conducted for traffic generated by the proposed residential development property. The proposed construction program schedule is shown in **Table 1**

Figure 1 – Development Site Location Map

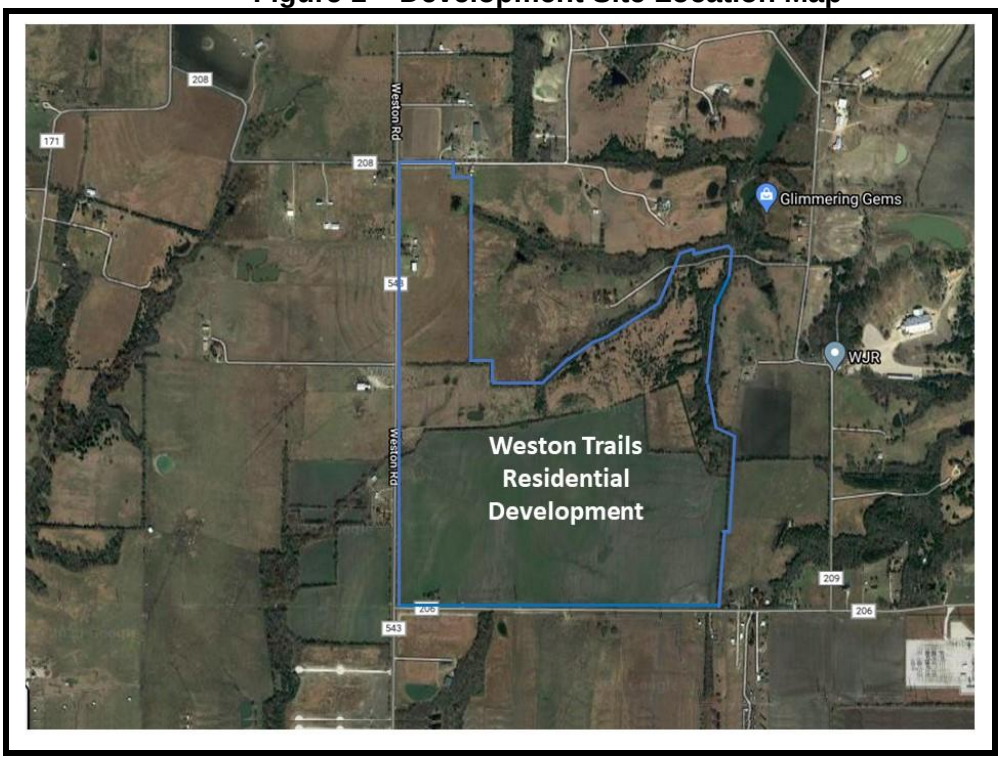


Figure 2 – Development Site Plan

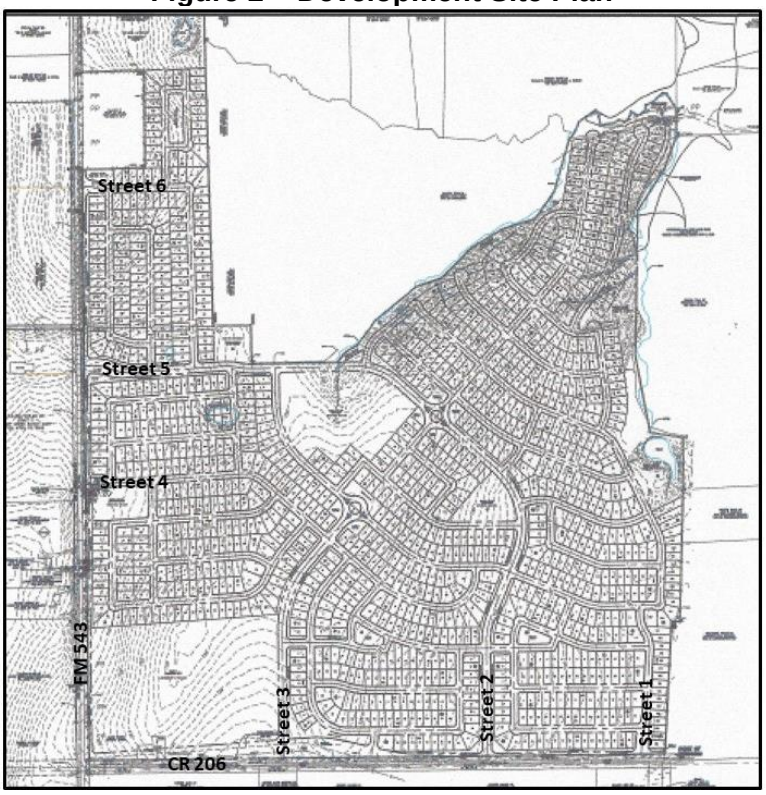


Table 1 – Development Site Construction Schedule

End of Year	# of Homes per year	Cum. # of Homes	Cum. # of PM Peak Hour Vehicle Trips
2021	213	213	211
2022	250	463	458
2023	250	713	706
2024	250	963	953
2025	272	1,235	1,223
Total	1235	1,235	1,223

The extent of the study area includes all six (6) of the proposed development access street intersections and the existing FM 543 and CR 206 intersection. These intersections are listed below and shown in **Figure 2**:

- CR 206 and FM 543
- CR 206 and Street 1
- CR 206 and Street 2
- CR 206 and Street 3
- FM 543 and Street 4
- FM 543 and Street 5
- FM 543 and Street 6

B. Existing Development

As shown in **Figure 1**, the site is currently undeveloped in a sparsely populated rural area. There are large lot, multi-acre, single family residences scattered throughout the area. The center of the small town of Weston is located approximately two miles north of the proposed development site.

III. EXISTING AND PROPOSED TRANSPORTATION SYSTEM

A. Thoroughfare System

FM 543 is currently a two-lane, north-south, undivided rural roadway from the Laud Howell Pkwy. connection to US 75 to the City of Weston. CR 206 is a two-lane, generally east-west, undivided rural roadway from FM 543 eastward and southward to connect with Weston Road. As shown in the Collin County Thoroughfare Plan, FM 543 and CR 206 are planned as six-lane, divided major arterials bordering on the west and south of the proposed development, respectively, of the proposed development. These two roadway facilities are highlighted by the red circle on the thoroughfare plan provided in **Appendix A**.

B. Existing Traffic Volumes

Vehicle traffic counts were obtained to establish existing traffic volumes in the vicinity of the six (6) development access street intersections with FM 543 and CR206. The vehicle counts were made on Thursday, August 13, at the intersection of FM 543 with CR 206 during the morning and afternoon peak traffic periods. The 2020 AM and PM peak hour traffic volume counts are provided in **Appendix B** and summarized in **Figure 3** at the end of this section.

C. Projected Traffic Volumes

Based on the home construction schedule and expected occupancy provided by the builder shown in **Table 1**, the traffic analysis years were determined. The first 213 homes are expected to be

constructed and occupied by the end of 2021. Thereafter, 250 homes per year are expected to be built and occupied until the last of the homes are completed and occupied by the end of 2025. At the request of the developer, the analyses of traffic conditions were conducted in the latter part of Year 2021, after the first 213 homes in Phase 1 of the development scheduled to be built and occupied, and at the end of Year 2025, when all 1235 homes are scheduled to be completed and occupied.

To determine the projected background traffic volumes, TxDOT AADT traffic count data was obtained for a count station on FM 543, south of CR 125 (the closest count station to the project site) and calculated the annual changes in traffic volumes (increases and decreases) to come up with an average annual percentages change. As shown in the **Table 1** calculations below, the 5-year annual growth rate in non-site traffic was calculated to be 3.14%; therefore, a growth rate of 3% was used. The projected non-site 2021 and 2024 AM and PM peak hour traffic volumes are shown in **Figure 4** through **Figure 7** at the end of this section. The calculations for determining the projected background traffic volumes are provided in **Appendix B**.

Table 1 – Total Growth to Analysis Years

5 Year Growth Rate of Average Daily Traffic (ADT) on FM 543 South of CR 125			
Year	ADT	Change	% Change
2015	1340		
2016	1433	93	6.94%
2017	1800	367	25.61%
2018	1800	0	0.00%
2019	1440	-360	-20.00%
Avg.			**3.14%**
Use			**3.00%**

V.SITE TRAFFIC CHARACTERISTICS

A. Proposed Site Traffic Generation

According to the 9th Edition of the ITE Trip Generation Manual, the AM weekday peak hour trip generation rate is 0.74 trips per dwelling unit and the PM weekday peak hour trip generation rate is 0.99 trips per dwelling unit. Since the PM peak hour will generate the most traffic and the existing non-site traffic was found to be relatively light, it was decided to only analyze the heavier PM peak hour traffic conditions. The proposed 1235 homes in the residential development will ultimately generate a total of 1223 vehicle trips in the PM peak hour. With a PM peak hour directional distribution of 63 % inbound and 37% outbound vehicles, the PM peak hour inbound and outbound trips, when the site is fully developed, will be 770 and 452, respectively. The PM peak hour trips generated by the residential development, for each of the analysis years, are shown below in **Table 2**.

Table 2 – Development Trip Generation

Year	Land Use	ITE Code	Dwelling Units	PM Peak Hour Trip Rate	PM Peak Hour Total Trips	PM Peak Hour Percent		PM Peak Hour Trips	
						In	Out	In	Out
2021	**SF Homes**	**150**	**213**	**0.99**	**211**	**63%**	**37%**	**133**	**78**
2025	**SF Homes**	**150**	**1235**	**0.99**	**1223**	**63%**	**37%**	**770**	**453**

B. Trip Distribution and Traffic Assignment

The directions of approach and departure for the development traffic during the PM peak hour period, were derived from examining the other existing residential developments within a 4-mile radius and their accessibility to the regional roadway system and the distribution of traffic from the traffic counts referenced in **Section III.B Existing Traffic Volumes**, above. Based on this

information, the estimated general approach and departure traffic patterns were developed for the proposed residential development site and are shown in **Table 3**.

Table 3 – Directional Distribution of Development Traffic

Directions	In	Out
	% From	% To
North	5%	5%
South	60%	60%
East	30%	30%
West	5%	5%
Total	100%	100%

Trips generated by the development were then assigned to the approaches of the intersections to be analyzed for the analysis years. The 2021 and 2025 AM and PM peak hour volumes are shown in **Figure 8** and **Figure 11,** at the end of this section

The projected AM and PM peak hour non-site traffic volumes and those that will be generated by the development at the intersections to be analyzed were combined for the two analysis years. These volumes are shown in **Figure 12** through **Figure 15** at the end of this section. The calculations for determining the combined projected Site + Non-Site traffic volumes are provided in **Appendix B**.

The traffic lane configurations and intersection traffic control were also determined and are displayed in **Figure 16** at the end of this section. The results were then tabulated, discussed, mitigation measures identified and applied if required, and capacity analyses re-run to verify acceptable operating levels of service, and conclusions developed to determine the impact of the added traffic.

Figure 3 – Existing 2020 AM &PM Peak Hour Traffic Volumes

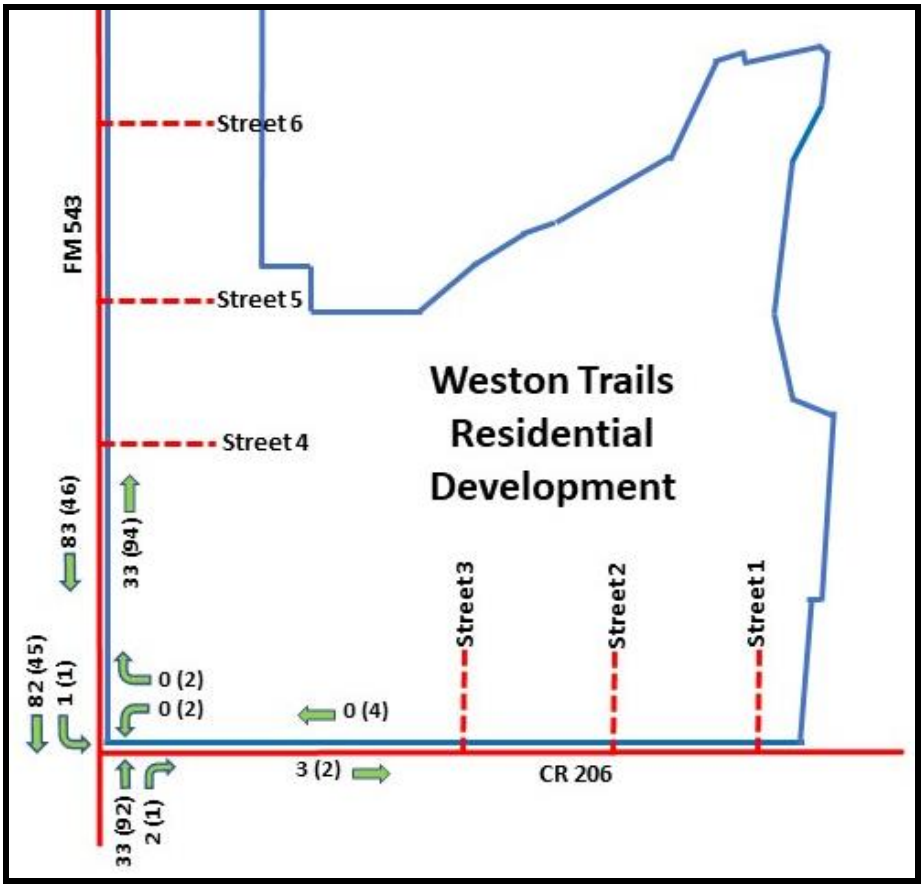


Figure 4 – AM Peak Hour Non-Site Traffic for Year 2021

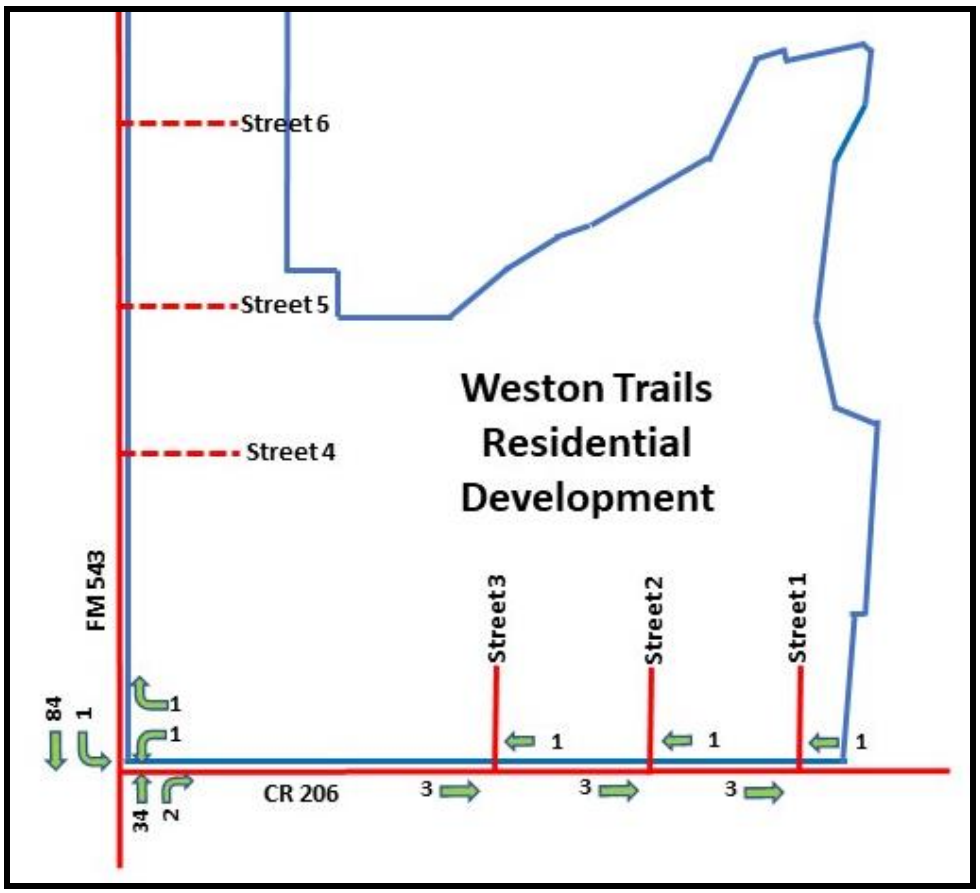


Figure 5 – PM Peak Hour Non-Site Traffic for Year 2021

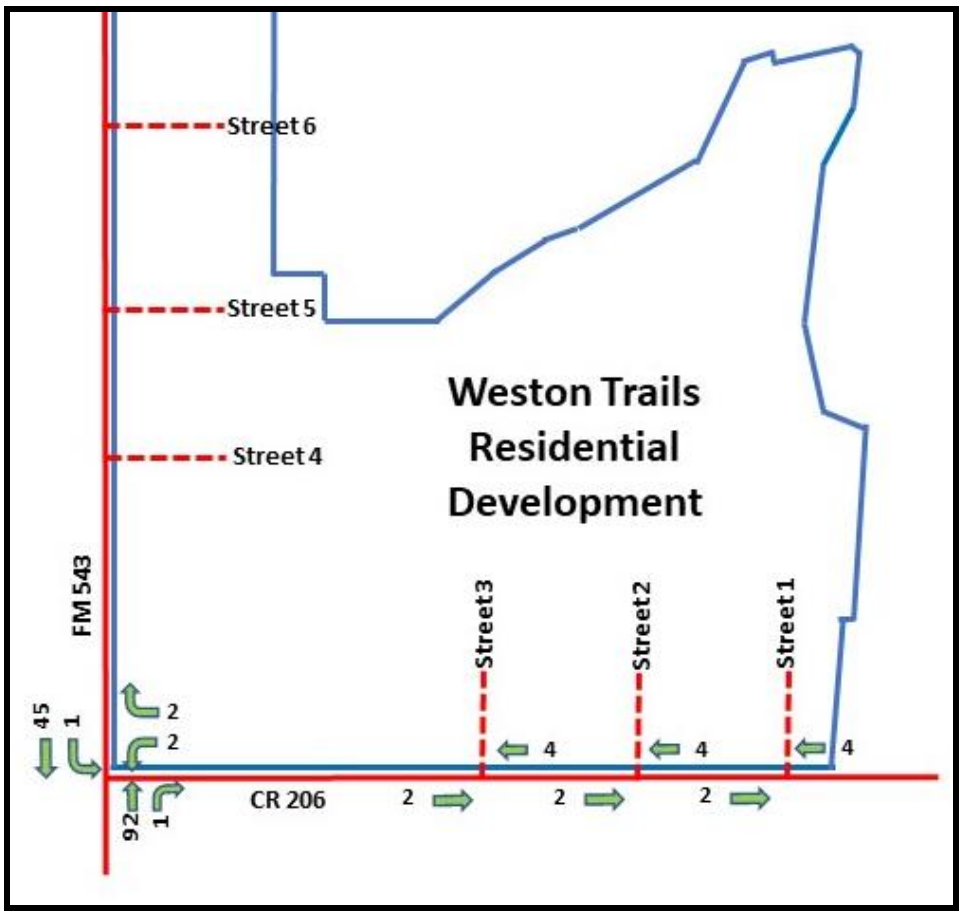


Figure 6 – AM Peak Hour Non-Site Traffic for Year 2025

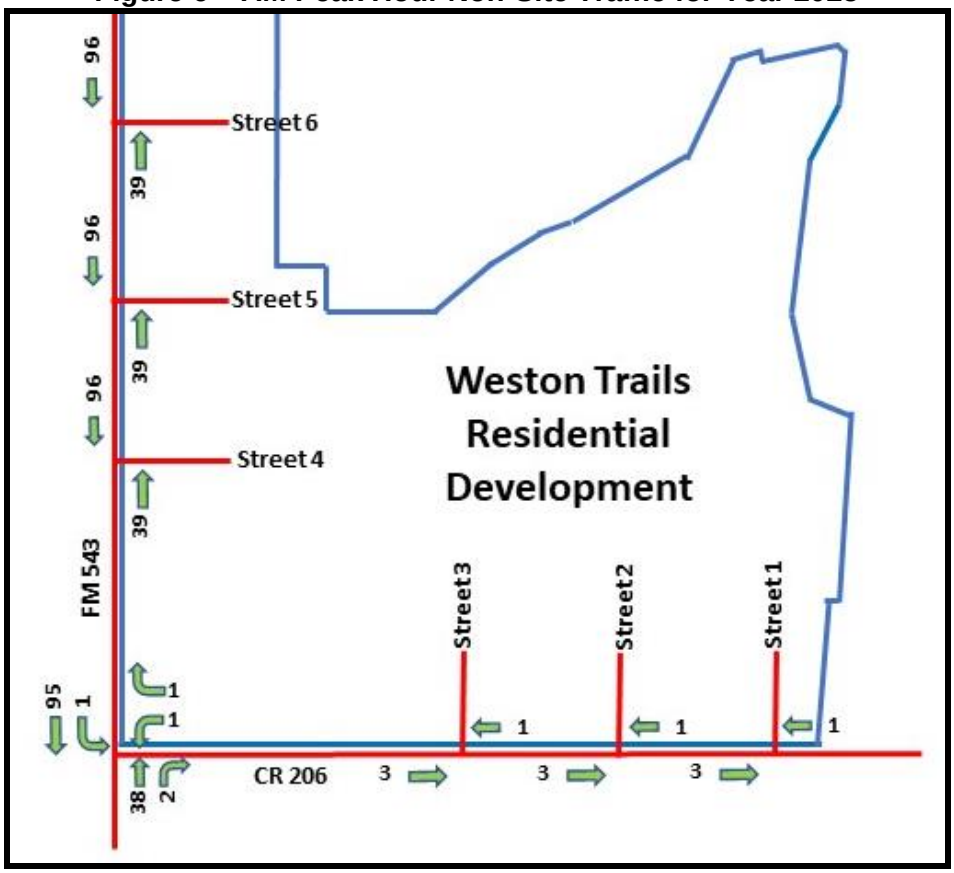


Figure 7 – PM Peak Hour Non-Site Traffic for Year 2025

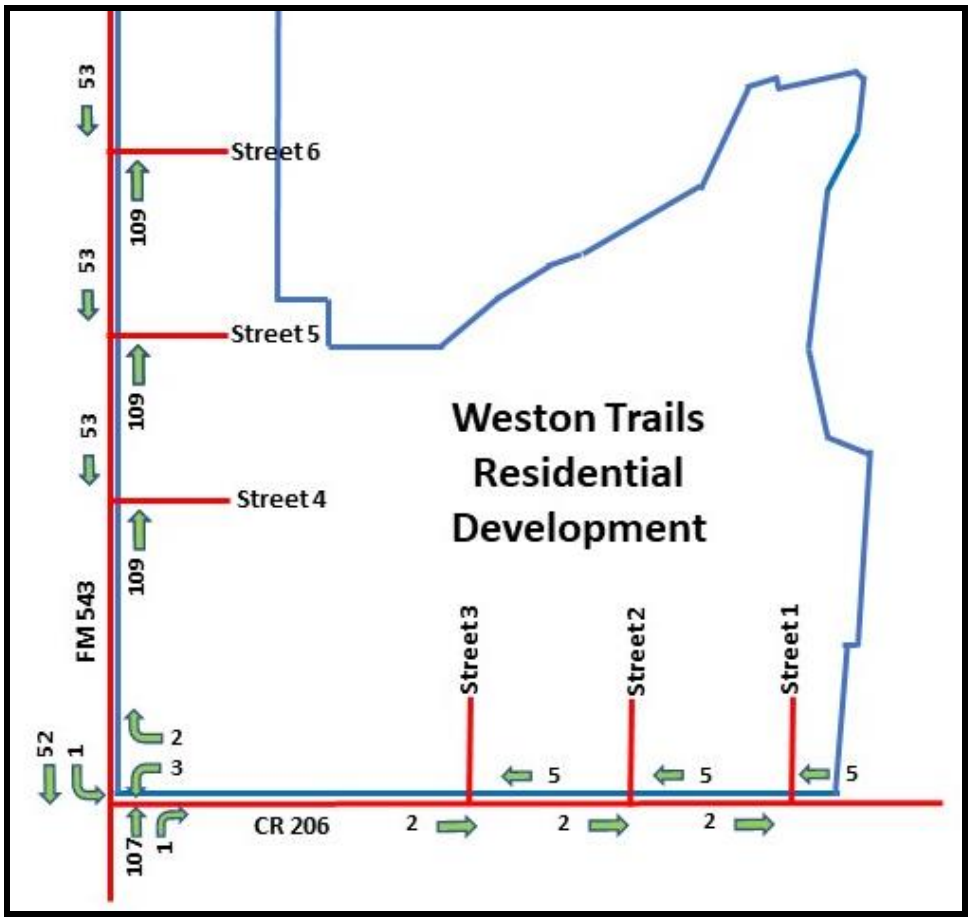


Figure 8 – AM Peak Hour Site Traffic for Year 2021

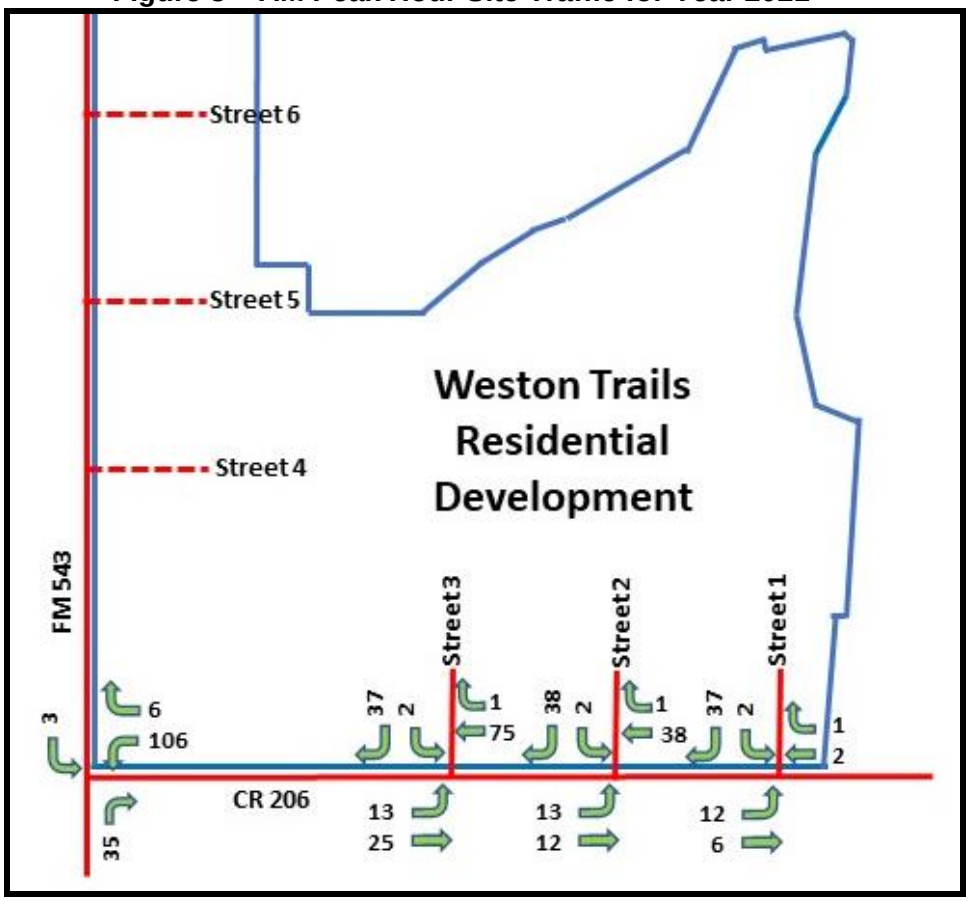


Figure 9 – PM Peak Hour Site Traffic for Year 2021

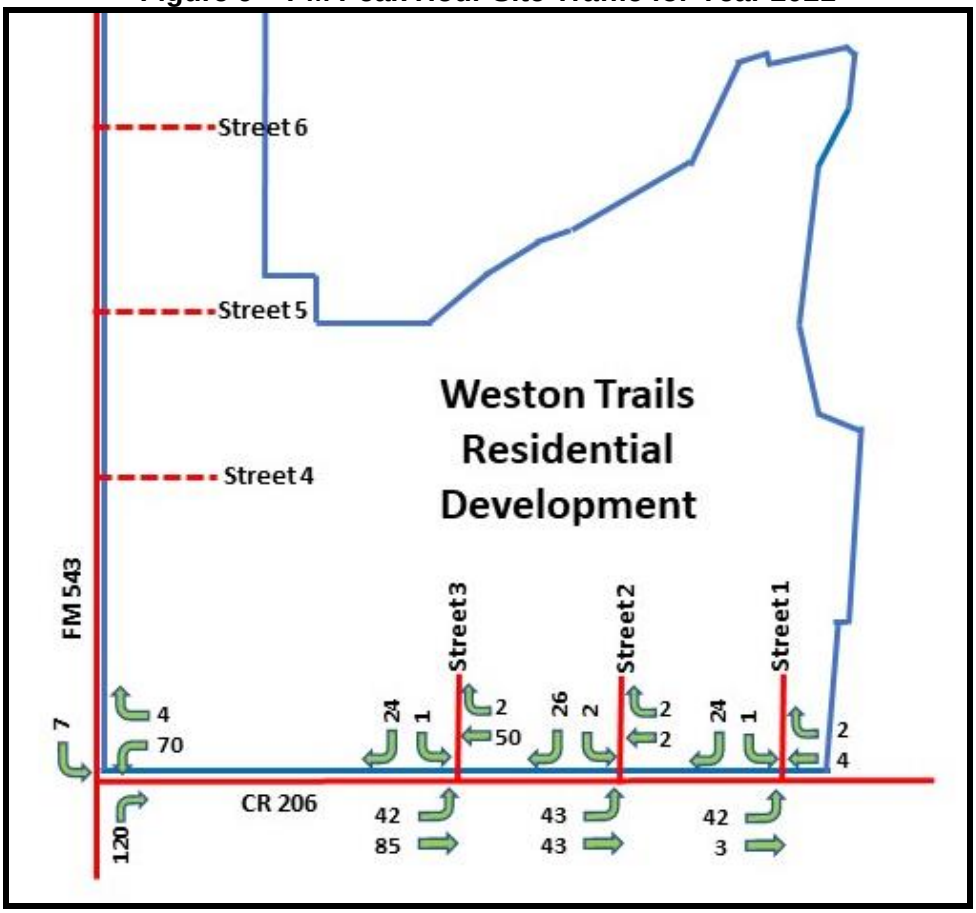


Figure 10 – AM Peak Hour Site Traffic for Year 2025

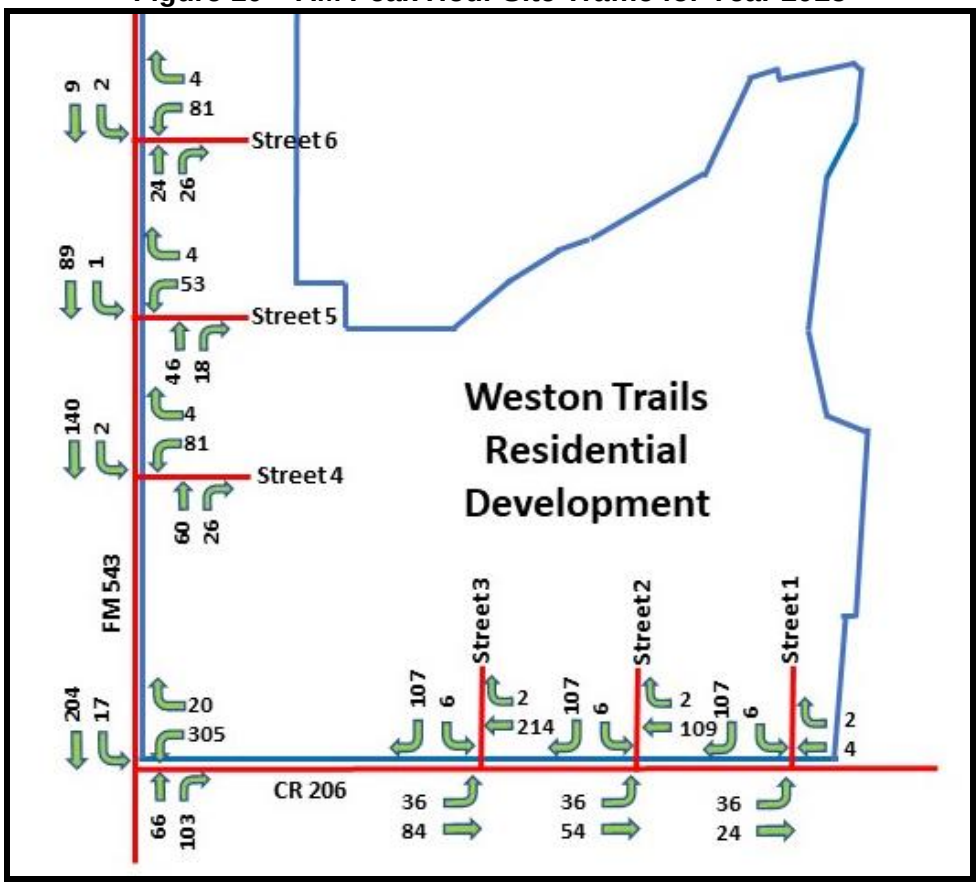


Figure 11 – PM Peak Hour Site Traffic for Year 2025

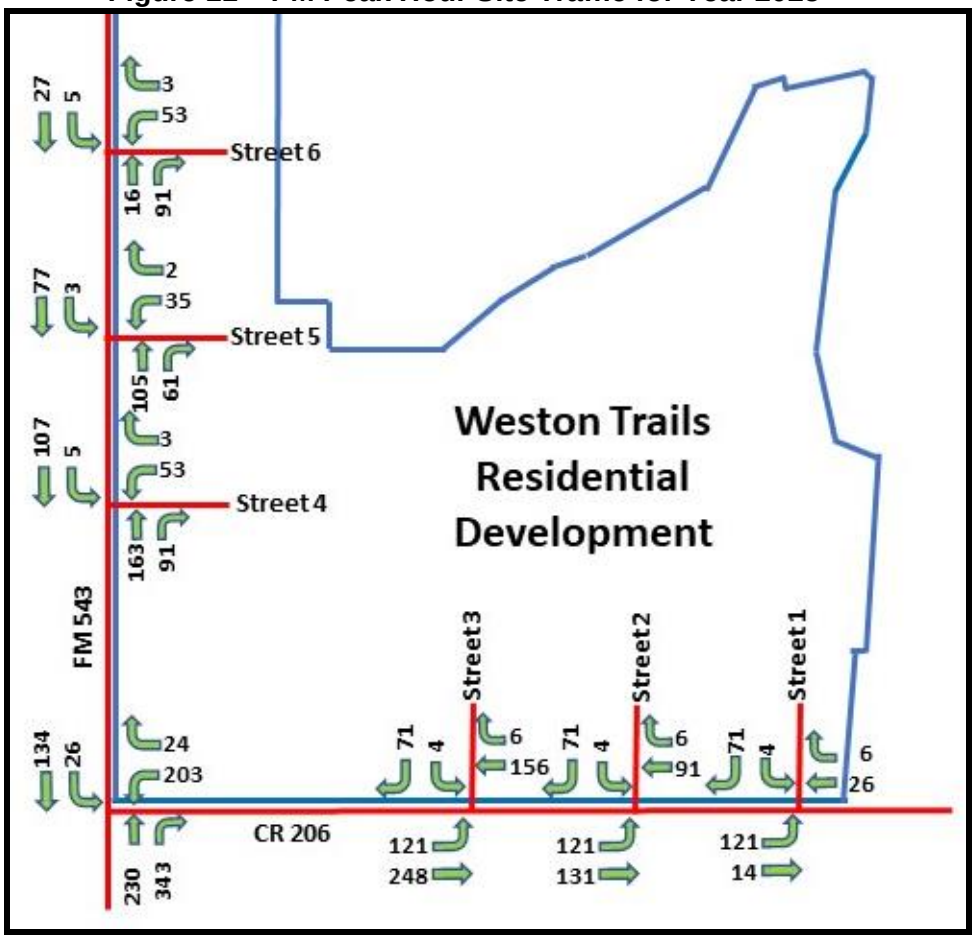


Figure 12 – AM Peak Hour Site + Non-Site Traffic for Year 2021

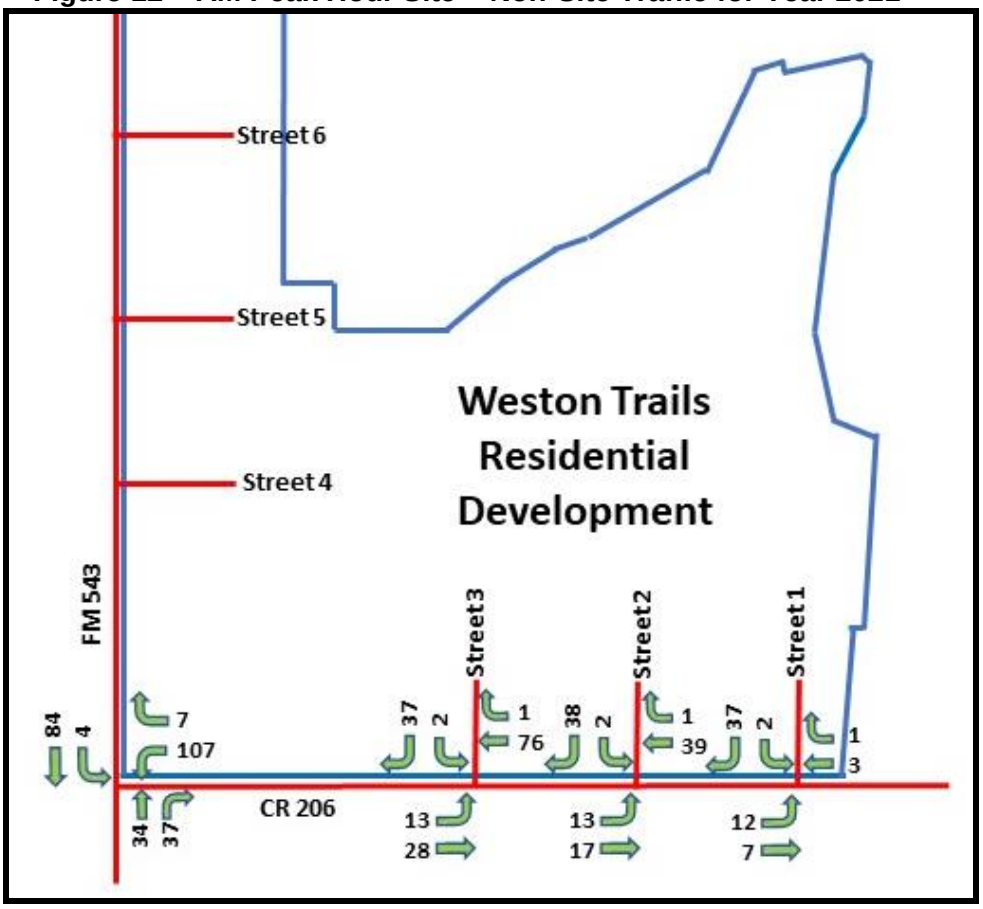


Figure 13 – PM Peak Hour Site + Non-Site Traffic for Year 2021

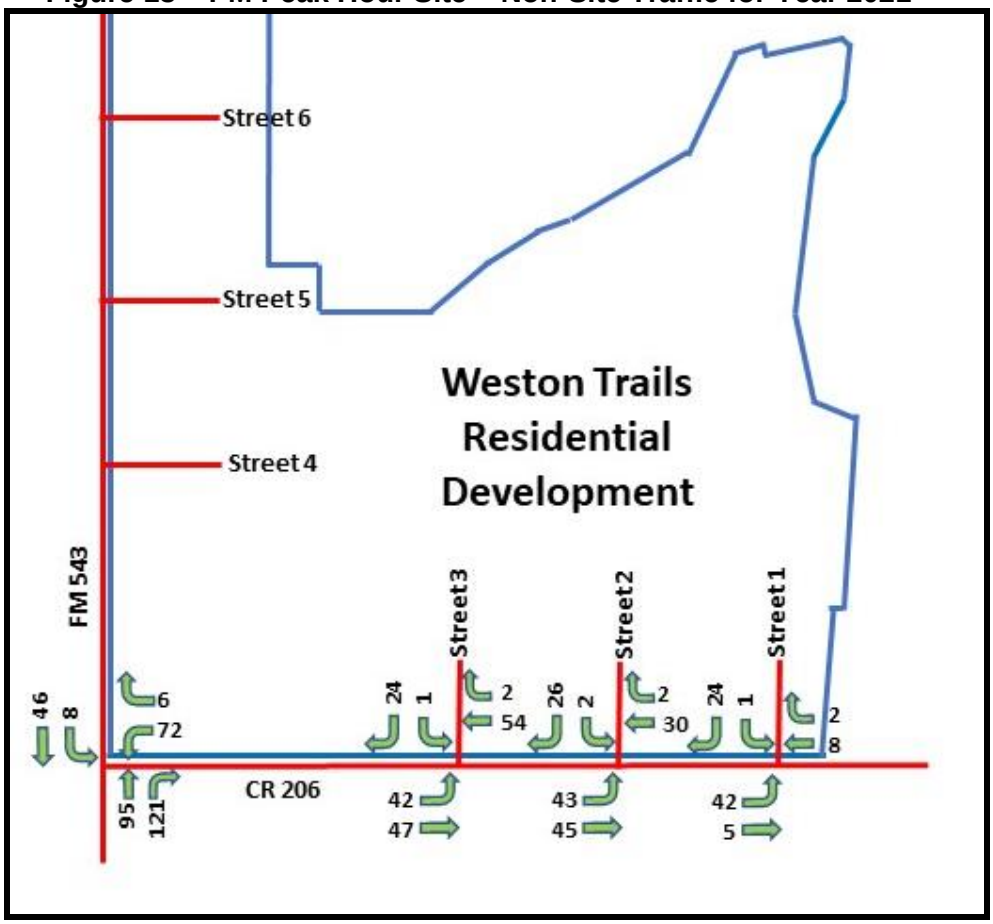


Figure 14 – AM Peak Hour Site + Non-Site Traffic for Year 2025

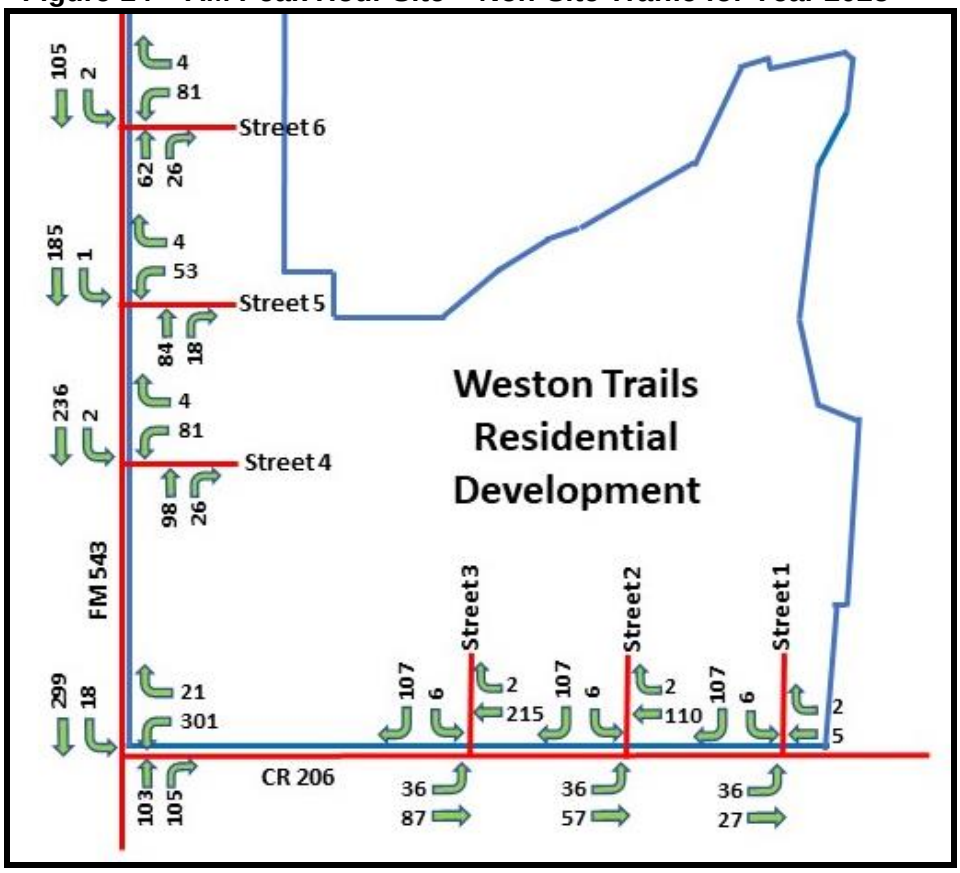


Figure 15 – PM Peak Hour Site + Non-Site Traffic for Year 2025

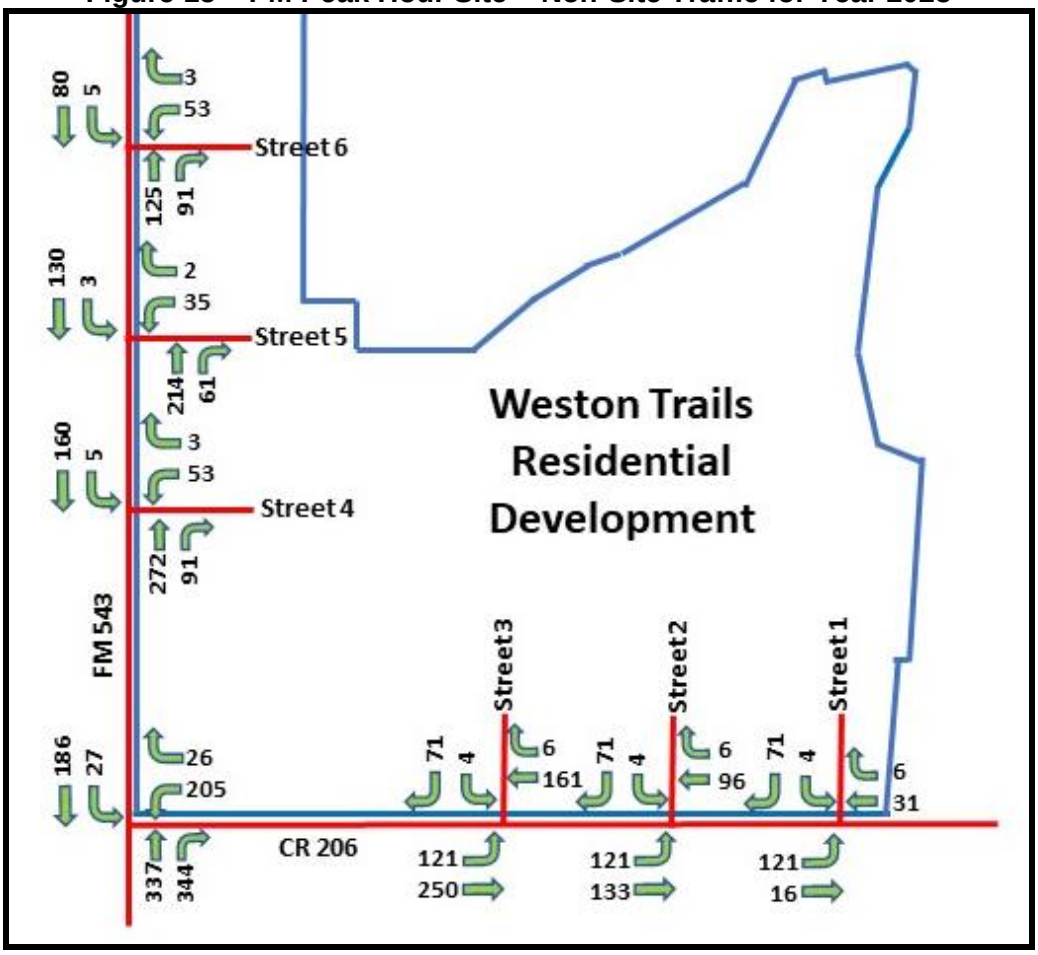
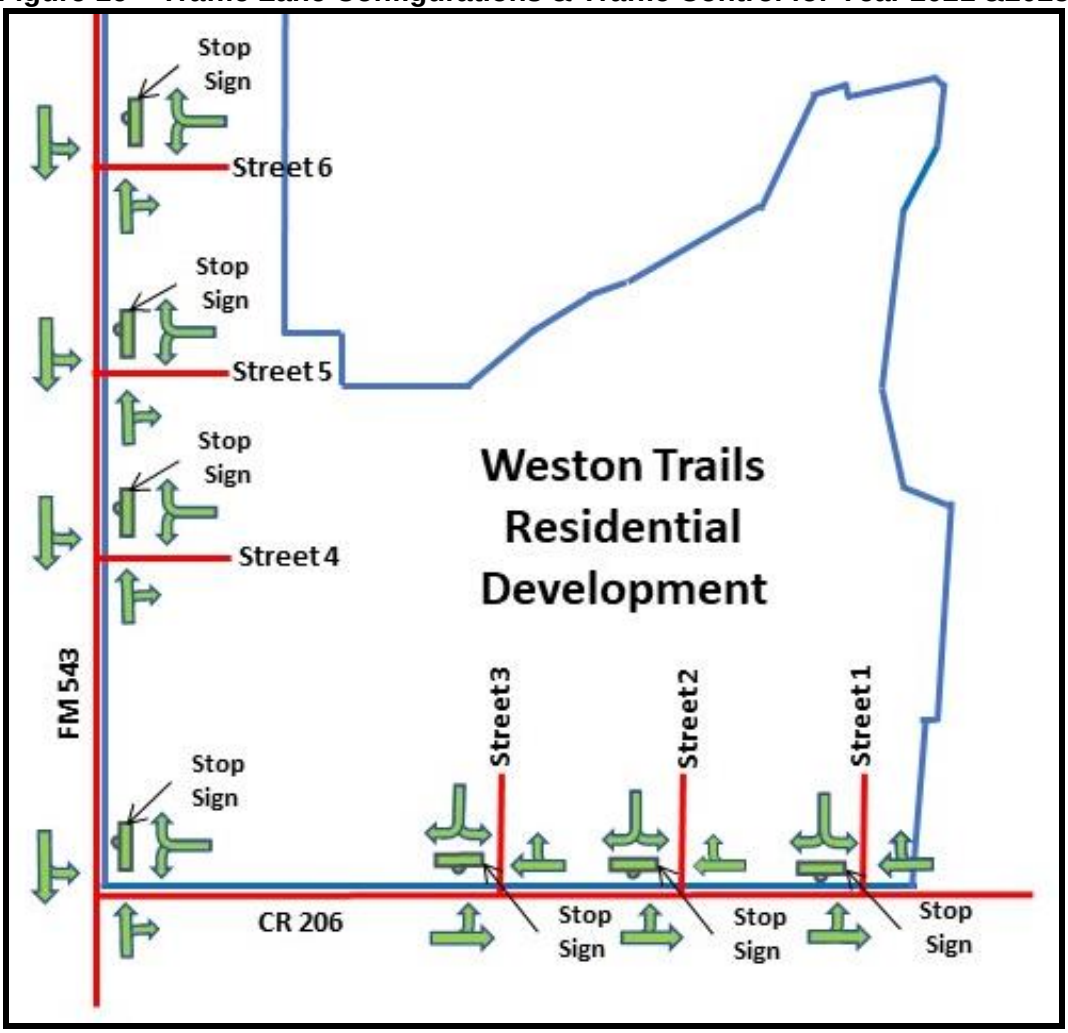


Figure 16 – Traffic Lane Configurations & Traffic Control for Year 2021 &2025



V. TRAFFIC ANALYSIS AND MITIGATION

A. Level of Service Evaluations

The analysis of impacts is measured in terms of traffic operating level of service (LOS). According to the Highway Capacity Manual (HCM), capacity is defined as the maximum number of vehicles that can be expected to travel on a given section of roadway or a specific lane during a given period under prevailing traffic conditions. The operational conditions of roadways are measured in terms of "Level of Service" (LOS). Level of Service 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 levels of service (LOS) or capacity conditions for each roadway facility and they are designated from "A" to "F", with "A" representing an optimal, free-flow condition, and "F" representing a congested, forced flow condition. These Delay/LOS relationships are shown in **Table 4** for intersections with stop sign and traffic signal control

Table 4 Relationship between Delay and LOS

Average Vehicle Delay (Seconds) per Vehicle for Stop Controlled Intersections	LOS (Vol./Cap. Ratio)
	< or = to 1
< or = to 10	A
>10 & < or = 15	B
>15 & < or = 25	C
>25 & < or = 35	D
>35 & <or = 50	E
>50	F
Average Vehicle Delay (Seconds) Per Vehicle for Signalized Intersections	**LOS (Vol./Cap. Ratio)**
	<or = to 1
< or = to 10	A
>10 & < or = 20	B
>20 & < or = 35	C
>35 & < or = 55	D
>55 & <or = 80	E
>80	F

The projected PM peak hour non-site traffic volumes in the latter part of 2021 were added to the volumes that will be generated by homes built and occupied in Phase 1 of the development in the same year, as shown in **Figure 8**, and the intersections analyzed, applying the expected lane configurations and traffic control shown in **Figure 10**. It should be noted that, where heavy turning volumes were expected to enter the development, separate right turn lanes were assumed to be added. The traffic information was then entered as input data into Trafficware's "Synchro" traffic analysis software package, for conditions that included the traffic added by the proposed development. A summary of the analysis results is shown in **Table 5.**

Table 5 – Year 2021 AM & PM Peak Hour Site + Non-Site Traffic Analysis Results

Intersection		AM / PM Peak Hour No Mitigation)			AM / PM Peak Hour (W / Mitigation)		
		Intersection LOS	Approach	Approach LOS	Mitigation	Intersection LOS	Approach LOS
CR 206	FM543	A / A	WB	B / B	None Required		
			NB	A / A			
			SB	A / A			
CR 206	Street 1	A / A	EB	A / A	None Required		
			WB	A / A			
			SB	A / A			
CR 206	Street 2	A / A	EB	A / A	None Required		
			WB	A / A			
			SB	A / A			
CR 206	Street 3	A / A	EB	A / A	None Required		
			WB	A / A			
			SB	A / A			

As can be seen from the results in **Table 5,** the traffic operations in latter part of 2021, for the intersections analyzed, are all estimated to operate at LOS B, or better. All intersection approaches are estimated to operate at LOS B or better. The detailed analysis work sheets are provided in **Appendix C1**.

Next, the PM peak hour non-site traffic volumes in 2025, at the time of full development, were added to the volumes that will be generated by the development, as shown in **Figure 9**, and the intersections analyzed with the lane configurations and traffic control shown in **Figure 11**. A summary of the analysis results is shown in **Table 6**.

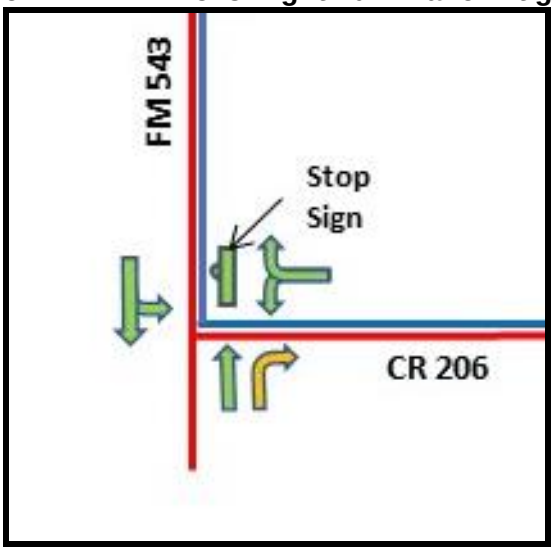
Table 6 – Year 2025 AM & PM Peak Hour Site + Non-Site Traffic Analysis Results

AM & PM Peak Hour (Without Mitigation)					AM & PM Peak Hour (With Mitigation)		
Intersection		**Intersection LOS**	**Approach**	**Approach LOS/**	**Mitigation**	**Intersection LOS**	**Approach LOS**
CR 206	FM 543	A / A	WB	D / E	Northbound Right Turn Lane Added	A / A	C / C
			NB	A / A			A / A
			SB	A / A			A / A
CR 206	Street 1	A / A	EB	A / A	None Required		
			WB	A / A			
			SB	A / A			
CR 206	Street 2	A / A	EB	A / A	None Required		
			WB	A / A			
			SB	A / A			
CR 206	Street 3	A / A	WB	A / A	None Required		
			NB	A / A			
			SB	B / B			
CR 206	Street 4	A / A	WB	B / B	None Required		
			NB	A / A			
			SB	A / A			
CR 206	Street 5	A / A	WB	B / B	None Required		
			NB	A / A			
			SB	A / A			
CR 206	Street 6	A / A	WB	B / B	None Required		
			NB	A / A			
			SB	A / A			

As can be seen from the unmitigated results in **Table 6,** the traffic operations in 2025, for the intersections and intersection approaches analyzed, are all estimated to operate at LOS C, or better, except for an LOS D and E for the westbound approach of CR 206 at the FM 543 intersection in the AM and PM peak traffic hours, respectively. The detailed analysis work sheets are provided in **Appendix C2**.

Given the undesirable level of service on the westbound approach of CR 206 at FM 543 intersections, mitigation measures known to address this condition was tested. The mitigation was to add a separate right turn lane on the northbound approach of FM 543. Since NB is free flow, separating the heavy RTs out eliminates the conflict between them and the WB approach. Now WB only must find gaps in the NB thru traffic. The proposed mitigation measure is shown in orange in **Figure 12** and the results of the analyses are shown in the AM and PM Peak Hours (With Mitigation) section of **Table 6**. The detailed analysis work sheets are shown in **Appendix C3**.

Figure 12 – NB FM 543 Right Turn Lane Mitigation



B. Analysis of Development Access Street Intersection Turn Lane Requirements

Given the uncertainty of the schedule of roadway improvements+ associated with the City of Weston and Collin County Thoroughfare Plans, as discussed in **Section III.A**, the need for turn lanes on FM 543 and CR 206 to serve the development access was examined for the proposed access schemes. The analysis of development access turn lanes using the Texas Department of Transportation (TxDOT) Access Management Manual and Roadway Design Manual, which contains criteria for right and left turn lanes on highways, was applied to the proposed development site. Chapter 2, Access Management Standards, in the Access Management Manual and Chapter 3, New Location and Reconstruction (4R) Design Criteria, in the Roadway Design Manual, present thresholds for these auxiliary lanes. The relevant sections of these documents referenced in the following discussions are provided in **Appendix D**.

Right Turn Lane Requirements - For right turn lanes, Table 2-3, on page 2-14 of the TxDOT Access Management Manual indicates that the threshold for right-turn deceleration lanes on roadways with posted speed limits above 45 mph is 50 vehicles per hour (vph). **Table 7** shows the right-turn volumes at the street or driveway that exceed the hourly threshold for the 2021 and 2025 analysis year.

Table 7 – Year 2021 & 2025 AM & PM Peak Hour Right Turn Lane Needs

Intersection	Approach		Posted Speed	Hourly Threshold	AM RT Volume		PM RT Volume	
	2021	2025			2021	2025	2021	2025
FM 543 @ CR 206	NB	NB	55 mph	50 vph	---	105	121*	344
FM 543 @ Street 4	--	NB	55 mph	50 vph	--	--	--	91
FM543 @ Street 5	--	NB	55 mph	50 vph	--	--	--	61
FM 543 @ Street 6	--	NB	55 mph	50 vph	--	--	--	91

Applying TxDOT criteria, the information in this **Table 7** indicates that a northbound right turn lane will be warranted in the PM peak hour in 2021, with the completion of Phase 1; however, the HCM intersection capacity analysis results shows that LOS A traffic conditions will exist at that intersection. In addition, the TxDOT criteria is shown to warrant right turn lanes on the northbound approach of FM543 at CR 206 in both the 2025 AM and PM peak hours, as well as the northbound approaches of FM 543 at Streets 4, 5, and 6 in the PM peak hour, while HCM capacity analysis indicates that the northbound approach of FM 543 at Streets 4, 5, and 6 will achieve LOS A without a separate right turn lane and only shows the need in the 2025 PM peak hour on the northbound approach of FM 543 at CR 206.

Left Turn Lane Requirements – Applying TxDOT criteria and based on PM peak hour Site + Non-Site traffic volumes for buildout year 2025, shown in **Figure 15**; the need for separate left turn lanes, were evaluated for traffic southbound on FM 543 and eastbound on CR 206 to enter the proposed development. Based on the HCM intersection analysis results and the low left turn volumes, year 2021 left turn needs for eastbound CR 206 were not analyzed. The results of these evaluations are shown in **Table 8**.

Table 8 – Year 2025 PM Peak Hour Left Turn Lane Needs Analysis

Intersection	Advancing Volume	Percent Left Turns	Opposing Volume	Table Value	Table Value More or Less	Left Turn Lane Warranted
CR 206 @ Street 1	137	88	31	240+	More	No
CR 206 @ Street 2	254	48	96	240+	Less	Yes
CR 206 @ Street 3	371	33	161	215+	Less	Yes
FM 543 @ Street 4	165	3	272	450+	More	No
FM 543 @ Street 5	133	2	214	450+	More	No
FM 543 @ Street 6	85	6	125	505	More	No

Applying the traffic information in these figures to Table 3-11, on page 3-37 of the TxDOT Roadway Design Manual provided in **Appendix D** to the volumes shown in **Figure 15**, it can be seen that only two of the estimated Year 2025 advancing volumes are higher than the left turn table values, while HCM capacity analysis LOS results in **Table 6**, don't show any need for left turn lanes in the 2025 PM peak hour.

VI. CONCLUSIONS AND RECOMMENDATIONS

A. Conclusions

Based upon the Analysis Findings described above, the following conclusions can be drawn.

Intersection Levels of Service – The overall intersection Levels of Service (LOSs) at the seven intersections analyzed for the AM and PM peak hours with Year 2021 and Year 2025 traffic conditions, development traffic added, and no mitigation; were found to be all at LOS A.

Approach Levels of Service - On an approach basis, the only approach that had an LOS below C was the westbound approach of the intersection of FM 543 and CR 206, with an LOS D in the AM peak hour and an LOS E in the PM peak hour and Year 2025 traffic conditions. This condition is expected to be alleviated by the addition of a northbound right turn lane at that intersection. Since the northbound traffic is free flow, separating the heavy right turns out eliminates the conflict between them and the westbound approach so that the westbound approach traffic only must find gaps in the northbound thru traffic.

Right Turn Lane Requirements - Based on the TxDOT criteria, northbound right turn lanes are expected to be warranted by development buildout Year 2025 at the FM 543 intersections with CR 206 and development access Streets 4, 5, and 6 by Year 2025. However, as explained in the above Approach Level of Service section of the Conclusions, the HCM capacity analysis LOS results only show a need for a northbound right turn lane at the intersection of FM 543 and CR 206 in the 2025 AM & PM peak hour.

Left Turn Lane Requirements **-** Based on TxDOT roadway design manual criteria, no left turn lanes are expected to be needed for Phase 1 of the development in 2021. Left turn lanes are shown to be warranted on eastbound CR 206 at development access Streets 2 and 3 at the development buildout Year 2025. However, HCM capacity analysis LOS results don't show any need for separate left turn lanes in 2025.

Driveway Location and Spacing - The driveway spacings meet TxDOT access management spacing criteria of 425 feet on FM 543 and CR 206 for the posted speed limits.

Sight Distances **-** The generally flat terrain and straight roadway alignments in both directions from the proposed development driveways will provide the required intersection sight distances.

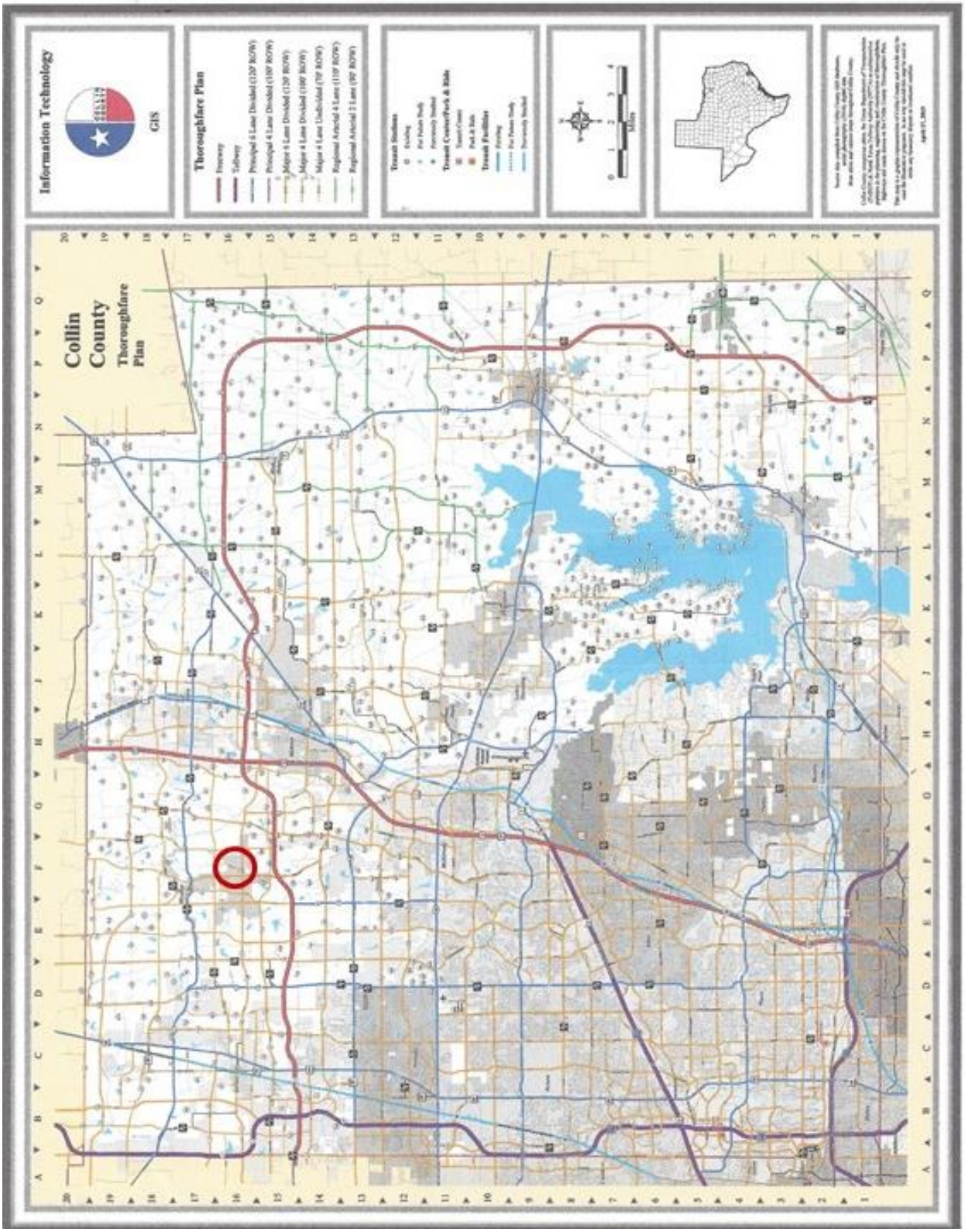
B. Recommendations

During the initial stages of development construction, existing traffic lanes and stop sign control at the development access streets intersections with FM 543 are expected to be adequate. However, an additional northbound right turn traffic lane at the intersections FM 543 and CR 206 appears to be needed when the development is built out and occupied. Never the less, given these findings and the uncertainty of the schedule of roadway improvements associated with the City of Weston and Collin County Thoroughfare Plans, the need for mitigation measures should be verified with up-to-date signal warrant studies and intersection capacity analyses, with traffic counts, as the buildout year approaches or if traffic conditions deteriorate to the point that mitigation measures appear to be needed earlier than expected.

Appendices

Appendix A

Thoroughfare Plan Map


Information Technology
GIS
Thoroughfare Plan
Collin County
Thoroughfare Plan

Appendix B

Existing Traffic Volume Counts
and
2021 & 2025
AM & PM Peak Period Traffic Volumes

2020 AM Peak Hour Traffic Volumes

Leg	FM 543		CR 206		FM 543	
Direction	Southbound		Westbound		Northbound	
Start Time	Thru	Left	Right	Left	Right	Thru
2020-08-13 07:30:00	11	0	0	1	0	13
2020-08-13 07:45:00	16	0	1	0	0	16
2020-08-13 08:00:00	12	0	0	1	0	5
2020-08-13 08:15:00	10	0	0	1	3	11
Grand Total	**49**	**0**	**1**	**3**	**3**	**45**

2020 PM Peak Hour Traffic Volumes

Leg	FM 543		CR 206		FM 543	
Direction	Southbound		Westbound		Northbound	
Start Time	Thru	Left	Right	Left	Right	Thru
2020-08-13 17:15:00	14	1	0	1	0	11
2020-08-13 17:30:00	15	0	1	0	1	12
2020-08-13 17:45:00	18	0	1	0	1	16
2020-08-13 18:00:00	12	0	0	1	1	16
Grand Total	**59**	**1**	**2**	**2**	**3**	**55**

2021 & 2025 AM Peak Hour Non-Site & Weston Trails Residential

AM Peak Hour Volumes - CR 206 / Weston Trails Residential Street 1

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
EBL	1.03	1.16	0	0	0	12	36	12	36
EBT	1.03	1.16	3	3	3	4	24	7	27
WBT	1.03	1.16	1	1	1	2	4	3	5
WBR	1.03	1.16	0	0	0	1	2	1	2
SBL	1.03	1.16	0	0	0	2	6	2	6
SBR	1.03	1.16	0	0	0	37	107	37	107

AM Peak Hour Volumes - CR 206 / Weston Trails Residential Street 2

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
EBL	1.03	1.16	0	0	0	13	36	13	36
EBT	1.03	1.16	3	3	3	14	54	17	57
WBT	1.03	1.16	1	1	1	38	109	39	110
WBR	1.03	1.16	0	0	0	1	2	1	2
SBL	1.03	1.16	0	0	0	2	6	2	6
SBR	1.03	1.16	0	0	0	38	107	38	107

AM Peak Hour Volumes - CR 206 / Weston Trails Residential Street 3

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
EBL	1.03	1.16	0	0	0	13	36	13	36
EBT	1.03	1.16	3	3	3	25	84	28	87
WBT	1.03	1.16	1	1	1	75	214	76	215
WBR	1.03	1.16	0	0	0	1	2	1	2
SBL	1.03	1.16	0	0	0	2	6	2	6
SBR	1.03	1.16	0	0	0	37	107	37	107

AM Peak Hour Volumes - CR 206 / FM 543

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
WBL	1.03	1.16	1	1	1	106	305	107	306
WBR	1.03	1.16	1	1	1	6	20	7	21
NBT	1.03	1.16	33	34	38	0	66	34	104
NBR	1.03	1.16	2	2	2	35	103	37	105
SBL	1.03	1.16	1	1	1	3	17	4	18
SBT	1.03	1.16	82	84	95	0	204	84	299

AM Peak Hour Volumes - FM 543 / Street 4

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
WBL	1.03	1.16	0	0	0	0	81	0	81
WBR	1.03	1.16	0	0	0	0	4	0	4
NBT	1.03	1.16	33	34	38	0	60	34	98
NBR	1.03	1.16	0	0	0	0	26	0	26
SBL	1.03	1.16	0	0	0	0	2	0	2
SBT	1.03	1.16	83	85	96	0	140	85	236

AM Peak Hour Volumes - FM 543 / Residential Street 5

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
WBL	1.03	1.16	0	0	0	0	53	0	53
WBR	1.03	1.16	0	0	0	0	4	0	4
NBT	1.03	1.16	33	34	38	0	46	34	84
NBR	1.03	1.16	0	0	0	0	18	0	18
SBL	1.03	1.16	0	0	0	0	1	0	1
SBT	1.03	1.16	83	85	96	0	89	85	185

AM Peak Hour Volumes - FM 543 / Street 6

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
WBL	1.03	1.16	0	0	0	0	81	0	81
WBR	1.03	1.16	0	0	0	0	4	0	4
NBT	1.03	1.16	33	34	38	0	24	34	62
NBR	1.03	1.16	0	0	0	0	26	0	26
SBL	1.03	1.16	0	0	0	0	2	0	2
SBT	1.03	1.16	83	85	96	0	9	85	105

2021 & 2025 PM Peak Hour Non-Site & Weston Trails Residential

PM Peak Hour Volumes - CR 206 / Weston Trails Residential Street 1

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
EBL	1.03	1.16	0	0	0	42	121	42	121
EBT	1.03	1.16	2	2	2	3	14	5	16
WBT	1.03	1.16	4	4	5	4	26	8	31
WBR	1.03	1.16	0	0	0	2	6	2	6
SBL	1.03	1.16	0	0	0	1	4	1	4
SBR	1.03	1.16	0	0	0	24	71	24	71

PM Peak Hour Volumes - CR 206 / Weston Trails Residential Street 2

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
EBL	1.03	1.16	0	0	0	43	121	43	121
EBT	1.03	1.16	2	2	2	43	131	45	133
WBT	1.03	1.16	4	4	5	26	91	30	96
WBR	1.03	1.16	0	0	0	2	6	2	6
SBL	1.03	1.16	0	0	0	2	4	2	4
SBR	1.03	1.16	0	0	0	26	71	26	71

PM Peak Hour Volumes - CR 206 / Weston Trails Residential Street 3

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
EBL	1.03	1.16	0	0	0	42	121	42	121
EBT	1.03	1.16	2	2	2	85	248	87	250
WBT	1.03	1.16	4	4	5	50	156	54	161
WBR	1.03	1.16	0	0	0	2	6	2	6
SBL	1.03	1.16	0	0	0	1	4	1	4
SBR	1.03	1.16	0	0	0	24	71	24	71

PM Peak Hour Volumes - CR 206 / FM 543

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
WBL	1.03	1.16	2	2	2	70	203	72	205
WBR	1.03	1.16	2	2	2	4	24	6	26
NBT	1.03	1.16	92	95	107	0	230	95	337
NBR	1.03	1.16	1	1	1	120	343	121	344
SBL	1.03	1.16	1	1	1	7	26	8	27
SBT	1.03	1.16	45	46	52	0	134	46	186

PM Peak Hour Volumes - FM 543 / Street 4

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
WBL	1.03	1.16	0	0	0	0	53	0	53
WBR	1.03	1.16	0	0	0	0	3	0	3
NBT	1.03	1.16	94	97	109	0	163	97	272
NBR	1.03	1.16	0	0	0	0	91	0	91
SBL	1.03	1.16	0	0	0	0	5	0	5
SBT	1.03	1.16	46	47	53	0	107	47	160

PM Peak Hour Volumes - FM 543 / Residential Street 5

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
WBL	1.03	1.16	0	0	0	0	35	0	35
WBR	1.03	1.16	0	0	0	0	2	0	2
NBT	1.03	1.16	94	97	109	0	105	97	214
NBR	1.03	1.16	0	0	0	0	61	0	61
SBL	1.03	1.16	0	0	0	0	3	0	3
SBT	1.03	1.16	46	47	53	0	77	47	130

PM Peak Hour Volumes - FM 543 / Street 6

Movement	2021 Multiplier	2025 Multiplier	Non-site			Site		N-S + WTR Site	
			2020	2021	2025	2021	2025	2021	2025
WBL	1.03	1.16	0	0	0	0	53	0	53
WBR	1.03	1.16	0	0	0	0	3	0	3
NBT	1.03	1.16	94	97	109	0	16	97	125
NBR	1.03	1.16	0	0	0	0	91	0	91
SBL	1.03	1.16	0	0	0	0	5	0	5
SBT	1.03	1.16	46	47	53	0	27	47	80

Appendix C

Capacity Analysis Worksheets

Appendix C1

2021 AM & PM Traffic Conditions with Phase 1 Development

HCM 6th TWSC
1: FM 543 & CR 206 AM 2021 Site + Non-Site

Intersection	
Int Delay, s/veh	4.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	107	7	34	37	4	84
Future Vol, veh/h	107	7	34	37	4	84
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	116	8	37	40	4	91

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	156	57	0	0	77	0
Stage 1	57	-	-	-	-	-
Stage 2	99	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	835	1009	-	-	1522	-
Stage 1	966	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	832	1009	-	-	1522	-
Mov Cap-2 Maneuver	832	-	-	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	925	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	841	1522	-
HCM Lane V/C Ratio	-	-	0.147	0.003	-
HCM Control Delay (s)	-	-	10	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-

HCM 6th TWSC
2: CR 206 & Street 1 AM 2021 Site + Non-Site

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↑		⋔	
Traffic Vol, veh/h	12	7	3	1	2	37
Future Vol, veh/h	12	7	3	1	2	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	8	3	1	2	40

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	4	0	-	0	38	4
Stage 1	-	-	-	-	4	-
Stage 2	-	-	-	-	34	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1618	-	-	-	974	1080
Stage 1	-	-	-	-	1019	-
Stage 2	-	-	-	-	988	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1618	-	-	-	966	1080
Mov Cap-2 Maneuver	-	-	-	-	966	-
Stage 1	-	-	-	-	1011	-
Stage 2	-	-	-	-	988	-

Approach	EB	WB	SB
HCM Control Delay, s	4.6	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1618	-	-	-	1074
HCM Lane V/C Ratio	0.008	-	-	-	0.039
HCM Control Delay (s)	7.2	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC
3: CR 206 & Street 2 AM 2021 Site + Non-Site

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↑		⋔	
Traffic Vol, veh/h	13	17	39	1	2	38
Future Vol, veh/h	13	17	39	1	2	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	18	42	1	2	41

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	43	0	-	0	89	43
Stage 1	-	-	-	-	43	-
Stage 2	-	-	-	-	46	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1566	-	-	-	912	1027
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	976	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1566	-	-	-	904	1027
Mov Cap-2 Maneuver	-	-	-	-	904	-
Stage 1	-	-	-	-	970	-
Stage 2	-	-	-	-	976	-

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1566	-	-	-	1020
HCM Lane V/C Ratio	0.009	-	-	-	0.043
HCM Control Delay (s)	7.3	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC
4: CR 206 & Street 3 AM 2021 Site + Non-Site

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Vol, veh/h	13	28	76	1	2	37
Future Vol, veh/h	13	28	76	1	2	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	30	83	1	2	40

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	84	0	-	0	142	84
Stage 1	-	-	-	-	84	-
Stage 2	-	-	-	-	58	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1513	-	-	-	851	975
Stage 1	-	-	-	-	939	-
Stage 2	-	-	-	-	965	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1513	-	-	-	843	975
Mov Cap-2 Maneuver	-	-	-	-	843	-
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	965	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1513	-	-	-	967
HCM Lane V/C Ratio	0.009	-	-	-	0.044
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC
1: FM 543 & CR 206 PM 2021 Site + Non-Site

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	6	95	121	8	46
Future Vol, veh/h	72	6	95	121	8	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	78	7	103	132	9	50

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	237	169	0	0	235	0
Stage 1	169	-	-	-	-	-
Stage 2	68	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	751	875	-	-	1332	-
Stage 1	861	-	-	-	-	-
Stage 2	955	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	746	875	-	-	1332	-
Mov Cap-2 Maneuver	746	-	-	-	-	-
Stage 1	855	-	-	-	-	-
Stage 2	955	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	755	1332	-
HCM Lane V/C Ratio	-	-	0.112	0.007	-
HCM Control Delay (s)	-	-	10.4	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

HCM 6th TWSC
2: CR 206 & Street 1 PM 2021 Site + Non-Site

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		⋔	
Traffic Vol, veh/h	42	5	8	2	1	24
Future Vol, veh/h	42	5	8	2	1	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	5	9	2	1	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	11	0	-	0	107	10
Stage 1	-	-	-	-	10	-
Stage 2	-	-	-	-	97	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1608	-	-	-	891	1071
Stage 1	-	-	-	-	1013	-
Stage 2	-	-	-	-	927	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1608	-	-	-	865	1071
Mov Cap-2 Maneuver	-	-	-	-	865	-
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	927	-

Approach	EB	WB	SB
HCM Control Delay, s	6.5	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1608	-	-	-	1061
HCM Lane V/C Ratio	0.028	-	-	-	0.026
HCM Control Delay (s)	7.3	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

HCM 6th TWSC
3: CR 206 & Street 2 PM 2021 Site + Non-Site

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		Y	
Traffic Vol, veh/h	43	45	30	2	2	26
Future Vol, veh/h	43	45	30	2	2	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	49	33	2	2	28

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	35	0	-	0	177	34
Stage 1	-	-	-	-	34	-
Stage 2	-	-	-	-	143	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1576	-	-	-	813	1039
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	884	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1576	-	-	-	788	1039
Mov Cap-2 Maneuver	-	-	-	-	788	-
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	884	-

Approach	EB	WB	SB
HCM Control Delay, s	3.6	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1576	-	-	-	1016
HCM Lane V/C Ratio	0.03	-	-	-	0.03
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

HCM 6th TWSC
4: CR 206 & Street 3 PM 2021 Site + Non-Site

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		Y	
Traffic Vol, veh/h	42	87	54	2	1	24
Future Vol, veh/h	42	87	54	2	1	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	95	59	2	1	26

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	61	0	-	0	247	60
Stage 1	-	-	-	-	60	-
Stage 2	-	-	-	-	187	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1542	-	-	-	741	1005
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	845	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1542	-	-	-	718	1005
Mov Cap-2 Maneuver	-	-	-	-	718	-
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	845	-

Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1542	-	-	-	989
HCM Lane V/C Ratio	0.03	-	-	-	0.027
HCM Control Delay (s)	7.4	0	-	-	8.7
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Appendix C2

2025 AM & PM Traffic Conditions with 100 % Development

HCM 6th TWSC
1: FM 543 & CR 206 AM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	10

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	301	21	103	105	18	299
Future Vol, veh/h	301	21	103	105	18	299
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	327	23	112	114	20	325

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	534	169	0	0	226	0
Stage 1	169	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	507	875	-	-	1342	-
Stage 1	861	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	498	875	-	-	1342	-
Mov Cap-2 Maneuver	498	-	-	-	-	-
Stage 1	846	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.9	0	0.4
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	512	1342	-
HCM Lane V/C Ratio	-	-	0.684	0.015	-
HCM Control Delay (s)	-	-	25.9	7.7	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	5.2	0	-

HCM 6th TWSC
2: CR 206 & Street 1 AM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↱		⋔	
Traffic Vol, veh/h	36	27	5	2	6	107
Future Vol, veh/h	36	27	5	2	6	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	29	5	2	7	116

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	7	0	-	0	113	6
Stage 1	-	-	-	-	6	-
Stage 2	-	-	-	-	107	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1614	-	-	-	884	1077
Stage 1	-	-	-	-	1017	-
Stage 2	-	-	-	-	917	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1614	-	-	-	862	1077
Mov Cap-2 Maneuver	-	-	-	-	862	-
Stage 1	-	-	-	-	992	-
Stage 2	-	-	-	-	917	-

Approach	EB	WB	SB
HCM Control Delay, s	4.2	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1614	-	-	-	1063
HCM Lane V/C Ratio	0.024	-	-	-	0.116
HCM Control Delay (s)	7.3	0	-	-	8.8
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

HCM 6th TWSC
3: CR 206 & Street 2 AM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↑		↾	
Traffic Vol, veh/h	36	57	110	2	6	107
Future Vol, veh/h	36	57	110	2	6	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	62	120	2	7	116

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	122	0	-	0	261	121
Stage 1	-	-	-	-	121	-
Stage 2	-	-	-	-	140	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1465	-	-	-	728	930
Stage 1	-	-	-	-	904	-
Stage 2	-	-	-	-	887	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1465	-	-	-	708	930
Mov Cap-2 Maneuver	-	-	-	-	708	-
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	887	-

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1465	-	-	-	915
HCM Lane V/C Ratio	0.027	-	-	-	0.134
HCM Control Delay (s)	7.5	0	-	-	9.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

HCM 6th TWSC
4: CR 206 & Street 3 AM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↑		↰	
Traffic Vol, veh/h	36	87	215	2	6	107
Future Vol, veh/h	36	87	215	2	6	107
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	95	234	2	7	116

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	236	0	-	0	408	235
Stage 1	-	-	-	-	235	-
Stage 2	-	-	-	-	173	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1331	-	-	-	599	804
Stage 1	-	-	-	-	804	-
Stage 2	-	-	-	-	857	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1331	-	-	-	580	804
Mov Cap-2 Maneuver	-	-	-	-	580	-
Stage 1	-	-	-	-	779	-
Stage 2	-	-	-	-	857	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1331	-	-	-	788
HCM Lane V/C Ratio	0.029	-	-	-	0.156
HCM Control Delay (s)	7.8	0	-	-	10.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

HCM 6th TWSC
11: FM 543 & Street 4 AM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	2.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	81	4	98	26	2	236
Future Vol, veh/h	81	4	98	26	2	236
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	4	107	28	2	257

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	382	121	0	0	135	0
Stage 1	121	-	-	-	-	-
Stage 2	261	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	620	930	-	-	1449	-
Stage 1	904	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	619	930	-	-	1449	-
Mov Cap-2 Maneuver	619	-	-	-	-	-
Stage 1	902	-	-	-	-	-
Stage 2	783	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	629	1449	-
HCM Lane V/C Ratio	-	-	0.147	0.002	-
HCM Control Delay (s)	-	-	11.7	7.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0	-

HCM 6th TWSC
13: FM 543 & Street 5 AM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	53	4	84	18	1	185
Future Vol, veh/h	53	4	84	18	1	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	4	91	20	1	201

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	304	101	0	0	111	0
Stage 1	101	-	-	-	-	-
Stage 2	203	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	688	954	-	-	1479	-
Stage 1	923	-	-	-	-	-
Stage 2	831	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	687	954	-	-	1479	-
Mov Cap-2 Maneuver	687	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	831	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	701	1479	-
HCM Lane V/C Ratio	-	-	0.088	0.001	-
HCM Control Delay (s)	-	-	10.6	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

HCM 6th TWSC
15: FM 543 & Street 6 AM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	81	4	62	26	2	105
Future Vol, veh/h	81	4	62	26	2	105
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	4	67	28	2	114

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	199	81	0	0	95	0
Stage 1	81	-	-	-	-	-
Stage 2	118	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	790	979	-	-	1499	-
Stage 1	942	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	789	979	-	-	1499	-
Mov Cap-2 Maneuver	789	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.1	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	796	1499	-
HCM Lane V/C Ratio	-	-	0.116	0.001	-
HCM Control Delay (s)	-	-	10.1	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

HCM 6th TWSC
1: FM 543 & CR 206 PM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	7.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	205	26	337	344	27	186
Future Vol, veh/h	205	26	337	344	27	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	223	28	366	374	29	202

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	813	553	0	0	740	0
Stage 1	553	-	-	-	-	-
Stage 2	260	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	348	533	-	-	867	-
Stage 1	576	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	335	533	-	-	867	-
Mov Cap-2 Maneuver	335	-	-	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	783	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37.5	0	1.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	350	867	-
HCM Lane V/C Ratio	-	-	0.717	0.034	-
HCM Control Delay (s)	-	-	37.5	9.3	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q(veh)	-	-	5.3	0.1	-

HCM 6th TWSC
2: CR 206 & Street 1 PM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↑		Y	
Traffic Vol, veh/h	121	16	31	6	4	71
Future Vol, veh/h	121	16	31	6	4	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	132	17	34	7	4	77

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	41	0	-	0	319	38
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	281	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1568	-	-	-	674	1034
Stage 1	-	-	-	-	984	-
Stage 2	-	-	-	-	767	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1568	-	-	-	617	1034
Mov Cap-2 Maneuver	-	-	-	-	617	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	767	-

Approach	EB	WB	SB
HCM Control Delay, s	6.6	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1568	-	-	-	998
HCM Lane V/C Ratio	0.084	-	-	-	0.082
HCM Control Delay (s)	7.5	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0.3

HCM 6th TWSC
3: CR 206 & Street 2 PM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↰	↑		Y	
Traffic Vol, veh/h	121	133	96	6	4	71
Future Vol, veh/h	121	133	96	6	4	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	132	145	104	7	4	77

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	111	0	-	0	517	108
Stage 1	-	-	-	-	108	-
Stage 2	-	-	-	-	409	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1479	-	-	-	518	946
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	671	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1479	-	-	-	468	946
Mov Cap-2 Maneuver	-	-	-	-	468	-
Stage 1	-	-	-	-	827	-
Stage 2	-	-	-	-	671	-

Approach	EB	WB	SB
HCM Control Delay, s	3.7	0	9.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1479	-	-	-	897
HCM Lane V/C Ratio	0.089	-	-	-	0.091
HCM Control Delay (s)	7.7	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.3	-	-	-	0.3

HCM 6th TWSC
4: CR 206 & Street 3 PM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Traffic Vol, veh/h	121	250	161	6	4	71
Future Vol, veh/h	121	250	161	6	4	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	132	272	175	7	4	77

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	182	0	-	0	715	179
Stage 1	-	-	-	-	179	-
Stage 2	-	-	-	-	536	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1393	-	-	-	397	864
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	587	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1393	-	-	-	353	864
Mov Cap-2 Maneuver	-	-	-	-	353	-
Stage 1	-	-	-	-	757	-
Stage 2	-	-	-	-	587	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1393	-	-	-	802
HCM Lane V/C Ratio	0.094	-	-	-	0.102
HCM Control Delay (s)	7.9	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.3

HCM 6th TWSC
11: FM 543 & Street 4 PM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	53	3	272	91	5	160
Future Vol, veh/h	53	3	272	91	5	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	3	296	99	5	174

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	530	346	0	0	395	0
Stage 1	346	-	-	-	-	-
Stage 2	184	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	510	697	-	-	1164	-
Stage 1	716	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	507	697	-	-	1164	-
Mov Cap-2 Maneuver	507	-	-	-	-	-
Stage 1	712	-	-	-	-	-
Stage 2	848	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	515	1164	-
HCM Lane V/C Ratio	-	-	0.118	0.005	-
HCM Control Delay (s)	-	-	12.9	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

+

HCM 6th TWSC
13: FM 543 & Street 5 PM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	35	2	214	61	3	130
Future Vol, veh/h	35	2	214	61	3	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	2	233	66	3	141

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	413	266	0	0	299	0
Stage 1	266	-	-	-	-	-
Stage 2	147	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	595	773	-	-	1262	-
Stage 1	779	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	593	773	-	-	1262	-
Mov Cap-2 Maneuver	593	-	-	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	880	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	601	1262	-
HCM Lane V/C Ratio	-	-	0.067	0.003	-
HCM Control Delay (s)	-	-	11.4	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

HCM 6th TWSC
15: FM 543 & Street 6 PM 2025 Site + Non-Site

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	53	3	125	91	5	80
Future Vol, veh/h	53	3	125	91	5	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	3	136	99	5	87

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	283	186	0	0	235	0
Stage 1	186	-	-	-	-	-
Stage 2	97	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	707	856	-	-	1332	-
Stage 1	846	-	-	-	-	-
Stage 2	927	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	704	856	-	-	1332	-
Mov Cap-2 Maneuver	704	-	-	-	-	-
Stage 1	843	-	-	-	-	-
Stage 2	927	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	711	1332	-
HCM Lane V/C Ratio	-	-	0.086	0.004	-
HCM Control Delay (s)	-	-	10.5	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Appendix C3

2025 Mitigated AM & PM Traffic Conditions

HCM 6th TWSC
1: FM 543 & CR 206 AM 2025 Site + Non-Site with mitigation

Intersection	
Int Delay, s/veh	8.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	301	21	103	105	18	299
Future Vol, veh/h	301	21	103	105	18	299
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	327	23	112	114	20	325

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	477	112	0	0	226	0
Stage 1	112	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	547	941	-	-	1342	-
Stage 1	913	-	-	-	-	-
Stage 2	702	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	537	941	-	-	1342	-
Mov Cap-2 Maneuver	537	-	-	-	-	-
Stage 1	897	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.1	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	552	1342	-
HCM Lane V/C Ratio	-	-	0.634	0.015	-
HCM Control Delay (s)	-	-	22.1	7.7	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	4.4	0	-

HCM 6th TWSC
1: FM 543 & CR 206 PM 2025 Site + Non-Site with Mitigation

Intersection	
Int Delay, s/veh	4.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	205	26	337	344	27	186
Future Vol, veh/h	205	26	337	344	27	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	223	28	366	374	29	202

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	626	366	0	0	740	0
Stage 1	366	-	-	-	-	-
Stage 2	260	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	448	679	-	-	867	-
Stage 1	702	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	431	679	-	-	867	-
Mov Cap-2 Maneuver	431	-	-	-	-	-
Stage 1	675	-	-	-	-	-
Stage 2	783	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.7	0	1.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	449	867	-
HCM Lane V/C Ratio	-	-	0.559	0.034	-
HCM Control Delay (s)	-	-	22.7	9.3	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	3.4	0.1	-

Appendix D

Relevant Excerpts from the TxDOT Roadway Design and Access Management Manuals

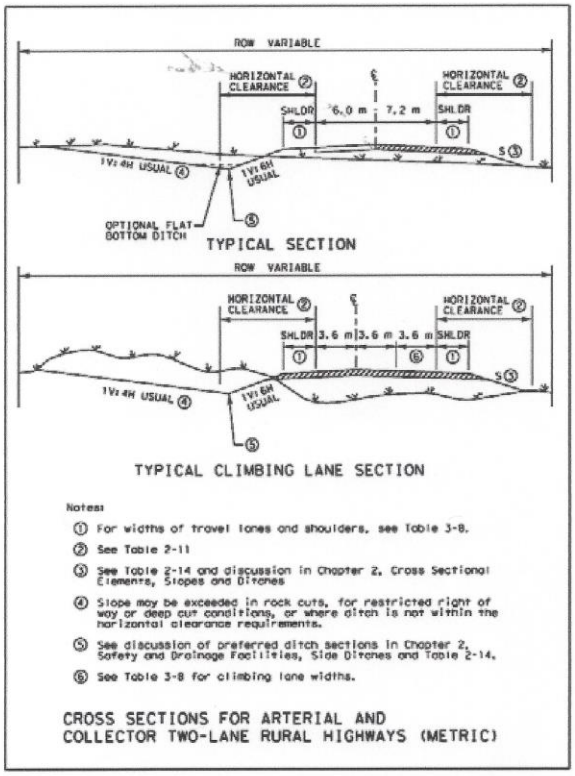


Figure 3-6. (M). Cross Sections for Arterial and Collector Two-Lane Rural Highways.

NOTE: *Online users can click here to see this illustration in PDF format. (Metric)*

Left-Turn Deceleration Lanes. Left-turn lanes on two-lane highways at intersecting crossroads generally are not economically justified. For certain moderate or high volume two-lane highways with heavy left-turn movements, however, left-turn lanes may be justified in view of reduced road user accident costs. Figure 3-11 provides recommendations for when left-turn lanes should be considered based on traffic volumes.

Example: Traffic northbound on a highway has 350 vph with 10 percent left turns included. The southbound traffic volume is 200 vph. The design speed on the highway is 60 mph [100 km/h]. Beginning at the opposing volume (southbound in this case) of 200 vph, using the 10 percent left turn column and 60 mph [100 km/h] design speed section, a value of 330 vph advancing volume

(northbound) is found in the table. Because the northbound volume of 350 vph exceeds the table value of 330 vph, a left turn lane should be considered at the intersection.

Lengths of left-turn deceleration lanes are provided in Table 3-13.

Where used, left-turn lanes should be delineated with striping and pavement markers or jiggle bars. Passing should be restricted in advance of the intersection, and horizontal alignment shifts of the approaching travel lanes should be gradual. Figure 3-6 shows typical geometry for a rural two-lane highway with left-turn bays at a crossroad intersection.

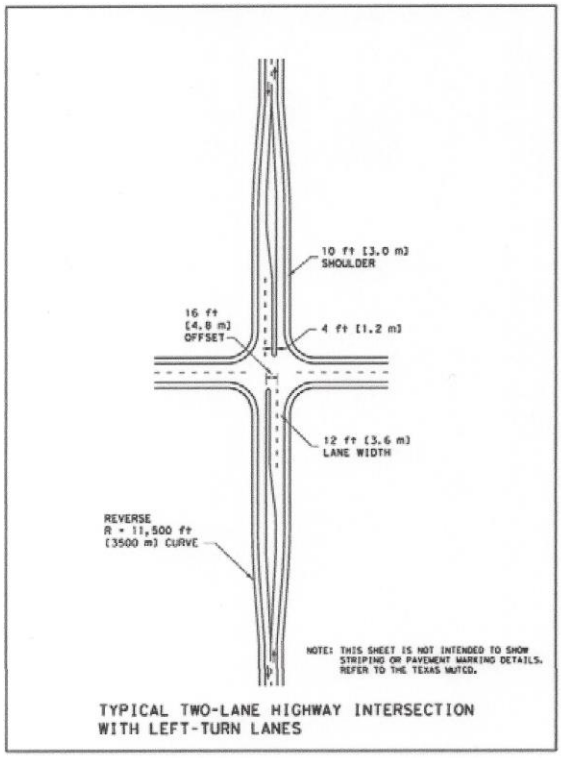


Figure 3-7. Typical Two-Lane Highway Intersection with Left-Turn Lanes.

NOTE: *Online users can click here to see this illustration in PDF format.*

Table 3-11: Guide for Left-Turn Lanes on Two-Lane Highways

Opposing Volume (vph)	Advancing Volume (vph)			
-	5 % Left Turns	10 % Left Turns	20 % Left Turns	30 % Left Turns
40 mph [60 km/h] Design Speed				
800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
50 mph [80 km/h] Design Speed				
800	280	210	165	135
600	350	260	195	170
400	430	320	240	210
200	550	400	300	270
100	615	445	335	295
60 mph [100 km/h] Design Speed				
800	230	170	125	115
600	290	210	160	140
400	365	270	200	175
200	450	330	250	215
100	505	370	275	240

Right-Turn Deceleration Lanes. Shoulders 10 ft [3.0 m] wide alongside the traffic lanes generally provide sufficient area for acceleration or deceleration of right-turning vehicles. Where the right turn lane is being constructed in addition to the through lanes and shoulders, the minimum right turn lane width is 10 ft [3.0 m] with a 2 ft [0.6 m] surfaced shoulder. Where speed change lanes are used, they should be provided symmetrically along both sides of the highway for both directions of traffic, thus presenting drivers with a balanced section.

A deceleration-acceleration lane on one side of a two-lane highway, such as at a "tee" intersection, results in the appearance of a three-lane highway and may result in driver confusion. In this regard, right-turn speed change lanes are generally inappropriate for "tee" intersection design except where a four lane (2 through, 1 median left turn, 1 right acceleration/deceleration) section is provided.

Section 2, Figure 3-4 shows the lengths for right-turn deceleration lanes.

The length of a right-turn deceleration lane is the same as that for a left-turn lane (see Table 3-13). Right turn lanes shorter than the lengths given in Table 3-13 may be acceptable on some low volume rural highways.

Right-Turn Acceleration Lanes. Right-turn acceleration lanes may be appropriate on some two-lane rural highways – for example on high volume highways where significant truck percentages are encountered. See Table 3-10 for acceleration distances and taper lengths.

Intersections

The provision of adequate sight distance is of utmost importance in the design of intersections along two-lane rural highways. At intersections, consideration should be given to avoid steep profile grades as well as areas with limited horizontal or vertical sight distance. An intersection should not be situated just beyond a short crest vertical curve or a sharp horizontal curve. Where necessary, backslopes should be flattened and horizontal and vertical curves lengthened to provide additional sight distance. For more information on intersection sight distance, see "Intersection Sight Distance" in Chapter 2.

Desirably, the roadways should cross at approximately right angles. Where crossroad skew is flatter than 60 degrees to the highway, the crossroad should be re-aligned to provide for a near perpendicular crossing. The higher the functional classification, the closer to right-angle the crossroad intersection should be.

"Minimum Designs for Truck and Bus Turns" in Chapter 7 provides information regarding the accommodation of various types of truck class vehicles in intersection design. Further information on intersection design may also be found in AASHTO's A Policy on Geometric Design of Highways and Streets.

where heavy left-turn movements take place, but also occur where left-turn movements enter or leave driveways serving adjacent land development. As with left-turn movements, right-turn movements pose problems at both driveways and street intersections. Right-turn movements increase conflicts, delays, and crashes, particularly where a speed differential of 10 mph or more exists between the speed of through traffic and the vehicles that are turning right.

Table 2-3 presents thresholds for auxiliary lanes. These thresholds represent examples of where left turn and right turn lanes should be considered. Refer to the TxDOT *Roadway Design Manual*, Chapter 3, for proper acceleration and deceleration lengths.

Table 2-3: Auxiliary Lane Thresholds

Median Type	Left Turn to or from Property		Right Turn to or from Property (5)	
	Acceleration	Deceleration	Acceleration	Deceleration
Non-Traversable (Raised Median)	(2)	All	Right turn egress > 200 vph (4)	◆ > 45 mph where right turn volume is > 50 vph (3) ◆ ≤ 45 where right turn volume is > 60 vph (3)
Traversable (Undivided Road)	(2)	(1)	Same as above	Same as Above

(1) Refer to Table 3-11, TxDOT *Roadway Design Manual*, for alternative left-turn-bay operational considerations.

(2) A left-turn acceleration lane may be required if it would provide a benefit to the safety and operation of the roadway. A left-turn acceleration lane would interfere with the left-turn ingress movements to any other access connection.

(3) Additional right-turn considerations:

- Conditions for providing an exclusive right-turn lane when the right-turn traffic volume projections are less than indicated in Table 2-3:
  - High crash experience
  - Heavier than normal peak flow movements on the main roadway
  - Large volume of truck traffic
  - Highways where sight distance is limited
- Conditions for NOT requiring a right-turn lane where right-turn volumes are more than indicated in Table 2-3:
  - Dense or built-out corridor where space is limited
  - Where queues of stopped vehicles would block the access to the right turn lane
  - Where sufficient length of property width is not available for the appropriate design

(4) The acceleration lane should not interfere with any downstream access connection.

- The distance from the end of the acceleration lane taper to the next unsignalized downstream access connection should be equal to or greater than the distances found in Table 2-2.
- Additionally, if the next access connection is signalized, the distance from the end of the acceleration lane taper to the back of the 90th percentile queue should be greater than or equal to the distances found Table 2-2.

(5) Continuous right-turn lanes can provide mobility benefits both for through movements and for the turning vehicles.[a] Access connections within a continuous right turn lane should meet the spacing requirements found in Table 2-2. However, when combined with crossing left in movements, a continuous right-turn lane can introduce additional operational conflicts.

Table 2-2: Other State Highways Connection Spacing Criteria

Other State Highways Minimum Connection Spacing (1)(2)(3)	
Posted Speed (mph)	**Distance (ft)**
≤ 30	200
35	250
40	305
45	360
≥ 50	425

(1) Distances are for passenger cars on level grade. These distances may be adjusted for downgrades and/or significant truck traffic. Where present or projected traffic operations indicate specific needs, consideration may be given to intersection sight distance and operational gap acceptance measurement adjustments.

(2) When these values are not attainable, refer to the variance process as described in Chapter 2, Section 5.

(3) Access spacing values shown in this table do not apply to rural highways outside of metropolitan planning organization boundaries where there is little, if any, potential for development with current ADT levels below 2000. Access connection spacing below the values shown in this table may be approved based on safety and operational considerations as determined by TxDOT.

Corner clearance refers to the separation of access connections from roadway intersections. Table 2-2 provides minimum corner clearance criteria.

Where adequate access connection spacing cannot be achieved, the permitting authority may allow for a lesser spacing when shared access is established with an abutting property. Where no other alternatives exist, construction of an access connection may be allowed along the property line farthest from the intersection. To provide reasonable access under these conditions but also provide the safest operation, consideration should be given to designing the driveway connection to allow only the right-in turning movement or only the right-in/right out turning movements if feasible.

Auxiliary Lanes

This subsection describes the basic use and functional criteria associated with auxiliary lanes. Auxiliary lanes consist of left-turn and right-turn movements, deceleration, acceleration, and their associated transitions and storage requirements. Left-turn movements may pose challenges at driveways and street intersections. They may increase conflicts, delays, and crashes and often complicate traffic signal timing. These problems are especially acute at major highway intersections