EXHIBIT D

Traffic Impact Study (Kellar Engineering)

Lot 1 Highway PUD

7051 County Road 335, New Castle, CO

Traffic Impact Study

KE Job #2024-031

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1.0 Introduction

The purpose of this Traffic Impact Study (TIS) is to identify project traffic generation characteristics, to identify potential traffic related impacts on the adjacent street system, and to develop mitigation measures required for identified traffic impacts. This TIS is for the Lot 1 Highway PUD project located at 7051 County Road (CR) 335, New Castle, Colorado. See Figure 1: Vicinity Map.

Kellar Engineering LLC (KE) has prepared the TIS to document the results of the project's anticipated traffic conditions in accordance with the Town of New Castle's requirements and to identify projected impacts to the local and regional traffic system.

2.0 Existing Conditions and Roadway Network

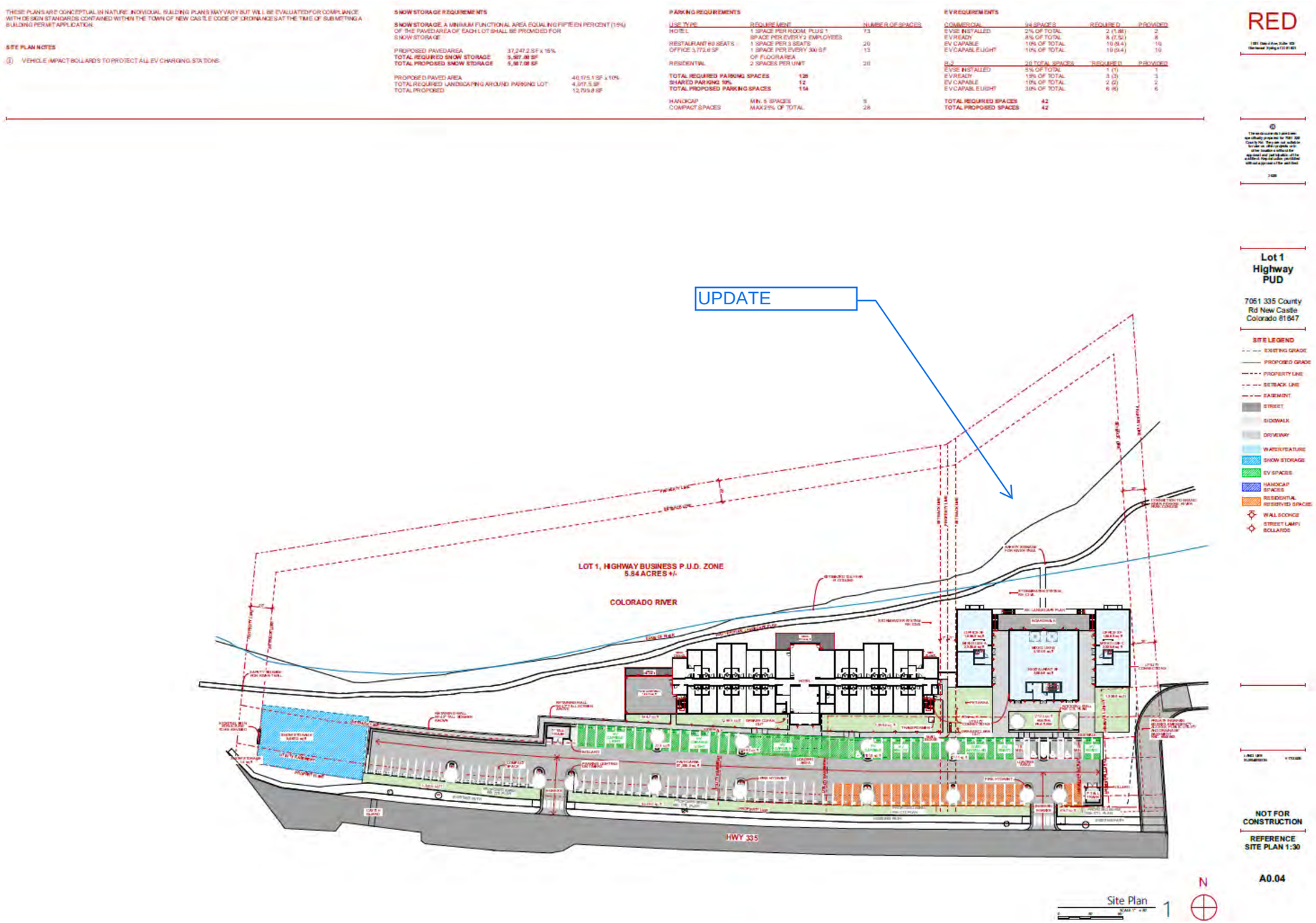
The project site is located at 7051 CR 335 in New Castle, CO. CR 335 is an existing east/west roadway with a posted speed of 35 mph. An eight-foot wide paved pedestrian/bike path exists along the north side of CR 335 adjacent to the project site. The CR 335/Castle Valley Blvd. intersection has all-way stop-control which is appropriate for the intersection's traffic volumes. Table 7-107 in Garfield County LUDC Standards for a Major Collector roadway apply for volumes greater than 2501 vpd. Per the standards, Major Collectors are required to have 6' paved shoulders. See Appendix D. The existing eight-foot wide paved pedestrian/bike path along the north side of CR 335 provides a safe bike/ped route which functions appropriately. This meets the same bike/ped facility intent as paved shoulders and provides adequate bicycle and safety facilities along the north side of CR 335.

2.1 Recent Traffic Volumes

Recent peak hour traffic volume counts were conducted by All Traffic Data Services using data collection video cameras. The traffic counts were conducted in 15-minute intervals on Thursday, 3/21/2024 from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. The traffic counts are shown in Figure 3 with the count sheets provided in Appendix A.

Figure 1: Vicinity Map

Figure 2: Site Plan (For reference only. Provided by Architect. See Architectural Drawings for more information)



4.0 Proposed Development

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The proposed project consists of a mix of hotel, office, restaurant, and residential. See Table 1: Trip Generation and Figure 2: Site Plan.

4.1 Trip Generation

Site generated traffic estimates are determined through a process known as trip generation. Rates and equations are applied to the proposed land use to estimate traffic generated by the development during a specific time interval. The acknowledged source for trip generation rates is the *Trip Generation Manual* published by the Institute of Transportation Engineers (ITE). ITE has established trip generation rates in nationwide studies of similar land uses. For this study, KE used the *ITE 11th Edition Trip Generation Manual* average trip rates. The proposed project is anticipated to generate approximately 1,060 daily weekday trips, 77 AM total peak hour trips, and 84 PM total peak hour trips. See Table 1: Trip Generation.

4.2 Trip Distribution

Distribution of site traffic on the street system was based on the area street system characteristics, existing traffic patterns and volumes, anticipated surrounding development areas, and the proposed access system for the project. The directional distribution of traffic is a means to quantify the percentage of site generated traffic that approaches the site from a given direction and departs the site back to the original source. Figure 6 illustrates the trip distribution used for the project's analysis.

4.3 Traffic Assignment

Traffic assignment was obtained by applying the trip distributions to the estimated trip generation of the development. Figure 7 shows the site generated peak hour traffic assignment.

4.4 Short Range Total Peak Hour Traffic

Site generated peak hour traffic volumes were added to the background traffic volumes to represent the estimated traffic conditions for the short range 2026 horizon. These background (2026) and short range (2026) total traffic volumes are shown in Figure 4 and Figure 8 respectively. The short range analysis year 2026 includes the proposed development for the project plus a 2% increase in background traffic per the growth rates from CDOT OTIS (Online Transportation Information Systems).

4.5 Long Range Total Peak Hour Traffic

Site generated peak hour traffic volumes were added to the background traffic volumes to represent the estimated traffic conditions for the long range 2046 horizon. These background (2046) and long range (2046) total traffic volumes are shown in Figure 5 and Figure 9 respectively. The long range analysis year 2046 includes the proposed development for the project plus a 2% increase in background traffic per the growth rates from CDOT OTIS (Online Transportation Information Systems).

5.0 Traffic Operation Analysis

KE's analysis of traffic operations in the site vicinity was conducted to determine the capacity at the identified intersection. The acknowledged source for determining overall capacity is the Highway Capacity Manual.

5.1 Analysis Methodology

Capacity analysis results are listed in terms of level of service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. LOS ranges from an A (very little delay) to an F (long delays). A description of the level of service (LOS) for signalized and unsignalized intersections from the Highway Capacity Manual are provided in Appendix B.

5.2 Intersection Operational Analysis

Operational analysis was performed for the short range 2026 total horizon. The calculations for this analysis are provided in Appendix E. Using the short range total traffic volumes shown in Figure 8**,** the project's intersections are projected to meet level of service (LOS) criteria with full project build-out. Additionally, as shown in the Synchro outputs in the Appendix, the 95th percentile queues are small and the intersection levels of service (LOS) operate acceptably. Additionally, per AASHTO Exhibit 3-1, a design speed of 40 mph (posted speed of 35 mph) has a design stopping sight distance of 305 feet. Based upon review of available data (survey, aerial photography, and street view photos), it appears that the study intersections have the ability to meet this criterion.

Table 1: Trip Generation (ITE Trip Generation, 11th Edition)

ITE Code	Land Use		Average Daily Trips		AM Peak Hour Trips						PM Peak Hour Trips					
		Size	Rate	Total	Rate	% In	In	% Out	Out	Total	Rate	% In	In	% Out	Out	Total
310	Hotel	71 Rooms	7.99	567	0.46	56%	18	44%	15	33	0.59	51%	21	49%	21	42
710	Office	3.78 KSF	10.84	41	1.52	88%	5	12%	1	6	1.44	17%	1	83%	4	5
932	Restaurant	3.59 KSF	107.20	385	9.57	55%	19	45%	15	34	9.05	61%	20	39%	12	32
220	Residential	10 Units	6.74	67	0.40	24%	1	76%	3	4	0.51	63%	3	37%	2	5
Total				**1060**			**43**		**34**	**77**			**45**		**39**	**84**

KSF = Thousand Square Feet

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Figure 3: Recent Peak Hour Traffic

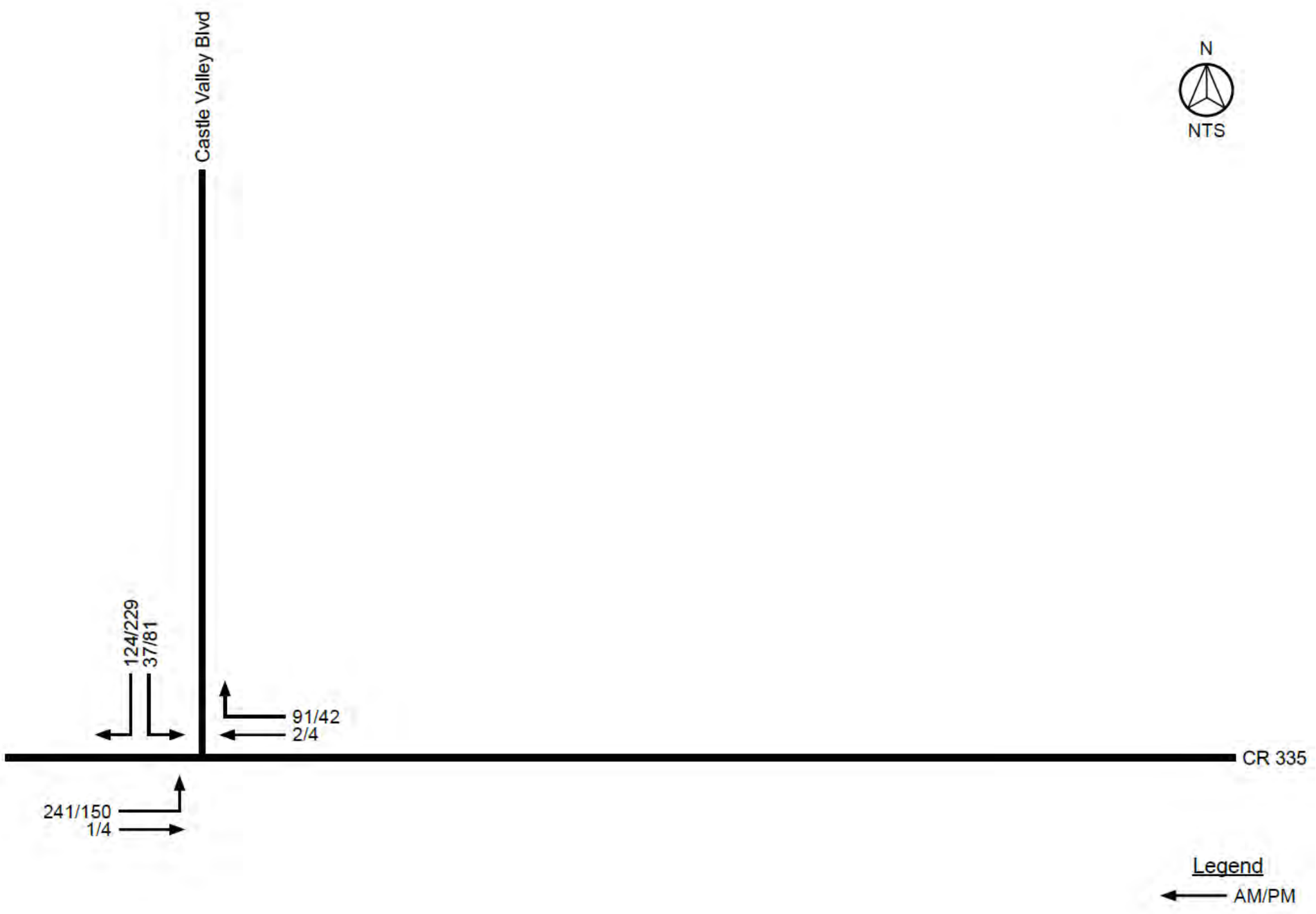

Figure 4: 2026 Background Traffic

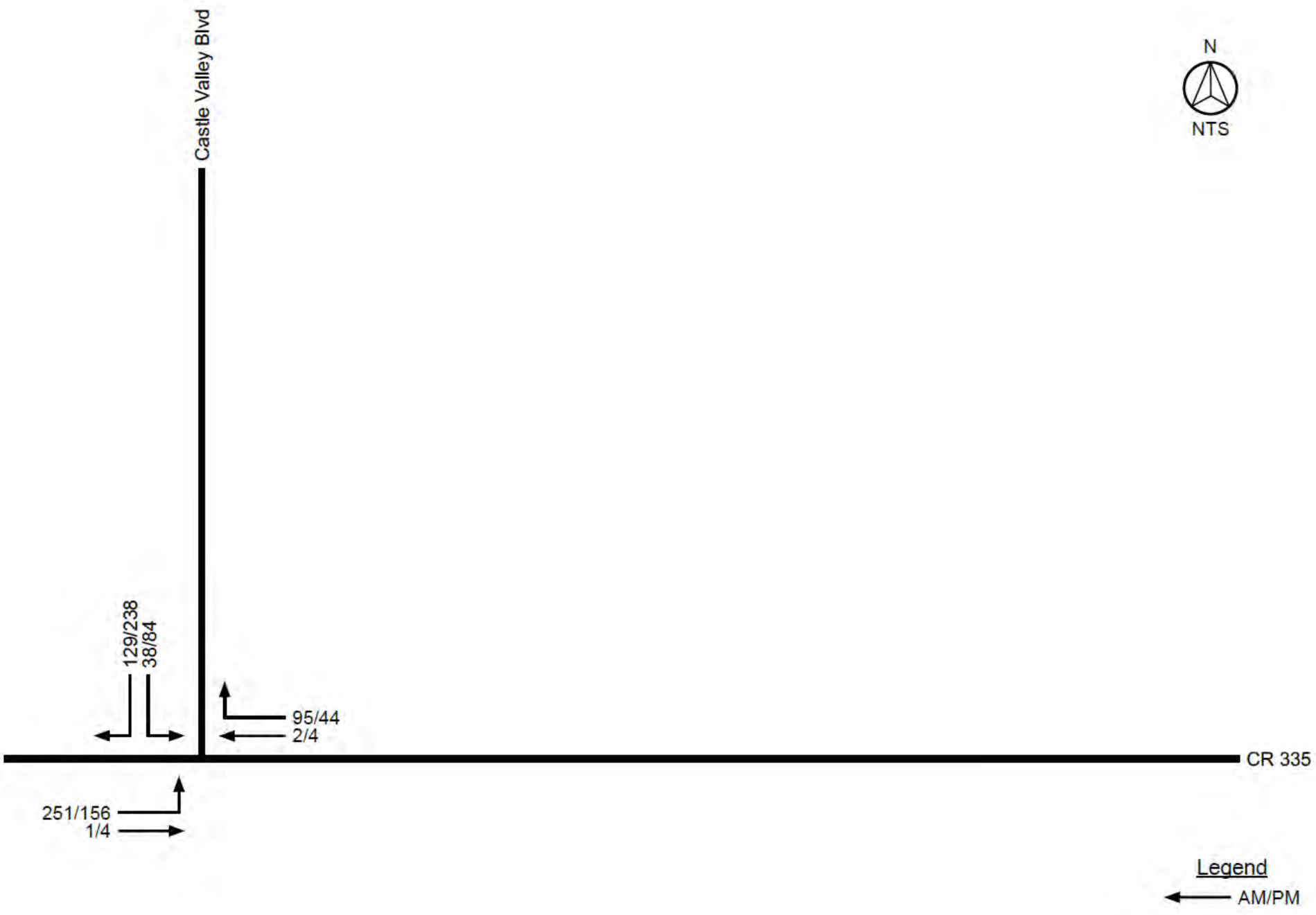

Figure 5: 2046 Background Traffic

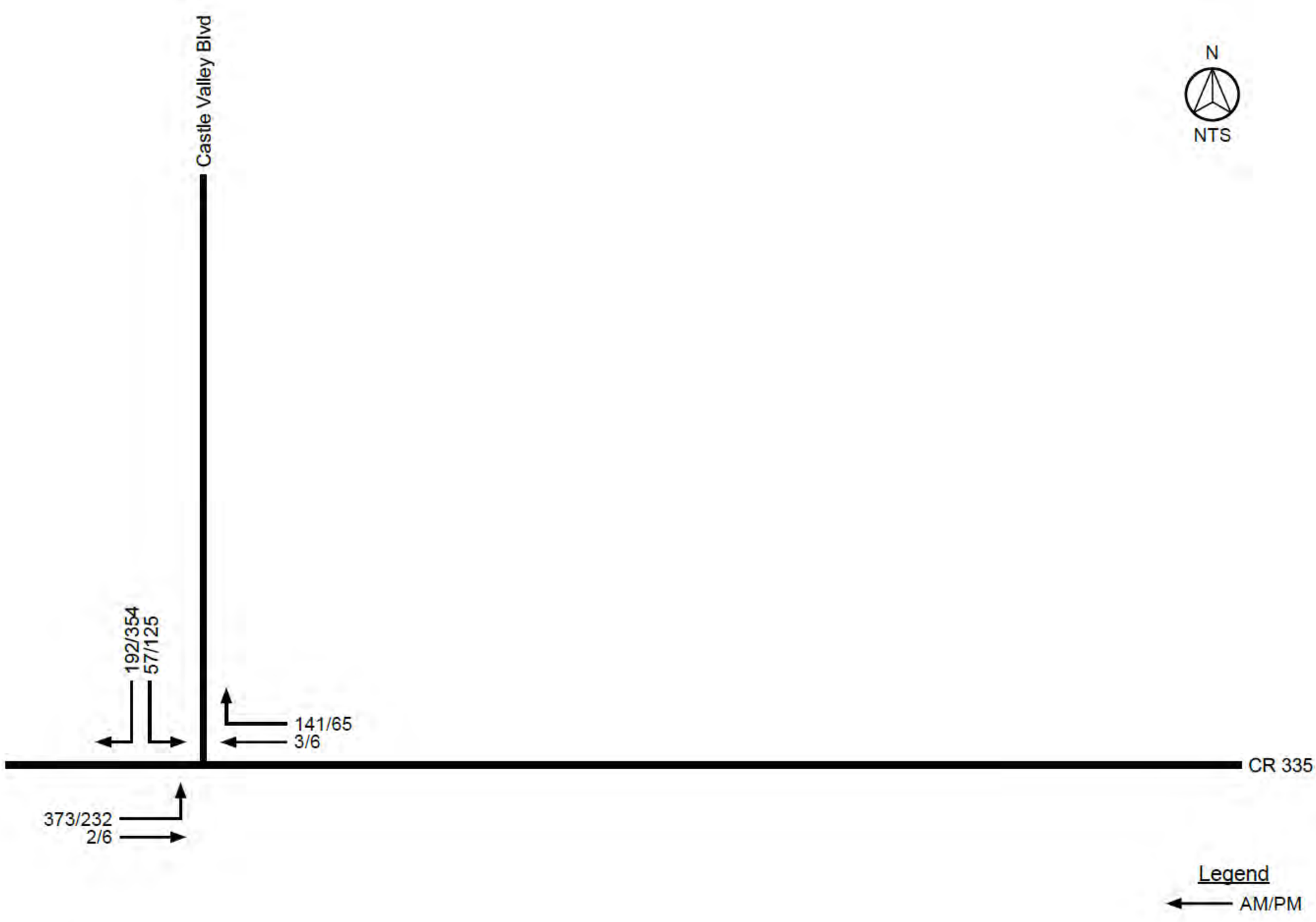

Figure 6: Trip Distribution

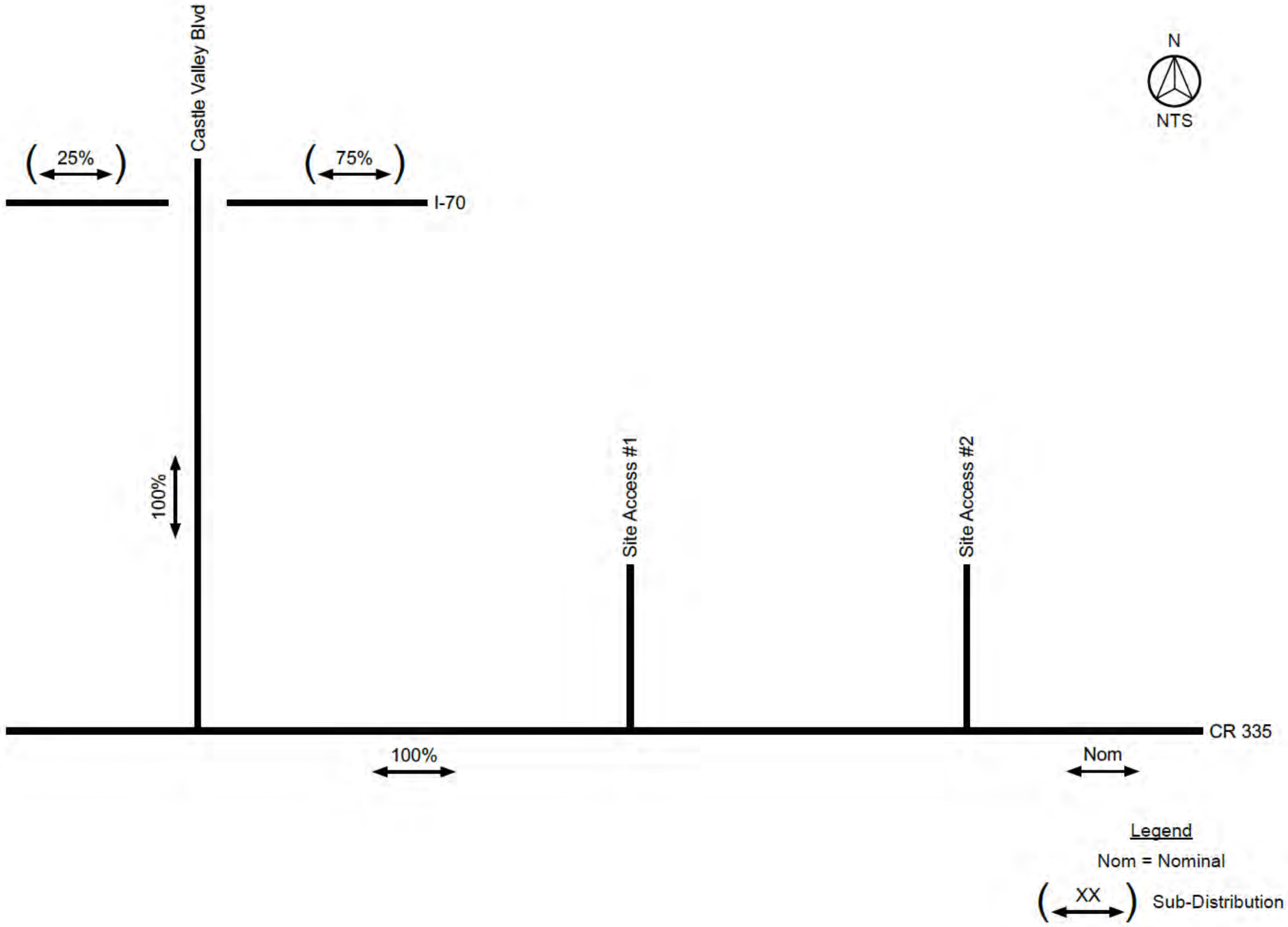

Figure 7: Site Generated Traffic

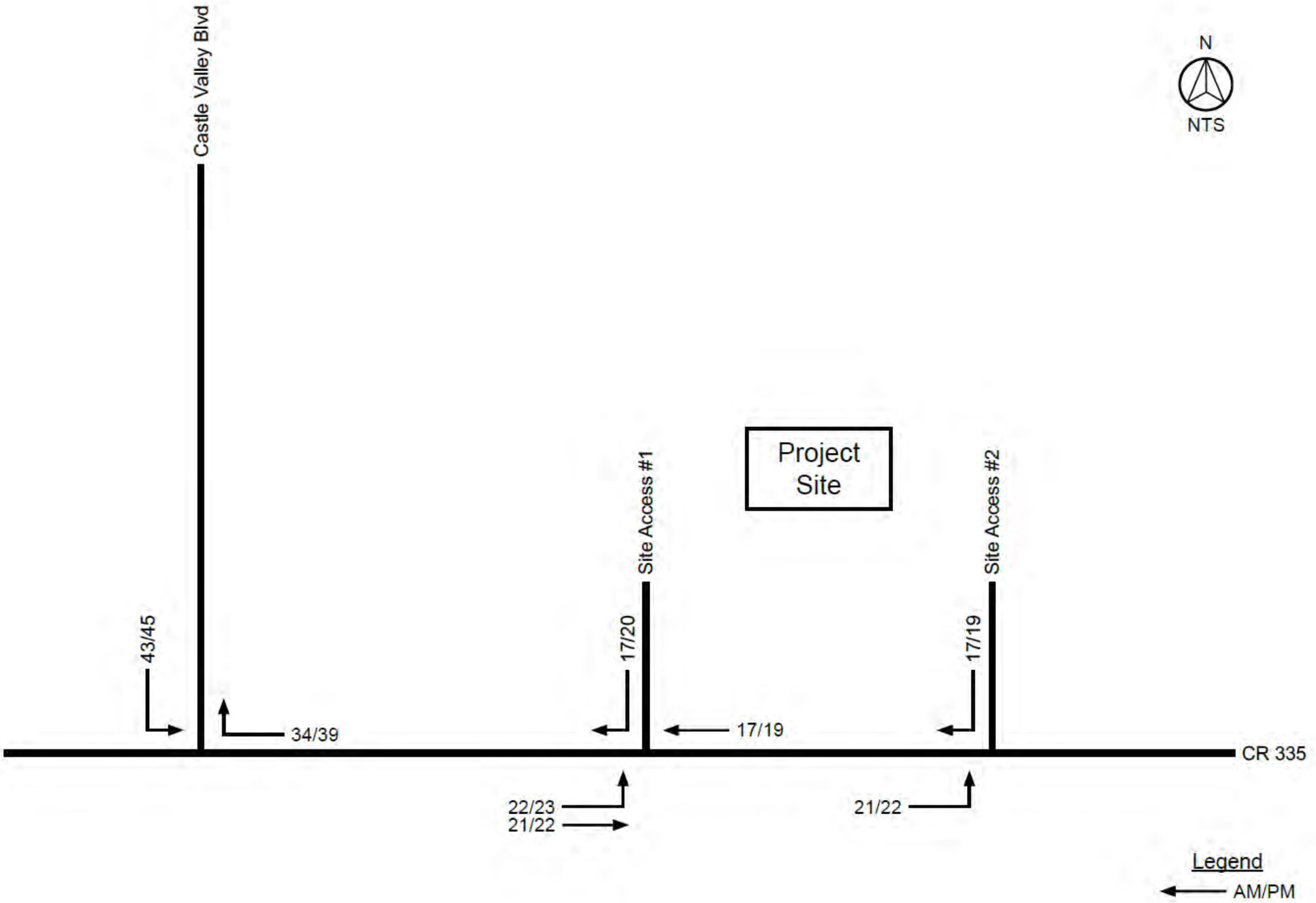

Figure 8: 2026 Short Range Total Traffic

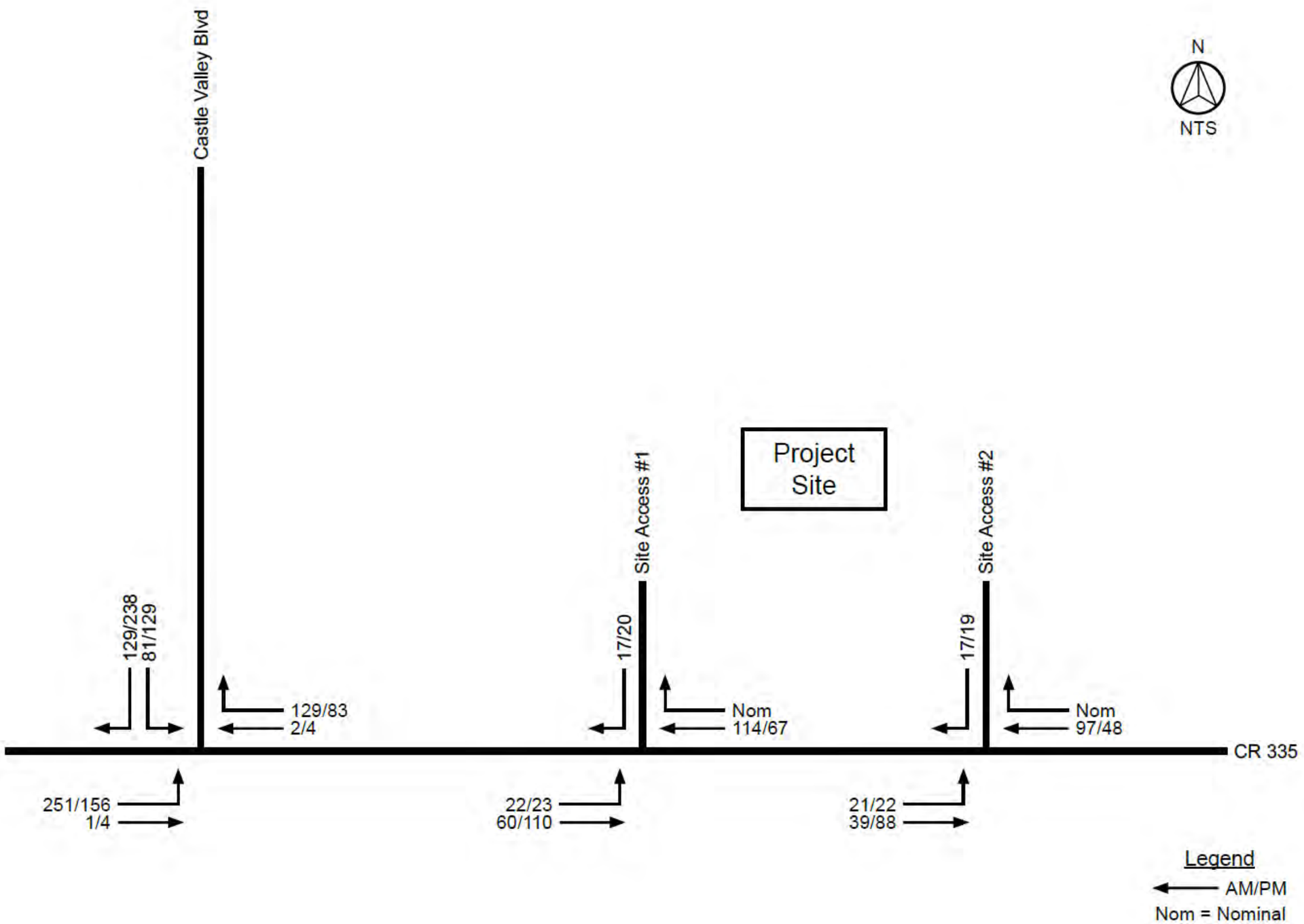

Figure 9: 2046 Long Range Total Traffic

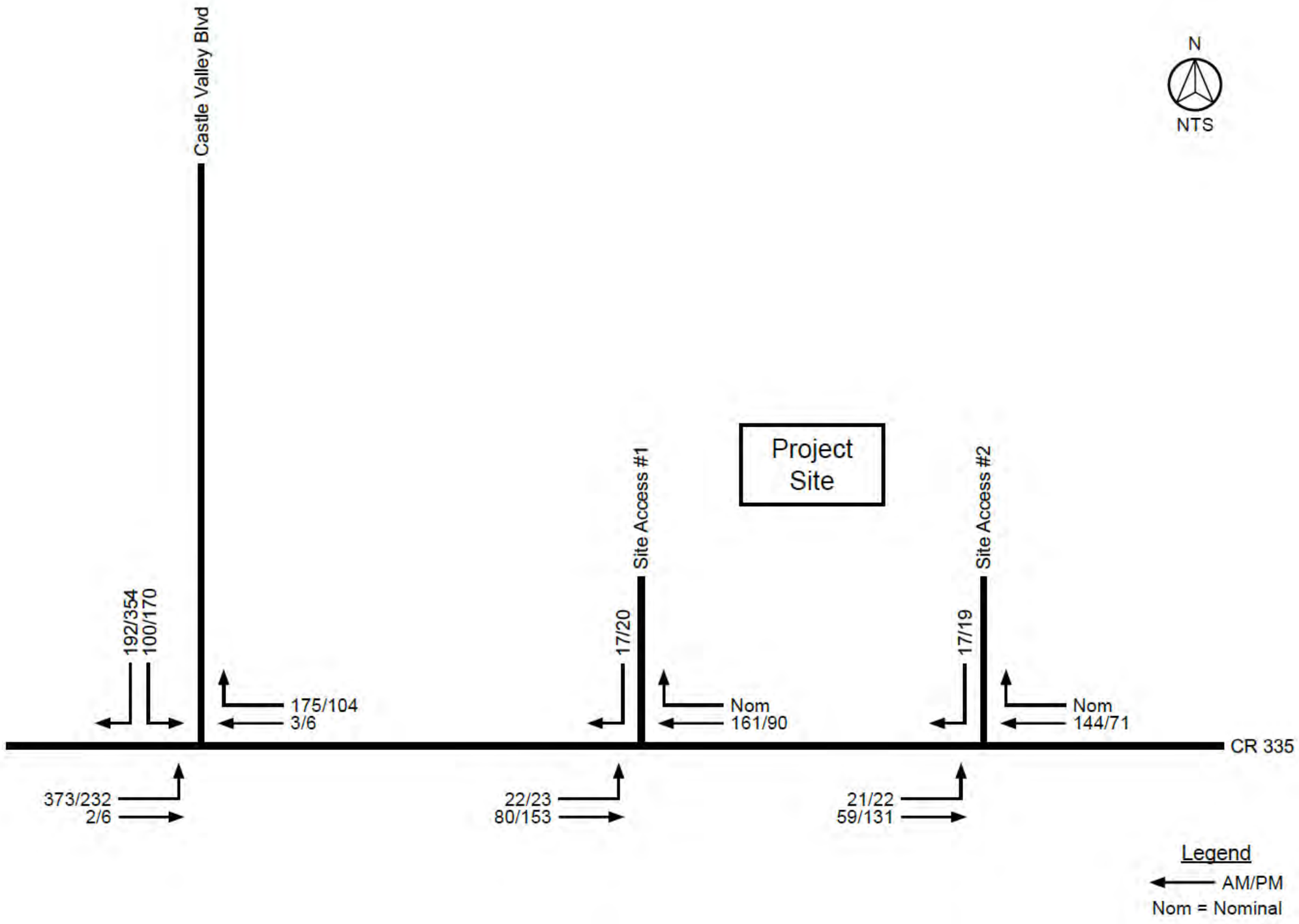

Table 3: Recent Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
CR 335/Castle Valley Blvd			
	EB Left/Through	A	A
	EB Approach	A	A
	WB Through/Right	A	A
	WB Approach	A	A
	SB Left/Right	A	A
	SB Approach	A	A
	Overall	A	A

Table 4: 2026 Background Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
CR 335/Castle Valley Blvd			
	EB Left/Through	B	A
	EB Approach	B	A
	WB Through/Right	A	A
	WB Approach	A	A
	SB Left/Right	A	A
	SB Approach	A	A
	Overall	A	A

Table 5: 2046 Background Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
CR 335/Castle Valley Blvd			
	EB Left/Through	B	B
	EB Approach	B	B
	WB Through/Right	A	A
	WB Approach	A	A
	SB Left/Right	B	C
	SB Approach	B	C
	Overall	B	B

Table 6: 2026 Short Range Total Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
CR 335/Castle Valley Blvd			
	EB Left/Through	B	A
	EB Approach	B	A
	WB Through/Right	A	A
	WB Approach	A	A
	SB Left/Right	A	B
	SB Approach	A	B
	Overall	A	B

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
CR 335/Site Access #1			
	EB Left/Through	A	A
	EB Approach	A	A
	WB Through/Right	A	A
	WB Approach	A	A
	SB Left/Right	A	A
	SB Approach	A	A
	Overall	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
CR 335/Site Access #2			
	EB Left/Through	A	A
	EB Approach	A	A
	WB Through/Right	A	A
	WB Approach	A	A
	SB Left/Right	A	A
	SB Approach	A	A
	Overall	A	A

Table 7: 2046 Long Range Total Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
CR 335/Castle Valley Blvd			
	EB Left/Through	C	B
	EB Approach	C	B
	WB Through/Right	A	A
	WB Approach	A	A
	SB Left/Right	B	C
	SB Approach	B	C
	Overall	B	C

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
CR 335/Site Access #1			
	EB Left/Through	A	A
	EB Approach	A	A
	WB Through/Right	A	A
	WB Approach	A	A
	SB Left/Right	A	A
	SB Approach	A	A
	Overall	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
CR 335/Site Access #2			
	EB Left/Through	A	A
	EB Approach	A	A
	WB Through/Right	A	A
	WB Approach	A	A
	SB Left/Right	A	A
	SB Approach	A	A
	Overall	A	A

6.0 Findings

Based upon the analysis presented in this TIS, the proposed project will be able to successfully meet the Town of New Castle's requirements. The study intersections are projected to operate acceptably upon full development of the proposed project.

The findings of the TIS are summarized below:

- The proposed project is anticipated to generate a maximum of approximately 1,060 daily weekday trips, 77 AM total peak hour trips, and 84 PM total peak hour trips. See Table 1: Trip Generation.
- The study intersections are projected to operate acceptably and comply with the County's intersection level of service (LOS) requirements with full development of the proposed project and background traffic. See Table 6.
- The existing street improvements are sufficient to handle the proposed project's traffic.