Honor Charter School

NWC Bent Grass Meadows Drive and Sea Oats Drive Peyton, Colorado

Traffic Impact Study

KE Job #2026-034

PCD File No. PPR-2615

Prepared for:

TAIT & ASSOCIATES, INC
320 N. Lincoln Avenue
Loveland, CO 80537

Prepared by:

KELLAR ENGINEERING

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April 27, 2026

Sean K. Kellar, PE, PTOE

Traffic Engineer's Statement

The attached traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by El Paso County, CO for traffic reports.

stamp required for final approval

_____ 4/27/2026

Sean K. Kellar, P.E. #38560 Date

Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

_____ _____

Honor Charter School Date

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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 proposed Honor Charter School project located at the northwest corner of Bent Meadows Drive and Sea Oats Drive in El Paso County, Colorado. See Figure 1: Vicinity Map. The charter school is anticipated to have approximately 621 students with no bus service provided.

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

Please clarify whether the student count used in this study reflects the anticipated initial enrollment or the building's full student capacity. The traffic impact analysis should be based on the building's full student capacity rather than the anticipated initial enrollment.

2.0 Existing Conditions and Roadway Network

The project site is located at the northwest quadrant of Sea Oats Drive and Bent Grass Meadows Drive. Bent Grass Meadows Drive an east-west roadway with: two through lanes, a continuous center left-turn lane, bike lanes, a detached sidewalk on the south side of the road, and a posted speed of 35 mph adjacent to the project site. Bent Grass Meadows Drive is classified as a minor collector in Figure 22 of the 2045 Major Transportation Corridors Plan (MTCP). See Figure 2: Site Plan and Appendix E.

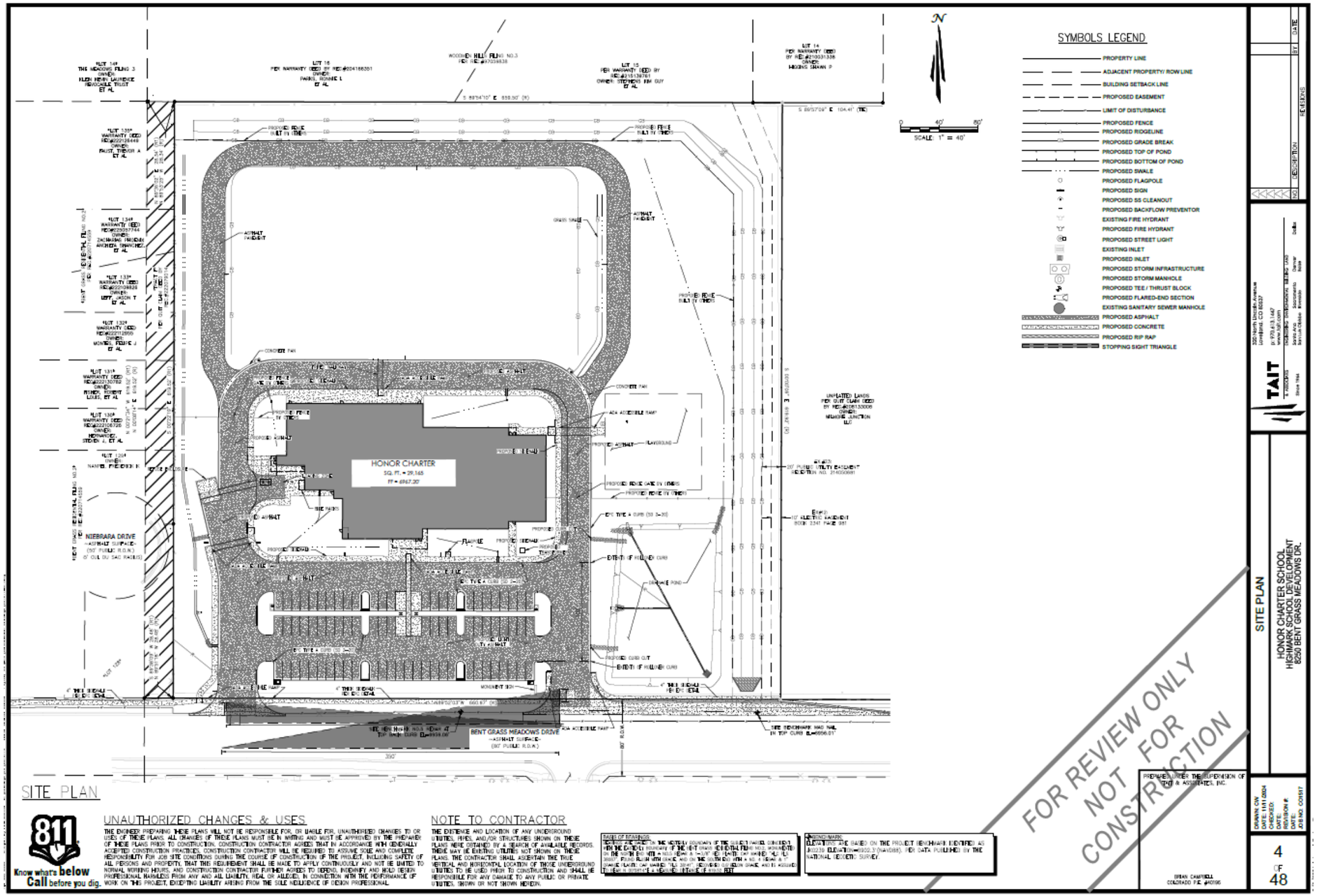
There are no bike lines along Bent Grass Meadows Drive. Revise.

2.1 Recent Traffic Volumes

Recent peak hour traffic volume counts were conducted using data collection cameras on Tuesday, March 17, 2026 when school was in session. The traffic counts were conducted to capture the peak hours of the adjacent street traffic. These 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 Civil Engineer. See Civil Drawings for more information)



3.0 Proposed Development

The proposed project consists of a K-8 charter school. See Table 1: Trip Generation and Figure 2: Site Plan.

These are not bike lanes, they are striped shoulders. These will not be signed or marked as bike lanes (Typ.).

4.0 Pedestrian and Bicycle Facilities

Sidewalk exists along the south side of Bent Grass Meadows Drive. Bike lanes also exist along both sides of Bent Grass Meadows Drive which provides adequate bicycle facilities. The project will be responsible for designing and constructing the sidewalk connection on the north side of Bent Grass Meadows Drive to tie into the existing public street sidewalk to the west on Bent Grass Meadows Drive which provides for adequate pedestrian and bicycle facilities.

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 12th Edition Trip Generation Manual* average trip rates. Since traffic on the adjacent streets and intersections is highest during the weekday peak hours, this study analyzed the weekday peak hour traffic. The proposed project is anticipated to generate approximately 1,149 daily weekday trips, 646 AM total peak hour trips, and 99 PM total peak hour trips. See Table 1: Trip Generation.

Also analyze PM peak hour of the school, during dismissal.

Table 1: Trip Generation (ITE 12th 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
536	Charter School (K-8)	621 Stdnts	1.85	1,149	1.04	52%	336	48%	310	646	0.16	35%	35	65%	64	99
Total Proposed		**621 Stdnts**		**1,149**			**336**		**310**	**646**			**35**		**64**	**99**

KSF = Thousand Square Feet

*It was conservatively assumed in this analysis to not include additional trip reductions for students walking or bicycling to school

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. Figures 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 2028 horizon. These background (2028) and short range (2028) total traffic volumes are shown in Figures 4 and 8. The short range analysis year 2028 includes the proposed development for this project plus a 2% increase in background traffic per the CDOT Online Transportation Information System (OTIS).

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 2045 horizon. These long range (2045) total traffic volumes are shown in Figure 9. The long range analysis year 2045 includes the proposed development for the project plus a 2% increase in background traffic per the CDOT Online Transportation Information System (OTIS).

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 F.

5.2 Intersection Operational Analysis

Operational analysis was performed for the short range 2028 horizon. The calculations for this analysis are provided in Appendix F. Using the short range total traffic volumes, the project is projected to operate acceptably with all studied intersections and access points meeting Thornton LOS criteria. See Table 5: 2028 Short Range Total Peak Hour Operation.

County

5.3 Stacking Length for Parent Drop-off

The project site is designed to have vehicles enter the east access with a counter clockwise circulation around the building to maximize onsite vehicle queuing. Per the NCDOT Calculator, the projected average queue length is approximately 2,641'. See Appendices for NCDOT Calculator. The parent drop-off area is adequately designed to handle this stacking length. This is conservative considering that some students will be walking to school and some parents may carpool.

please define NCDOT

5.4 Internal Drop-off / Pick-up Circulation

The internal drop-off/pick-up circulation on the site is designed to have vehicles enter the east access and drive around the site with a counter clockwise circulation around the building then exiting out the west access. The internal drop-off/pick-up area is designed adequately to handle adequate vehicle stacking length onsite. One-way traffic circulation is recommended for the parent drop-off area within the parking area for efficient traffic circulation. Additionally, it is recommended that the school implement trained staff and/or trained volunteers (wearing proper PPE) to help direct traffic during the peak drop-off/pick-up times.

Ensure school staff is aware of the vehicle stacking intent. This is not always communicated and traffic queuing is backed onto the public street. Create a pick-up/drop-off operations manual for school staff?

Figure 3: Recent Peak Hour Traffic

In addition to analyzing the intersection of Sea Oats Dr and Bent Grass Meadows Dr, please analyze the following intersections:

- Bent Grass Meadows Dr and Meridian
- Bent Grass Meadows Dr and E Woodmen Rd Frontage

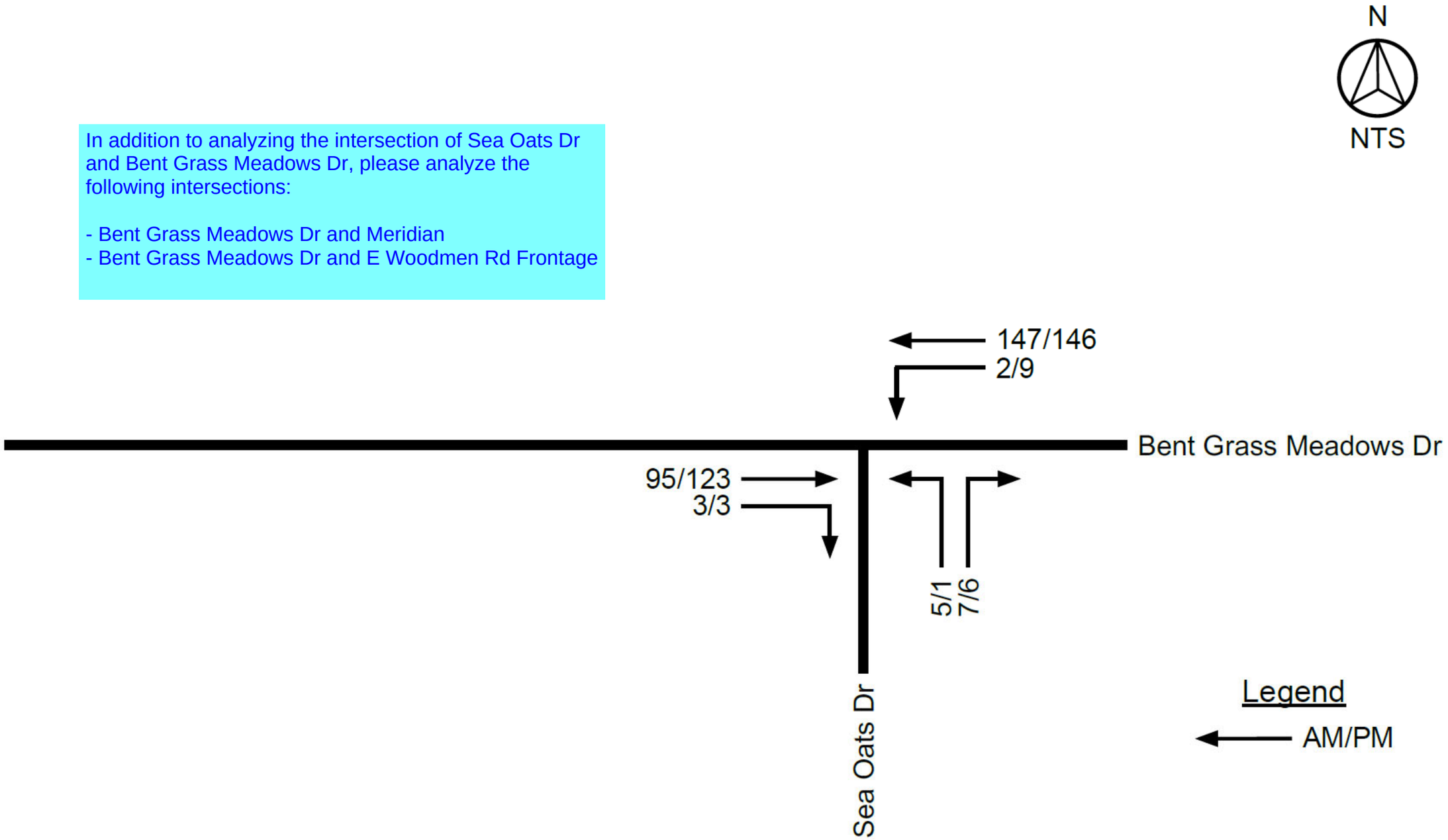


Figure 4: 2028 Background Traffic

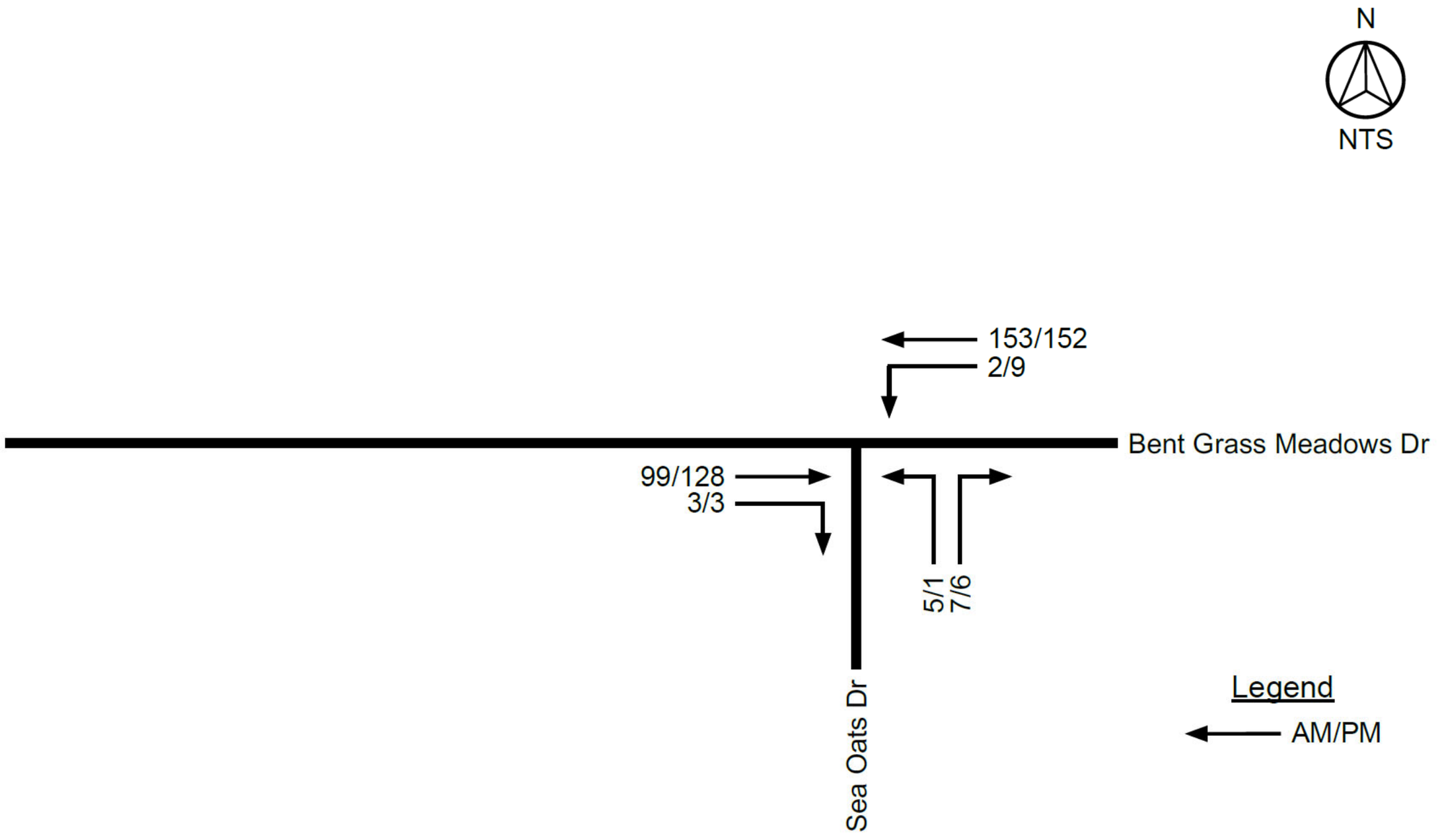


Figure 5: 2045 Background Traffic

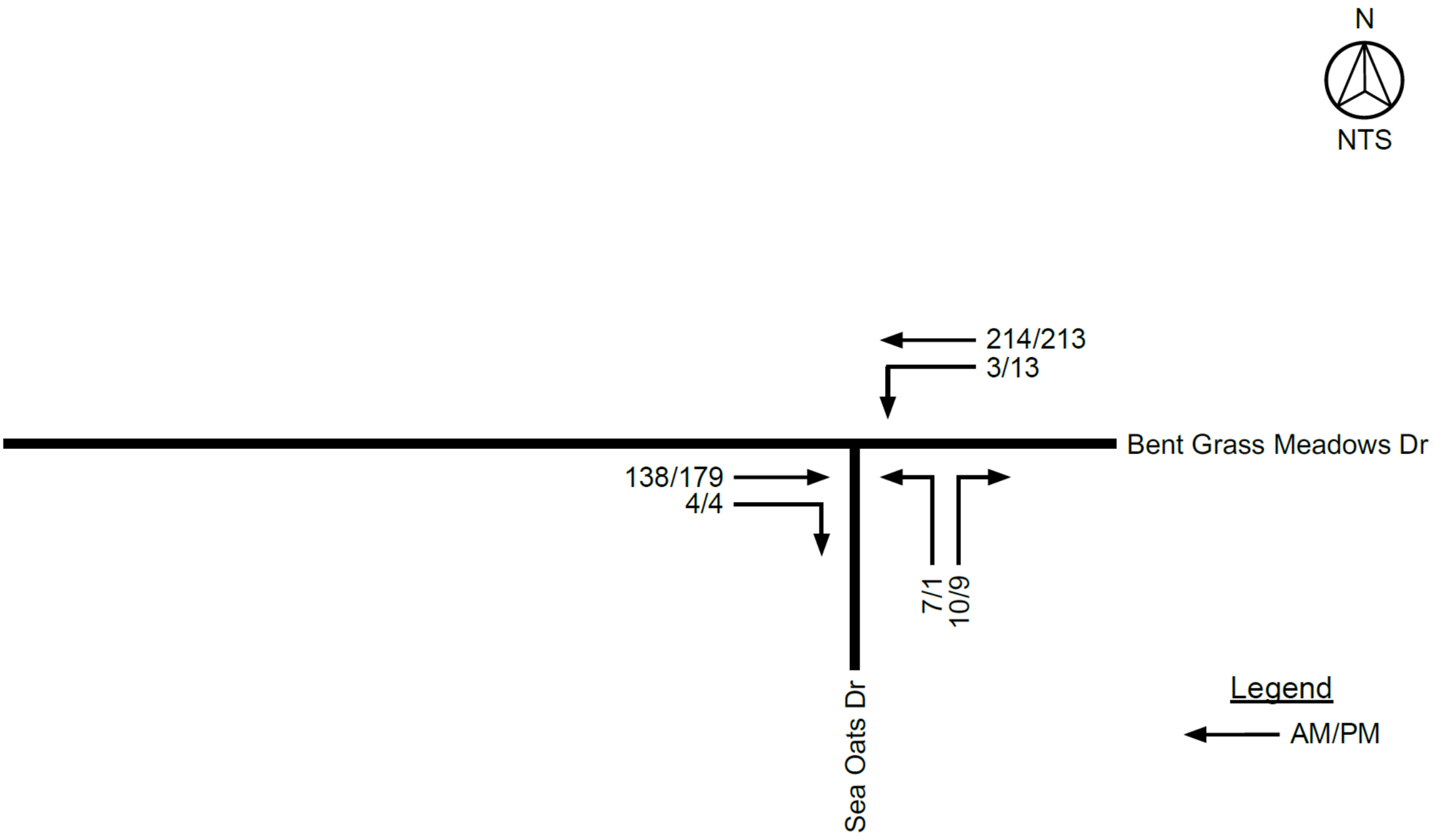


Figure 6: Trip Distribution

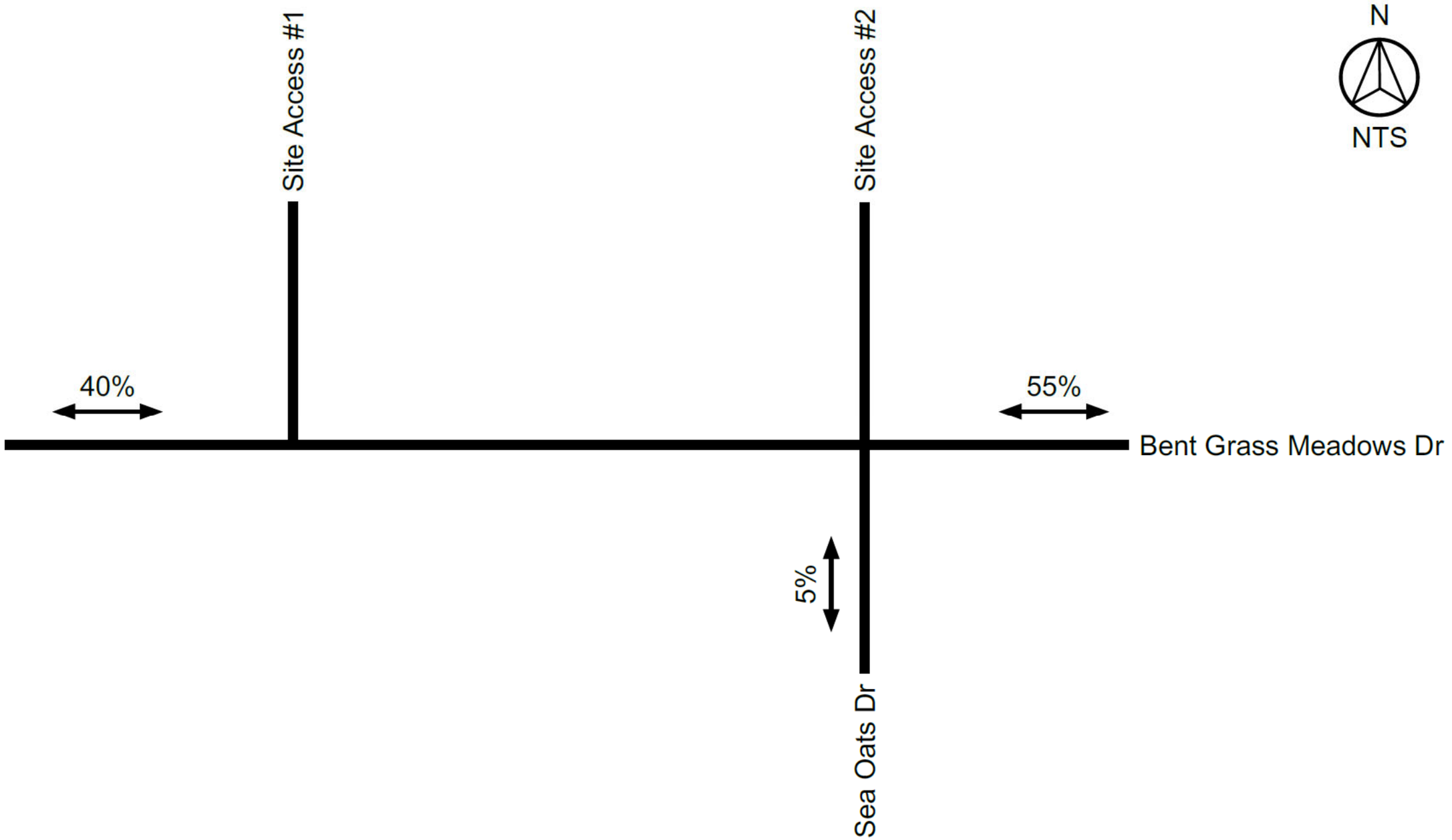


Figure 7: Site Generated Traffic

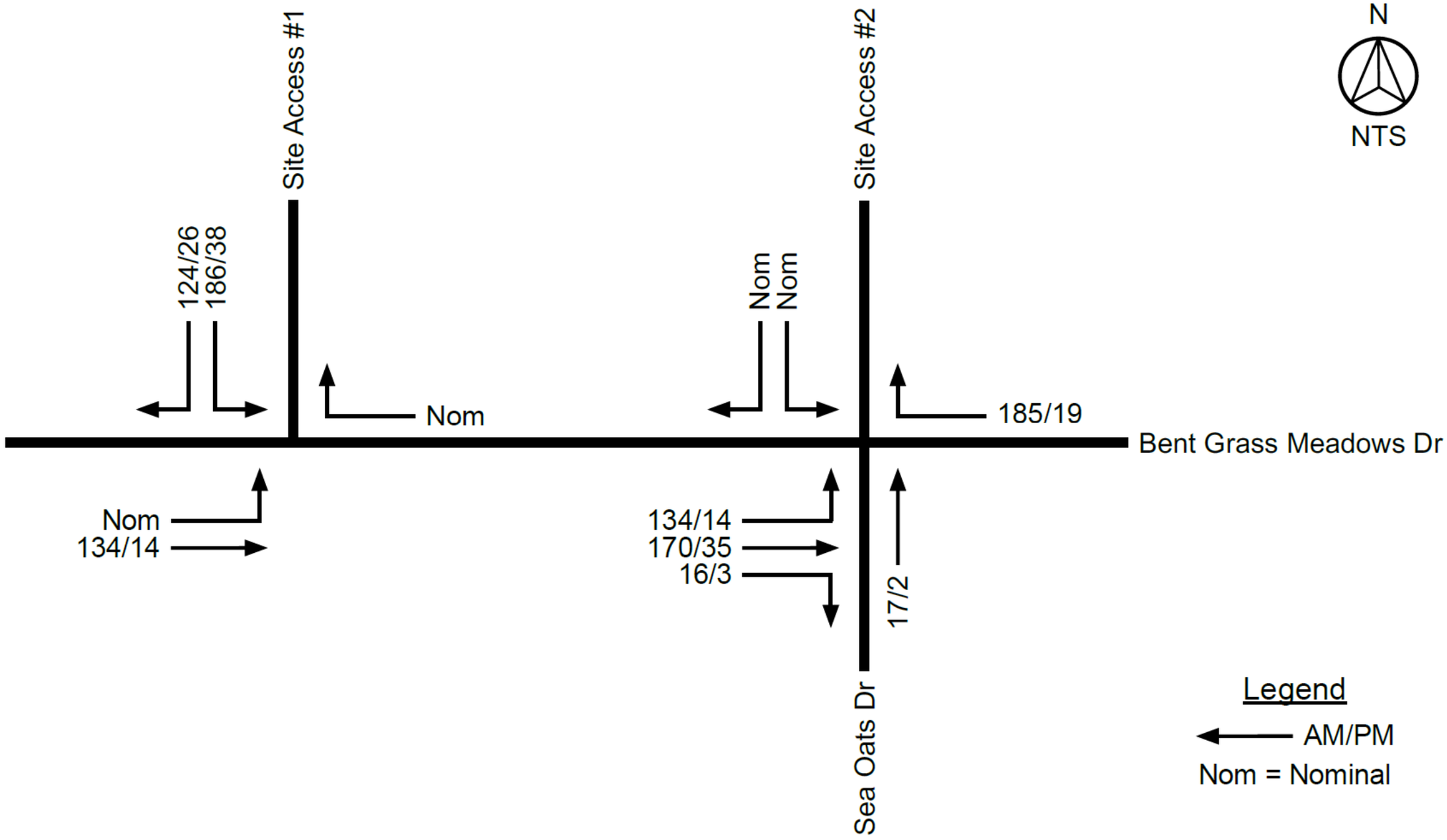


Figure 8: 2028 Short Range Total Traffic

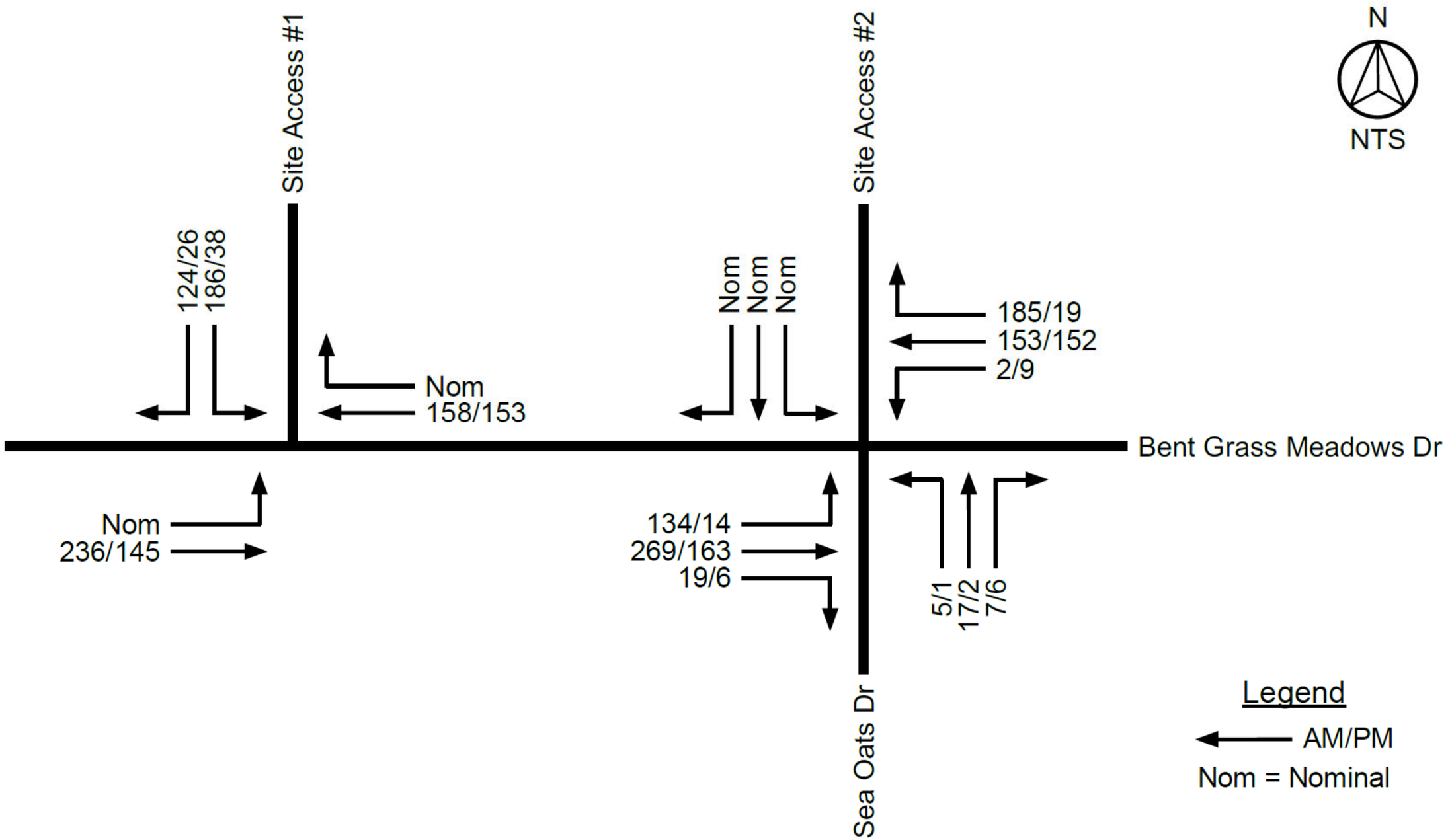


Figure 9: 2045 Long Range Total Traffic

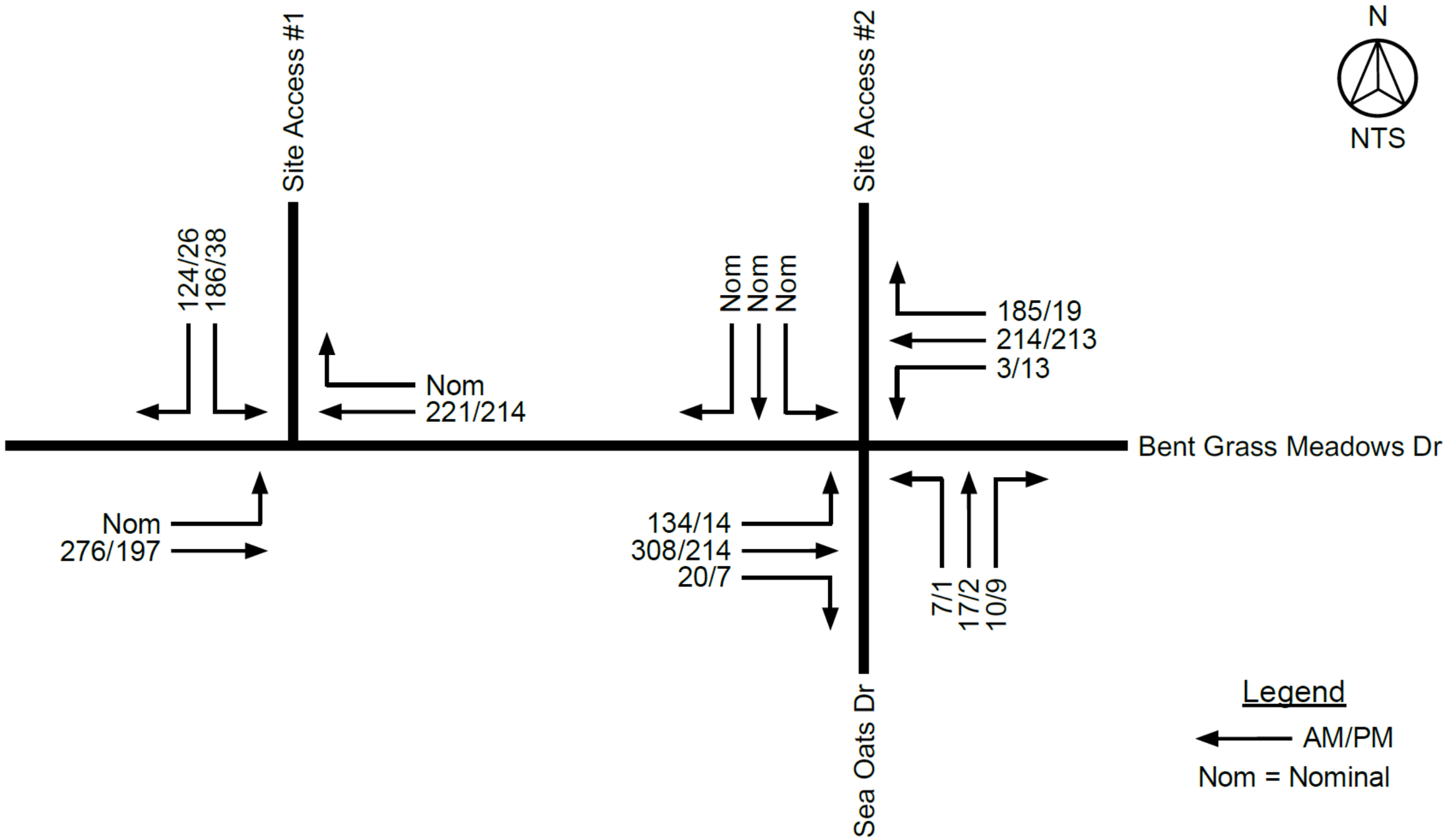


Table 2: Recent Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Sea Oats Dr/Bent Grass Meadows Dr			
	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left	A	A
	WB Thru	A	A
	WB Approach	A	A
	NB Left/Right	A	A
	NB Approach	A	A

Table 3: 2028 Background Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Sea Oats Dr/Bent Grass Meadows Dr			
	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left	A	A
	WB Thru	A	A
	WB Approach	A	A
	NB Left/Right	A	A
	NB Approach	A	A

Table 4: 2045 Background Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Sea Oats Dr/Bent Grass Meadows Dr			
	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left	A	A
	WB Thru	A	A
	WB Approach	A	A
	NB Left/Right	A	A
	NB Approach	A	A

Table 5: 2028 Short Range Total Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Site Access #2/Sea Oats Dr/Bent Grass Meadows Dr			
	EB Left	A	A
	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left	A	A
	WB Thru	A	A
	WB Right	A	A
	WB Approach	A	A
	NB Left/Thru/Right	C	B
	NB Approach	C	B
	SB Left/Thru/Right	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Site Access #1/Bent Grass Meadows Dr			
	EB Left	A	A
	EB Thru	A	A
	EB Approach	A	A
	WB Thru/Right	A	A
	WB Approach	A	A
	SB Left	B	B
	SB Right	A	A
	SB Approach	B	B

Table 6: 2045 Long Range Total Peak Hour Operations

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Site Access #2/Sea Oats Dr/Bent Grass Meadows Dr			
	EB Left	A	A
	EB Thru/Right	A	A
	EB Approach	A	A
	WB Left	A	A
	WB Thru	A	A
	WB Right	A	A
	WB Approach	A	A
	NB Left/Thru/Right	C	B
	NB Approach	C	B
	SB Left/Thru/Right	A	A
	SB Approach	A	A

Intersection	Movement	Level of Service (LOS)	
		AM	PM
		LOS	LOS
Site Access #1/Bent Grass Meadows Dr			
	EB Left	A	A
	EB Thru	A	A
	EB Approach	A	A
	WB Thru/Right	A	A
	WB Approach	A	A
	SB Left	C	B
	SB Right	B	A
	SB Approach	B	B

6.0 Findings

Based upon the analysis in this study, the proposed project located at the northwest corner of Sea Oats Drive and Bent Grass Meadows Drive, El Paso County, CO will be able to be meet El Paso County's requirements for traffic at the time of development.

What are the PM pick-up trips?

The findings of the TIS are summarized below:

- The proposed project is anticipated to generate a maximum of approximately 1,149 daily trips, 646 AM total peak hour trips, and 99 PM total peak hour trips.
- The project complies with El Paso County Engineering Criteria Manual (ECM) Levels of Service (LOS) requirements for traffic.
- The study intersections will operate acceptably and comply with the County's intersection levels of service (LOS) requirements with the development of the project and background traffic in the 2028 Short Range Total and 2045 Long Range Total future.
- Per the ECM Section 2.3.7.D.2, due to the projected AM peak hour turning volumes, a westbound right-turn lane is warranted at the Site Access #2/Bent Grass Meadows Drive intersection. This right-turn lane should have a minimum total length of 320' (120' bay taper + 200' full width).
- It is recommended that the school have on-site manual traffic control conducted by trained staff (wearing proper PPE) or by certified traffic control technicians directing traffic to assist with traffic circulation during peak student drop-off and pick-up times.

Identify safe routes to school and ensure proper signings and markings are installed prior to the first day of school. Any crosswalks required across Bent Grass Meadows? New state laws identifies the School Zone as being 1,000-ft minimum from all school boundaries. Ensure proper signing and pavement markings per the MUTCD is installed with a signing and striping plan.

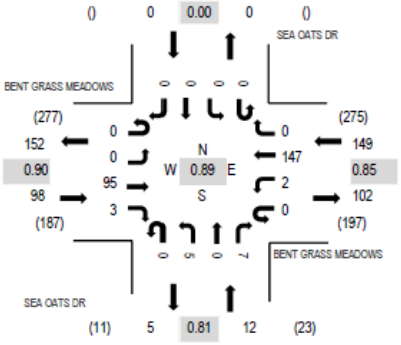
Provide the following:
- sight distance evaluation
- discussion of applicable road impact fees

APPENDICES:

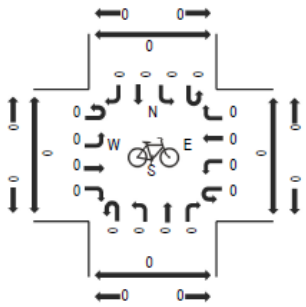
Appendix A: Recent Traffic Counts

Location: 1 SEA OATS DR & BENT GRASS MEADOWS AM
Date: Tuesday, March 17, 2026
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

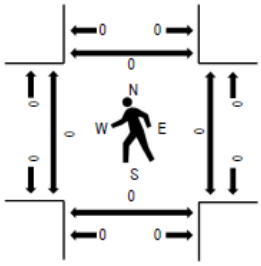
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

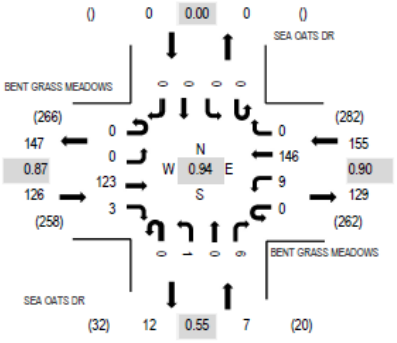
Traffic Counts - Motorized Vehicles

Interval Start Time	BENT GRASS MEADOWS Eastbound				BENT GRASS MEADOWS Westbound				SEA OATS DR Northbound				SEA OATS DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	29	0	0	0	27	0	0	0	0	3	0	0	0	0	59	255	0	0	0	0
7:15 AM	0	0	25	1	0	0	44	0	0	1	0	2	0	0	0	0	73	259	0	0	0	0
7:30 AM	0	0	27	1	0	0	38	0	0	1	0	2	0	0	0	0	69	236	0	0	0	0
7:45 AM	0	0	20	1	0	0	29	0	0	3	0	1	0	0	0	0	54	223	0	0	0	0
8:00 AM	0	0	23	0	0	2	36	0	0	0	0	2	0	0	0	0	63	230	0	0	0	0
8:15 AM	0	0	13	0	0	0	36	0	0	1	0	0	0	0	0	0	50		0	0	0	0
8:30 AM	0	0	22	2	0	1	28	0	0	0	0	3	0	0	0	0	56		0	0	0	0
8:45 AM	0	0	21	2	0	1	33	0	0	0	0	4	0	0	0	0	61		0	0	0	0
Count Total	0	0	180	7	0	4	271	0	0	6	0	17	0	0	0	0	485		0	0	0	0
Peak Hour	0	0	95	3	0	2	147	0	0	5	0	7	0	0	0	0	259		0	0	0	0

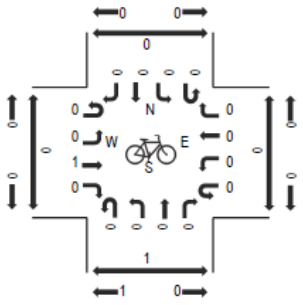
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 SEA OATS DR & BENT GRASS MEADOWS PM
Date: Tuesday, March 17, 2026
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

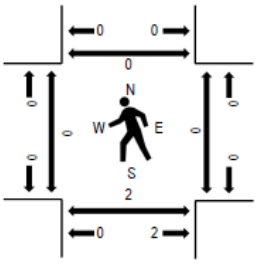
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians

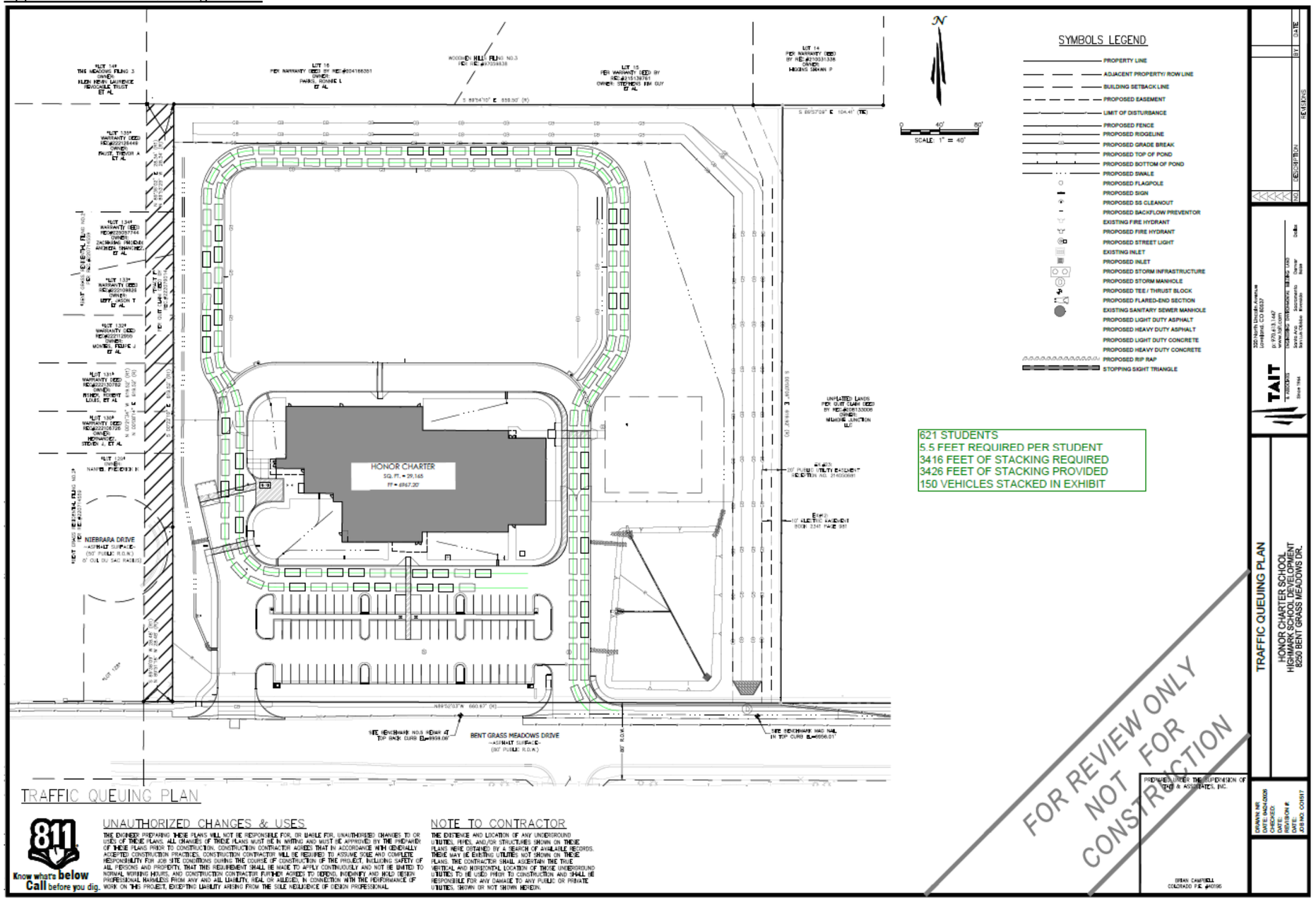


Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	BENT GRASS MEADOWS Eastbound				BENT GRASS MEADOWS Westbound				SEA OATS DR Northbound				SEA OATS DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	30	5	0	3	33	0	0	1	0	3	0	0	0	0	75	286	0	0	1	0
4:15 PM	0	0	31	1	0	1	30	0	0	1	0	4	0	0	0	0	68	283	0	0	0	0
4:30 PM	0	0	33	1	0	1	42	0	0	0	0	0	0	0	0	0	77	288	0	0	0	0
4:45 PM	0	0	25	0	0	3	36	0	0	1	0	1	0	0	0	0	66	275	0	0	0	0
5:00 PM	0	0	27	2	0	3	37	0	0	0	0	3	0	0	0	0	72	274	0	0	2	0
5:15 PM	0	0	38	0	0	2	31	0	0	0	0	2	0	0	0	0	73		0	0	0	0
5:30 PM	0	0	30	2	0	1	28	0	0	0	0	3	0	0	0	0	64		0	0	1	0
5:45 PM	0	0	31	2	0	5	26	0	0	0	0	1	0	0	0	0	65		0	0	0	0
Count Total	0	0	245	13	0	19	263	0	0	3	0	17	0	0	0	0	560		0	0	4	0
Peak Hour	0	0	123	3	0	9	146	0	0	1	0	6	0	0	0	0	288		0	0	2	0

Appendix B: Traffic Queuing Exhibit



Appendix C: El Paso County 2045 Roadway Functional Classifications

Figure 22. 2045 Roadway Functional Classifications

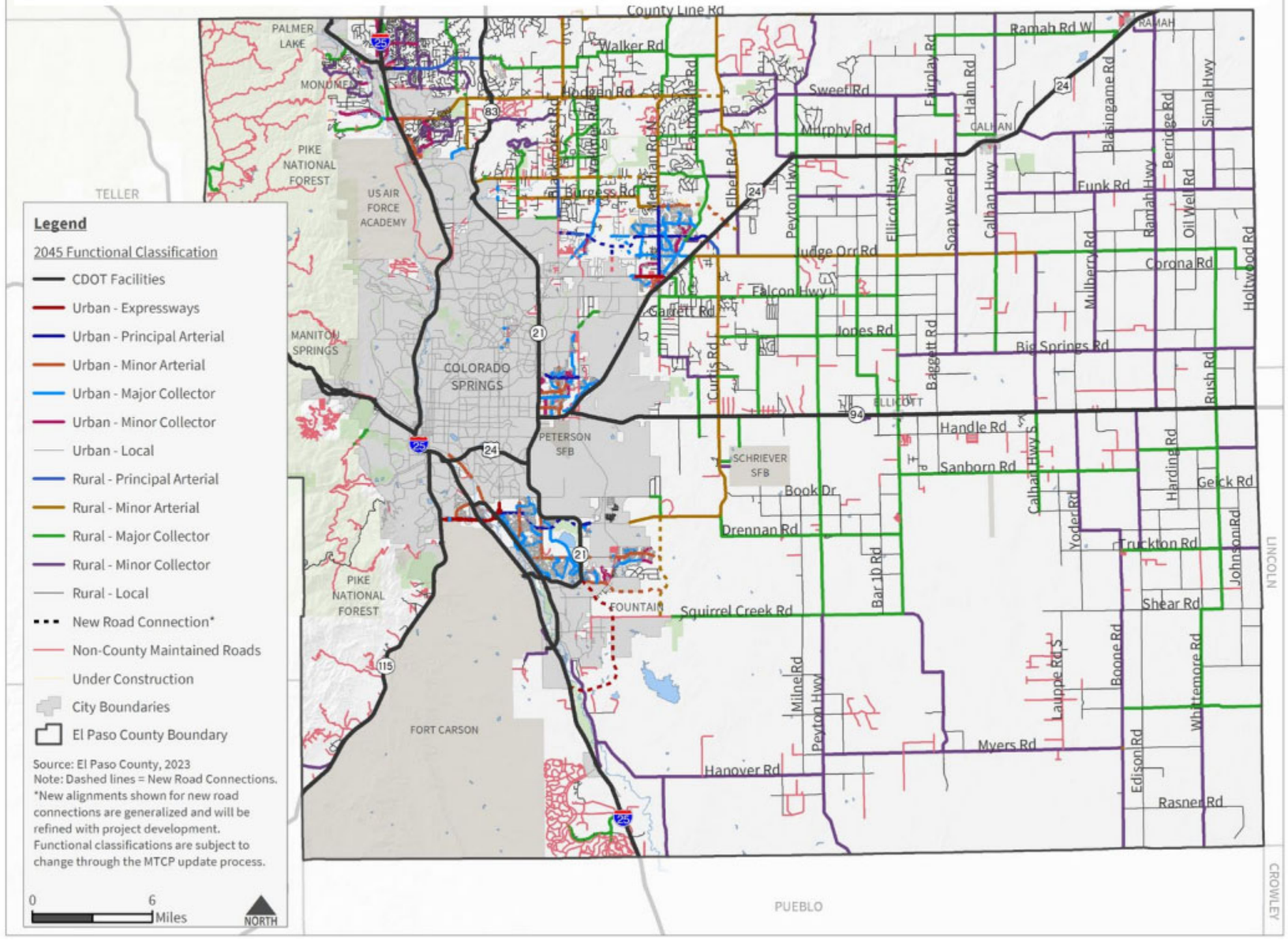
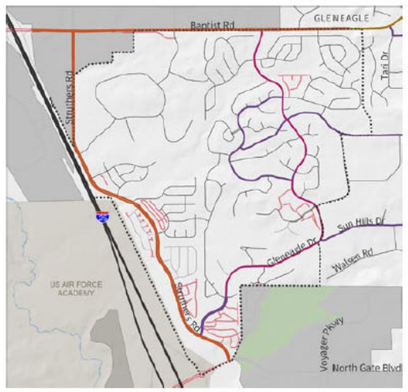
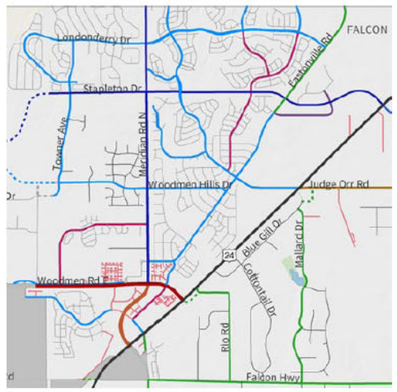
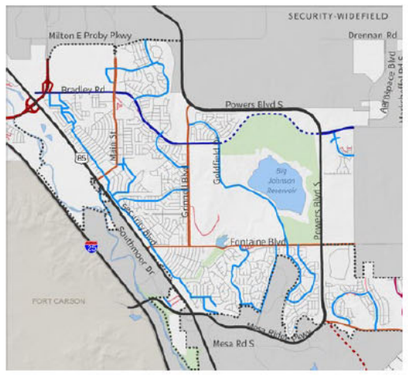


Figure 22. 2045 Roadway Functional Classifications (continued)







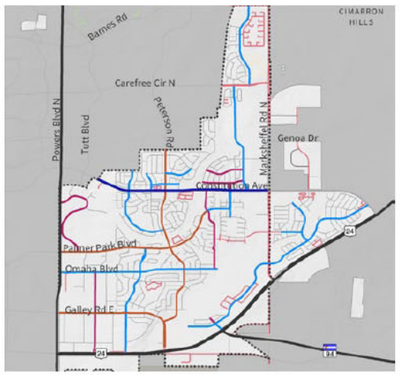


Figure 22, continued, 2045 Functional Classification focus areas:

Gleneagle (upper left)

Falcon (upper right)

Security-Widefield (lower left)

Cimarron Hills (lower right)

Appendix D: Level of Service (LOS) Table

Level of Service Definitions

Level of Service (LOS)	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Appendix D2: NCDOT Calculator for Vehicle On-Site Storage

MSTA School Traffic Calculations

AM and PM Peak Traffic Estimates

(These numbers do not reflect peak hour traffic volumes)

AM Cars / Student	PM Cars / Student	Avg. Car Length	PM At one Time
55.94%	39.15%	22.19	48.67%
52.91%	47.50%	22.19	46.12%
50.08%	47.58%	22.83	55.71%

School Name: Honor Charter School

Type: Urban Charter

Version: 04012021

MSTA School Queue Input

Grade Level	Student Population	Number of Buses	Staff Members	Student Drivers
K - 10	621		30	
11th				
12th				
Sum >>	621		30	

Calculations

PM Total Vehicles	PM Peak Vehicles	Average Queue Length	Total AM Trips	Total PM Trips	High Demand Length
					30%
244	119	2641	725	518	3410
244	119	2641	725	518	3433
					792

Grade K-10

Direction	AM Trips Generated: Parents	Buses	Staff	Trips	PM Trips Generated: Parents	Buses	Staff	Trips
IN	347		30	377	244			244
OUT	347			347	244		30	274
		AM K-10 Trips		725		PM K-10 Trips		518

Grade 11

Direction	AM Trips Generated: Parents	Buses	Staff		Trips	PM Trips Generated: Parents	Buses	Staff		Trips
IN										
OUT										
			AM 11th Trips					PM 11th Trips		

Grade 12

Direction	AM Trips Generated: Parents	Buses	Staff		Trips	PM Trips Generated: Parents	Buses	Staff		Trips
IN										
OUT										
			AM 12th Trips					PM 12th Trips		

All AM TRIPS	In	377
	Out	347
	Total	725

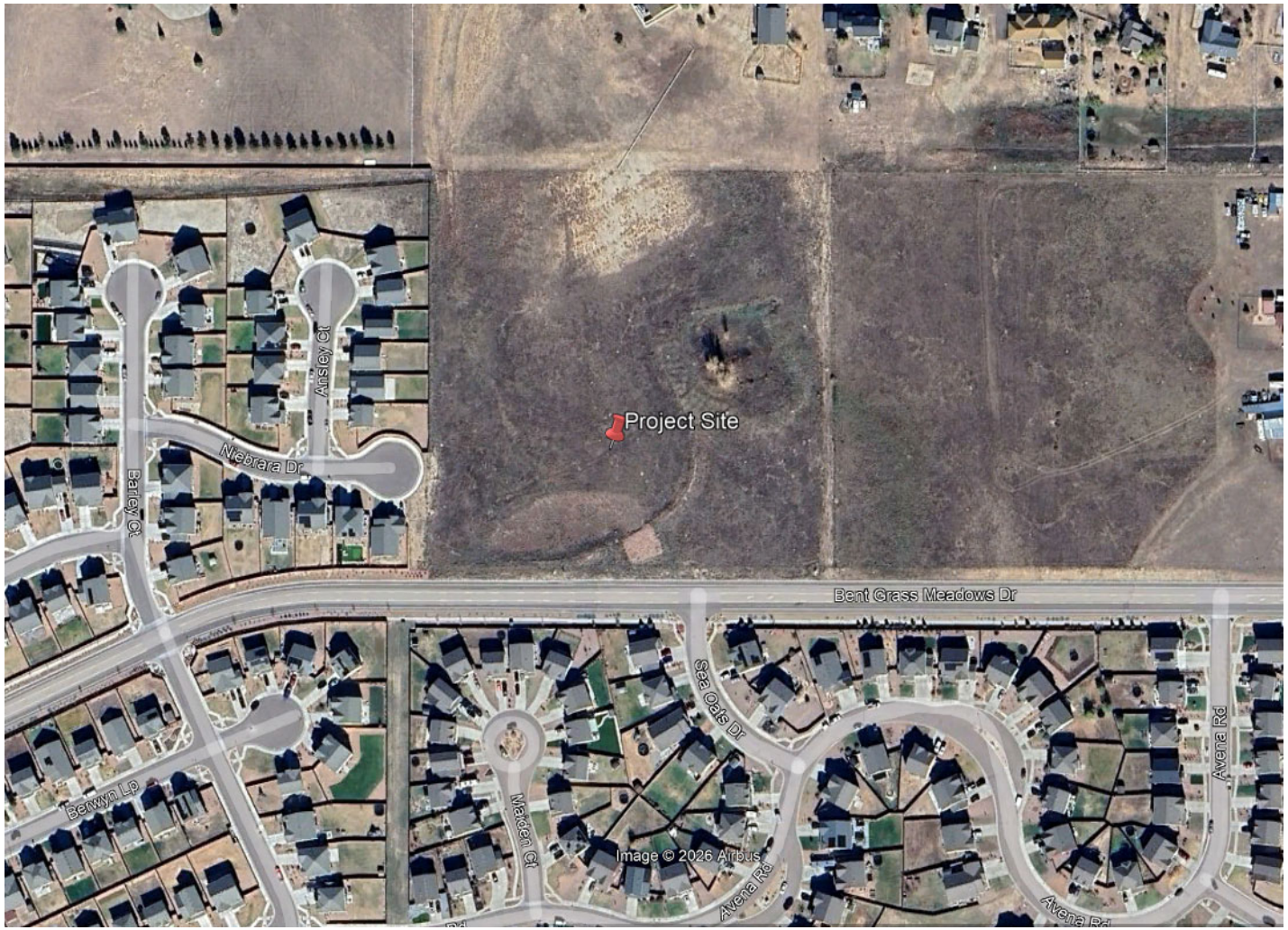
All PM TRIPS	In	244
	Out	274
	Total	518

ADT
1243
1243

NOTES

- **Average Queue Length** does not include an alternative traffic pattern required for high traffic demand days which is usually 30% additional length.
- **Average Queue Length** does not include the Student Loading Zone.
- Peak traffic volumes at schools normally occur within a 30-minute time period. (justifying a PHF of 0.5)

Appendix E: Aerial Image



Appendix E (Continued…): Street View Image (Bent Grass Meadows Dr Looking Eastbound)

Appendix F: HCM Calculations (Synchro)

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	95	3	2	147	5	7
Future Vol, veh/h	95	3	2	147	5	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	103	3	2	160	5	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	106	0	269	105
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	164	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1485	-	720	949
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	865	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1485	-	719	949
Mov Cap-2 Maneuver	-	-	-	-	719	-
Stage 1	-	-	-	-	919	-
Stage 2	-	-	-	-	864	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	837	-	-	1485	-
HCM Lane V/C Ratio	0.016	-	-	0.001	-
HCM Control Delay (s)	9.4	-	-	7.4	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	123	3	9	146	1	6
Future Vol, veh/h	123	3	9	146	1	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	131	3	10	155	1	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	134	0	308	133
Stage 1	-	-	-	-	133	-
Stage 2	-	-	-	-	175	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1451	-	684	916
Stage 1	-	-	-	-	893	-
Stage 2	-	-	-	-	855	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1451	-	679	916
Mov Cap-2 Maneuver	-	-	-	-	679	-
Stage 1	-	-	-	-	893	-
Stage 2	-	-	-	-	849	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	872	-	-	1451	-
HCM Lane V/C Ratio	0.009	-	-	0.007	-
HCM Control Delay (s)	9.2	-	-	7.5	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	99	3	2	153	5	7
Future Vol, veh/h	99	3	2	153	5	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	108	3	2	166	5	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	111	0	280	110
Stage 1	-	-	-	-	110	-
Stage 2	-	-	-	-	170	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1479	-	710	943
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	860	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1479	-	709	943
Mov Cap-2 Maneuver	-	-	-	-	709	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	859	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	829	-	-	1479	-
HCM Lane V/C Ratio	0.016	-	-	0.001	-
HCM Control Delay (s)	9.4	-	-	7.4	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	128	3	9	152	1	6
Future Vol, veh/h	128	3	9	152	1	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	136	3	10	162	1	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	139	0	320	138
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	182	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1445	-	673	910
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	849	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1445	-	668	910
Mov Cap-2 Maneuver	-	-	-	-	668	-
Stage 1	-	-	-	-	889	-
Stage 2	-	-	-	-	843	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	865	-	-	1445	-
HCM Lane V/C Ratio	0.009	-	-	0.007	-
HCM Control Delay (s)	9.2	-	-	7.5	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	134	269	19	2	153	185	5	17	7	0	0	0
Future Vol, veh/h	134	269	19	2	153	185	5	17	7	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	146	292	21	2	166	201	5	18	8	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	367	0	0	313	0	0	866	966	303	778	775	166
Stage 1	-	-	-	-	-	-	595	595	-	170	170	-
Stage 2	-	-	-	-	-	-	271	371	-	608	605	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1192	-	-	1247	-	-	274	255	737	314	329	878
Stage 1	-	-	-	-	-	-	491	492	-	832	758	-
Stage 2	-	-	-	-	-	-	735	620	-	483	487	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1192	-	-	1247	-	-	248	223	737	264	288	878
Mov Cap-2 Maneuver	-	-	-	-	-	-	248	223	-	264	288	-
Stage 1	-	-	-	-	-	-	431	432	-	730	756	-
Stage 2	-	-	-	-	-	-	734	619	-	402	428	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0	19.8	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	274	1192	-	-	1247	-	-	-
HCM Lane V/C Ratio	0.115	0.122	-	-	0.002	-	-	-
HCM Control Delay (s)	19.8	8.4	-	-	7.9	-	-	0
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0.4	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	236	158	0	186	124
Future Vol, veh/h	0	236	158	0	186	124
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	257	172	0	202	135

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	172	0	-	0	429	172
Stage 1	-	-	-	-	172	-
Stage 2	-	-	-	-	257	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1405	-	-	-	583	872
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	786	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1405	-	-	-	583	872
Mov Cap-2 Maneuver	-	-	-	-	583	-
Stage 1	-	-	-	-	858	-
Stage 2	-	-	-	-	786	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1405	-	-	-	583	872
HCM Lane V/C Ratio	-	-	-	-	0.347	0.155
HCM Control Delay (s)	0	-	-	-	14.4	9.9
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	1.5	0.5

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	163	6	9	152	19	1	2	6	0	0	0
Future Vol, veh/h	14	163	6	9	152	19	1	2	6	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	173	6	10	162	20	1	2	6	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	182	0	0	179	0	0	398	408	176	392	391	162
Stage 1	-	-	-	-	-	-	206	206	-	182	182	-
Stage 2	-	-	-	-	-	-	192	202	-	210	209	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1393	-	-	1397	-	-	562	533	867	567	545	883
Stage 1	-	-	-	-	-	-	796	731	-	820	749	-
Stage 2	-	-	-	-	-	-	810	734	-	792	729	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1393	-	-	1397	-	-	554	523	867	553	535	883
Mov Cap-2 Maneuver	-	-	-	-	-	-	554	523	-	553	535	-
Stage 1	-	-	-	-	-	-	787	723	-	811	744	-
Stage 2	-	-	-	-	-	-	804	729	-	775	721	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.4	10.1	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	717	1393	-	-	1397	-	-	-
HCM Lane V/C Ratio	0.013	0.011	-	-	0.007	-	-	-
HCM Control Delay (s)	10.1	7.6	-	-	7.6	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	145	153	0	38	26
Future Vol, veh/h	0	145	153	0	38	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	158	166	0	41	28

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	166	0	-	0	324	166
Stage 1	-	-	-	-	166	-
Stage 2	-	-	-	-	158	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1412	-	-	-	670	878
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	871	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1412	-	-	-	670	878
Mov Cap-2 Maneuver	-	-	-	-	670	-
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	871	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1412	-	-	-	670	878
HCM Lane V/C Ratio	-	-	-	-	0.062	0.032
HCM Control Delay (s)	0	-	-	-	10.7	9.2
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0.1

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	138	4	3	214	7	10
Future Vol, veh/h	138	4	3	214	7	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	145	4	3	225	7	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	149	0	378	147
Stage 1	-	-	-	-	147	-
Stage 2	-	-	-	-	231	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1432	-	624	900
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	807	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1432	-	623	900
Mov Cap-2 Maneuver	-	-	-	-	623	-
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	805	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	761	-	-	1432	-
HCM Lane V/C Ratio	0.024	-	-	0.002	-
HCM Control Delay (s)	9.8	-	-	7.5	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	179	4	13	213	1	9
Future Vol, veh/h	179	4	13	213	1	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	188	4	14	224	1	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	192	0	442	190
Stage 1	-	-	-	-	190	-
Stage 2	-	-	-	-	252	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1381	-	573	852
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	790	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1381	-	567	852
Mov Cap-2 Maneuver	-	-	-	-	567	-
Stage 1	-	-	-	-	842	-
Stage 2	-	-	-	-	782	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	811	-	-	1381	-
HCM Lane V/C Ratio	0.013	-	-	0.01	-
HCM Control Delay (s)	9.5	-	-	7.6	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	134	308	20	3	214	185	7	17	10	0	0	0
Future Vol, veh/h	134	308	20	3	214	185	7	17	10	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	141	324	21	3	225	195	7	18	11	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	420	0	0	345	0	0	946	1043	335	862	858	225
Stage 1	-	-	-	-	-	-	617	617	-	231	231	-
Stage 2	-	-	-	-	-	-	329	426	-	631	627	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1139	-	-	1214	-	-	241	229	707	275	294	814
Stage 1	-	-	-	-	-	-	477	481	-	772	713	-
Stage 2	-	-	-	-	-	-	684	586	-	469	476	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1139	-	-	1214	-	-	218	200	707	228	257	814
Mov Cap-2 Maneuver	-	-	-	-	-	-	218	200	-	228	257	-
Stage 1	-	-	-	-	-	-	418	421	-	676	712	-
Stage 2	-	-	-	-	-	-	682	585	-	388	417	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.5	0.1	21.1	0
HCM LOS			C	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	259	1139	-	-	1214	-	-	-
HCM Lane V/C Ratio	0.138	0.124	-	-	0.003	-	-	-
HCM Control Delay (s)	21.1	8.6	-	-	8	-	-	0
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.5	0.4	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	276	221	0	186	124
Future Vol, veh/h	0	276	221	0	186	124
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	291	233	0	196	131

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	233	0	-	0	524	233
Stage 1	-	-	-	-	233	-
Stage 2	-	-	-	-	291	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1335	-	-	-	514	806
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1335	-	-	-	514	806
Mov Cap-2 Maneuver	-	-	-	-	514	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	759	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1335	-	-	-	514	806
HCM Lane V/C Ratio	-	-	-	-	0.381	0.162
HCM Control Delay (s)	0	-	-	-	16.2	10.3
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	1.8	0.6

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	214	7	13	213	19	1	2	9	0	0	0
Future Vol, veh/h	14	214	7	13	213	19	1	2	9	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	150	-	150	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	225	7	14	224	20	1	2	9	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	244	0	0	232	0	0	521	531	229	516	514	224
Stage 1	-	-	-	-	-	-	259	259	-	252	252	-
Stage 2	-	-	-	-	-	-	262	272	-	264	262	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1322	-	-	1336	-	-	466	454	810	470	464	815
Stage 1	-	-	-	-	-	-	746	694	-	752	698	-
Stage 2	-	-	-	-	-	-	743	685	-	741	691	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1322	-	-	1336	-	-	458	444	810	455	454	815
Mov Cap-2 Maneuver	-	-	-	-	-	-	458	444	-	455	454	-
Stage 1	-	-	-	-	-	-	738	686	-	744	691	-
Stage 2	-	-	-	-	-	-	735	678	-	722	683	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.4	10.4	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	674	1322	-	-	1336	-	-	-
HCM Lane V/C Ratio	0.019	0.011	-	-	0.01	-	-	-
HCM Control Delay (s)	10.4	7.8	-	-	7.7	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	197	214	0	38	26
Future Vol, veh/h	0	197	214	0	38	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	100	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	207	225	0	40	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	225	0	-	0	432	225
Stage 1	-	-	-	-	225	-
Stage 2	-	-	-	-	207	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1344	-	-	-	581	814
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	828	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1344	-	-	-	581	814
Mov Cap-2 Maneuver	-	-	-	-	581	-
Stage 1	-	-	-	-	812	-
Stage 2	-	-	-	-	828	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1344	-	-	-	581	814
HCM Lane V/C Ratio	-	-	-	-	0.069	0.034
HCM Control Delay (s)	0	-	-	-	11.7	9.6
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0.1

KELLAR ENGINEERING

Sean Kellar, PE, PTOE

Principal Engineer

Education
B.S., Civil Engineering, Arizona State University – Tempe, AZ

Registration
Colorado, Professional Engineer (PE)
Wyoming, Professional Engineer (PE)
Idaho, Professional Engineer (PE)
Arizona, Professional Engineer (PE)
Kansas, Professional Engineer (PE)
Missouri, Professional Engineer (PE)
Professional Traffic Operations Engineer (PTOE)

Professional Memberships
Institute of Transportation Engineers (ITE)

Industry Tenure
Over 25 Years

Sean's wide range of expertise includes: transportation planning, traffic modeling roadway design, bike and pedestrian facilities, traffic impact studies, traffic signal warrant analysis, parking studies, corridor planning and access management. Sean's experience in both the private and public sectors; passion for safety and excellence; and strong communication and collaboration skills can bring great value to any project. Prior to starting Kellar Engineering, Sean was employed at the Missouri Department of Transportation (MoDOT) as the District Traffic Engineer for the Kansas City District. Sean also worked for the City of Loveland, CO for over 10 years as a Senior Civil Engineer supervising a division of transportation/traffic engineers. While at the City of Loveland, Sean managed several capital improvement projects, presented several projects to the City Council and Planning Commission in public hearings, and managed the revisions to the City's Street Standards. Sean is also proficient in Highway Capacity Software, Synchro, PT Vissim, Rodel, GIS, and AutoCAD.

WORK EXPERIENCE:

Kellar Engineering, Principal Engineer/President – January 2016 – Present

Missouri Department of Transportation, District Traffic Engineer, Kansas City District – June 2015 – January 2016

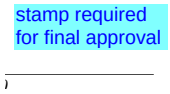
City of Loveland, Colorado, Senior Civil Engineer, Public Works Department – February 2005 – June 2015

Kirkham Michael Consulting Engineers, Project Manager - February 2004 – February 2005

Dibble and Associates Consulting Engineers, Project Engineer – August 1999 – February 2004

V1_Traffic Impact Study.pdf Markup Summary

Bret Dilts - DPW Engineering (5)



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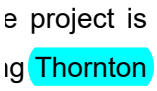
stamp required for final approval



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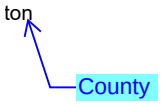
Thornton



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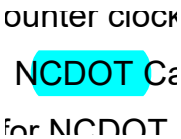
County



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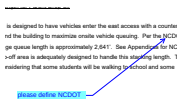
CDOT



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Page Label: 11
Author: Bret Dilts - DPW Engineering
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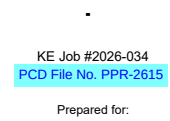
please define NCDOT

Laura Besler (8)



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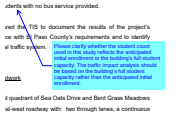
PCD File No. PPR-2615



Subject: Highlight
Page Label: 5
Author: Laura Besler
Date: 6/3/2026 1:26:25 PM
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621 students

Subject: Callout
Page Label: 5
Author: Laura Besler
Date: 6/3/2026 1:31:12 PM
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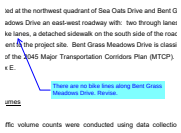
Please clarify whether the student count used in this study reflects the anticipated initial enrollment or the building's full student capacity. The traffic impact analysis should be based on the building's full student capacity rather than the anticipated initial enrollment.



Subject: Callout
Page Label: 5
Author: Laura Besler
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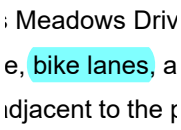
There are no bike lines along Bent Grass Meadows Drive. Revise.



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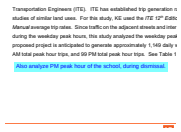
bike lanes



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Date: 6/1/2026 3:20:49 PM
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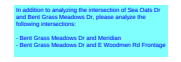
Also analyze PM peak hour of the school, during dismissal.



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Date: 6/3/2026 2:34:24 PM
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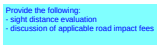
In addition to analyzing the intersection of Sea Oats Dr and Bent Grass Meadows Dr, please analyze the following intersections:

- Bent Grass Meadows Dr and Meridian
- Bent Grass Meadows Dr and E Woodmen Rd Frontage



Subject: Callout
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Author: Laura Besler
Date: 6/3/2026 2:44:14 PM
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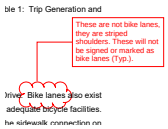
Provide the following:
- sight distance evaluation
- discussion of applicable road impact fees

sbarnhart (4)



Subject: Cloud+
Page Label: 8
Author: sbarnhart
Date: 6/3/2026 10:00:07 AM
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Color:
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These are not bike lanes, they are striped shoulders. These will not be signed or marked as bike lanes (Typ.).

Subject: Cloud+
Page Label: 12
Author: sbarnhart
Date: 6/3/2026 10:04:22 AM
Status:
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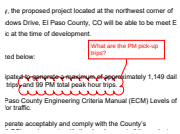
Ensure school staff is aware of the vehicle stacking intent. This is not always communicated and traffic queuing is backed onto the public street. Create a pick-up/drop-off operations manual for school staff?



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Date: 6/3/2026 10:06:29 AM
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What are the PM pick-up trips?

Subject: Text Box
Page Label: 24
Author: sbarnhart
Date: 6/3/2026 10:09:25 AM
Status:
Color:
Layer:
Space:

Identify safe routes to school and ensure proper signings and markings are installed prior to the first day of school. Any crosswalks required across Bent Grass Meadows? New state laws identifies the School Zone as being 1,000-ft minimum from all school boundaries. Ensure proper signing and pavement markings per the MUTCD is installed with a signing and striping plan.