Golf Course + Westside Development

Albuquerque, New Mexico | Westside Blvd. & Golf Course Rd.

Traffic Impact Study

February 23, 2023

FINAL

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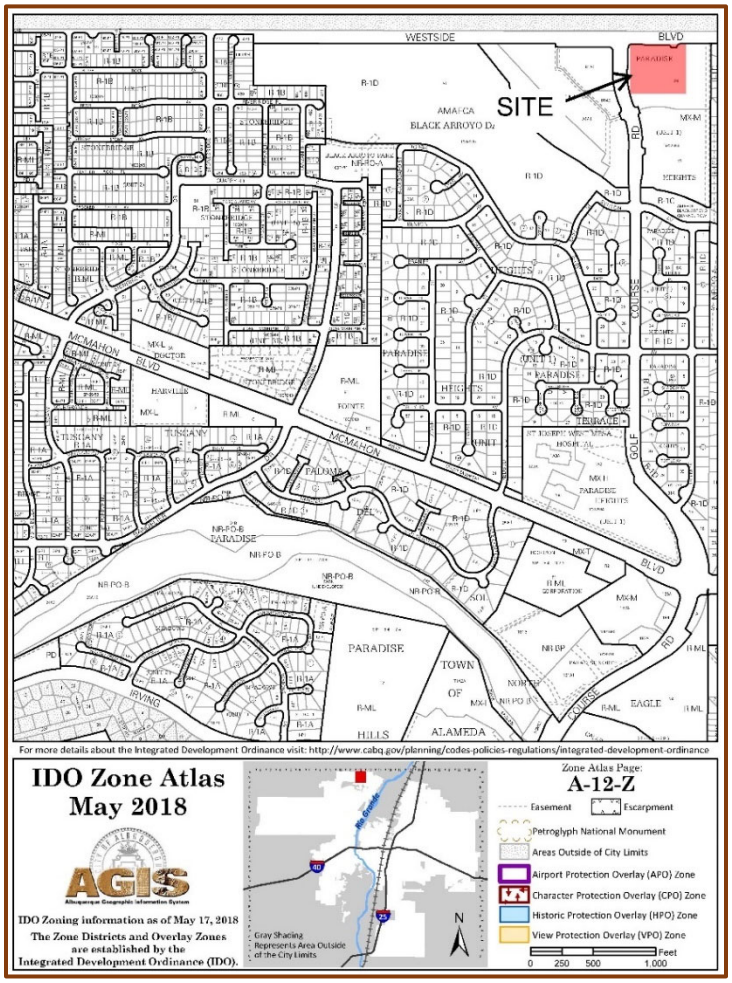
Golf Course + Westside Commercial Development
10850 Golf Course Rd., N.E.- Albuquerque, NM
Traffic Impact Study

Executive Summary

The purpose of this Traffic Impact Study (TIS) is to evaluate the transportation conditions before and after implementation of the proposed Golf Course + Westside Commercial Development to determine the impact of the development on the adjacent transportation system and recommend mitigation measures where necessary. This study is prepared in accordance with the requirements of the City of Albuquerque, NM. The scoping summary for this TIS is in Appendix page A-61 thru A-63.

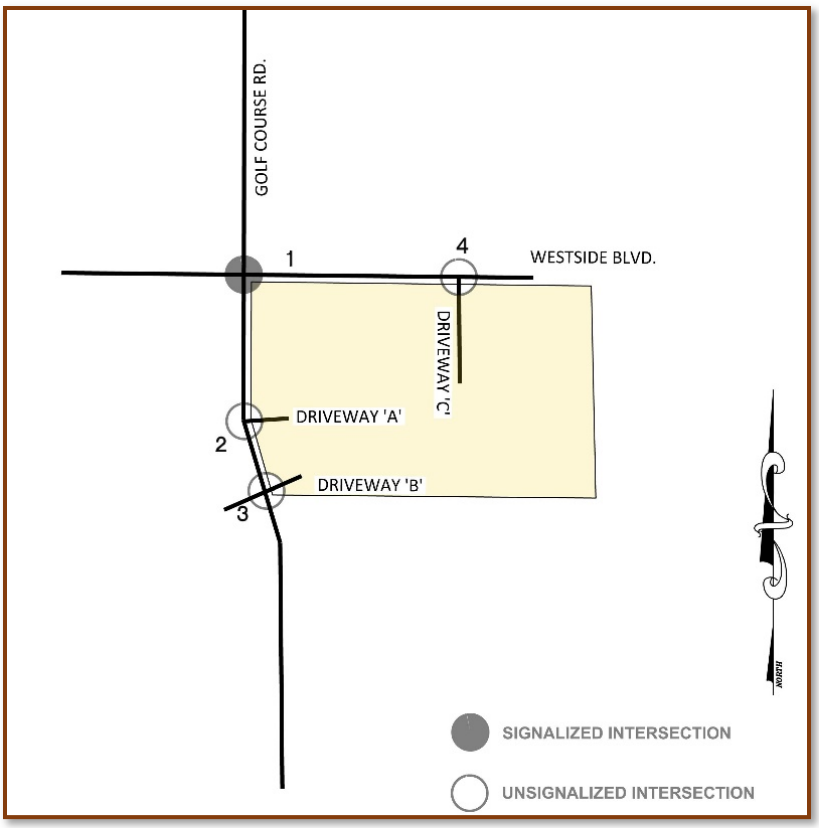
Site Location and Study Area

The proposed Golf Course + Westside Commercial Development is in the southeast quadrant of Westside Blvd. & Golf Course Rd. in the City of Albuquerque, NM. See vicinity map below.



The study area includes the four intersections listed below and shown on the following map:

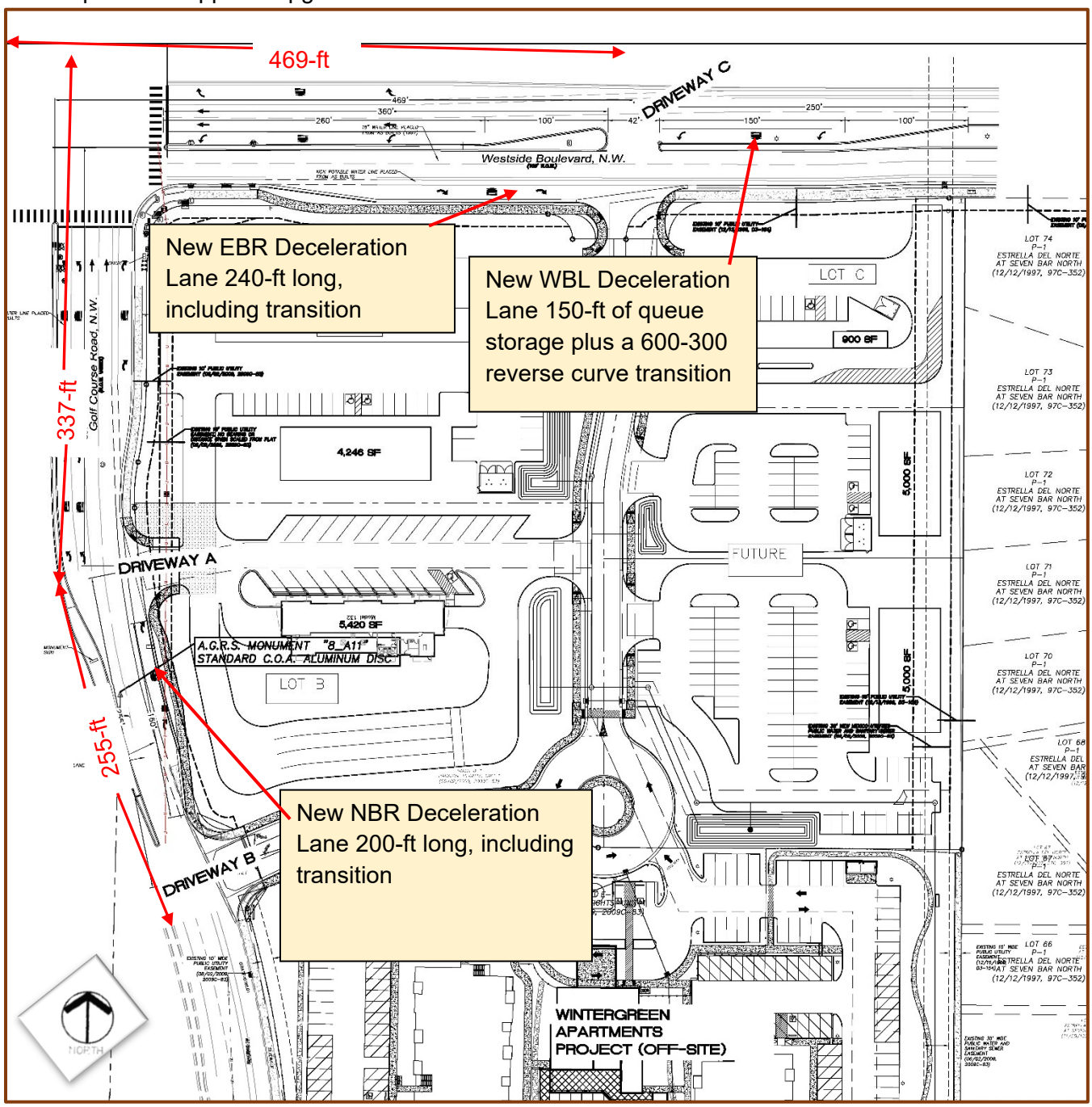
1. Westside Blvd. / Golf Course Rd. (Signalized, Existing)
2. Driveway ‘A’/Golf Course Rd. (Unsignalized, Proposed)
3. Driveway ‘B’/Golf Course Rd. (Unsignalized, Existing)
4. Westside Blvd./ Driveway ‘C’ (Unsignalized, Proposed)



Development Description

The proposed project is to be developed as Convenience Market / Gas Station (ITE Land Use 945) w/16 fueling positions and 4,246 square feet of floor area, 10,000 square feet of High Turnover Restaurant space (ITE Land Use 932), a 900 square foot Coffee/Donut Shop (ITE Land Use 938), and an Automated Car Wash (ITE Land Use 948). The land for the project is currently undeveloped and the study area is mostly developed. There are three proposed access driveways (Driveway ‘A’, Driveway ‘B’, and Driveway ‘C’). Driveway ‘A’ is to be a right-in/right-out access located on the east side of Golf Course Rd., 337-feet south of Westside Blvd. (centerline to centerline). Driveway ‘B’ is an existing full access unsignalized driveway 255-ft south of Driveway ‘A’ on Golf Course Rd. that is to be shared with a new residential development (Wintergreen Apartments) adjacent to the southern boundary of the project (currently under construction and scheduled to open second quarter 2023). The western approach of the Driveway ‘B’ intersection services an existing office building and a future apartment complex on the west side of Golf Course Rd. Driveway ‘C’ is to be a full access on the south side of Westside Blvd.,

469-feet (centerline to centerline) east of Golf Course Rd. The proposed site plan is shown below. The full site plan is in Appendix pg. A-2.



The full build out anticipated **implementation year for this project is 2025 and the horizon year is 2035**.

Trips Generated by the project: According to the Institute of Traffic Engineers Trip Generation Manual, 11th Edition, the project is anticipated to generate 143 new entering trips and 138 new exiting trips during the weekday AM Peak Hour period and 141 new entering trips and 131 new exiting trips during the PM Peak Hour period. A 50%pass-by trip rate reduction is included in the trips generated.

Trips Generated by three other developments in the study area were included in the NO BUILD traffic volumes. These other developments include the Havenly Residential Development, at the southwest quadrant of Westside Blvd. & Golf Course Rd., The Village (commercial) Development, at the southeast quadrant of Westside Blvd. & Unser Blvd., and the Wintergreen Apartments, at adjacent to the southern boundary of the project. Since the initiation of this report, the Havenly residential project has withdrawn their application from the Environmental Planning Commission approval process, however, trips generated by the project have been included in the analysis.

Traffic Volumes

Existing traffic volumes were collected at the Westside Blvd. & Golf Course Rd. intersection in the field during October of 2021. New traffic counts were not collected due to extended construction activity on Westside Blvd. Existing volumes for the thru volumes at the driveway intersections were extrapolated from the traffic counts. Existing traffic volumes for the eastbound approach of the Driveway 'B' were determined by calculating the trips generated from the HME Specialist Office Building in the southwest quadrant of the Westside & Golf Course Intersection. Trips exiting and entering HME Specialist were distributed proportionally to the 2021 projected population of Data Analysis Subzones (DASZ) within a 2.0-mile radius.

Background traffic volumes are calculated by applying historical annual background traffic growth rates to the existing traffic volumes for the implementation year. The growth rate for the study is 2.7% based on Traffic Flows (AWDT) from Mid-Region Council of Governments (MRCoG) Regional Transportation Model from 2016 to 2040. See Appendix page A-5 for the MRCoG data table and page A-6 for the growth graph.

Traffic Analysis

A capacity analysis of the study area intersections was conducted in accordance with the Highway Capacity Manual (HCM6) V.6, for the signalized and unsignalized intersections using Synchro 11 (Build 11.1.2.9) modeling software. See Appendix pages A-26 thru A-58 for detailed results of the analysis. Summaries of the analysis results for the 2025 Implementation Year and 2035 Horizon Year are presented in the following tables:

HCM Results Summary Table

Golf Course + Westside Development - Albuquerque, NM

Intersection	Signalization	Movement	Implementation Year -2025											
			AM						PM					
			NO BUILD			BUILD			NO BUILD			BUILD		
			LOS-Delay	Max. V/C for Approach	Additional Queue Capacity Required (ft)	LOS-Delay	Max. V/C for Approach	Additional Queue Capacity Required (ft)	LOS-Delay	Max. V/C for Approach	Additional Queue Capacity Required (ft)	LOS-Delay	Max. V/C for Approach	Additional Queue Capacity Required (ft)
1 - Westside Blvd. & Golf Course Rd.	Signalized	EB	B-18.8	0.70	0	B-20.9	0.74	0	C-21.5	0.71	0	C-23.9	0.76	0
		WB	C-24.1	0.49	0	C-24.4	0.45	0	C-29.4	0.79	0	C-30.7	0.80	0
		NB	B-19.3	0.74	0	C-21.3	0.77	0	C-23.7	0.79	0	C-25.0	0.81	0
		SB	C-24.8	0.76	0	C-27.9	0.78	0	C-33.9	0.82	0	D-35.8	0.83	0
Intersection Delay-LOS			C - 21.3			C - 23.4			C-26.5			C-28.3		
2 - Golf Course Rd. & Driveway 'A'	Unsignalized	EB*	-		-	-		-	-		-	-		-
		WB*	-		-	B-13.6 WBR	0.18	0	-		-	C-16.1 WBR	0.21	0
		NB*	-		-	-		-	-		-	-		-
		SB*	-		-	-		-	-		-	-		-
Worst Delay-LOS at Intersection						B-13.6 WBR						C-16.2 WBR		
3 - Golf Course Rd. & Driveway 'B'	Unsignalized	EB*	D-28.5 EBL	0.10	0	D-29.5 EBL	0.10	0	E-40.9 EBL	0.19	0	E-43.5 EBL	0.21	0
		WB*	D-28.5 WBL	0.42	0	E-35.8 WBL	0.51	0	E-41.0 WBL	0	0	F-58.2 WBL	0.38	0
		NB*	B-10.6 NBL	0.03	0	C-15.2 NBL	0.08	0	B-11.4 NBL	0.03	0	C-20.8 NBL	0.08	0
		SB*	B-10.3 SBL	0.02	0	B-10.8 SBL	0.06	0	B-12.4 SBL	0.08	0	B-13.2 SBL	0.13	0
Worst Delay-LOS at Intersection			D-28.5 EBL & WBL			E-35.8 WBL			E-41.0 EBL			F-58.2 WBL		
4 - Westside Blvd. & Driveway 'C'	Unsignalized	EB*	-	-	-	-	-	-	-	-	-	-	-	-
		WB*	-	-	-	A-9.9 WBL	0.06	0	-	-	-	A-9.7 WBL	0.07	0
		NB*	-	-	-	C-22 NBL	0.34	0	-	-	-	C-25.7 NBL	0.39	0
		SB*	-	-	-	-	-	-	-	-	-	-	-	-
Worst Delay-LOS at Intersection			-			C-22 NBL			-			C-25.7 NBL		

Intersection	Signalization	Movement	Horizon Year -2035														
			AM						PM								
			NO BUILD			BUILD			NO BUILD			BUILD			BUILD Mitigated		
			LOS-Delay	Max. V/C for Approach	Additional Queue Capacity Required (ft)	LOS-Delay	Max. V/C for Approach	Additional Queue Capacity Required (ft)	LOS-Delay	Max. V/C for Approach	Additional Queue Capacity Required (ft)	LOS-Delay	Max. V/C for Approach	Additional Queue Capacity Required (ft)	LOS-Delay	Max. V/C for Approach	Additional Queue Capacity Required (ft)
1 - Westside Blvd. & Golf Course Rd.	Signalized	EB	C-26.8	0.83	0	C-30.9	0.88	0	C-30.7	0.80	0	D-35.5	0.85	0	D-34.6	0.85	0
		WB	C-28.6	0.54	0	C-28.8	0.53	0	D-44.7	0.93	0	D-48.5	0.95	0	D-45.8	0.91	0
		NB	C-24.3	0.82	0	C-27.2	0.85	0	C-30.9	0.86	0	C-32.3	0.87	0	C-32.3	0.89	0
		SB	D-36.1	0.85	0	D-341.3	0.88	0	E=57.2	0.95	52 - SBR	E-62.3	0.97	85-SBR	D-52.1	0.92	35-SBR
Intersection Delay-LOS			C-28.8			C-32.2			D-39.5			D-43.1			D-40.1		
2 - Golf Course Rd. & Driveway 'A'	Unsignalized	EB*	-		-	-		-	-		-	-		-			
		WB*	-		-	B-15.7 WBR	0.22	0	-		-	C-19.7 WBR	0.21	0			
		NB*	-		-	-		-	-		-	-		-			
		SB*	-		-	-		-	-		-	-		-			
Worst Delay-LOS at Intersection						B-15.7 WBR						C-19.7 WBR					
3 - Golf Course Rd. & Driveway 'B'	Unsignalized	EB*	E-40.9 EBL	0.14	0	E-42.8 EBL	0.14	0	F-72.1 EBL	0.38	0	F-78.7 EBL	0.40	0			
		WB*	E-41.3 WBL	0.17	0	F-58.6 WBL	0.43	0	F-63.8 WBL	0.16	-	F-112.8 WBL	0.15	-			
		NB*	B-12.2 NBL	0.05	0	B-12.2 NBL	0.05	0	B-13.1 NBL	0.04	0	D-27.3 NBL	0.04	0			
		SB*	B-11.5 SBL	0.03	0	B-12.2 SBL	0.07	0	B-14.9 SBL	0.10	0	B-13.1 SBL	0.17	0			
Worst Delay-LOS at Intersection			E-41.3 EBL			F-58.6 WBL			F-72.1 EBL			F-112.8 EBL					
4 - Westside Blvd. & Driveway 'C'	Unsignalized	EB*	-	-	-	-	-	-	-	-	-	-	-	-			
		WB*	-	-	-	B-10.8 WBL	0.07	0	-	-	-	B-10.4 WBL	0.08	0			
		NB*	-	-	-	D-28.2 NBL	0.41	0	-	-	-	D-34.7 NBL	0.48	0			
		SB*	-	-	-	-	-	-	-	-	-	-	-	-			
Worst Delay-LOS at Intersection			-			D-28.2 NBL			-			D-34.7 NBL					

* Worst LOS for Approach

The SBR/SBT lane has sufficient queue capacity, but the queue will periodically extend past the driveway north of the intersection by the length indicated.

Full Access Justification for Driveway 'C'

Westside Blvd. is an Access Controlled Roadway as defined by the Roadway Access Control (RAC) for the Albuquerque Metropolitan Area (AMPA) by the Mid-Region Metropolitan Planning Organization (MRMPO). The purpose of the designation is "*to control vehicular access along selected roadways, to preserve reasonable property access*, *maintain a reasonable traffic flow and level of service, preserve safety …and allow for economic development and the safe and efficient movement of people and goods.*" (RAC Policy for the Albuquerque Metropolitan Planning Area with Inventory of Roadway Access Limitations, 2019). Since this portion of Westside Blvd. is within the limits of the City of Albuquerque, a RAC review is not required (Refer to section VII of the RAC Policy document). However, in accordance with the intent of the RAC policy, Driveway 'C' should be allowed as a full-access driveway for the following reasons:

1. **Reasonable Access:**
   - The number of access points is acceptable according to City of Albuquerque DPM Table 7.4.46, which specifies the maximum number of access points per site based on road frontage. This site has 1140 lineal feet of road frontage which would allow for five access points according to the table. **Only three** access points are proposed for the Golf Course + Westside Development **and one of those is shared** with another development. Therefore, it is reasonable to allow at least two of the three access to be full access driveways.
   - The distance of proposed Driveway 'C' from the intersection (469-ft) is greater than the access spacing requirement in the City of Albuquerque DPM Table 7.4.45 (300-ft).
   - The next closest access is 7 Bar Loop Rd., approximately 1200 feet east of Driveway 'C'.
   - Access from the east on Westside Blvd. will allow legal movements and reduce the left turn movements at the signalized intersection of West Side and Golf Course.
2. **Reasonable Traffic Flow and Level of Service (LOS):** If Driveway 'C' were to be restricted to right-in/right-out/left-in only, approximately 200 left-turn exiting trips would be diverted to Driveway 'B' or Driveway 'A'. This is problematic since the left-turn movement at Driveway 'B' is already failing. For example, with the current trip distribution, only 40 vehicles are turning left from Driveway 'B' during the 2025 PM peak hour and the LOS is F with 58.2 seconds per vehicle of delay. Diverting the Driveway 'C' left turns to Driveway 'B' would increase the delay at Driveway 'B' to 270 seconds and the onsite queue would be 270-ft long. Southbound traffic choosing instead to make a right-turn would have to make a U-turn at Golf Course Rd. & 22nd Ave. or Westside Blvd. & 7-Bar Loop Rd. to proceed south. Also, U-turns would cause vehicles to enter the Westside & Golf Course intersection twice, further degrading the LOS. Westbound drivers who make a right-turn at Driveway 'A' must weave across two lanes of thru traffic within 50-ft to reach the left lane. These options would produce more turning movements, conflict points and trips thru the signalized intersection, so they are not preferable to the proposed traffic distribution.
3. **Preserve Safety:** A crash analysis of the study area shows that the intersection of Westside Blvd. & Golf Course Rd. has about 2.5 times more crashes than the average Albuquerque intersection. The new improvements to Westside Blvd. may reduce the crash rate, however, forcing vehicles to make U-turns and increasing the traffic volume through the intersection instead of making left turns out of Driveway 'C' would likely increase crash rates at Westside & Golf Course and the intersections where the vehicles are making U-turns.

Summary of Impacts and Recommendations

In summary, the proposed Golf Course + Westside Commercial Development will have minimal adverse impact to the adjacent transportation system with implementation of the recommended mitigation measures presented in this report. A summary of the impacts and recommendations based on the results of the analysis, are stated below.

Summary of Impacts

1. **Westside Blvd. / Golf Course Rd. (Signalized) –**
   2025 LOS Analysis of this intersection demonstrates that the proposed Golf Course + Westside Commercial Development will have minimal impact on the LOS and delays for the 2025 AM and PM BUILD conditions. LOS remains at D or better for all movements in the intersection. Intersection LOS remains at LOS=C for the NO BUILD and BUILD conditions with less than 3 seconds per vehicle increase in delays.
   2035 LOS Analysis of this intersection demonstrates that the proposed Golf Course + Westside Commercial Development will have minimal impact on the LOS and delays for the 2035 AM and PM BUILD conditions. LOS remains at D or better for all movements in the intersection except the SBR turn movement which is LOS=E for both the PM NO BUILD and BUILD conditions. However, the intersection LOS remains at LOS=D for the NO BUILD and BUILD conditions with less than 4 seconds per vehicle increase in delays. Retiming the signal and adding a dedicated SBR lane, as shown for the mitigated condition, improves the intersection delay in the PM peak hour to within 1 second of the NO BUILD delay and improves the SBR turn movement to LOS=D.

2. **Driveway 'A', Driveway 'B', and Driveway 'C' (Unsignalized)** – Analysis of the driveway intersections demonstrates that the proposed Golf Course + Westside Commercial Development will have minimal adverse impact on the traffic movements at these intersections for the 2025 and 2035 conditions except at Driveway 'B'.

   Driveway 'A' is proposed as an unsignalized right-in/right-out driveway on Golf Course Rd. **2025 and 2035** analysis of Driveway 'A' indicates that the LOS is C or better for the BUILD condition with sufficient queue capacity as designed on the site plan.

   Driveway 'B' is an existing unsignalized full-access driveway.
   - **2025** analysis demonstrates that the existing (NO BUILD) LOS during the PM peak hour for the eastbound and westbound left-turn movements is LOS=E with delays exceeding 40 seconds per vehicle. As expected, delays and LOS become worse for the BUILD condition
   - **2035** analysis demonstrates that the existing (NO BUILD) LOS during the PM peak hour for the eastbound and westbound left-turn movements is LOS=F with delays exceeding 63 seconds per vehicle. As expected, delays and LOS become worse for the BUILD condition.
   - Analysis of Driveway 'B' indicates that the high volume of traffic on Golf Course causes insufficient gaps for left-turning side-street traffic to enter the flow of traffic without significant delays. Since the intersection is too close to the signalized intersection of Westside Blvd. and Golf Course Rd.

to consider signalizing, a signal cannot be recommended. However, maintaining full access at Driveway 'C' is critical to minimizing delays at Driveway 'B' and operational complications and volumes at the signalized intersection of Westside Blvd. & Golf Course Rd.

Driveway 'C' is proposed as an unsignalized full-access driveway on Westside Blvd. It has a **LOS=C or better for 2025 and LOS=D or better for 2035** with sufficient queue capacity as designed on the site plan.

3. **Queueing analysis –** Storage capacity is adequate at all movements in the study area during the **2025** implementation year and **2035** horizon year except the southbound thru/right (SBT/R) lane and westbound left lane (WBL) at Westside Blvd. & Golf Course Rd. during the 2035 PM peak hour. The SBT/R the queue will periodically extend past the driveway north of the intersection and the WBL queue will spill into the WBT lane by 2 vehicle lengths. The development will not contribute traffic to the SBT/R movement if Driveway 'C' remains as a full-access driveway. Adding a dedicated SBR lane and re-timing the signal (2035 Mitigated Case) reduces the queues for the SBT/R lane and the WBL lane to better than NO BUILD conditions.

4. **Determination of Warrants for Deceleration Lanes –**
   Driveway 'A' - A northbound right-turn lane, 240-ft long (or the maximum distance possible starting at the curb return for Driveway 'B') including a 300-150 reverse curve transition, is warranted at Driveway 'A.' Since there is no existing northbound right-turn lane at this intersection, a new lane will need to be constructed by the development. The length of the lane will be limited to less than 200-ft due to the proximity of Driveway 'B' to Driveway 'A'.

   Driveway 'B' - A 240-feet long (including transition) northbound right-turn deceleration lane is warranted at Driveway 'B'. **The existing right-turn lane meets this requirement.** A southbound left-turn deceleration lane is warranted at Driveway 'B.' The southbound left-turn lane should have at least 75-feet of storage length with a 300-150 reverse curve transition. **The existing left-turn lane meets this requirement.**

   Driveway 'C' - A 240-ft long (including 300-150 reverse curve transition) eastbound right-turn lane is warranted at Driveway 'C'. A westbound left-turn deceleration lane is warranted at Driveway 'C'. The left-turn lane should have at least 75-ft of queue storage (based on the maximum 95th percentile queue of one vehicle plus two additional vehicles) plus a 300-150 reverse curve transition.

5. **Crash Analysis –** There were 39 recorded crashes in the study area for the three-year study period (2017-2019). All the crashes occurred at the Westside Blvd. & Golf Course Rd. intersection. 26% of the crashes were due to Failure to Yield Right of Way. The existing crash rate at the Westside Blvd. & Golf Course Rd. intersection is 2.7 crashes per million vehicles or about 2.5 times greater than the average for Albuquerque.

In summary, the proposed Golf Course + Westside Commercial Development will have minimal adverse impact to the adjacent transportation system provided the recommendations below are implemented.

Recommendations (Refer to Site Plan on page iii)

1. **Westside Blvd. & Golf Course Rd.**

   By **2035** the City of Albuquerque should consider adding a dedicated SBR turn lane and re-time the signal to reduce the delays and queue length of the southbound thru-right turn movement at Westside Blvd. & Golf Course Rd. This will also improve the overall intersection LOS and queueing. Since the development does not significantly contribute to the performance issues at this intersection and these issues are not anticipated until 2035, no mitigation on the part of the development is recommended.

1. **Driveway "A"**
   a) Driveway "A" should be designed and constructed as an unsignalized right/-in/right-out only access with one entering lane and one exiting lane.
   b) A new northbound right-turn deceleration lane, 240-ft long (or the maximum distance possible starting at the curb return for Driveway 'B') including a 30-150 reverse curve transition, should be constructed by the development (see drawing on page iii).
   c) Onsite queue storage at Driveway "A" should be at least 75 feet long. (100 feet preferrable to provide some buffer).
2. **Driveway "B"**
   a) The existing geometry of Driveway 'B' as an unsignalized full access with one entering lane and two exiting lanes is acceptable.
   b) The existing southbound left and northbound right deceleration lanes at Driveway 'B' meet the requirements of the City of Albuquerque's deceleration lane requirements.
   c) Onsite queueing at Driveway "B" should be at least 75 feet long (100 feet preferrable to provide some buffer).
3. **Driveway 'C'**
   a) Driveway "C" should be designed and constructed as an unsignalized full access with one entering lane and two exiting lanes.
   b) Construct a new eastbound right-turn deceleration lane, 240-ft long (or the maximum distance possible starting at the curb return at the Westside Blvd. & Golf Course Rd. Intersection) including a 30-150 reverse curve transition (see drawing on page iii).
   c) Construct a new westbound left turn lane with at least 75-ft of queue storage plus a 600-300 reverse curve transition (see drawing on page iii).
   d) Onsite queue storage at Driveway "C" should be at least 75 feet long. (100 feet preferrable to provide some buffer).

2. **Recommendations based on the City of Albuquerque Planning Transportation Comments from a letter dated January 7, 2022** (see letter in Appendix page A-66 & A-67 from a previous TIS submittal associated with this property)
   a) The developer shall coordinate site plan development and roadway design with COA project CPN 589493 contact Tierra West, LLC.
   b) The developer is to provide graphical evidence to the City's Design Review Committee for the reduced turn lane length at Driveway 'A' and Driveway 'B'.
   c) Developer to coordinate with COA Transit due to the existing bus stop on Golf Course Rd near Driveway 'A" (COA Bus Route 96, Golf Course Rd., Stop: 7364, Direction: NB, south of Westside Blvd.).

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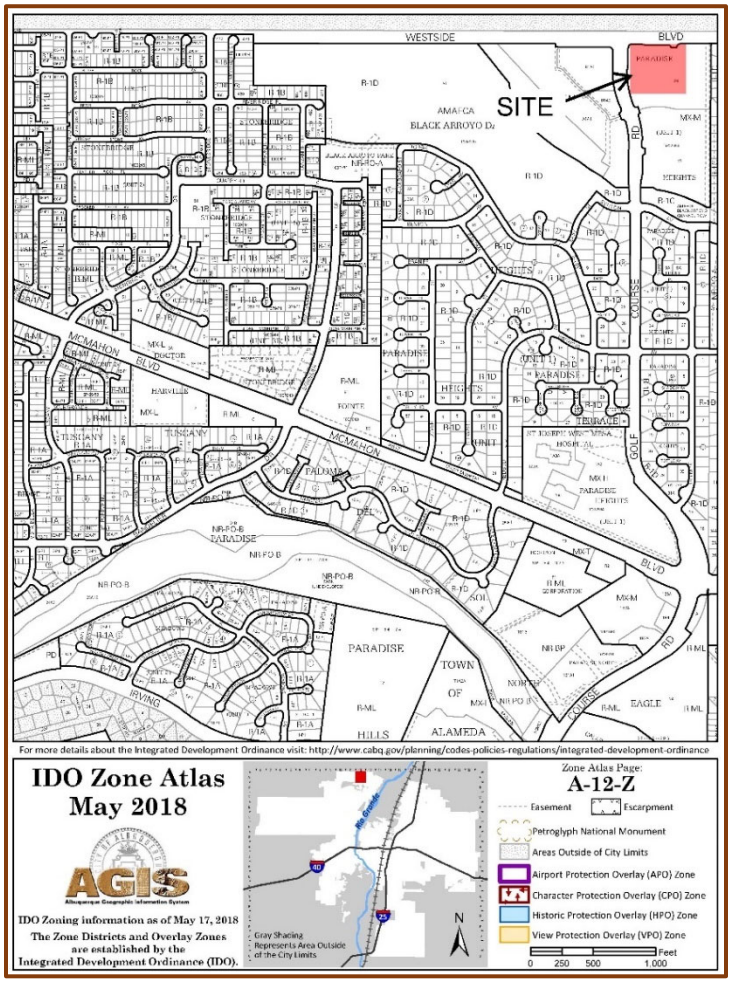

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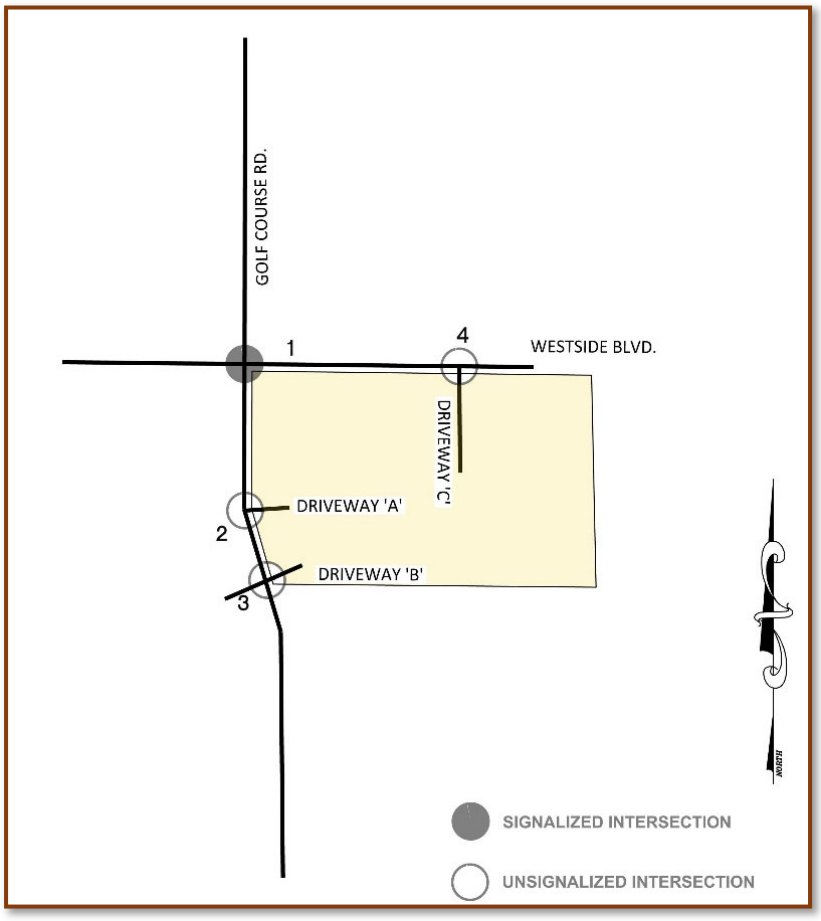

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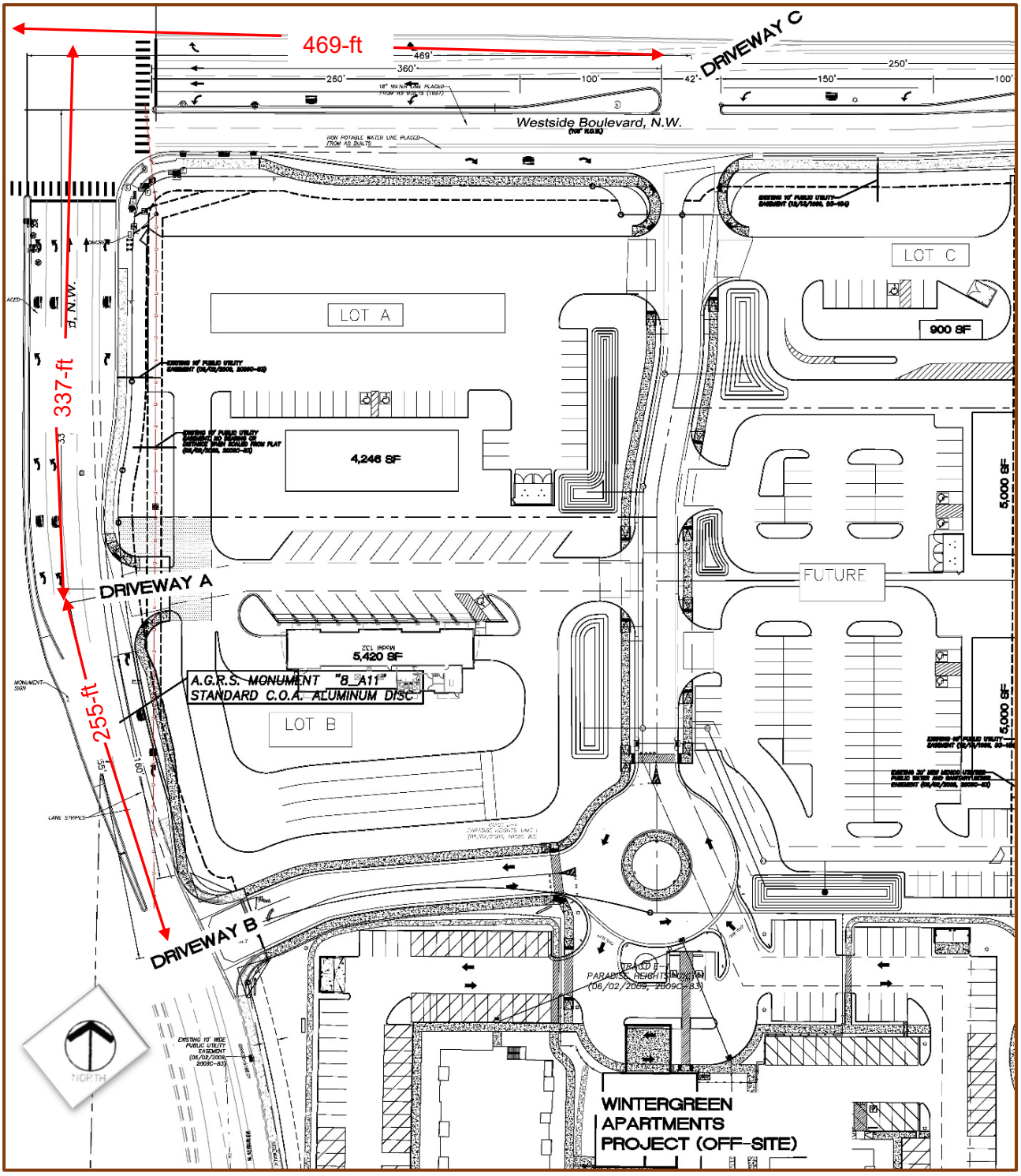
The proposed project is to be developed as Convenience Market / Gas Station (ITE Land Use 945) w/16 fueling positions and 4,246 square feet of floor area, 10,000 square feet of High Turnover Restaurant space (ITE Land Use 932), a 900 square foot Coffee/Donut Shop (ITE Land Use 938), and an Automated Car Wash (ITE Land Use 948). The land for the project is currently undeveloped and the study area is mostly developed. There are three proposed access driveways (Driveway ‘A’, Driveway ‘B’, and Driveway ‘C’). Driveway ‘A’ is to be a right-in/right-out access located on the east side of Golf Course Rd., 337-feet south of Westside Blvd. (centerline to centerline). Driveway ‘B’ is to be a full-access driveway 600-feet south of Westside Blvd. (centerline to centerline) and will be shared with the new apartment complex (Wintergreen Luxury Apartments) south of the development. Driveway ‘C’ is to be a

full access on the south side of Westside Blvd., 469-feet (centerline to centerline) east of Golf Course Rd. The proposed site plan is shown below. The full site plan is in Appendix pg. A-2.



Land Use and Intensity

The land for the project is currently undeveloped and the study area is approximately 75% developed. The parcel will be 100% developed when the proposed project is complete. The parcel is currently zoned MX-M, Mixed-use, Moderate Intensity, Commercial according to City of Albuquerque Zoning Maps.

Site Access

There are three proposed access driveways (Driveway 'A', Driveway 'B', and Driveway 'C'). Driveway 'A' is to be a right-in/right-out access located on the east side of Golf Course Rd., 355-feet south of Westside Blvd. (centerline to centerline). Driveway 'B' is an existing driveway on the east side of Golf Course Rd, 600-feet south of Westside Blvd. Driveway 'C' is proposed as a full access driveway on the south side of Westside Blvd., 425-feet east of Golf Course Rd. (centerline to centerline).

Full Access Justification for Driveway 'C'

Westside Blvd. is an Access Controlled Roadway as defined by the Roadway Access Control (RAC) for the Albuquerque Metropolitan Area (AMPA) by the Mid-Region Metropolitan Planning Organization (MRMPO). The purpose of the designation is "*to control vehicular access along selected roadways, to preserve reasonable property access*, *maintain a reasonable traffic flow and level of service, preserve safety …and allow for economic development and the safe and efficient movement of people and goods.*" (RAC Policy for the Albuquerque Metropolitan Planning Area with Inventory of Roadway Access Limitations, 2019). Since this portion of Westside Blvd. is within the limits of the City of Albuquerque, a RAC review is not required (Refer to section VII of the RAC Policy document). However, in accordance with the intent of the RAC policy, Driveway 'C' should be allowed as a full-access driveway for the following reasons:

1. **Reasonable Access:**
   - The number of access points is acceptable according to City of Albuquerque DPM Table 7.4.46, which specifies the maximum number of access points per site based on road frontage. This site has 1140 lineal feet of road frontage which would allow for five access points according to the table. **Only three** access points are proposed for the Golf Course + Westside Development **and one of those is shared** with another development. Therefore, it is reasonable to allow at least two of the three access to be full access driveways.
   - The distance of proposed Driveway 'C' from the intersection (469-ft) is greater than the access spacing requirement in the City of Albuquerque DPM Table 7.4.45 (300-ft).
   - The next closest access is 7 Bar Loop Rd., approximately 1200 feet east of Driveway 'C'.
   - Access from the east on Westside Blvd. will allow legal movements and reduce the left turn movements at the signalized intersection of West Side and Golf Course.
2. **Reasonable Traffic Flow and Level of Service (LOS):** If Driveway 'C' were to be restricted to right-in/right-out/left-in only, approximately 200 left-turn exiting trips would be diverted to Driveway 'B' or Driveway 'A'. This is problematic since the left-turn movement at Driveway 'B' is already failing. For example, with the current trip distribution, only 40 vehicles are turning left from Driveway 'B' during the 2025 PM peak hour and the LOS is F with 58.2 seconds per vehicle of delay. Diverting the

Driveway ‘C’ left turns to Driveway ‘B’ would increase the delay at Driveway ‘B’ to 270 seconds and the onsite queue would be 270-ft long. Southbound traffic choosing instead to make a right-turn would have to make a U-turn at Golf Course Rd. & 22nd Ave. or Westside Blvd. & 7-Bar Loop Rd. to proceed south. Also, U-turns would cause vehicles to enter the Westside & Golf Course intersection twice, further degrading the LOS. Westbound drivers who make a right-turn at Driveway ‘A’ must weave across two lanes of thru traffic within 50-ft to reach the left lane. These options would produce more turning movements, conflict points and trips thru the signalized intersection, so they are not preferable to the proposed traffic distribution.

3. **Preserve Safety:** A crash analysis of the study area shows that the intersection of Westside Blvd. & Golf Course Rd. has about 2.5 times more crashes than the average Albuquerque intersection. The new improvements to Westside Blvd. may reduce the crash rate, however, forcing vehicles to make U-turns and increasing the traffic volume through the intersection instead of making left turns out of Driveway ‘C’ would likely increase crash rates at Westside & Golf Course and the intersections where the vehicles are making U-turns.

Development Phasing and Timing

The development will be built in one phase. The anticipated implementation year for this project is 2025. The horizon year is 2035.

Study Area Conditions

Existing Land Use

The land for the project is undeveloped with and the study area is approximately 75% developed with commercial businesses. All land parcels adjacent to the development are zoned commercial and are fully developed. The influence area is a 2-mile radius from the development.

Other Planned or Approved Development and Transportation Improvements

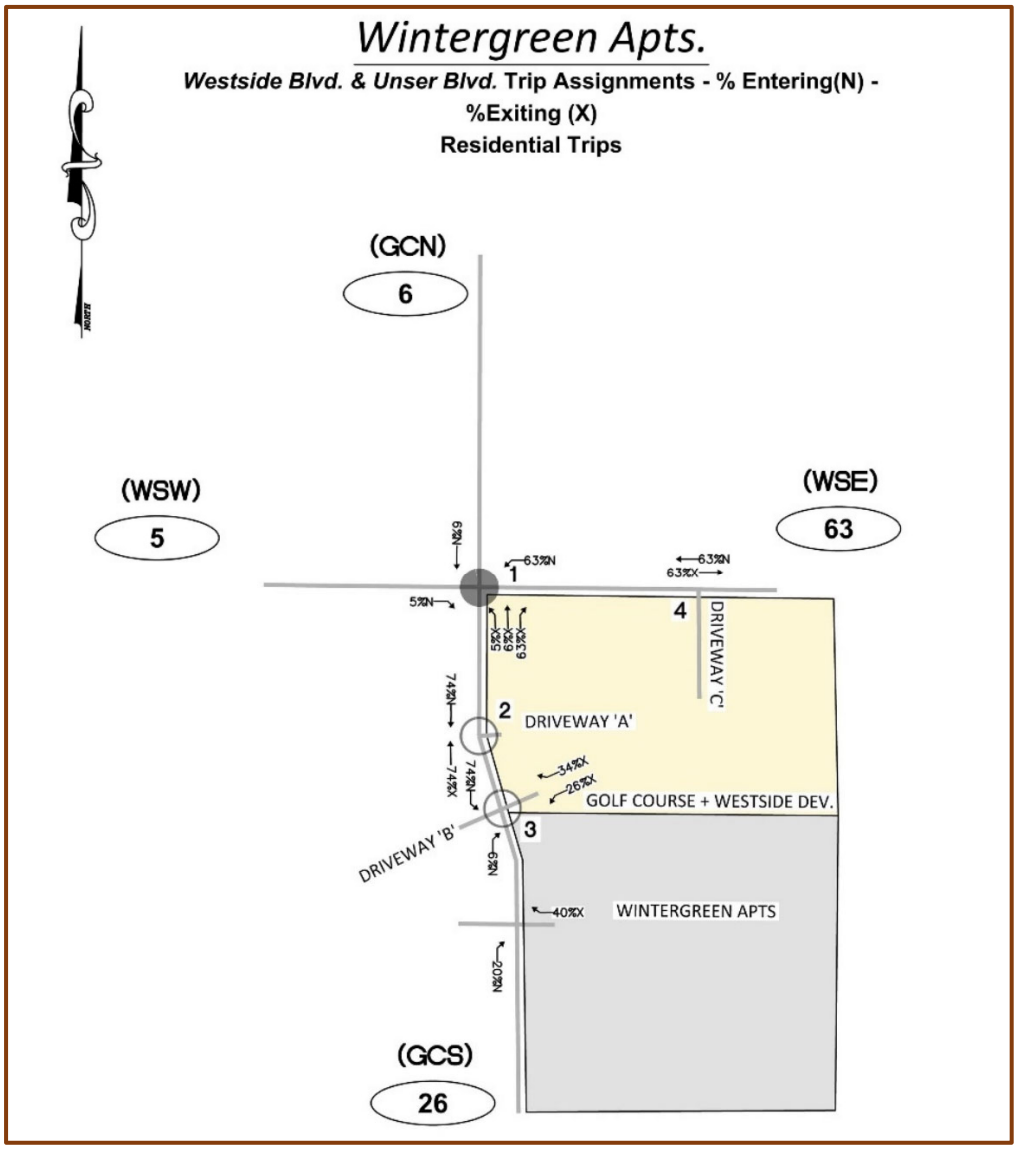
There are three major developments and one transportation projects in the influence area that may affect the results of the analysis in this TIS; Wintergreen Apartments, The Havenly Residential Development, The Village Commercial Development, and the Westside Blvd. Widening Project (see below). Trips generated by the developments are included in the NO BUILD volumes. Improvements to Westside Blvd. are included as existing geometries in the analysis.

1. **Wintergreen Apartments** are currently under construction and are located adjacent to the southern boundary of the development. It includes 208 mid-rise multifamily housing units and two access points on Golf Course Rd, one of which will be shared with the Golf Course + Westside Development. The trip generation table and trip distribution map for the project are shown below.

Wintergreen Luxury Apartments (South of Golf Course + Westside Development)

Trip Generation Data (ITE Trip Generation Manual - 11th Edition)

USE (ITE CODE)	Units		24 HR VOL	A. M. PEAK HR.		P. M. PEAK HR.	
DESCRIPTION			*GROSS*	*ENTER*	*EXIT*	*ENTER*	*EXIT*
Summary Sheet							
Multifamily Housing (Mid-Rise)	Dwelling Units	208.00	944	18	62	49	32
		Subtotal	**944**	**18**	**62**	**49**	**32**
		Pass-By Trips	*0%*	*0*	*0*	*0*	*0*
		Total Primary Trips Exiting & Entering		**18**	**62**	**49**	**32**
		Total Primary Trips AM & PM		**80**		**81**	

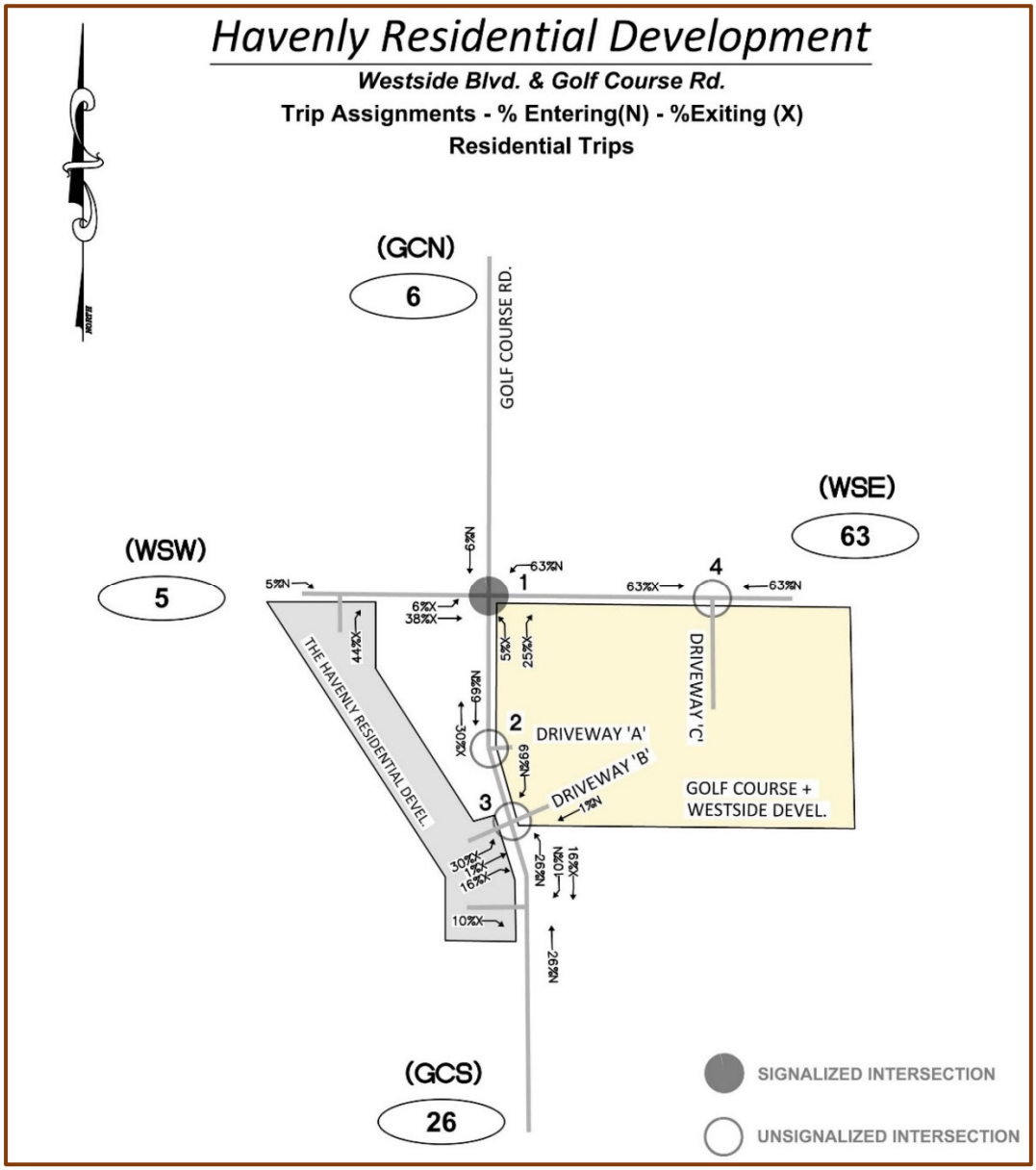


2. **The Havenly Residential Development** is comprised of 101 low rise multifamily housing units to be constructed in the southwest quadrant of Westside Blvd. & Golf Course Rd. The project is not yet under construction. The trip generation table and trip distribution map for the project are shown below.

The Havenly Residential Development (Golf Course Rd./Westside Blvd.)

Trip Generation Data (ITE Trip Generation Manual - 11th Edition)

USE (ITE CODE)	Units		24 HR VOL	M. PEAK HR.		P. M. PEAK HR.	
DESCRIPTION			*GROSS*	*ENTER*	*EXIT*	*ENTER*	*EXIT*
Summary Sheet							
Multifamily Housing (Low-Rise)	**Dwelling Units**	101.00	681	10	31	40	24
		Subtotal	**681**	**10**	**31**	**40**	**24**
		Pass-By Trips	*0%*	*0*	*0*	*0*	*0*
		Total Primary Trips Exiting & Entering		**10**	**31**	**40**	**24**
		Total Primary Trips AM & PM		**41**		**64**	

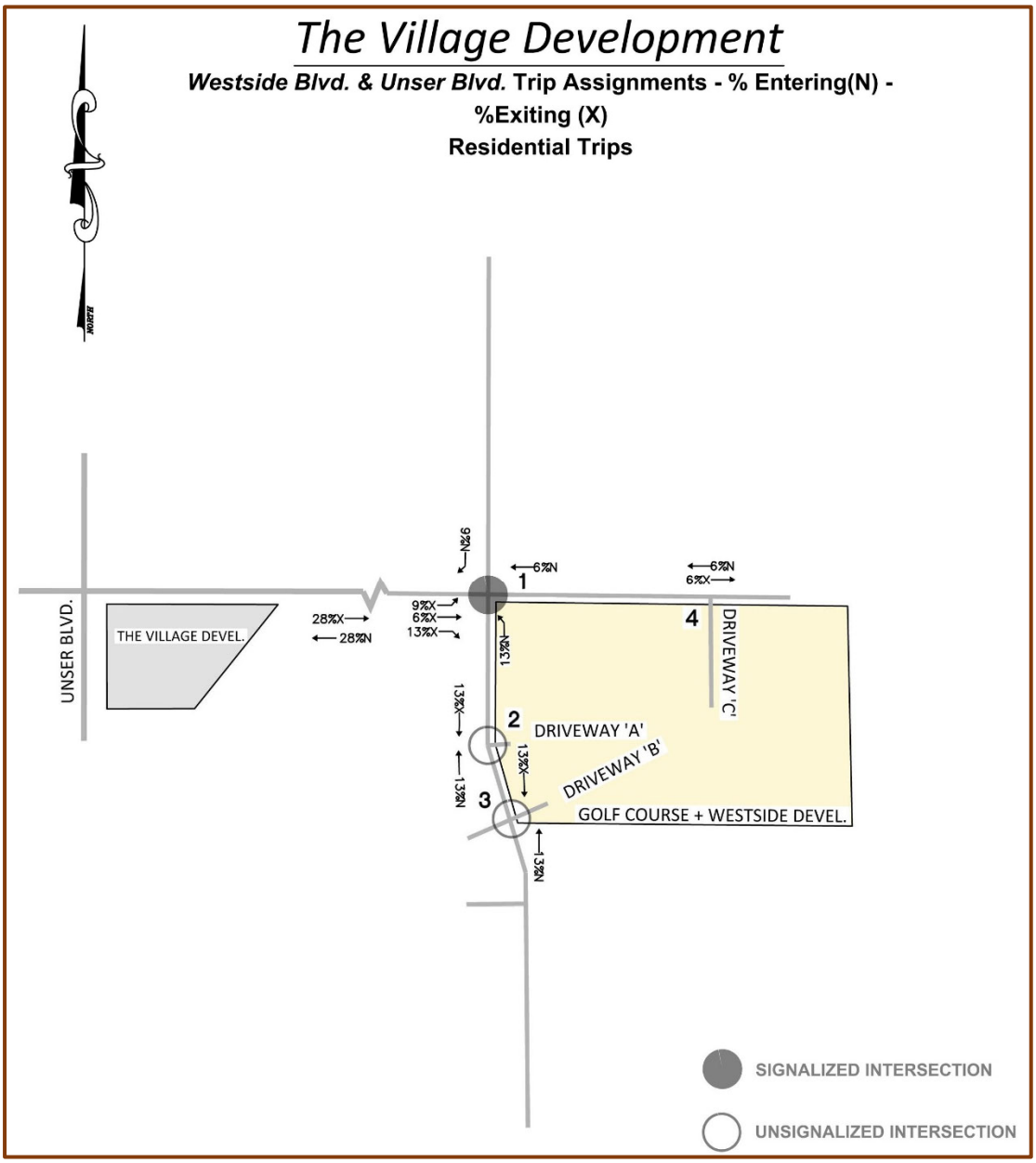


3. **The Village Commercial Development** is planned to be in the southeast quadrant of Westside Blvd. & Unser Blvd. and will contain 1000 square feet of commercial retail development. It is not yet under construction. The trip generation table and trip distribution map for the project are shown below.

The Village Development (Westside Blvd./Unser Blvd.)

Trip Generation Data (ITE Trip Generation Manual - 11th Edition)

USE (ITE CODE)	Units		24 HR VOL	A. M. PEAK HR.		P. M. PEAK HR.	
DESCRIPTION			*GROSS*	*ENTER*	*EXIT*	*ENTER*	*EXIT*
Summary Sheet							
Shopping Center > 150K - Linear (820)	1,000 S.F.	606.57	22,449	316	194	990	1,072
		Subtotal	22,449	316	194	990	1,072
		Pass-By Trips	*30%*	*-95*	*-58*	*-297*	*-322*
		Total Primary Trips Exiting & Entering		221	136	693	750
		Total Primary Trips AM & PM		357		1443	



4. **Westside Blvd. Widening Project** is currently under construction. The Westside Boulevard Widening Project will widen about 0.85 miles of Westside Boulevard from NM 528 to Golf Course from two to four lanes. It will also provide dedicated left-hand turn lanes at the Westside Blvd. and Golf Course Rd. intersection as well as several other intersections outside this projects' study area. Bike lanes and sidewalks will also be improved. Plans for the project are in Appendix pages A-68 thru A-70.

Site Accessibility

The site is accessible from the east side of Golf Course Rd. and the south side of Westside Blvd.

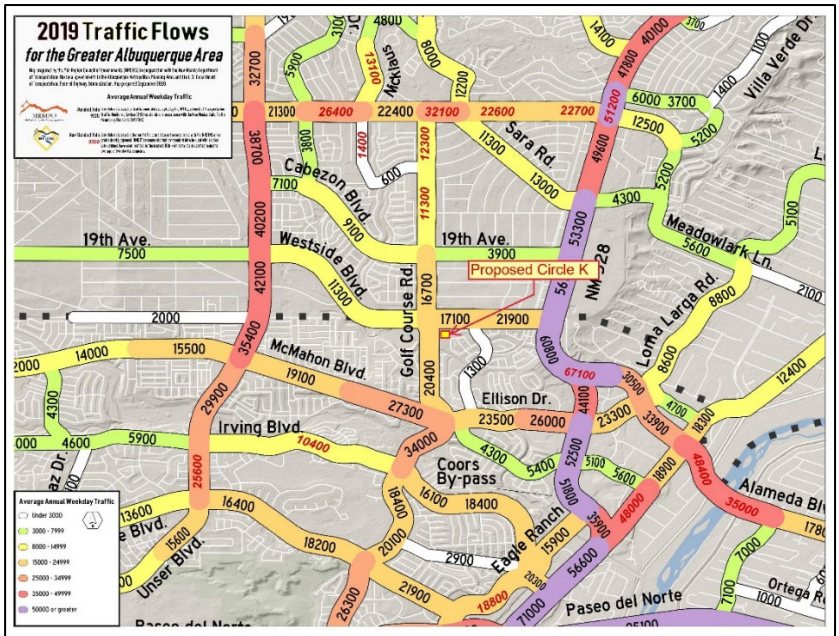
Existing and Future Area Roadways and Bikeways

Westside Blvd. is classified a **Community Principal Arterial** roadway on the Mid-Region Council of Governments Long Range Roadway System map. It is a four-lane roadway with a raised divided median, curbs, and gutters. The posted speed limit is 35-mph. There are existing pedestrian facilities on both sides of Westside Blvd. except for the north side east of Golf Course Rd. A new 10' wide paved trail will be constructed on the north side of Westside Blvd. and existing sidewalks fronting the project on the south side will be reconstructed as part of the Westside Blvd. Widening project. The new paved trail will connect to the existing paved trail along the north side of Westside Blvd. west of Golf Course Rd. The existing bike lane fronting the project on the south side of Westside Blvd. will be maintained.

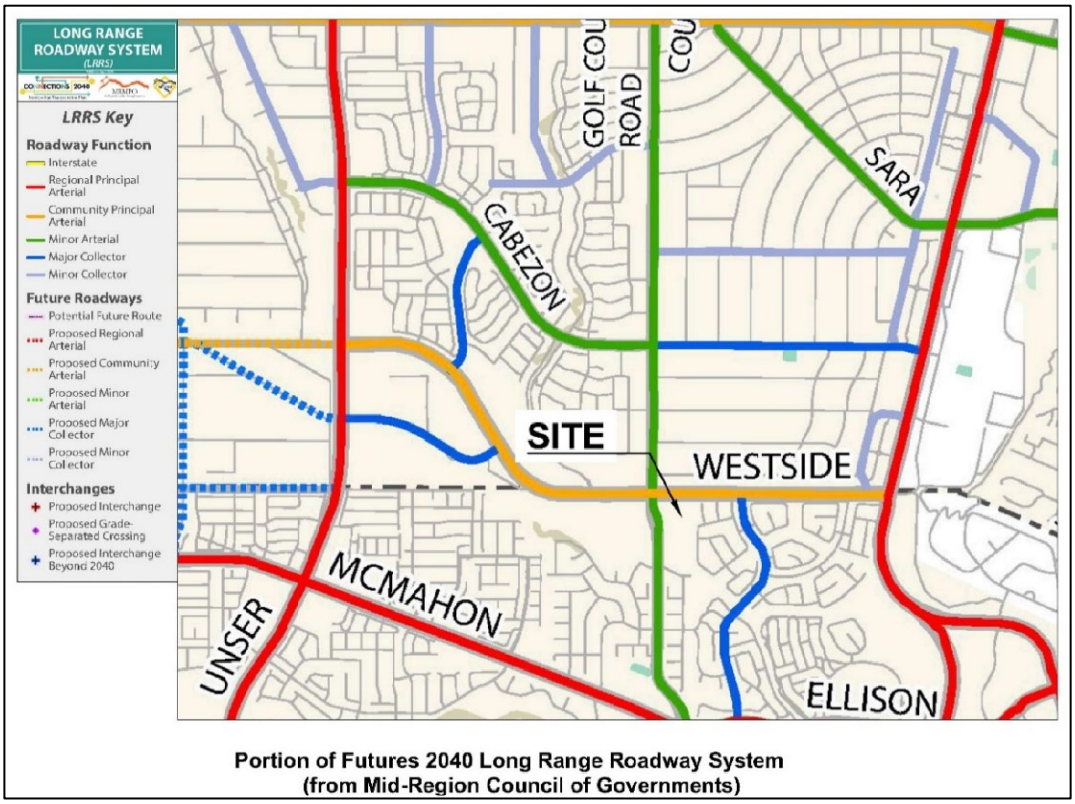
Golf Course Rd. is classified as a **Minor Arterial** roadway on the Mid-Region Council of Governments Long Range Roadway System map. It is a four-lane roadway with a raised divided median, curbs, and gutters. The posted speed limit is 40-mph. There are pedestrian facilities and bike lanes along both sides of Golf Course Rd. in the area fronting the project

All existing intersections in the study area have adequate **lighting**.

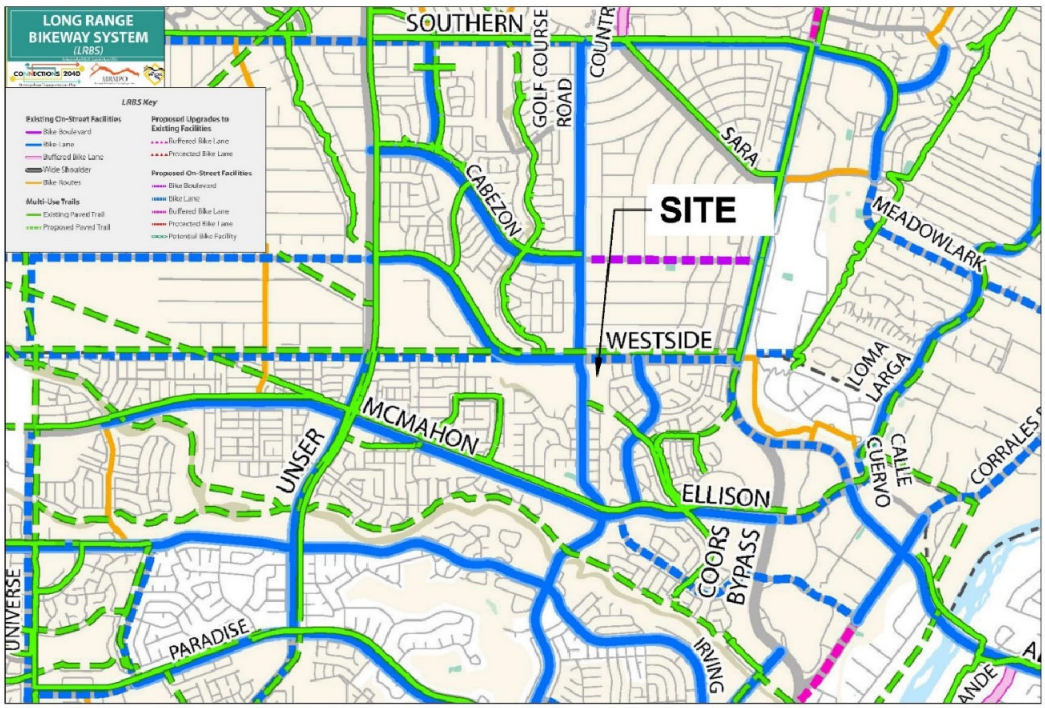
Following are portions of the following regional transportation maps for more information. These include the 2019 Traffic Flow Map, Futures 2040 Long Range Roadway System, and Futures 2040 Long Range Bikeway System Map. As shown on the Futures 2040 Long Range Bikeway System Map, a paved trail is proposed along Westside Blvd. fronting the project.



Portion of 2019 Traffic Flow Map
(from Mid-Region Council of Governments)



Portion of Futures 2040 Long Range Roadway System
(from Mid-Region Council of Governments)



Portion of Futures 2040 Long Range Bikeway System
(from Mid-Region Council of Governments)

Analysis of Existing Conditions

Since the implementation year (2025) is only 3 years from now, no analysis of existing conditions was performed.

Analysis of Implementation Year and Horizon Year Conditions

Assumptions

The following assumptions as agreed upon in the project scoping meeting and included in the scope of work were made in preparation of this study.

1. There are three major developments and one transportation projects in the influence area that may affect the results of the analysis in this TIS. Trips generated by the developments are included in the NO BUILD volumes. Improvements to Westside Blvd. are included as existing in the analysis.
    1. Wintergreen Apartments
    2. The Havenly Residential Development
    3. The Village Commercial Development
    4. Westside Blvd. Widening Project
2. Trip Generation volumes are based on site plan provided by the developer or developer's representative (square footage of building proposed and other land uses on site as defined on site plan.)

3. Traffic count data (i.e., AM and PM Peak Hour turning movements demand volumes) is representative of pre-COVID 19 traffic conditions and therefore are not adjusted to account for any changes in traffic conditions due to the COVID 19 shutdowns.
4. Trip Distribution and Trip Assignments of the newly generated traffic are based on interpolated 2016 and 2040 Socioeconomic Forecasts by Data Analysis Subzones (DASZ) for the Mid-Region of New Mexico as published by the Mid-Region Council of Governments (MRCOG).
5. Only AM and PM Peak Hour analyses are performed.

Level of Service (LOS)

According to the City of Albuquerque, Design Process Manual (DPM), LOS standards are defined by Access Category. Table 7.5.89 identifies the minimum acceptable LOS standards according to Functional Classification & Roadway Type and City of Albuquerque's ABC Comp Plan Type (see below).
Because Golf Course Rd. and Westside Blvd., in the vicinity of the project, are outside of defined center,

TABLE 7.5.88 **Desired LOS by Location and Corridor Type**

Functional Classification & Roadway Type	ABC Comp Plan Center Type						
	Transit Station Area	Downtown	Urban Center	Activity Center	Village Center	Employment Center	Outside Center
Premium Transit	E-F	E-F	E-F	E-F	E-F	E-F	E-F
Major Transit	E	E-F	E	E	D-E	D-E	D-E
Multi-modal	E	E	E	E	D-E	D-E	D-E
Commuter	E	E	D-E	D-E	D-E	D-E	D
Other Arterial	E	E	E	D-E	D-E	D-E	D
Minor Arterial	E	E	D-E	D-E	D-E	D	D
Collector	E	D-E	D	D	C-D	C-D	C-D

intersections along these corridors must have a LOS=D or better or mitigated to maintain the LOS at existing (NO BUILD) condition levels.

Traffic Projections

The anticipated implementation year for this project is 2025 and the Horizon Year is 2035. Average Weekday Daily Traffic Volumes (AWDT) generated by the Mid-region Council of Governments from 2009 to 2018 were used to determine the historical growth rates along Golf Course Rd. and Westside Blvd. The calculated average **growth rate for the intersection was 4.7%**. See Appendix A-5 and A-6 for the Historic Growth Rate Data Table and Node Map.

Existing Traffic Volumes

Existing traffic volumes were collected at the Westside Blvd. & Golf Course Rd. intersection in the field during October of 2021. Existing volumes for the thru volumes at the driveway intersections were extrapolated from the traffic counts. Existing traffic volumes for the eastbound approach of the Driveway

'B' were determined by calculating the trips generated from the HME Specialist Office Building in the southwest quadrant of the Westside & Golf Course Intersection. The ITE trips generation summary table for HME Specialist is below.

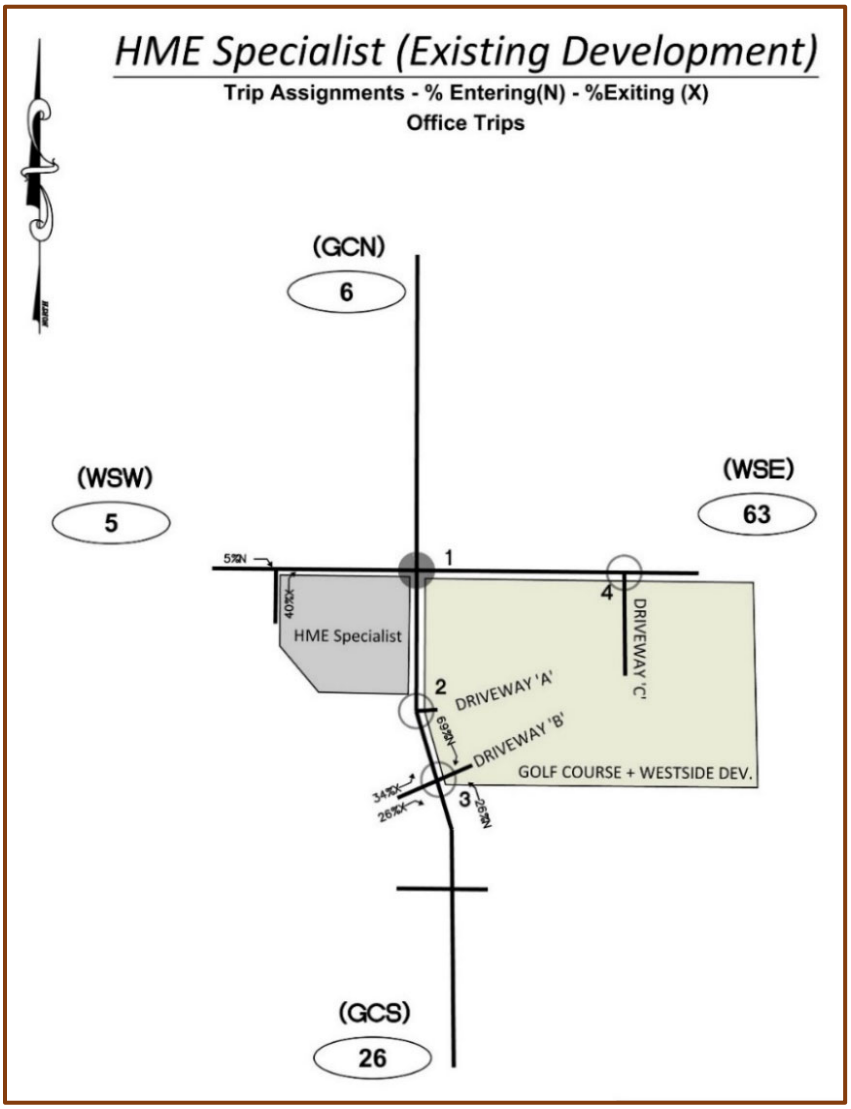
HME Specialist SW Quadrant of Westside & Golf Course

Trip Generation Data (ITE Trip Generation Manual - 11th Edition)

ESTIMATED TRIPS FOR EXISTING DRIVEWAY WEST OF DRIVEWAY B

USE (ITE CODE)	Units		24 HR VOL	M. PEAK HR.		P. M. PEAK HR.	
DESCRIPTION			*GROSS*	*ENTER*	*EXIT*	*ENTER*	*EX*
Summary Sheet							
General Office Building (710)	1,000 S.F.	28.00	304	49	7	10	
		Subtotal	304	49	7	10	
		Pass-By Trips	*0%*	*0*	*0*	*0*	
		Total Primary Trips Exiting & Entering		49	7	10	
		Total Primary Trips AM & PM		56		58	

Trips exiting and entering HME Specialist were distributed proportionally to the 2021 projected population of Data Analysis Subzones (DASZ) within a 2.0-mile radius (see diagram below).



Background Traffic Volumes

Background traffic volumes are calculated by applying historical annual background traffic growth rates to the existing traffic volumes for the implementation year. The growth rate for the study is 2.7% based on Traffic Flows (AWDT) from Mid-Region Council of Governments (MRCoG) Regional Transportation Model from 2016 to 2040. See Appendix page A-5 for the MRCoG data table and page A-6 for the Node Map.

Trips Generated by the Project

According to the Institute of Traffic Engineers Trip Generation Manual, 11th Edition, the project is anticipated to generate 143 new entering trips and 138 new exiting trips during the weekday AM Peak Hour period and 141 new entering trips and 131 new exiting trips during the PM Peak Hour period. A 50% pass-by trip rate reduction is included in the trips generated. See the table below.

Westside / Golf Course Rd. Development (SE Corner)

Trip Generation Data (ITE Trip Generation Manual - 11th Edition)

USE (ITE CODE)			24 HR VOL	A. M. PEAK HR.		P. M. PEAK HR.	
DESCRIPTION	*Units*		*GROSS*	*ENTER*	*EXIT*	*ENTER*	*EXIT*
Summary Sheet							
Convenience Store / Gas Station - GFA 4-5.5K (945)	Fueling Positions	16.00	4,114	216	216	182	182
High Turnover (Sit-Down) Restaurant (932)	1,000 S.F.	10.00	1,072	53	43	55	35
Coffee/Donut Shop w/ Drive Thru Window and No Indoor Seating (938)	Drive-Through Lanes	0.90	161	18	18	7	7
Automated Car Wash (948)	Car Wash Tunnels	1.00	-	-	-	39	39
		Subtotal	5,347	287	277	283	263
		Pass-By Trips	*50%*	*-144*	*-139*	*-142*	*-132*
			Total Primary Trips	143	138	141	131
			Total Primary Trips AM & PM	279		131	

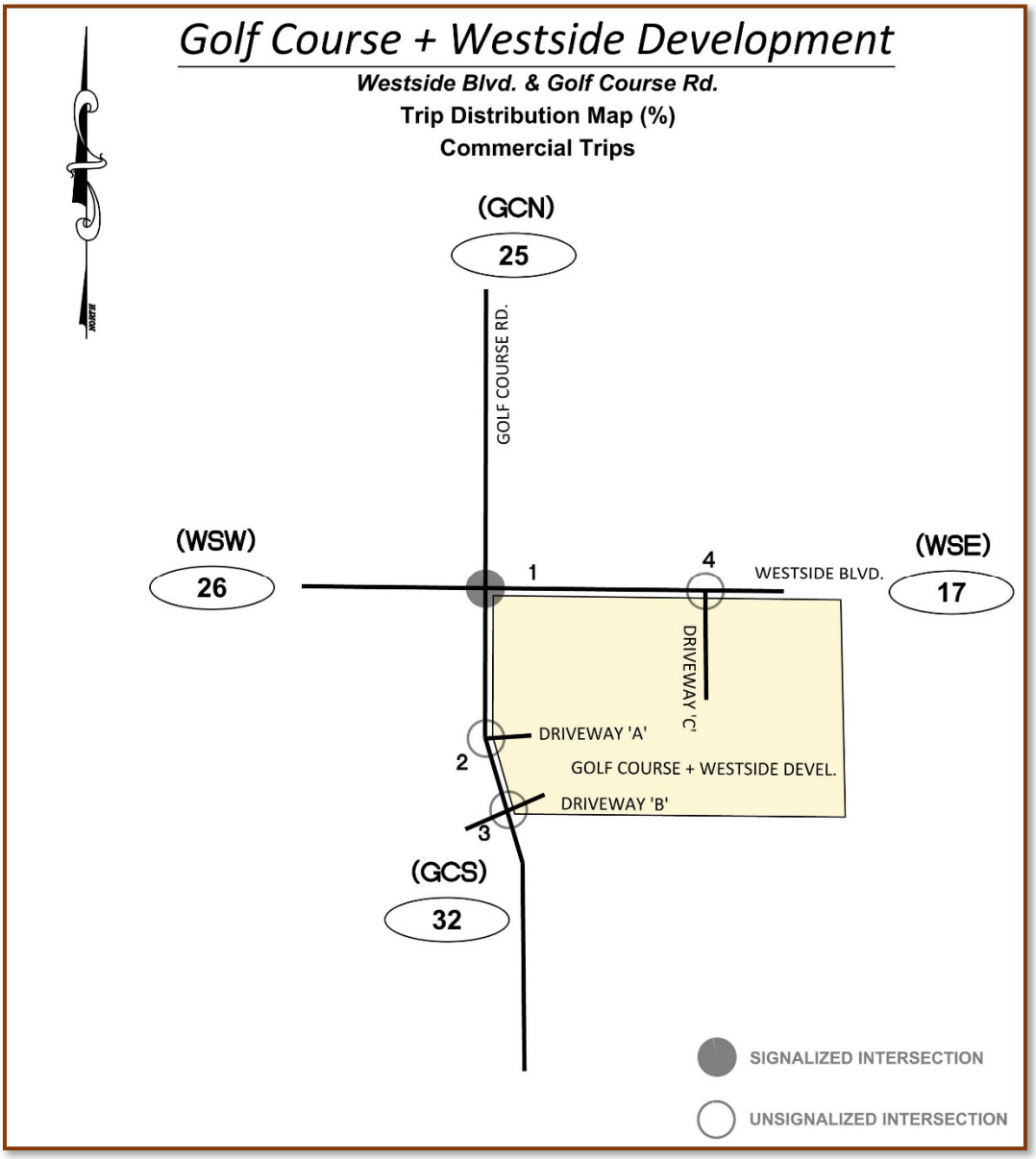
NO BUILD and BUILD Traffic Volumes

NO BUILD volumes were generated by adjusting the existing volumes with the annual background traffic growth. BUILD volumes were calculated by increasing the NO BUILD volumes by the trips generated by the project. The trip assignment percentages were used to distribute the trips generated to the individual traffic movements at each intersection. The turning movement counts for the **2025 and 2035 AM and PM Peak Hour, NO BUILD, and BUILD** conditions for each movement in each intersection the study area are provided in the Appendix on Pages A-18 thru A-25.

Trip Distribution and Trip Assignments

Trip Distribution and Trip Assignments of the newly generated traffic are based on interpolated 2016 and 2040 Socioeconomic Forecasts by Data Analysis Subzones (DASZ) for the Mid-Region of New Mexico as published by the Mid-Region Council of Governments (MRCOG). New Trips were distributed proportionally based on distribution of population withing a two-mile radius of the project.
(See Appendix page A-7 thru A-9).

Trip assignments percentages for vehicles entering and exiting are derived from data established in the trip distribution determination process and logical routing. See the turning movement maps below for the distribution of entering and exiting traffic volumes.

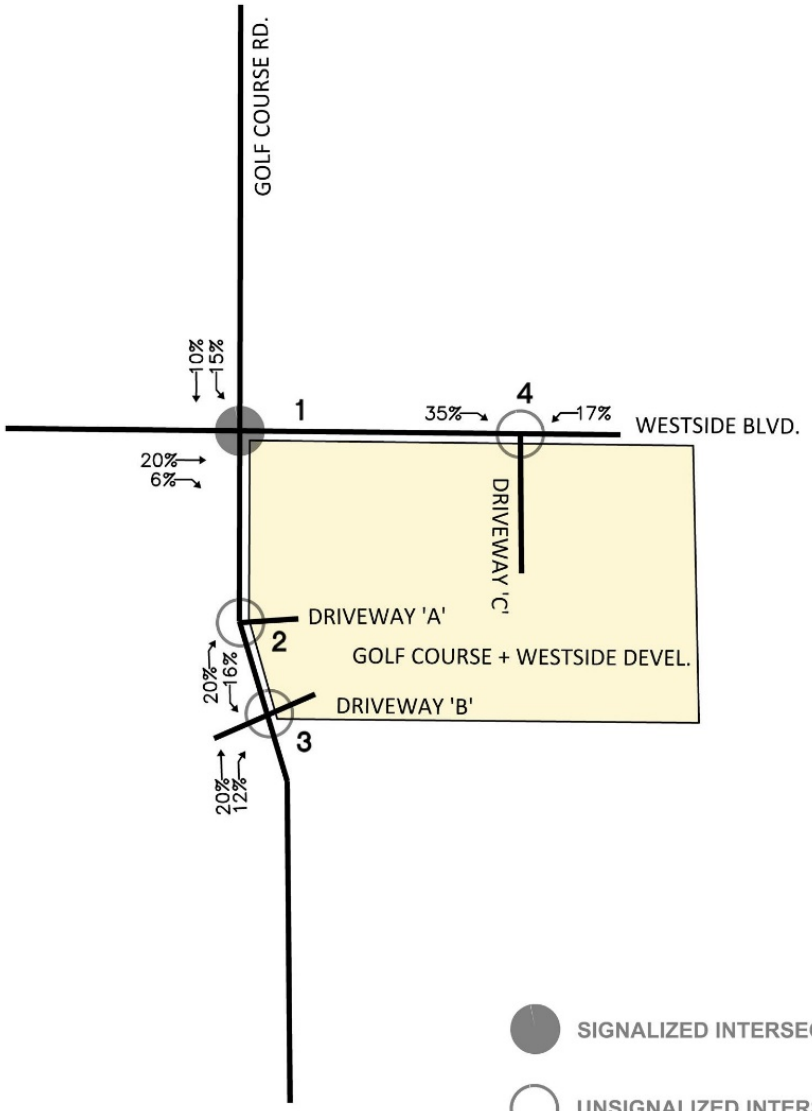


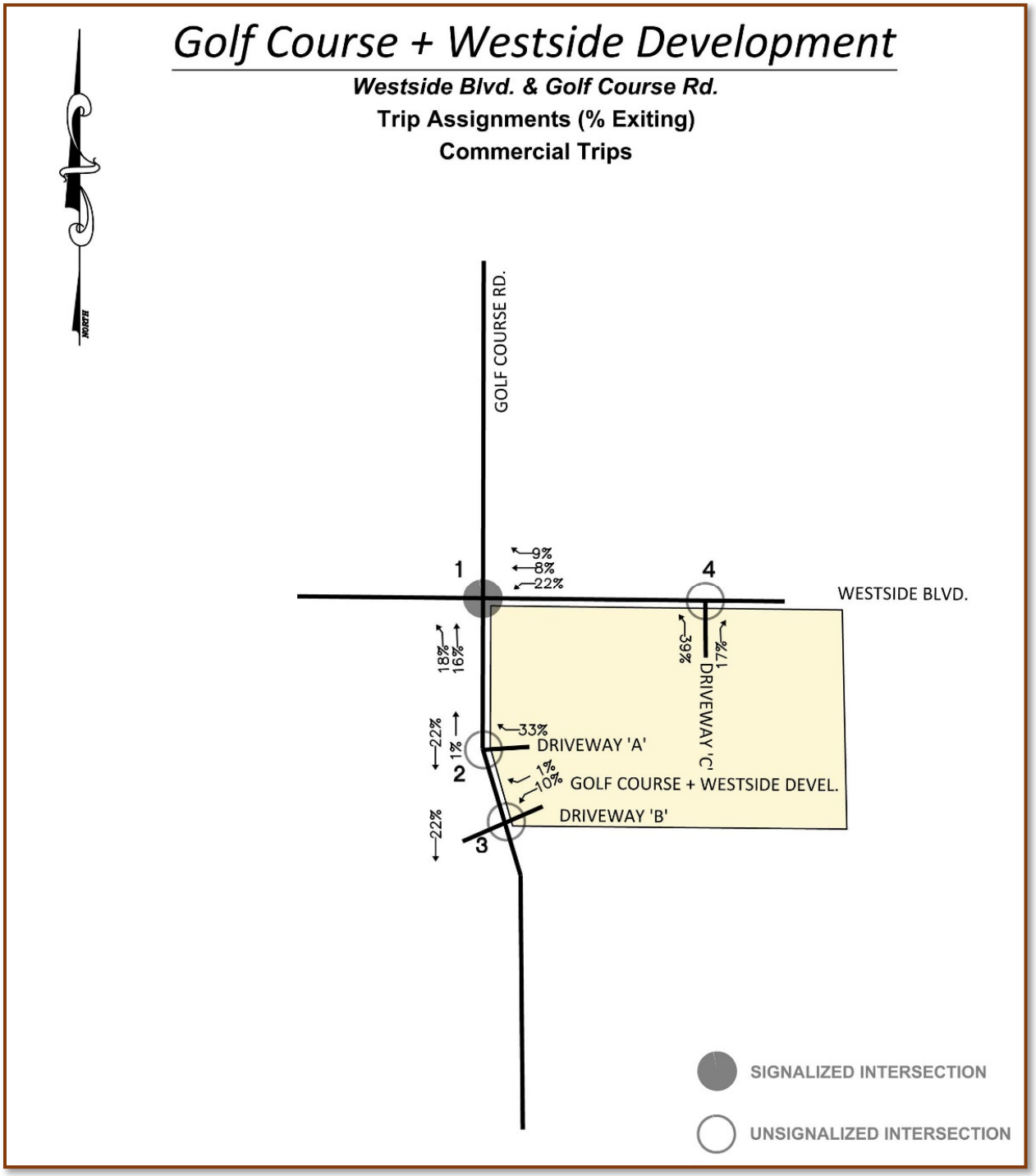
Golf Course + Westside Development

Westside Blvd. & Golf Course Rd.

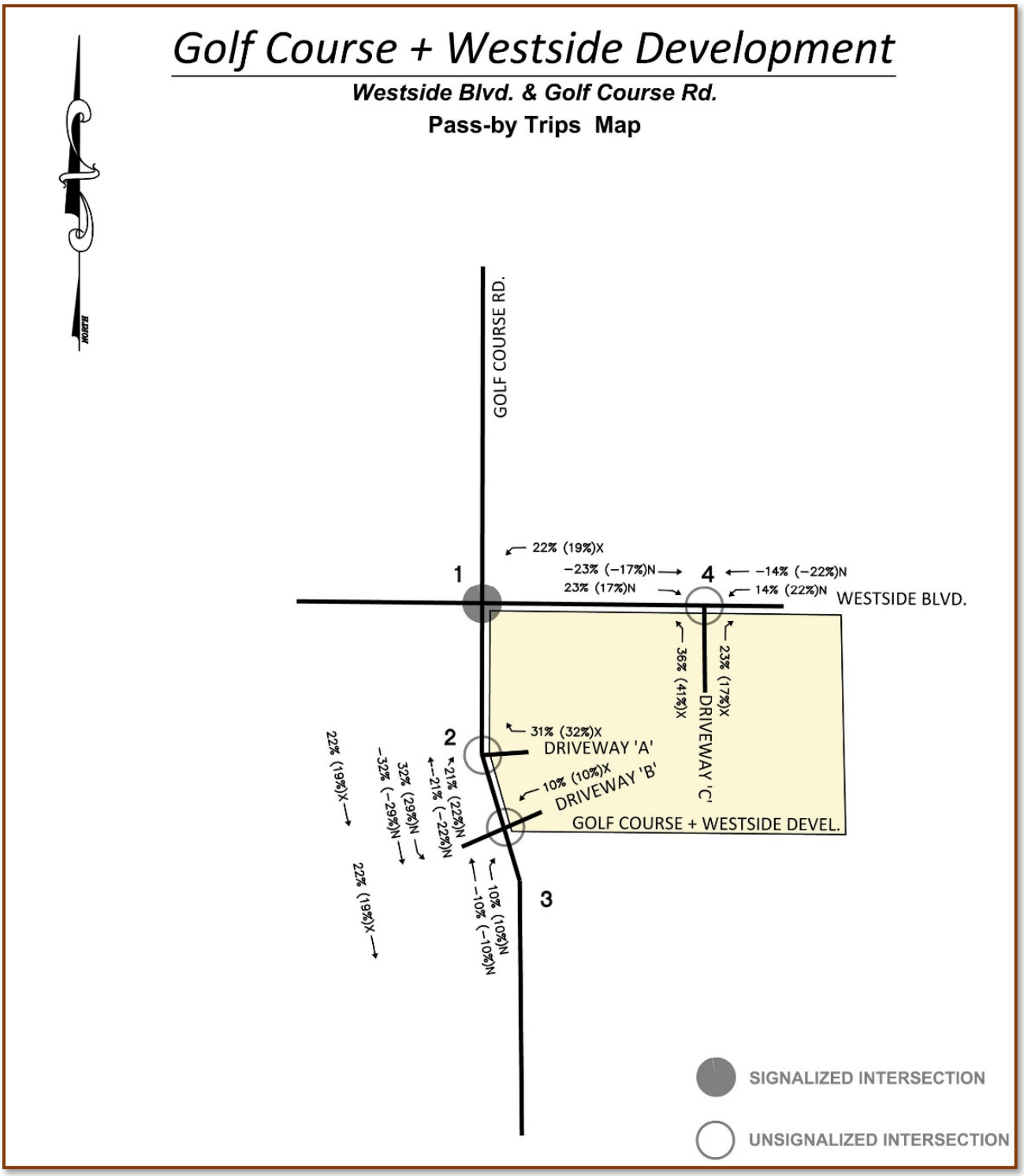
Trip Assignments (% Entering)

Commercial Trips




Golf Course + Westside Development
Westside Blvd. & Golf Course Rd.
Trip Assignments (% Exiting)
Commercial Trips
GOLF COURSE RD.
WESTSIDE BLVD.
1
2
3
4
9%
8%
22%
18%
16%
22%
1%
33%
DRIVEWAY 'A'
1%
10%
GOLF COURSE + WESTSIDE DEVEL.
DRIVEWAY 'B'
22%
39%
17%
DRIVEWAY 'C'
SIGNALIZED INTERSECTION
UNSIGNALIZED INTERSECTION

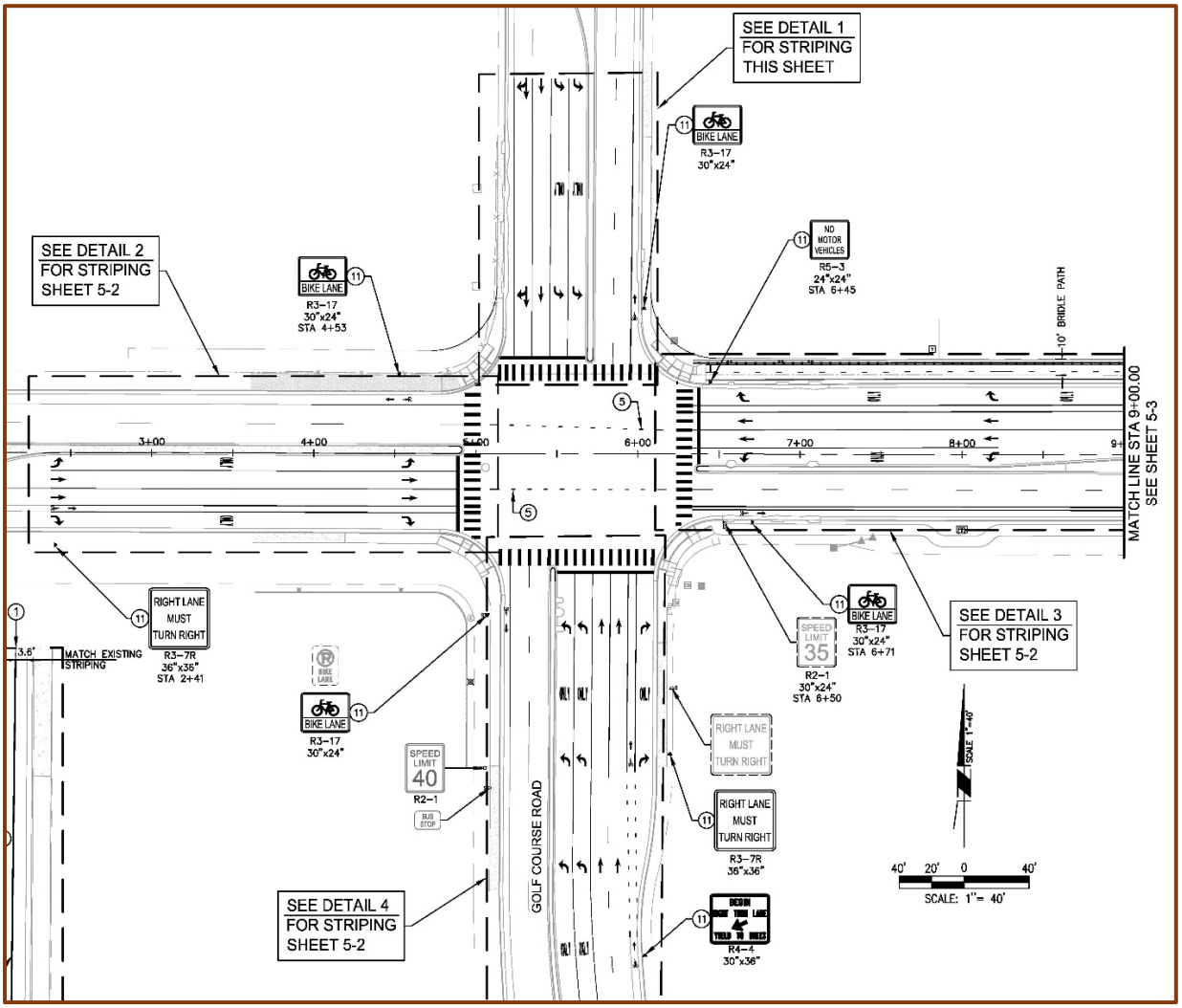
Pass-by Trip Percentages are the percentages of vehicles that enter the new development that currently exist as thru traffic. See the turning movement map below for the distribution of pass-by trips entering and exiting the site.



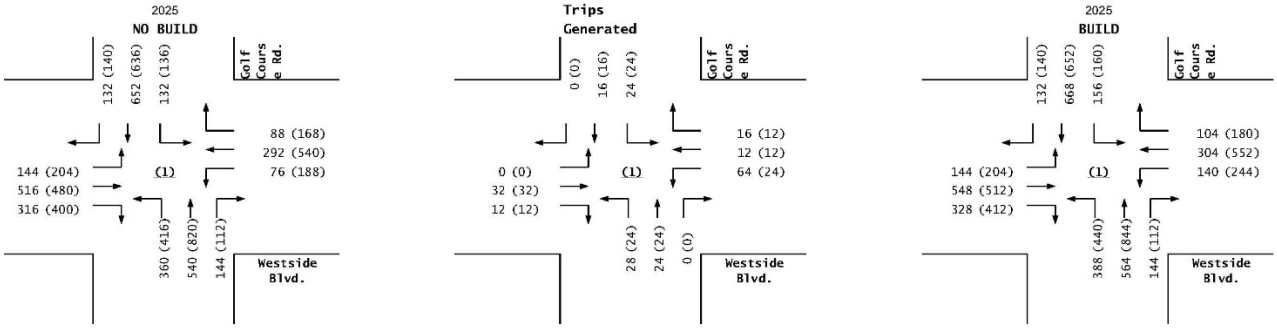
Traffic Analysis

A capacity analysis of the study area intersections was conducted in accordance with the Highway Capacity Manual (HCM6), for the signalized intersections using Synchro 10 (Build 10.3.122.0) modeling software. See Appendix pages A-26 thru A-58 for detailed results of the analysis. Summaries of the analysis results for the 2025 Implementation Year and 2035 Horizon Year are presented in the tables below.

INTERSECTION 1 – Westside Blvd. (East/West) / Golf Course Rd. (North/South) (Signalized, Existing)



The following table summarizes the 2025 Implementation Year and 2035 Horizon Year analysis results for the signalized intersection of Westside Blvd. / Golf Course Rd. Cells highlighted in Red indicate values that exceed acceptable standards. See Appendix pages A-26 thru A-34 for 2025 and 2035 detailed peak hour SYCHRO 11 reports



Westside Blvd. / Golf Course Rd.

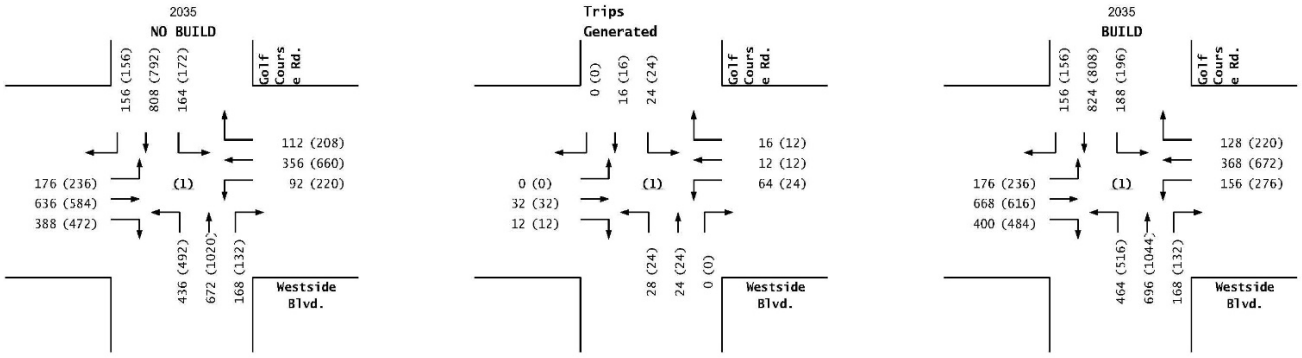
Synchro Results Summary Sheet

2025 Implementation Year

Westside Blvd. / Golf Course Rd.	EB (Westside Blvd.)			WB (Westside Blvd.)			NB (Golf Course Rd.)			SB (Golf Course Rd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	2	1	1	2	1	2	2	1	2	2>	0
AM Peak Hour												
2025 NO BUILD VOLUMES	144	516	316	76	292	88	360	540	144	132	652	132
V/C Ratio	0.40	0.70	0.57	0.31	0.49	0.24	0.74	0.38	0.23	0.60	0.76	0.76
Level-of-Service	C	C	A	C	C	C	C	B	B	C	C	C
Control Delay (Seconds)	20.1	25.6	7.2	22.2	25.5	21.0	29.4	14.1	13.2	32.8	23.5	23.5
Intersection LOS	**C - 21.3**											
95th Percentile Queue (veh)	2.9	6.2	2.6	1.6	3.4	1.8	4.7	4.4	2.2	1.8	8.9	8.9
Queue Storage Ratio	0.3		0.2	0.2		0.1	0.4		0.4	0.3		0.5
Existing Queue Capacity (ft)	250		300	210		630	281		150	176		428
Additional Queue Length Required (ft)	0		0	0		0	0		0	0		0
2025 BUILD VOLUMES	144	548	328	140	304	104	388	564	144	156	668	132
V/C Ratio	0.38	0.75	0.59	0.49	0.42	0.24	0.78	0.41	0.23	0.65	0.79	0.79
Level-of-Service	C	C	A	C	C	C	C	B	B	D	C	C
Control Delay (Seconds)	21.1	30.1	8.0	22.5	25.8	21.0	33.4	16.5	15.2	36.1	28.0	28.1
Intersection LOS	**C - 24.3**											
95th Percentile Queue (veh)	3.2	7.8	3.2	3.2	3.9	2.3	5.9	5.6	2.6	2.5	10.5	10.5
Queue Storage Ratio	0.3		0.3	0.4		0.1	0.5		0.4	0.4		0.6
Existing Queue Capacity (ft)	250		300	210		630	281		150	176		428
Additional Queue Length Required (ft)	0		0	0		0	0		0	0		0
PM Peak Hour												
2025 NO BUILD VOLUMES	204	480	400	188	540	168	416	820	112	136	636	140
V/C Ratio	0.60	0.67	0.71	0.56	0.79	0.41	0.79	0.60	0.18	0.63	0.82	0.82
Level-of-Service	C	C	B	C	C	C	D	C	B	D	D	D
Control Delay (Seconds)	23.5	29.8	10.7	23.0	33.2	24.3	34.9	19.1	15.6	37.9	33.1	33.3
Intersection LOS	**C - 26.5**											
95th Percentile Queue (veh)	4.9	7.0	4.5	4.5	8.2	4.2	6.7	9.0	2.1	2.3	11.3	11.3
Queue Storage Ratio	0.5		0.4	0.5		0.2	0.6		0.4	0.3		0.7
Existing Queue Capacity (ft)	250		300	210		630	281		150	176		428
Additional Queue Length Required (ft)	0		0	0		0	0		0	0		0
2025 BUILD VOLUMES	204	512	412	188	552	180	440	844	112	160	652	140
V/C Ratio	0.62	0.71	0.72	0.58	0.80	0.43	0.81	0.62	0.18	0.67	0.83	0.83
Level-of-Service	C	C	B	C	C	C	D	C	B	D	D	D
Control Delay (Seconds)	24.6	33.2	12.0	24.8	34.9	24.6	36.8	20.1	16.1	38.6	35.1	35.3
Intersection LOS	**C - 28.3**											
95th Percentile Queue (veh)	5.1	8.0	5.1	5.4	8.7	4.7	7.5	9.6	2.2	2.7	12.0	12.0
Queue Storage Ratio	0.5		0.4	0.6		0.2	0.7		0.4	0.4		0.7
Existing Queue Capacity (ft)	250		300	210		630	281		150	176		428
Additional Queue Length Required (ft)	0		0	0		0	0		0	0		0

2025 LOS Analysis of the intersection of Westside Blvd. / Golf Course Rd. demonstrates that the proposed Golf Course + Westside Commercial Development will have minimal impact on the LOS and delays for the 2025 AM and PM BUILD conditions. The intersection delay becomes worse by only 2 seconds or less per vehicle and LOS remains at D or better for all movements in the intersection.

2025 Queueing Analysis of Westside Blvd. & Golf Course Rd. demonstrates that all lanes will have sufficient capacity and congestion will be minimal. Queue lengths are less than the storage lengths and the volume to capacity ratios for all approaches are less than 1.



Westside Blvd. / Golf Course Rd.

2035 LOS Analysis of Westside Blvd. & Golf Course Rd. demonstrates that intersection delays become worse by less than 4 seconds per vehicle and LOS remains the same from the NO BUILD to the

Synchro Results Summary Sheet

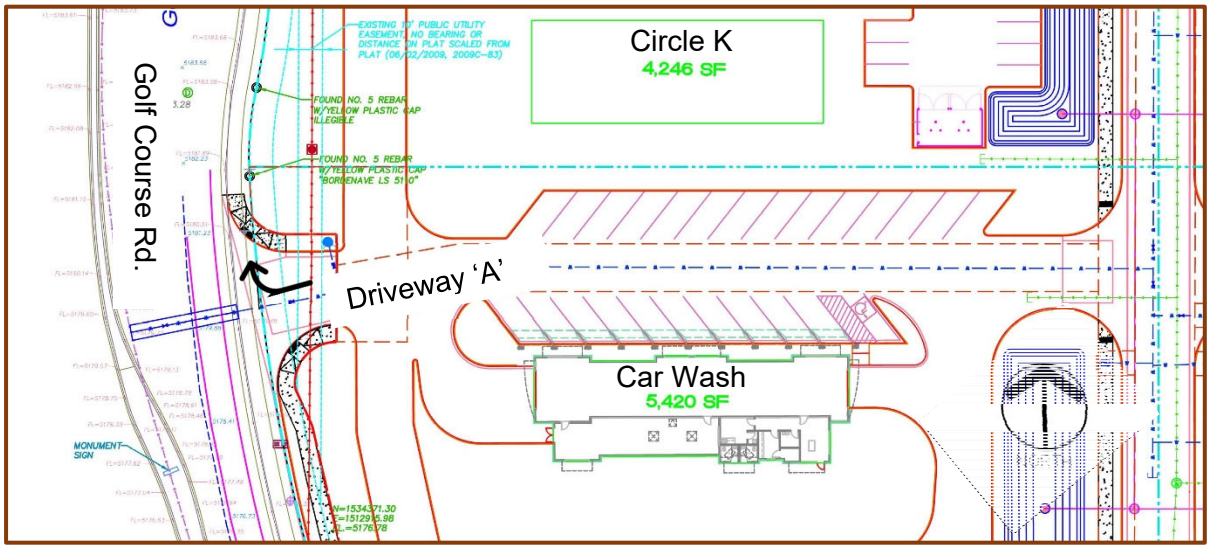
2035 Horizon Year

Westside Blvd. / Golf Course Rd.	EB (Westside Blvd.)			WB (Westside Blvd.)			NB (Golf Course Rd.)			SB (Golf Course Rd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	2	1	1	2	1	2	2	1	2	2>	0
AM Peak Hour												
2035 NO BUILD Volumes	176	636	388	92	356	112	436	672	168	164	808	156
V/C Ratio	0.53	0.83	0.66	0.42	0.54	0.27	0.82	0.44	0.25	0.67	0.85	0.85
Level-of-Service	C	D	B	C	C	C	D	B	B	D	D	D
Control Delay (Seconds)	25.1	36.9	11.0	26.6	30.4	24.3	39.7	16.6	15.0	39.9	35.4	35.5
Intersection LOS	**C - 28.8**											
95th Percentile Queue (veh)	4.7	10.2	5.5	2.5	5.3	2.9	7.8	7.2	3.2	2.9	14.5	14.5
Queue Storage Ratio	0.47		0.46	0.30		0.12	0.69		0.53	0.41		0.85
Existing Queue Capacity (ft)	250		300	210		630	281		150	176		428
Additional Queue Length Required (ft)	0		0	0		0	0		0	0		0
2035 BUILD Volumes	176	668	400	156	368	128	464	696	168	188	824	156
V/C Ratio	0.52	0.89	0.68	0.63	0.48	0.27	0.85	0.47	0.25	0.71	0.88	0.88
Level-of-Service	C	D	B	C	C	C	D	B	B	D	D	D
Control Delay (Seconds)	26.3	45.7	12.3	30.5	30.5	24.2	46.2	18.9	17.0	44.8	43.1	43.1
Intersection LOS	**C - 33.5**											
95th Percentile Queue (veh)	5.1	12.3	6.3	4.8	5.8	3.5	9.2	8.4	3.7	3.8	16.9	16.8
Queue Storage Ratio	0.5		0.5	0.6		0.1	0.8		0.6	0.5		1.0
Existing Queue Capacity (ft)	250		300	210		630	281		150	176		428
Additional Queue Length Required (ft)	0		0	0		0	0		0	0		0
PM Peak Hour												
2035 NO BUILD Volumes	236	584	472	220	660	208	492	1,020	132	172	792	156
V/C Ratio	0.75	0.80	0.80	0.69	0.93	0.49	0.86	0.72	0.21	0.71	0.95	0.95
Level-of-Service	D	D	B	C	D	C	D	C	B	D	E	E
Control Delay (Seconds)	35.1	40.1	17.0	31.2	54.4	28.5	47.5	24.6	17.9	47.3	58.9	59.1
Intersection LOS	**D - 39.5**											
95th Percentile Queue (veh)	7.9	10.5	8.2	7.0	13.3	6.5	9.9	13.6	3.0	3.6	19.3	19.2
Queue Storage Ratio	0.79		0.68	0.83		0.26	0.88		0.50	0.51		1.12
Existing Queue Capacity (ft)	250		300	210		630	281		150	176		428
Additional Queue Length Required (ft)	0		0	0		0	0		0	0		52
2035 BUILD Volumes	236	616	484	276	672	220	516	1,044	132	196	808	156
V/C Ratio	0.76	0.88	0.83	0.76	0.96	0.50	0.87	0.74	0.21	0.73	0.97	0.97
Level-of-Service	D	D	B	D	E	C	D	C	B	D	E	E
Control Delay (Seconds)	36.4	47.9	19.2	36.3	59.5	28.7	49.3	25.6	18.3	49.9	64.9	65.0
Intersection LOS	**D - 43.6**											
95th Percentile Queue (veh)	8.1	11.9	8.8	10.4	14.2	7.0	10.5	14.2	3.1	4.3	20.6	20.5
Queue Storage Ratio	0.81		0.73	1.24		0.28	0.93		0.52	0.61		1.20
Existing Queue Capacity (ft)	250		300	210		630	281		150	176		428
Additional Queue Length Required (ft)	0		0	50		0	0		0	0		85
Mitigage Lane Geometry	1	2	1	1	2	1	2	2	1	2	2	1
2035 Volumes	236	616	484	276	672	220	516	1,044	132	196	808	156
V/C Ratio	0.71	0.89	0.84	0.76	0.89	0.47	0.88	0.74	0.21	0.71	0.95	0.95
Level-of-Service	C	D	B	C	D	C	D	C	B	D	D	B
Control Delay (Seconds)	28.1	46.4	18.3	29.8	44.4	25.1	47.8	29.0	19.1	41.1	47.7	13.3
Intersection LOS	**D-36.2**											
95th Percentile Queue (veh)	6.7	11.3	7.6	8.0	11.9	6.1	10.0	14.4	3.0	3.6	14.5	4.3
Queue Storage Ratio	0.67		0.63	0.95		0.24	0.89		0.50	0.51		0.25
Existing Queue Capacity (ft)	250		300	210		630	281		150	176		428
Additional Queue Length Required (ft)	0		0	0		0	0		0	0		0

BUILD conditions. However, the LOS for the WBT movement degrades from LOS=D to LOS=E during the PM peak hour even though delays for this movement only increase by 5 seconds per vehicle. The SBT and SBL movements have unacceptable LOS (worse than D) for the NO BUILD and BUILD conditions showing that this is an existing problem that is made better by adding a dedicated SBR lane and retiming the signal. As shown for the mitigated condition, adding a dedicated SBR lane and optimizing the signal timing restores delays and LOS to NO BUILD levels. See the existing City of Albuquerque signal timing plan in Appendix page A-64 and the optimized signal timing sheets in Appendix page A-65. Westside Blvd. east of Golf Course Rd. is currently under construction and google earth images from November 2021 suggest that the intersection will have new traffic signals as part of the project. The HCM analysis results and timings recommended in this report should be considered in the new signal design.

2035 Queueing Analysis of Westside Blvd. & Golf Course Rd. demonstrates that the volume to capacity ratios for all approaches are less than 1 indicating that there will be an acceptable level congestion at this intersection by 2035. All lanes will have sufficient capacity except for the SBR turn lane where the queue during the PM peak hour will periodically block the driveway north of the intersection by 1 to 3 vehicle lengths (25 to 75-ft). This is an existing problem that becomes better with signal retiming.

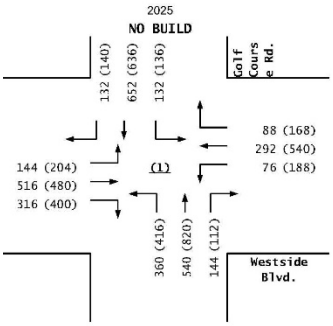
INTERSECTION 2 – Driveway 'A' (East/West) /Golf Course Rd. (North/South)
(Unsignalized, Proposed, Right-in/Right-out only)

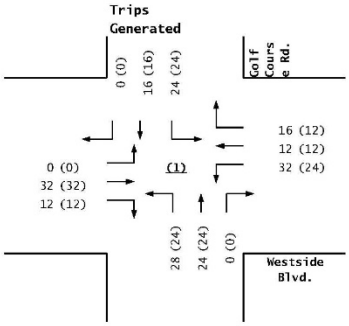


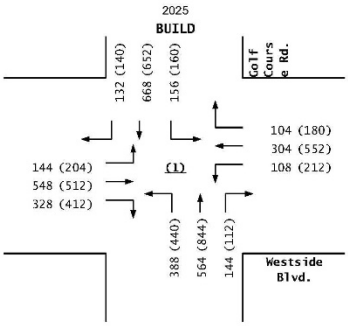
Driveway 'A' is a restricted access driveway (right-in/right-out only) located on the east side of Golf Course Rd., 337-ft south of Westside Blvd. (centerline to centerline). The following tables summarize the 2025 Implementation Year and 2035 Horizon Year analysis results for the unsignalized intersection of Driveway 'A'/Golf Course Rd. See Appendix pages A-35 thru A-42 for detailed peak hour SYCHRO 10 reports.

2025 and 2035 LOS Analysis of the intersection of Westside Blvd. / Driveway 'A' demonstrates that the proposed Golf Course + Westside Commercial Development will have minimal adverse impact on the traffic movements at this intersection for the 2025 and 2035 conditions. LOS=C or better for 2025 and 2035 for traffic exiting the site.

2025 and 2035 Queueing analysis demonstrates that the level of congestion at this intersection is insignificant as indicated by the low V/C ratios and queuing capacity is sufficient; maximum queue lengths are 1 vehicle long or less (<25-ft.)





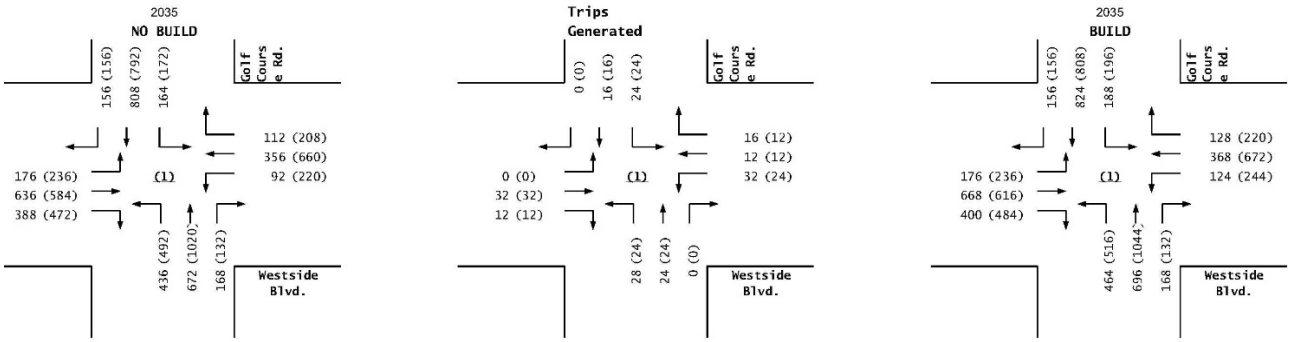


Westside Blvd. / Golf Course Rd.

Synchro Results Summary Sheet

2025 Implementation Year

Driveway 'A' / Golf Course Rd.	EB (Driveway 'A')			WB (Driveway 'A')			NB (Golf Course Rd.)			SB (Golf Course Rd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry				0		1		2	1	0	2	
AM Peak Hour												
2025 NO BUILD VOLUMES				0		0		1,044	0	0	1,036	
V/C Ratio												
Level-of-Service						A						
Control Delay (Seconds)						0.0						
Worst LOS at Intersection	**A-0**											
95th Percentile Queue (veh)												
2025 BUILD VOLUMES				0		92		1,016	64	0	1,036	
V/C Ratio						0.18						
Level-of-Service						B						
Control Delay (Seconds)						13.6						
Worst LOS at Intersection	**B-13.6**											
95th Percentile Queue (veh)						0.7						
PM Peak Hour												
2025 NO BUILD VOLUMES				0		0		1,332	0	0	1,224	
V/C Ratio												
Level-of-Service						A						
Control Delay (Seconds)						0.0						
Worst LOS at Intersection	**A-0**											
95th Percentile Queue (veh)												
2025 BUILD VOLUMES				0		88		1,320	64	0	1,224	
V/C Ratio						0.21						
Level-of-Service						C						
Control Delay (Seconds)						16.2						
Worst LOS at Intersection	**C-16.2**											
95th Percentile Queue (veh)						0.8						



Westside Blvd. / Golf Course Rd.

Synchro Results Summary Sheet

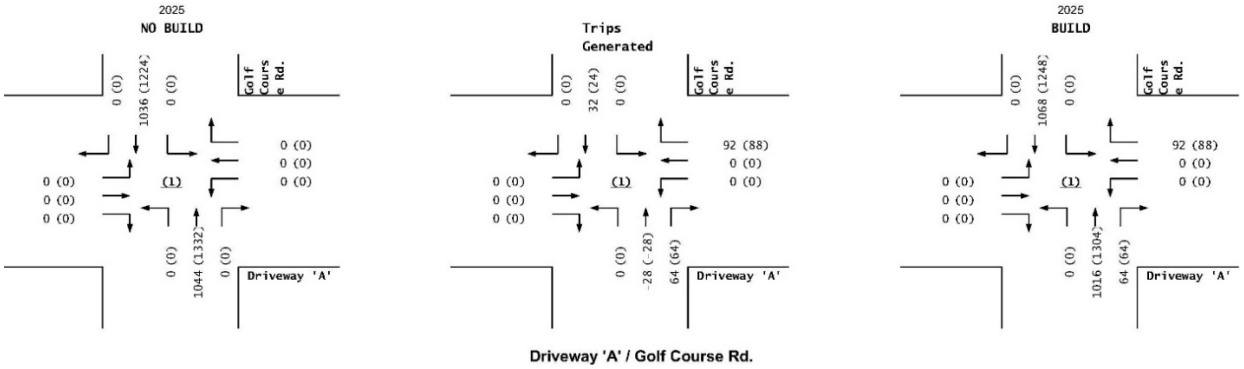
2035 Horizon Year

Driveway 'A' / Golf Course Rd.	EB (Driveway 'A')			WB (Driveway 'A')			NB (Golf Course Rd.)			SB (Golf Course Rd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry				0		1		2	1	0	2	
AM Peak Hour												
2035 NO BUILD Volumes				0		0		1,276	0	0	1,280	
V/C Ratio												
Level-of-Service						A						
Control Delay (Seconds)						0.0						
Worst LOS at Intersection	**A-0**											
95th Percentile Queue (veh)												
2035 BUILD Volumes				0		92		1,248	64	0	1,280	
V/C Ratio						0.22						
Level-of-Service						C						
Control Delay (Seconds)						15.7						
Worst LOS at Intersection	**C-15.7**											
95th Percentile Queue (veh)						0.8						
PM Peak Hour												
2035 NO BUILD Volumes				0		0		1,628	0	0	1,480	
V/C Ratio												
Level-of-Service						A						
Control Delay (Seconds)						0.0						
Worst LOS at Intersection	**A-0**											
95th Percentile Queue (veh)												
2035 BUILD Volumes				0		84		1,600	64	0	1,480	
V/C Ratio						0.26						
Level-of-Service						C						
Control Delay (Seconds)						19.7						
Worst LOS at Intersection	**C-19.7**											
95th Percentile Queue (veh)						1.0						

INTERSECTION 3 – Driveway 'B' (East/West) /Golf Course Rd. (North/South)
(Unsignalized, Existing, Full Access)

Driveway 'B' is an existing full-access driveway located on the east side of Golf Course Rd., 600-ft south of Westside Blvd. (centerline to centerline) and will be a shared with the new Wintergreen Apartments south of the development. The eastbound approach (not shown) is existing and currently only services an office building (HME Specialize Services), but a proposed apartment complex (The Havenly) is also planning to use this access. Traffic volumes generated by the existing office building and the new apartment complexes are included in the NO BUILD traffic counts.

The following tables summarize the 2025 Implementation Year and 2035 Horizon Year analysis results for the signalized intersection of Golf Course Rd. & Driveway 'B'. See Appendix pages A-43 thru A-50 for 2025 detailed peak hour SYCHRO 10 reports.



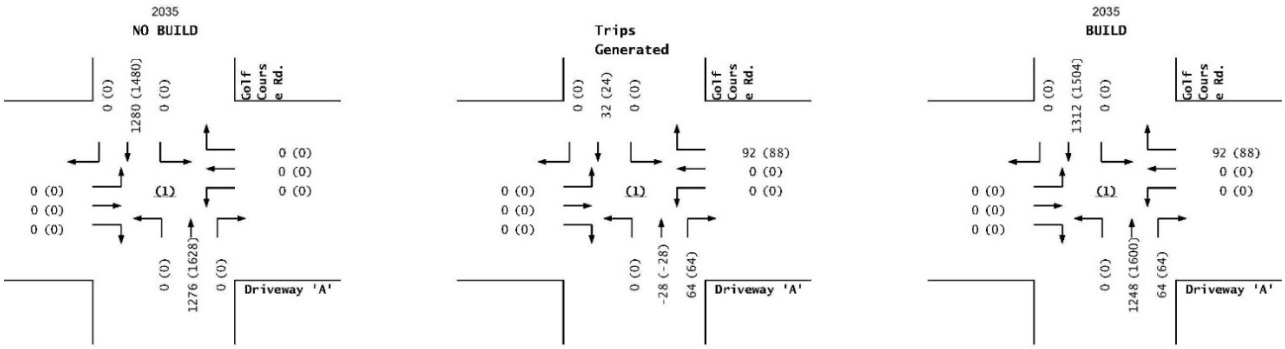
Driveway 'A' / Golf Course Rd.

Synchro Results Summary Sheet

2025 Implementation Year

HME DRWY/DRWY 'B' Golf Course Rd.	EB (HME DRWY/DRWY 'B')			WB (HME DRWY/DRWY 'B')			NB (Golf Course Rd.)			SB (Golf Course Rd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	1>	0	1	1>	0	1	2	1	1	2	1
AM Peak Hour												
2025 NO BUILD VOLUMES	16	0	12	20	0	24	20	984	4	16	1,012	36
V/C Ratio	0.10	0.02		0.12	0.05		0.03			0.02		
Level-of-Service	D	B		D	B		B			B		
Control Delay (Seconds)	28.5	12.2		28.5	12.2		10.6			10.3		
Worst LOS at Intersection	**D-28.5**											
95th Percentile Queue (veh)	0.3	0.1		0.4	0.1		0.1			0.1		
2025 BUILD VOLUMES	16	4	12	48	4	28	20	1,000	40	40	964	84
V/C Ratio	0.10	0.05		0.29	0.08		0.03			0.06		
Level-of-Service	D	C		E	C		B			B		
Control Delay (Seconds)	29.5	17.1		35.8	15.2		10.6			10.8		
Worst LOS at Intersection	**E-35.8**											
95th Percentile Queue (veh)	0.3	0.2		1.1	0.3		0.1			0.2		
PM Peak Hour												
2025 NO BUILD VOLUMES	24	0	20	12	0	12	16	1,300	4	40	1,156	36
V/C Ratio	0.19	0.04		0.11	0.03		0.03			0.08		
Level-of-Service	E	B		E	B		B			B		
Control Delay (Seconds)	40.9	13.2		41.0	14.0		11.4			12.4		
Worst LOS at Intersection	**E-41.0**											
95th Percentile Queue (veh)	0.7	0.1		0.3	0.1		0.1			0.2		
2025 BUILD VOLUMES	24	4	20	40	4	16	16	1,316	40	64	1,116	76
V/C Ratio	0.21	0.09		0.38	0.08		0.03			0.13		
Level-of-Service	E	C		F	C		B			B		
Control Delay (Seconds)	43.5	19.7		58.2	20.8		11.4			13.2		
Worst LOS at Intersection	**F-58.2**											
95th Percentile Queue (veh)	0.8	0.3		2.4	0.6		0.1			0.4		

2025 analysis of **Driveway 'B'** demonstrates that the existing (NO BUILD) LOS during the PM peak hour for the eastbound and westbound left-turn movements is LOS=E with delays exceeding 40 seconds per vehicle. As expected, delays and LOS become worse for the BUILD condition. The analysis indicates that the high volume of traffic on Golf Course causes insufficient gaps for left-turning side-street traffic to enter the flow of traffic without significant delays. Since the intersection is too close to the signalized intersection of Westside Blvd. and Golf Course Rd. to consider signalizing, a signal cannot be recommended, however, maintaining full access at Driveway 'C' is critical to minimizing delays at Driveway 'B'.



Driveway 'A' / Golf Course Rd.

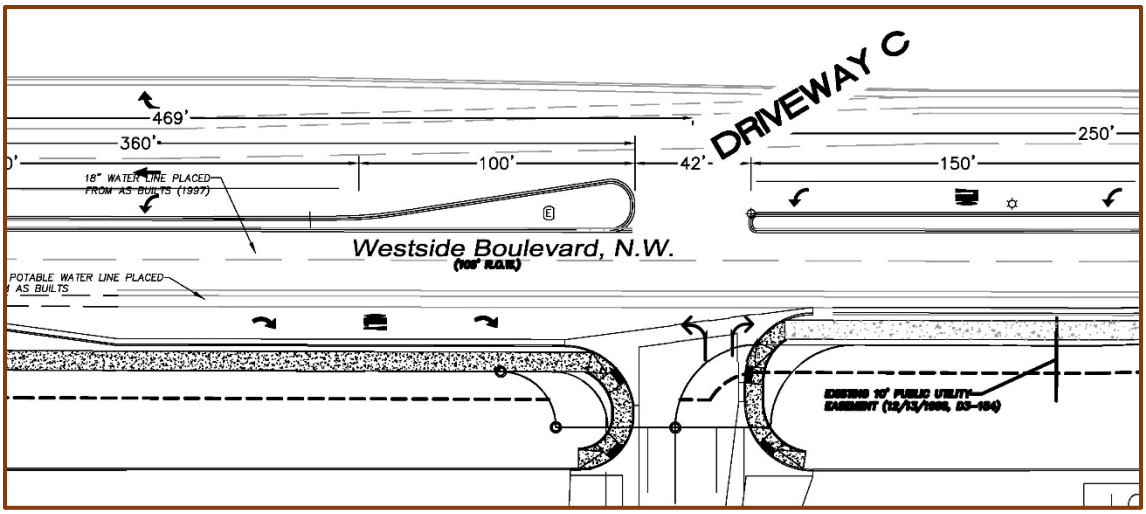
Synchro Results Summary Sheet

2035 Horizon Year

HME DRWY/DRWY 'B' Golf Course Rd.	EB (HME DRWY/DRWY 'B')			WB (HME DRWY/DRWY 'B')			NB (Golf Course Rd.)			SB (Golf Course Rd.)		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	1>	0	1	1>	0	1	2	1	1	2	1
AM Peak Hour												
2035 NO BUILD Volumes	16	0	12	20	0	24	28	1,216	4	16	1,256	40
V/C Ratio	0.14	0.03		0.17	0.06		0.05			0.03		
Level-of-Service	E	B		E	B		B			B		
Control Delay (Seconds)	40.9	13.7		41.3	13.7		12.2			11.5		
Worst LOS at Intersection	**E-41.3**											
95th Percentile Queue (veh)	0.5	0.1		0.6	0.2		0.2			0.1		
2035 BUILD Volumes	16	4	12	48	4	72	28	1,232	40	40	1,208	88
V/C Ratio	0.15	0.07		0.43	0.21		0.05			0.07		
Level-of-Service	E	C		F	C		B			B		
Control Delay (Seconds)	44.9	21.5		58.6	17.4		12.2			12.2		
Worst LOS at Intersection	**F-58.6**											
95th Percentile Queue (veh)	0.5	0.2		1.8	0.8		0.2			0.2		
PM Peak Hour												
2035 NO BUILD Volumes	32	0	28	12	0	12	16	7	5	3	1	-1
V/C Ratio	0.38	0.07		0.16	0.04		0.04	-0.05	-0.09	-0.14	-0.18	-0.23
Level-of-Service	F	C		F	C		B			B		
Control Delay (Seconds)	72.1	15.3		63.8	16.4		13.1			14.9		
Worst LOS at Intersection	**F-72.1**											
95th Percentile Queue (veh)	1.5	0.2		0.6	0.1		0.1			0.3		
2035 BUILD Volumes	32	4	28	56	4	56	16	1,612	40	64	1,372	80
V/C Ratio	0.43	0.15		0.81	0.23		0.04			0.17		
Level-of-Service	F	C		F	C		B			C		
Control Delay (Seconds)	86.5	24.9		159.0	23.2		13.1			16.1		
Worst LOS at Intersection	**F-159.0**											
95th Percentile Queue (veh)	1.7	0.5		3.8	0.9		0.1			0.6		

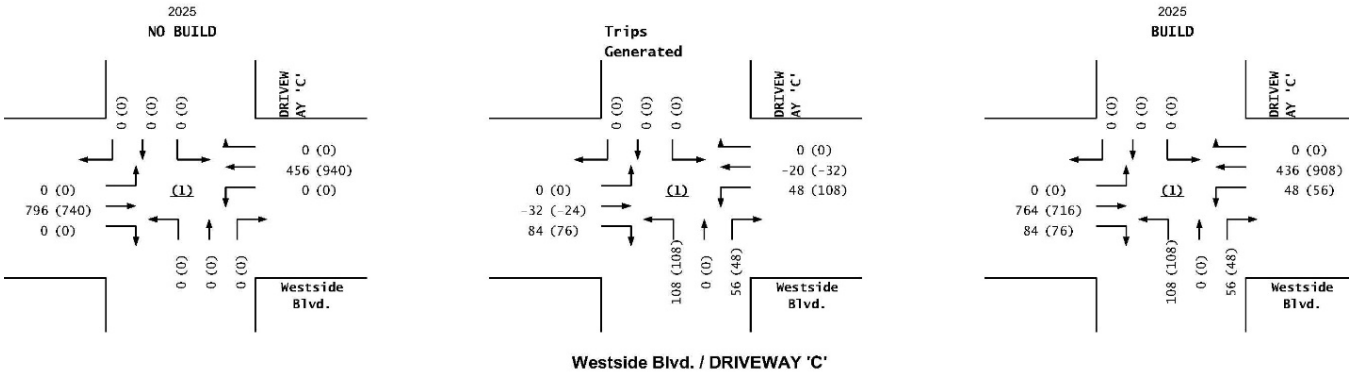
2035 analysis of **Driveway 'B'** demonstrates that the NO BUILDLOS during the PM peak hour for the eastbound and westbound left-turn movements is LOS=F with delays exceeding 63 seconds per vehicle. As expected, delays and LOS become worse for the BUILD condition. The analysis indicates that the high volume of traffic on Golf Course causes insufficient gaps for left-turning side-street traffic to enter the flow of traffic without significant delays. Since the intersection is too close to the signalized intersection of Westside Blvd. and Golf Course Rd. to consider signalizing, a signal cannot be recommended, however, maintaining full access at Driveway 'C' is critical to minimizing delays at Driveway 'B'.

INTERSECTION 4 – Westside Blvd. (East/West) / Driveway 'C'(North/South)
Unsignalized, Proposed, Full-Access



Driveway 'C' is a proposed full-access driveway located on the south side of Westside Blvd., 450-ft east of Golf Course Rd. (centerline to centerline).

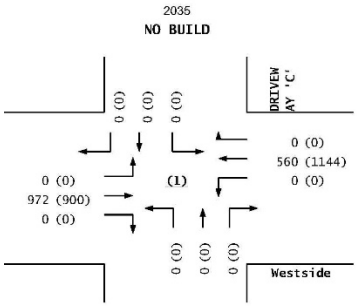
The following tables summarize the 2025 Implementation Year and 2035 Horizon Year analysis results for the signalized intersection of Golf Course Rd. & Driveway 'B'. See Appendix pages A-51 thru A-58 for 2025 detailed peak hour SYCHRO 10 reports.

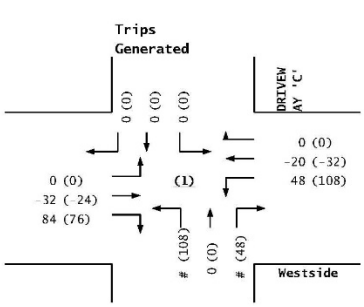


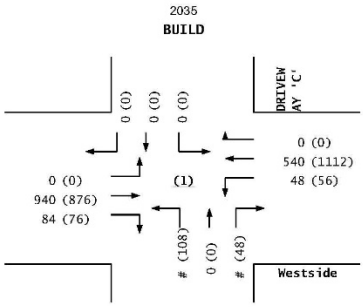
Synchro Results Summary Sheet

2025 Implementation Year

Westside Blvd. Driveway 'C'	EB (Westside Blvd.)			WB (Westside Blvd.)			NB (Driveway 'C')			SB (Driveway 'C')		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry		2	1	1	2		1		1			
AM Peak Hour												
2025 NO BUILD VOLUMES		796	0	0	456		0		0			
V/C Ratio												
Level-of-Service									A			
Control Delay (Seconds)									0.0			
Worst LOS at Intersection	**A-0**											
95th Percentile Queue (veh)												
2025 BUILD VOLUMES		764	84	48	436		108		56			
V/C Ratio				0.06			0.34		0.09			
Level-of-Service				A			C		B			
Control Delay (Seconds)				9.9			22.0		11.4			
Worst LOS at Intersection	**C-22.0**											
95th Percentile Queue (veh)				0.2			1.5		0.3			
PM Peak Hour												
2025 NO BUILD VOLUMES		740	0	0	940		0		0			
V/C Ratio												
Level-of-Service									A			
Control Delay (Seconds)									0.0			
Worst LOS at Intersection	**A-0**											
95th Percentile Queue (veh)												
2025 BUILD VOLUMES		716	76	56	908		108		48			
V/C Ratio				0.07			0.39		0.08			
Level-of-Service				A			D		B			
Control Delay (Seconds)				9.7			25.7		11.1			
Worst LOS at Intersection	**C-25.7**											
95th Percentile Queue (veh)				0.2			1.7		0.2			







Westside Blvd. / DRIVEWAY 'C'

2035 Horizon Year

Westside Blvd. Driveway 'C'	EB (Westside Blvd.)			WB (Westside Blvd.)			NB (Driveway 'C')			SB (Driveway 'C')		
	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry		2	1	1	2		1		1			
AM Peak Hour												
2035 NO BUILD Volumes		972	0	0	560		0		0			
V/C Ratio												
Level-of-Service									A			
Control Delay (Seconds)									0.0			
Worst LOS at Intersection	**A-0**											
95th Percentile Queue (veh)												
2035 BUILD Volumes		940	84	48	540		44		56			
V/C Ratio				0.07			0.17		0.10			
Level-of-Service				B			C		B			
Control Delay (Seconds)				10.8			21.9		12.4			
Worst LOS at Intersection	**C-21.9**											
95th Percentile Queue (veh)				0.2			0.6		0.3			
PM Peak Hour												
2035 NO BUILD Volumes		900	0	0	1,144		0		0			
V/C Ratio												
Level-of-Service									A			
Control Delay (Seconds)									0.0			
Worst LOS at Intersection	**A-0**											
95th Percentile Queue (veh)												
2035 BUILD Volumes		876	76	56	1,112		52		48			
V/C Ratio				0.08			0.23		0.09			
Level-of-Service				B			D		B			
Control Delay (Seconds)				10.4			25.6		11.9			
Worst LOS at Intersection	**D-25.6**											
95th Percentile Queue (veh)				0.3			0.9		0.3			

Analysis of the intersection of Westside Blvd. / Driveway ‘C’ demonstrates that the proposed Golf Course + Westside Commercial Development will have minimal adverse impact on the traffic movements at this intersection for the 2025 and 2035 conditions. The LOS is B for the proposed WBL on Westside Blvd. for the 2025 and 2035 BUILD conditions and LOS is D or better for traffic exiting the site.

Queuing Analysis

Queueing analysis was conducted for all three intersections in the study area for 2025 and 2035. The 95th percentile queue, Queue Storage Ratio (QSR), and Volume to Capacity (V/C) ratio were computed for all movements in the intersections. The Queue Storage Ratio (QSR) is calculated by dividing the 95th percentile queue by the existing lane length. A QSR>1 indicates that the available lane length is insufficient for the queue being generated. The Volume to Capacity Ratio (V/C) is a measure of the capacity of the approach to the volume of traffic. A V/C>1 indicates an area of congestion. V/C's were less than 1 for all movements in the study area.

The **2025 queueing analysis** demonstrates that all movements had acceptable queueing capacity with minimal levels of congestion (volume to capacity ratio less than 1). See Analysis Results in previous sections.

Results of **2035 queueing analysis** demonstrates queueing capacity is adequate for all movements in the study area **except for the southbound thru/right lane (SBT/R) and westbound left (WBL) lane at the Westside Blvd. & Golf Course Rd. intersection during the PM peak hour** (see the 2035 PM Analysis Results below). Although the results show that the queue in the SBT/R lane will periodically extend past the driveway north of the intersection (by 52-feet for the NO BUILD conditions and 85-feet for the BUILD condition), the queue capacity of the lane is adequate and will not spill over into the second thru lane. By 2035, the queue capacity of the WBL lane will be exceeded by 50-feet. The Mitigated case shows that by adding a dedicated SBR lane and retiming the signal, queue capacity is improved to adequate levels and the LOS is restored to better than NO BUILD conditions. However, since this problem does not appear until 2035, the development does not contribute traffic to the SBR lane, no mitigation is proposed by the development.

Synchro Results Summary Sheet

2035 Horizon Year

Westside Blvd.	EB (Westside Blvd.)			WB (Westside Blvd.)			NB (Golf Course Rd.)			SB (Golf Course Rd.)		
Golf Course Rd.	L	T	R	L	T	R	L	T	R	L	T	R
Existing Lane Geometry	1	2	1	1	2	1	2	2	1	2	2>	0
PM Peak Hour												
2035 NO BUILD Volumes	236	584	472	220	660	208	492	1,020	132	172	792	156
V/C Ratio	0.75	0.80	0.80	0.69	0.93	0.49	0.86	0.72	0.21	0.71	0.95	0.95
Level-of-Service	D	D	B	C	D	C	D	C	B	D	E	E
Control Delay (Seconds)	35.1	40.1	17.0	31.2	54.4	28.5	47.5	24.6	17.9	47.3	58.9	59.1
Intersection LOS	**D - 39.5**											
95th Percentile Queue (veh)	7.9	10.5	8.2	7.0	13.3	6.5	9.9	13.6	3.0	3.6	19.3	19.2
Queue Storage Ratio	0.79		0.68	0.83		0.26	0.88		0.50	0.51		1.12
Existing Queue Capacity (ft)	250		300	210		630	281		150	176		428
Additional Queue Length Required (ft)	0		0	0		0	0		0	0		52
2035 BUILD Volumes	236	616	484	276	672	220	516	1,044	132	196	808	156
V/C Ratio	0.76	0.88	0.83	0.76	0.96	0.50	0.87	0.74	0.21	0.73	0.97	0.97
Level-of-Service	D	D	B	D	E	C	D	C	B	D	E	E
Control Delay (Seconds)	36.4	47.9	19.2	36.3	59.5	28.7	49.3	25.6	18.3	49.9	64.9	65.0
Intersection LOS	**D - 43.6**											
95th Percentile Queue (veh)	8.1	11.9	8.8	10.4	14.2	7.0	10.5	14.2	3.1	4.3	20.6	20.5
Queue Storage Ratio	0.81		0.73	1.24		0.28	0.93		0.52	0.61		1.20
Existing Queue Capacity (ft)	250		300	210		630	281		150	176		428
Additional Queue Length Required (ft)	0		0	50		0	0		0	0		85
Mitigage Lane Geometry	1	2	1	1	2	1	2	2	1	2	2	1
2035 Volumes	236	616	484	276	672	220	516	1,044	132	196	808	156
V/C Ratio	0.71	0.89	0.84	0.76	0.89	0.47	0.88	0.74	0.21	0.71	0.95	0.95
Level-of-Service	C	D	B	C	D	C	D	C	B	D	D	B
Control Delay (Seconds)	28.1	46.4	18.3	29.8	44.4	25.1	47.8	29.0	19.1	41.1	47.7	13.3
Intersection LOS	**D-36.2**											
95th Percentile Queue (veh)	6.7	11.3	7.6	8.0	11.9	6.1	10.0	14.4	3.0	3.6	14.5	4.3
Queue Storage Ratio	0.67		0.63	0.95		0.24	0.89		0.50	0.51		0.25
Existing Queue Capacity (ft)	250		300	210		630	281		150	176		428
Additional Queue Length Required (ft)	0		0	0		0	0		0	0		0

Determination of Warrants for Deceleration Lanes (Refer to Site Plan on page 41)

Determination of Warrants for Deceleration Lanes for Driveway 'A', Driveway 'B', and Driveway 'C' were conducted in accordance with the City of Albuquerque Development Process Manual (DPM) Criteria. The following table defines the City's warrant criteria for right and left turn lanes at driveways:

City of Albuquerque DPM

TABLE 7.4.67 **Turn Lane Warrants**

Left Turn		Right Turn	
Design Speed (MPH)	**Turning Volume per Hour**	**Design Speed (MPH)**	**Turning Volume per Hour**
25	50	25	60
30-40	40	30-40	50
45	30	45	45

Determination of Warrants for Deceleration Lanes for Driveway 'A', Driveway 'B', and Driveway 'C' indicate the following:

City of Albuquerque Turn Lane Warrant

Golf Course + Westside Development

			Left Turn Warrant				Right Turn Warrant				
Access	**Major Street**	**Speed Limit (Mph)**	**Left Turn Warrant Volume (veh/hr)[1]**	**Maximum Left Turn Volume (Veh/hr)**	**Left Turn Lane Warranted?**	**Minimum Left-turn Transition Length (ft)[2]**	**Right Turn Warrant Volume (veh/hr)[1]**	**Maximum Right Turn Volume (Veh/hr)**	**Right Turn Lane Warranted?**	**Minimum Storage Length (ft)[3]**	**Minimum Left-turn Transition Length (ft)[2]**
Driveway 'A'	Golf Course Rd.	40	40	0	No	-	50	64	Yes	240	300/150
Driveway 'B'	Golf Course Rd.	40	40	64	Yes	300/150	50	40	No		-
Driveway 'C'	Westside Blvd.	35	40	56	Yes	300/150	50	76	Yes	240	300/150

1. City of Albuquerque DPM, Table 7.4.67
2. City of Albuquerque DPM, Table 7.4.70
3. City of Albuquerque DPM, Table 7.4.68

- A **NBR** deceleration lane, 240-ft long including a 300-150 reverse curve transition, is warranted at **Driveway 'A.'**
- A **SBL** lane is warranted at **Driveway 'B'** and the lane should have at least 75-feet of storage length with a 300-150 reverse curve transition based on the maximum 95th percentile queue of one vehicle plus one additional vehicle.
- An **EBR** deceleration lane, 240-ft long, and a **WBL** deceleration lane is warranted at **Driveway 'C'.** The **WBL** lane should have at least 75-feet of storage length with a 300-150 reverse curve transition based on the maximum 95th percentile queue of one vehicle plus one additional vehicle.

Where existing driveways, intersections, and/or availability of right-of-way restricts lengths of new deceleration lanes, the developer shall maximize the length in the space available and provide graphical evidence to the City's Design Review Committee for the reduced turn lane length.

Access Design Specifications

Sight distances at Driveway 'A', Driveway 'B', and Driveway 'C' are greater than 500-feet at each driveway. There are no vertical or horizontal curves that impede site distances along this portion of Westside Blvd. and Golf Course Rd., and there are no structures blocking sight distance into and out of the driveway.

The distance between Driveway 'A" and the Golf Course Rd./Westside Blvd. intersection (337-feet, centerline to centerline) is acceptable according to the City of Albuquerque DPM Table 7.4.45. The same is true for Driveway 'B' which is 600-ft from the intersection. Driveway 'C' is 469-feet (centerline to centerline) from the Golf Course Rd./Westside Blvd. intersection. The number of access points is also acceptable according to DPM Table 7.4.46 which specifies maximum number of access points per Site based on road frontage. This site has approximately 1140 ft of road frontage which would allow for a minimum of five access points according to the table. Only 3 access points are proposed for the Golf Course + Westside Development and one of those is shared with another development.

Intersection

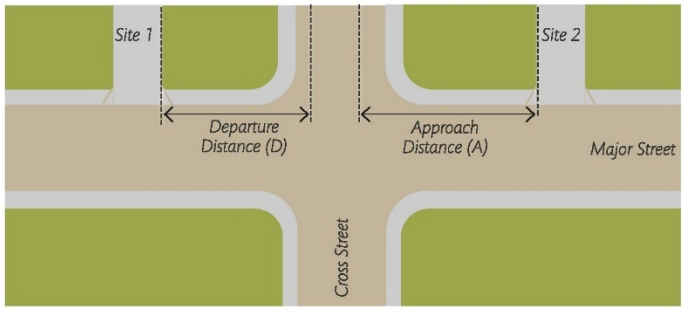


TABLE 7.4.45 **Minimum Distance Between Commercial Site Acce and Intersection**

Type of Street	Cross Street Classes					
	Arterial		Collector		Local	
	A	D	A	D	A	D
Principal Arterial	300 ft.	200 ft.	200 ft.	150 ft.	150 ft.	100
Minor Arterial	200 ft.	150 ft.	150 ft.	100 ft.	100 ft.	100
Major Collector	150 ft.	150 ft.	100 ft.	100 ft.	75 ft.	75 f
Minor Collector	150 ft.	150 ft.	100 ft.	100 ft.	75 ft.	75 f
Local (additional distance may be required for queuing)	75 ft.	75 ft.	50 ft.	50 ft.	25 ft.	25 f

TABLE 7.4.46 **Maximum Number of Commercial Site Access Points per Site**

Type of Street	
Principal Arterials	1-2 access points per 300 ft. frontage
Minor Arterials	1-2 access points per 200 ft. frontage
Collectors	1 access point per 100 ft. frontage

Crash Analysis

Crash data on Westside Blvd. and Golf Course Rd. in the vicinity of the project was collected for this Study beginning on January 1, 2017 and extending through December 31, 2019. The crash data was derived from the New Mexico Department of Transportation's Safety Bureau Records which collects all reported crash data in the State of New Mexico. See Appendix A-71 for the raw crash data.

There were 39 recorded crashes in the study area for the three-year study period (2017-2019). The average crash rate in the study area is 13 crashes per year. All the crashes in this corridor occurred in at the Westside Blvd. & Golf Course Rd. intersection. 26% of the crashes were due to Failure to Yield Right of Way. Approximately 20% of the crashes had no identified cause. The average intersection Crash Rate for the Albuquerque Metropolitan Planning Area as published by the MRCOG in the "Safety Doesn't Happen by Accident, General Crash Data Trends, 2001-2010 for the Albuquerque Metropolitan Planning Area (AMPA) is 1.14 Crashes per million vehicles entering. The existing crash rate at the Westside Blvd. & Golf Course Rd. intersection is 2.7 crash per million vehicles or about 2.5 times greater than the average for Albuquerque. The following tables and chart summarize the types of crashes in the study area.

Crash Data Summary Table:

Circle K - Westside Blvd. & Golf Course Rd.

Intersection of Circle K - Westside Blvd. & Golf Course Rd.

*Note: All crashes in this corridor occurred at the Westside Blvd. & Golf Course Rd. Intersection

Year: 2017

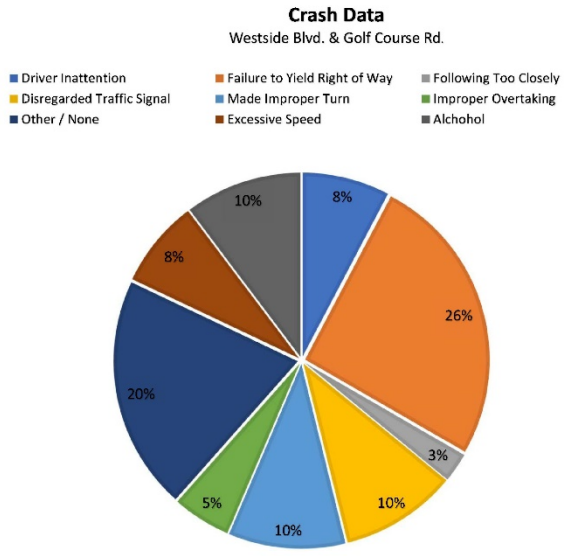
Severity	Driver Inattention	Failure to Yield Right of Way	Following Too Closely	Disregarded Traffic Signal	Made Improper Turn	Improper Overtaking	Other / None	Excessive Speed	Alchohol	SUBTOTAL
PDO	1	2	0	2	0	0	1	0	3	**9**
Injury	1	0	0	1	0	0	0	0	1	**3**
Fatality	0	0	0	0	0	0	0	0	0	**0**

Year: 2018

Severity	Driver Inattention	Failure to Yield Right of Way	Following Too Closely	Disregarded Traffic Signal	Made Improper Turn	Improper Overtaking	Other / None	Excessive Speed	Alchohol	SUBTOTAL
PDO	1	2	0	0	1	1	2	2	1	**10**
Injury	0	0	0	0	1	0	0	0	0	**1**
Fatality	0	0	0	0	0	0	0	0	0	**0**

Year: 2019

Severity	Driver Inattention	Failure to Yield Right of Way	Following Too Closely	Disregarded Traffic Signal	Made Improper Turn	Improper Overtaking	Other / None	Excessive Speed	Alchohol	SUBTOTAL
PDO	1	6	1	2	3	1	5	1	0	**20**
Injury	1	0	0	1	0	1	0	0	0	**3**
Fatality	0	0	0	0	0	0	0	0	0	**0**
Subtotal	2	6	1	3	3	2	5	1	0	**23**
								Total number of Crashes 2017-2019		39



Summary of Impacts and Recommendations

In summary, the proposed Golf Course + Westside Commercial Development will have minimal adverse impact to the adjacent transportation system with implementation of the recommended mitigation measures presented in this report. A summary of the impacts and recommendations based on the results of the analysis, are stated below.

Summary of Impacts

1. **Westside Blvd. / Golf Course Rd. (Signalized) –**
   2025 LOS Analysis of this intersection demonstrates that the proposed Golf Course + Westside Commercial Development will have minimal impact on the LOS and delays for the 2025 AM and PM BUILD conditions. LOS remains at D or better for all movements in the intersection. Intersection LOS remains at LOS=C for the NO BUILD and BUILD conditions with less than 3 seconds per vehicle increase in delays.
   2035 LOS Analysis of this intersection demonstrates that the proposed Golf Course + Westside Commercial Development will have minimal impact on the LOS and delays for the 2035 AM and PM BUILD conditions. LOS remains at D or better for all movements in the intersection except the SBR turn movement which is LOS=E for both the PM NO BUILD and BUILD conditions. However, the intersection LOS remains at LOS=D for the NO BUILD and BUILD conditions with less than 4 seconds per vehicle increase in delays. Retiming the signal and adding a dedicated SBR lane, as shown for the mitigated condition, improves the intersection delay in the PM peak hour to within 1 second of the NO BUILD delay and improves the SBR turn movement to LOS=D.

2. **Driveway 'A', Driveway 'B', and Driveway 'C' (Unsignalized)** – Analysis of the driveway intersections demonstrates that the proposed Golf Course + Westside Commercial Development will have minimal adverse impact on the traffic movements at these intersections for the 2025 and 2035 conditions except at Driveway 'B'.

   Driveway 'A' is proposed as an unsignalized right-in/right-out driveway on Golf Course Rd. **2025 and 2035** analysis of Driveway 'A' indicates that the LOS is C or better for the BUILD condition with sufficient queue capacity as designed on the site plan.

   Driveway 'B' is an existing unsignalized full-access driveway.
   - **2025** analysis demonstrates that the existing (NO BUILD) LOS during the PM peak hour for the eastbound and westbound left-turn movements is LOS=E with delays exceeding 40 seconds per vehicle. As expected, delays and LOS become worse for the BUILD condition
   - **2035** analysis demonstrates that the existing (NO BUILD) LOS during the PM peak hour for the eastbound and westbound left-turn movements is LOS=F with delays exceeding 63 seconds per vehicle. As expected, delays and LOS become worse for the BUILD condition.
   - Analysis of Driveway 'B' indicates that the high volume of traffic on Golf Course causes insufficient gaps for left-turning side-street traffic to enter the flow of traffic without significant delays. Since the intersection is too close to the signalized intersection of Westside Blvd. and Golf Course Rd.

to consider signalizing, a signal cannot be recommended. However, maintaining full access at Driveway 'C' is critical to minimizing delays at Driveway 'B' and operational complications and volumes at the signalized intersection of Westside Blvd. & Golf Course Rd.

Driveway 'C' is proposed as an unsignalized full-access driveway on Westside Blvd. It has a **LOS=C or better for 2025 and LOS=D or better for 2035** with sufficient queue capacity as designed on the site plan.

3. **Queueing analysis –** Storage capacity is adequate at all movements in the study area during the **2025** implementation year and **2035** horizon year except the southbound thru/right (SBT/R) lane and westbound left lane (WBL) at Westside Blvd. & Golf Course Rd. during the 2035 PM peak hour. The SBT/R the queue will periodically extend past the driveway north of the intersection and the WBL queue will spill into the WBT lane by 2 vehicle lengths. The development will not contribute traffic to the SBT/R movement if Driveway 'C' remains as a full-access driveway. Adding a dedicated SBR lane and re-timing the signal (2035 Mitigated Case) reduces the queues for the SBT/R lane and the WBL lane to better than NO BUILD conditions.

4. **Determination of Warrants for Deceleration Lanes (Refer to Site Plan on page 41) –**
   Driveway 'A' - A northbound right-turn lane, 240-ft long (or the maximum distance possible starting at the curb return for Driveway 'B') including a 300-150 reverse curve transition, is warranted at Driveway 'A.' Since there is no existing northbound right-turn lane at this intersection, a new lane will need to be constructed by the development. The length of the lane will be limited to less than 200-ft due to the proximity of Driveway 'B' to Driveway 'A'.

   Driveway 'B' - A 240-feet long (including transition) northbound right-turn deceleration lane is warranted at Driveway 'B'. **The existing right-turn lane meets this requirement.** A southbound left-turn deceleration lane is warranted at Driveway 'B.' The southbound left-turn lane should have at least 75-feet of storage length with a 300-150 reverse curve transition. **The existing left-turn lane meets this requirement.**

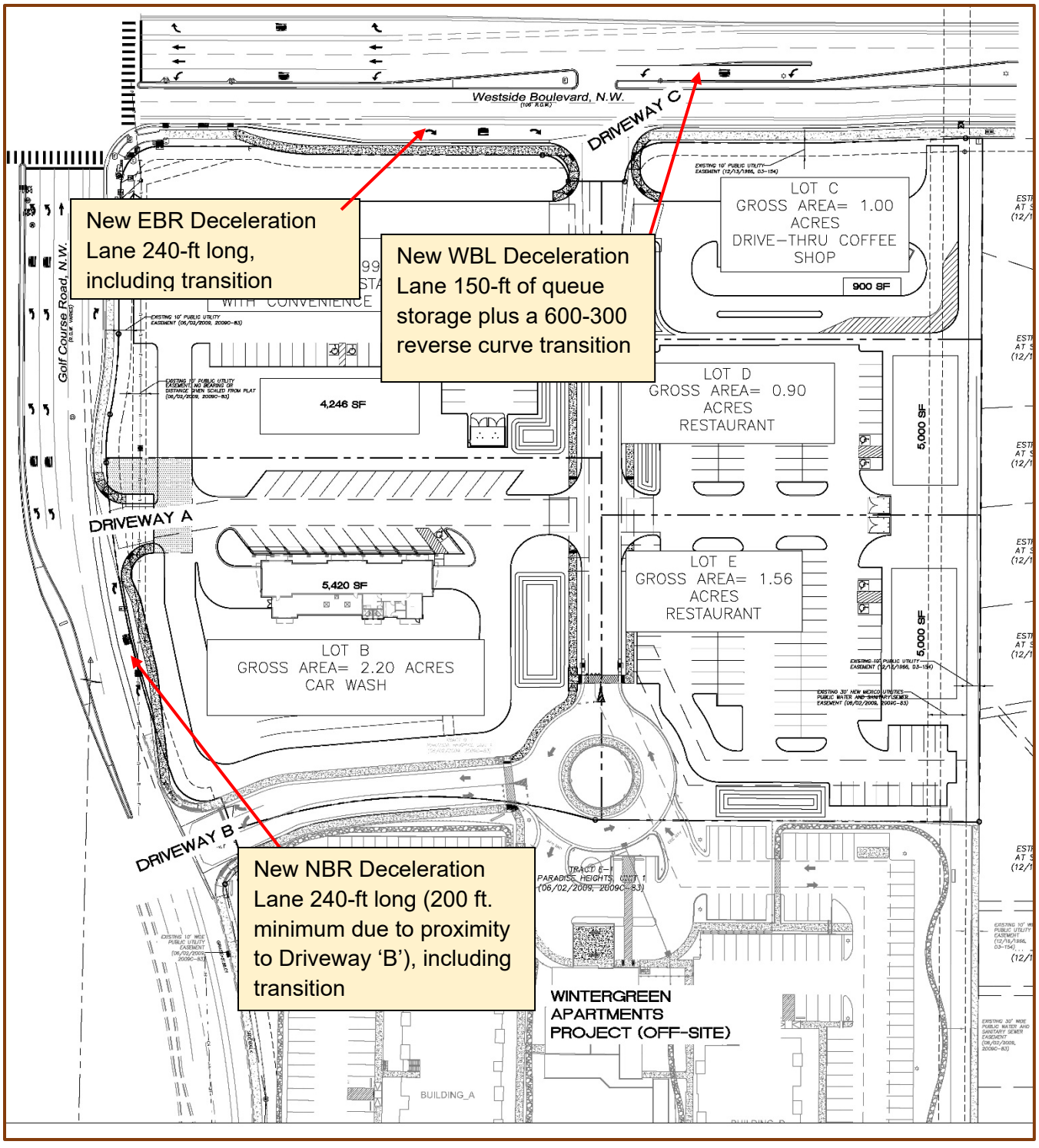
   Driveway 'C' - A 240-ft long (including 300-150 reverse curve transition) eastbound right-turn lane is warranted at Driveway 'C'. A westbound left-turn deceleration lane is warranted at Driveway 'C'. The left-turn lane should have at least 75-ft of queue storage (based on the maximum 95th percentile queue of one vehicle plus two additional vehicles) plus a 300-150 reverse curve transition.

5. **Crash Analysis –** There were 39 recorded crashes in the study area for the three-year study period (2017-2019). All the crashes occurred at the Westside Blvd. & Golf Course Rd. intersection. 26% of the crashes were due to Failure to Yield Right of Way. The existing crash rate at the Westside Blvd. & Golf Course Rd. intersection is 2.7 crashes per million vehicles or about 2.5 times greater than the average for Albuquerque.

In summary, the proposed Golf Course + Westside Commercial Development will have minimal adverse impact to the adjacent transportation system provided the recommendations below are implemented.

Recommendations (Refer to Site Plan below)

4. **Westside Blvd. & Golf Course Rd.**
   By **2035** the City of Albuquerque should consider adding a dedicated SBR turn lane and re-time the signal to reduce the delays and queue length of the southbound thru-right turn movement at Westside Blvd. & Golf Course Rd. This will also improve the overall intersection LOS and queueing. Since the development does not significantly contribute to the performance issues at this intersection and these issues are not anticipated until 2035, no mitigation on the part of the development is recommended.
5. **Driveway "A"**
   a) Driveway "A" should be designed and constructed as an unsignalized right/-in/right-out only access with one entering lane and one exiting lane.
   b) A new northbound right-turn deceleration lane, 240-ft long (or the maximum distance possible starting at the curb return for Driveway 'B') including a 30-150 reverse curve transition, should be constructed by the development (see drawing below).
   c) Onsite queue storage at Driveway "A" should be at least 75 feet long. (100 feet preferrable to provide some buffer).
6. **Driveway "B"**
   a) The existing geometry of Driveway 'B' as an unsignalized full access with one entering lane and two exiting lanes is acceptable.
   b) The existing southbound left and northbound right deceleration lanes at Driveway 'B' meet the requirements of the City of Albuquerque's deceleration lane requirements.
   c) Onsite queueing at Driveway "B" should be at least 75 feet long (100 feet preferrable to provide some buffer).
7. **Driveway 'C'**
   a) Driveway "C" should be designed and constructed as an unsignalized full access with one entering lane and two exiting lanes.
   b) Construct a new eastbound right-turn deceleration lane, 240-ft long (or the maximum distance possible starting at the curb return at the Westside Blvd. & Golf Course Rd. Intersection) including a 30-150 reverse curve transition (see drawing below).
   c) Construct a new westbound left turn lane with at least 75-ft of queue storage plus a 600-300 reverse curve transition (see drawing below).
   d) Onsite queue storage at Driveway "C" should be at least 75 feet long. (100 feet preferrable to provide some buffer).
8. **Recommendations based on the City of Albuquerque Planning Transportation Comments from a letter dated January 7, 2022** (see letter in Appendix page A-66 & A-67 from a previous TIS submittal associated with this property)
   a) The developer shall coordinate site plan development and roadway design with COA project CPN 589493 contact Tierra West, LLC.
   b) The developer is to provide graphical evidence to the City's Design Review Committee for the reduced turn lane length at Driveway 'A' and Driveway 'B'.
   c) Developer to coordinate with COA Transit due to the existing bus stop on Golf Course Rd near Driveway 'A" (COA Bus Route 96, Golf Course Rd., Stop: 7364, Direction: NB, south of Westside Blvd.).


Westside Boulevard, N.W.
DRIVEWAY C
Golf Course Road, N.W.
New EBR Deceleration Lane 240-ft long, including transition
New WBL Deceleration Lane 150-ft of queue storage plus a 600-300 reverse curve transition
LOT C
GROSS AREA= 1.00 ACRES
DRIVE-THRU COFFEE SHOP
900 SF
LOT D
GROSS AREA= 0.90 ACRES
RESTAURANT
5,000 SF
4,246 SF
DRIVEWAY A
LOT E
GROSS AREA= 1.56 ACRES
RESTAURANT
5,000 SF
5,420 SF
LOT B
GROSS AREA= 2.20 ACRES
CAR WASH
DRIVEWAY B
New NBR Deceleration Lane 240-ft long (200 ft. minimum due to proximity to Driveway 'B'), including transition
WINTERGREEN APARTMENTS PROJECT (OFF-SITE)
BUILDING_A

Appendix

APPENDIX