Antelope Ridge at Bull Hill Phase 1
Traffic Impact Study
PUDSP255

Prepared for:

El Paso County, CO

Prepared by:

Matrix
Excellence by Design

2435 Research Parkway, Suite 300
Colorado Springs, CO 80920

Contact: MaríaAngélica Deeb, PE, PTOE, PTP, RSP1, ENV SP

On Behalf of:

The Landhuis Company
212 N. Wahsatch Avenue, Suite 301
Colorado Springs, CO 80903

May 5, 2026

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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 the County for traffic reports.

_____ _____

MaríaAngélica Deeb, PE, PTOE, PTP, RSP1, ENV SP Date

Developer's Statement

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

_____ _____

Jeff Mark, President Date

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Executive Summary

Project Description

The Rolling Meadows/Bull Hill development (hereafter referred to as "the project" or "RMBH") is a 1,136.9-acre mixed-use project located at the southeast corner of Colorado Springs in unincorporated El Paso County. It is bounded by Drennan Road to the north, Fontaine Boulevard to the south, and Meridian Road to the east. Rolling Meadows will be located north of Bradley Road, while Bull Hill will be located to the south. The project will include 4,607 single-family detached residences, 840 multi-family residences, three elementary schools, and one middle school. At full buildout, RMBH is projected to generate approximately 47,500 daily trips. Completion is expected by the year 2035.

Antelope Ridge at Bull Hill (Phase 1 of the project) will include 472 single-family units located south of Bradley Road. A future north–south collector roadway is planned approximately 3,800 feet west of Meridian Road and will run through this phase. Phase 1 is expected to generate approximately 4,200 daily trips, with a planned buildout year of 2028.

Study Area

Eleven intersections were selected for analysis of existing and background traffic conditions, in coordination with the Colorado Department of Transportation (CDOT), El Paso County (EPC), and the City of Colorado Springs (CCS). The distance from the southernmost intersection (Marksheffel Road/Fontaine Boulevard) to the northernmost intersection (SH-24/SH-94) is approximately 8 miles. The distance between the westernmost intersection (Powers Boulevard/Milton E. Proby Parkway) and the easternmost intersection (Meridian Road/Bradley Road) is approximately 7 miles. In addition to the key intersections, 20 intersections internal to RMBH or intersecting major roadways were studied to assess impacts across the full development (a total of 31 intersections). For Phase 1, six additional intersections were analyzed (a total of 17 intersections). Intersection configurations, turn lane requirements, and roadway classifications were determined for the 2028 phase year, the 2035 buildout year, and the 2045 long-range planning horizon.

Growth

The study area is experiencing rapid growth, with several large-scale developments planned in the surrounding area. These include Bradley Heights, Lorson Ranch Commercial South, The Village at Lorson Ranch, Corvallis, Reagan Ranch, Crossroads North, Crossroads Mixed-Use, Meadow Brook Park, The Trails at Aspen Ridge, and the Karmen Line (Norris Ranch) development. Matrix included traffic from these developments and applied appropriate growth factors to the collected count data after coordination with the reviewing agencies to estimate background traffic for the 2028, 2035, and 2055 scenarios. It was assumed that all developments, except for Karmen Line, would be completed by 2035. Karmen Line traffic was included in the 2055 horizon year analysis only. For the 2028 Phase 1 background analysis, it was assumed that 30 percent of each adjacent development would be built by 2028, except for the Karmen Line development. Daily traffic volumes from **adjacent developments** were evaluated conservatively, without applying reductions for internal capture or pass-by trips. However, for AM and PM peak hour conditions, trip generation estimates were adjusted in accordance with the assumptions of their respective approved traffic studies. In addition to accounting for adjacent developments, appropriate growth factors were applied to the collected counts to reflect overall traffic growth.

Matrix also compared its estimated daily trips with projections from the Pikes Peak Area Council of Governments (PPACG) 2050 travel demand model. Results for roadways near the project generally aligned with the 1 percent annual growth rate tolerance used in this study. For purposes of this TIS, Phase I will be buildout in 2028 and RMBH will be buildout in 2035.

Criteria

This study followed guidelines from the CDOT State Highway Access Code (SHAC), the El Paso County Engineering Criteria Manual (ECM), the City of Colorado Springs Traffic Criteria Manual (TCM), and the Highway Capacity Manual (HCM) 7th Edition.

Recommendations for Phase 1 - Buildout Year (2028)

Intersection configurations, turn lane requirements, and roadway classifications were identified for the Phase 1 buildout (2028) year. The required improvements for the buildout year (2028) are in respect that the improvements in the existing conditions have been met. The developer acknowledges the improvements required as a direct result of their project and is willing to take responsibility for them. This includes either constructing the improvements or reimbursing the county for the associated costs.

However, deficiencies in existing conditions that are not related to the project itself will not be the sole responsibility of the developer. Instead, these will be addressed by others, and the costs will be shared among adjacent developments and the municipality that owns the facility, as mutually agreed upon.

For required improvements in the existing conditions see Table 3. A summary of the recommended improvements in the year 2028 is as follows:

Powers Boulevard/Fontaine Boulevard (#1)

- A 175-ft extension of southbound left-turn lane.
- A 150-ft extension of eastbound left-turn lane.
- A 305-ft extension of westbound left-turn lane.
- A 150-ft extension of eastbound right-turn to southbound thru acceleration lane.

Deficiencies in the current road system will be fixed prior to any development being allowed to occur, or development can wait until County or other party has fixed deficiencies. Cost recovery could also be an option from future developments.

Marksheffel Road/Fontaine Boulevard (#2)

- A 105-ft extension of eastbound right-turn lane.

Powers Boulevard/Bradley Road (#4)

- A 185-ft extension of southbound left-turn lane.

Powers Boulevard/Milton E Proby Parkway (#7)

- A 95-ft extension of northbound left-turn lane.
- A 10-ft extension of westbound left-turn lane.

Highway-24/Highway-94 (#10)

- A 70-ft extension of northbound left-turn (US-94) lane.

Highway-94/Marksheffel Road (#11)

- A 15-ft extension of eastbound left-turn lane.
- A 115-ft extension of westbound left-turn lane.

Bradley Road/Rolling Meadows Parkway (#49)

- A 515-ft northbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 200-ft of storage lane.
- A 435-ft eastbound right-turn lane. Include 200-ft of taper and 235-ft of deceleration lane.
- A 485-ft westbound left-turn lane. Include 200-ft of taper, 235-ft of deceleration lane and 50-ft of storage.

Rolling Meadows Parkway /Calf Creek Drive (#60)

- A 385-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 70-ft of storage.

Rolling Meadows Parkway / Echoing Grass Way (#61)

- A 365-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.

Prairie Song Drive/ Hoof Hollow Place(#63)

- A 365-ft eastbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.

Recommendations for the RMBH Buildout Year (2035)

Intersection configurations, turn lane requirements, and roadway classifications were identified for the 2035, and 2045 scenarios. A total of 31 intersections and a large transportation network were evaluated. Detailed recommendations are provided in the corresponding sections of the report and including them all in the executive summary would make this section overly lengthy. Therefore, this summary focuses on one key finding that warrant additional attention in the year 2035 due to their complexity or potential impact.

Bradley Road

Although projected daily volumes along Bradley Road in 2035 exceed the threshold for a four-lane principal arterial, Matrix concluded in this study that a four-lane configuration will adequately accommodate traffic without any operational deficiencies. Additionally, a planned future connection between Meridian Road and Mesa Ridge Parkway may divert some demand away from Bradley Road and alleviate the daily traffic on this roadway. Therefore, Matrix recommends that Bradley Road be constructed in accordance with the City of Colorado Springs' standards for a four-lane principal arterial. Note that daily traffic volumes from adjacent developments were evaluated conservatively, without applying reductions for internal capture or pass-by capture. As a result, daily traffic on this roadway may be lower than the estimates derived from the ITE Trip Generation Manual for the adjacent developments.

US-94 and Marksheffel Road

This intersection is expected to operate at LOS F during the AM peak and LOS D during the PM peak in 2035, even with Marksheffel Road modeled as a six-lane roadway and US-94 as a four-lane roadway with dual left-turn lanes on all approaches. CDOT directed the inclusion of this intersection to evaluate its performance both with and without project traffic in this study. Given the broader trip distribution assumed for external development traffic, many of these trips would likely be intra-zonal or limited to

adjacent TAZs. A sensitivity analysis was conducted to assess potential internal capture effects. Due to the proximity of Reagan Ranch, Crossroads North, and the Crossroads Mixed-Use developments to this intersection, they were excluded from the sensitivity analysis, and their traffic volumes remained unchanged. Results showed that if 88.5% of trips from the remaining developments are assumed not to reach this intersection, it would operate at LOS D during the AM peak hour. It appears that a grade-separated interchange should be considered as a long-term solution at this location.

Report Organization

This study first analyzes traffic conditions for the existing year, buildout year (2035), and 30-year planning horizon (2055) for the entire development (RMBH). It then focuses on Phase 1 impacts projected for the year 2028 (Antelope Ridge at Bull Hill). Traffic operations, turn lane requirements, and roadway classifications are provided for each scenario. The project's roadway impact fee is also provided in this study.

1. Introduction

The Rolling Meadows/Bull Hill project (project) is a 1,136.9-acre development located in southern El Paso County. The project consists of 4,607 single-family residences, 840 multi-family residences, three elementary schools and one middle school.

The project will be constructed on vacant land and lies on the west side of Meridian Road, bounded on the north by Drennan Road and bounded on the south by Fontaine Boulevard.

Antelope Ridge at Bull Hill (Phase 1) is a residential development located to the south of Bradley Road, on both sides of a future north-south collector road which will be constructed approximately 3,800-ft west of Meridian Road. This phase encompasses a total of 472 single-family detached dwelling units. Figure 1 shows the vicinity map and the location of the project.

The purpose of this master traffic impact study is to assess the effects this proposed development will have on the surrounding transportation system. Moreover, a traffic study for the first phase of the project is provided to assess the buildout year traffic operations with the focus on this development. It is anticipated that the Antelope Ridge at Bull Hill (Phase 1) will be constructed by the end of 2028.

The report is organized as follows:

- ***Executive Summary –*** Describes the overall overview of the study findings and recommendations from the studies.
- ***Introduction –*** Describes the purpose and intent of this study.
- ***Area Conditions –*** Describes the study area land uses as well as the existing and future roadway network.
- ***Proposed Development –*** Describes the proposed developments and their location.
- ***Projected Traffic –*** Identifies the expected number of daily and peak hour trips that will be generated by the Rolling Meadows/Bull Hill development as well as the Antelope Ridge at Bull Hill development. The expected external trip distribution is also shown.
- ***Traffic Analysis –*** Analyzes the existing conditions in the study area, as well as the buildout year (2035) and horizon year (2055) conditions, both with and without the project, for Rolling Meadow/Bull Hill. It also analyzes the buildout year (2028) conditions, with and without the project, for Antelope Ridge at Bull Hill.
- ***Findings and Conclusions –*** Identifies any deficiencies in the study area roadway network with or without the project and mitigation measures that will alleviate any identified deficiencies.
- ***Recommendations -*** Provides a summary of the study findings.

2. Area Conditions

This section describes the existing conditions and the planned level of improvements adjacent to the proposed development.

2.1 Site Accessibility

A brief overview of the location of the Rolling Meadows/Bull development and its surrounding transportation system is provided below.

Rolling Meadows is located north of Bradley Road and west of Meridian Road. The Bull Hill development lies directly south of Bradley Road, west of Meridian Road, and extends north of Fontaine Boulevard. The entire project consists of 4,607 single-family residences, 840 multi-family residences, three elementary schools and one middle school. Within the Bull Hill development, the Antelope Ridge (Phase 1), is located south of Bradley Road on both sides of a future north-south collector road which will be constructed approximately 3,800-ft west of Meridian Road. This phase encompasses a total of 472 single-family detached dwelling units. Figure 1 shows the vicinity map and the location of the project. The existing roadway system consists of the following transportation facilities:

State Highway 21 (Powers Boulevard) is a north-south facility that provides a 4-lane divided roadway. State Highway 21 is owned and maintained by CDOT. The speed limit on this roadway is 55 miles per-hour (mph). CDOT classifies this road as a principal arterial. The City of Colorado Springs classifies this road as a freeway in Major Thoroughfare Plan (MTP).

State Highway 24 (SH-24) – is an east-west facility which provides a 4-lane divided roadway. SH-24 is owned and maintained by CDOT. The speed limit is 55-mph on the eastbound and 65-mph on the westbound at the studied area. CDOT classifies this road as a principal arterial. City of Colorado Springs Major Thoroughfare plan classifies this roadway as an expressway.

State Highway 94 (SH-94) – is an east-west facility which intersects SH-24 at the studied area. SH-94 provides two lanes in each direction with a posted speed limit of 65 mph. This facility is owned and maintained by CDOT, and it is classified as a principal arterial. City of Colorado Springs classifies this roadway as an expressway.

Marksheffel Road is a north-south transportation facility and is a three-lane facility between Fontaine Boulevard and Bradley Road, and a 4-lane facility north of Bradley Road. Marksheffel Road provides a paved shoulder to accommodate cyclists. The City of Colorado Springs Major Thoroughfare Plan classifies this road as a principal arterial. The City of Colorado Springs has taken over the ownership and maintenance of this roadway.

Fontaine Boulevard is an east-west facility classified as a 4-lane minor arterial in the 2045 MTCP. Fontaine Boulevard is currently providing 2 lanes in each direction and a paved shoulder to accommodate cyclists. Fontaine Boulevard east of Marksheffel Road is owned and maintained by El Paso County and is classified as an urban minor arterial. The City of Colorado Springs classifies this road as a principal arterial.

Meridian Road is a north-south road that is classified as a 2-lane minor arterial south of Drennan Road in the 2045 MTCP. This road is a local road north of Drennan Road and a collector road between Bradley Road and Drennan Road. Meridian road is currently an unpaved transportation facility in the project area.

For the future roadway classification, Matrix used the urban design and standards for all roadways, including Meridian Road.

Drennan Road is an east-west road that provides one lane in each direction. Curb and gutter are not provided along Drennan Road, and there is no pedestrian sidewalk. The Colorado Springs Major Thoroughfare Plan classifies Drennan Road as a principal arterial between Marksheffel Road and Banning Lewis Parkway and minor arterial east of Marksheffel Road. El Paso County classifies this road as a rural major collector in unincorporated county areas. Drennan Road west of Mockingbird Lane is owned by the City of Colorado Springs. The posted speed limit on Drennan Road is 45 mph.

Bradley Road is an east–west roadway currently providing one lane in each direction. Opposing directions are separated by double yellow lines at the centerline. posted speed limit on Bradley Road is 45 mph west of Marksheffel Road and 50 mph east of Marksheffel Road. This study assumes that Bradley Road will be extended west of Powers Boulevard sometime after 2035, with the connection expected to be in place by the 2055 horizon year. Bradley Road is classified as a principal arterial in the Colorado Springs Major Thoroughfare Plan.

The study area is rapidly growing, and multiple large-scale developments are planned to be built in the future in the vicinity of the project. Namely, Bradley Heights, Lorson Ranch Commercial South, The Village at Lorson Ranch, Corvallis, Reagan Ranch, Crossroad North, Crossroads Mixed-Use, Meadow Brook Park, The Trial at Aspen Ridge and Karmen Line (Norris Ranch) Developments. In this study, Matrix aggregated the traffic that is expected to be generated by these developments and applied additional growth factors to collected counts to obtain the background traffic for the buildout (2035) a horizon (2055) year. It was assumed that all the adjacent development except for Karmen Line will be built by the year 2035. The traffic generated from the Karmen Line was added to the horizon (2055) conditions.

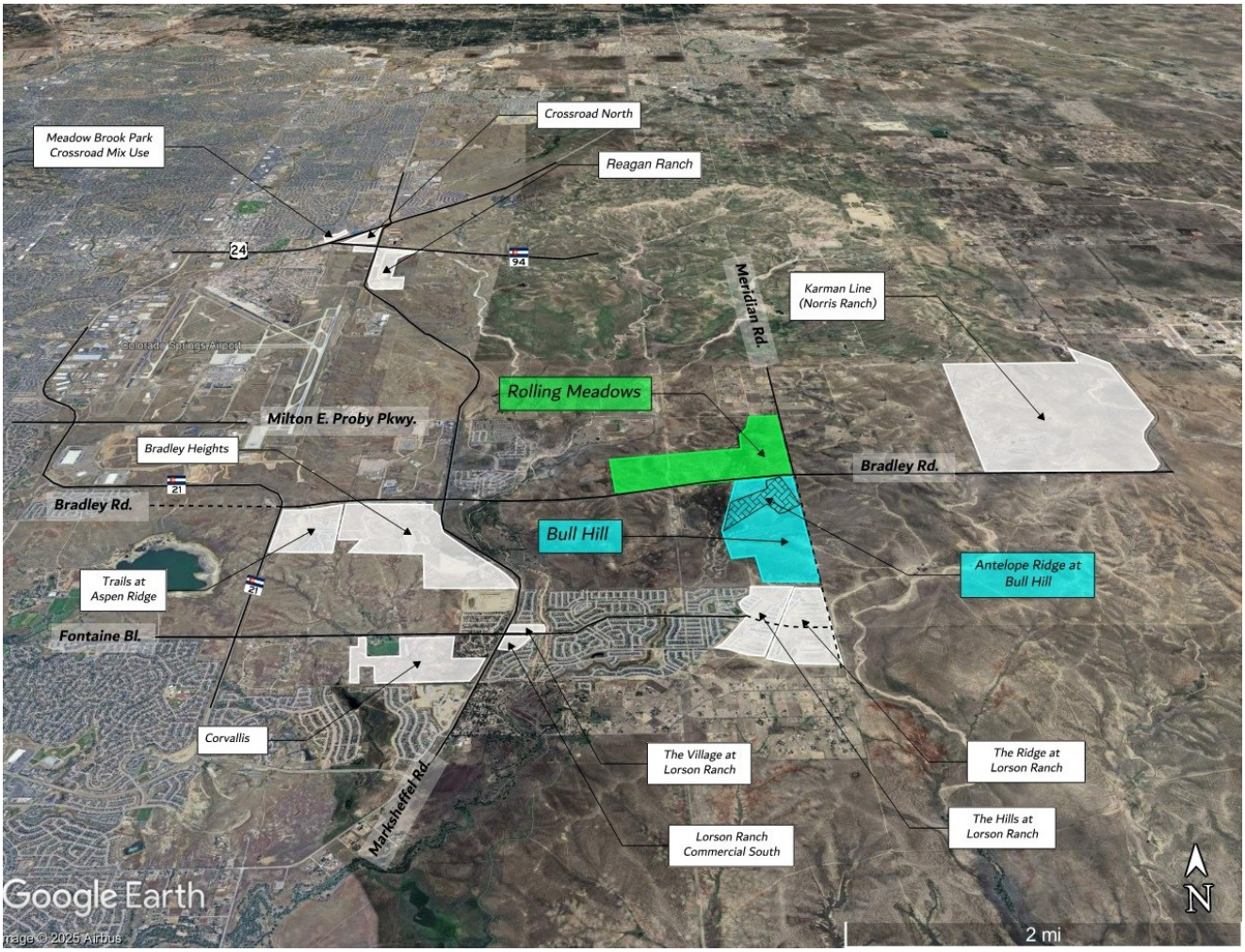
To study Phase 1 background traffic conditions, Matrix assumed that 30 percent of all adjacent developments would be completed by 2028. Consistent with the MTIS, additional growth factors were applied to background traffic volumes as appropriate.

Traffic counts were collected on November 19, 2024, to analyze existing and future conditions. Data collection focused on the intersections listed below, which were selected in coordination with CDOT, El Paso County, and the City of Colorado Springs. The existing traffic counts are provided in Appendix A – Traffic Counts. The existing conditions analysis focuses on the following intersections:

- SH-24/SH-94
- Marksheffel Road/SH-94
- Powers Boulevard (SH-21)/Milton E. Proby Parkway
- Marksheffel Road/Drennan Road
- Meridian Road/Drennan Road
- Marksheffel Road/Bradley Road
- Meridian Road/Bradley Road
- Marksheffel Road/Fontaine Boulevard
- Lamprey Drive/Fontaine Boulevard
- Powers Boulevard/Bradley Road
- Powers Boulevard/Fontaine Boulevard

The vicinity map is shown in Figure 1.

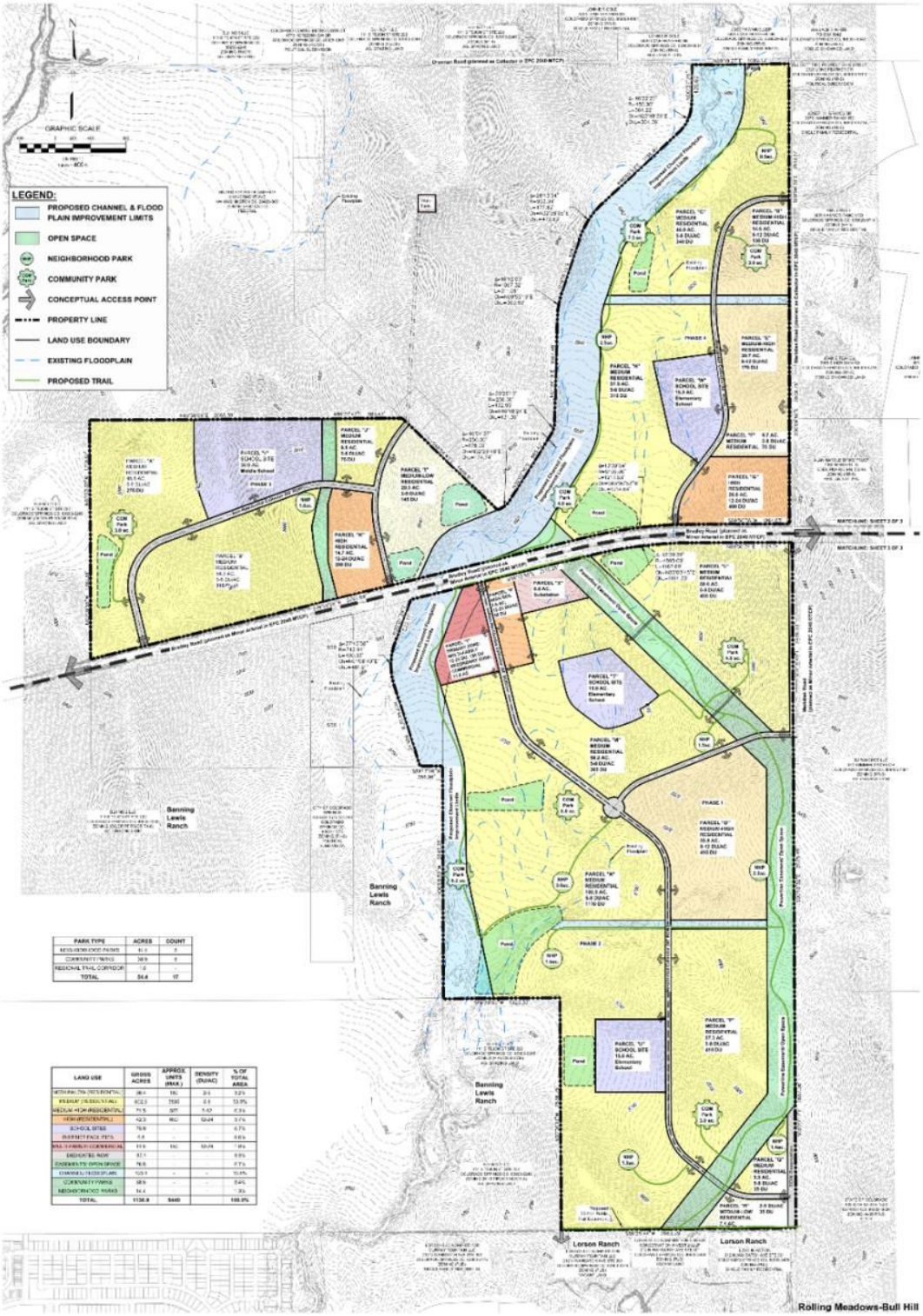
Figure 1. Vicinity Map



3. Proposed Development

The project will include 4,607 single-family residences, 840 multi-family residences, three elementary schools, and one middle school. A detailed breakdown of land use is provided in Table 3. The overall site plan for the development is presented in Figure 2. The study area is undergoing rapid growth, with several large-scale developments planned as shown in Figure 1, above. These developments include Bradley Heights, Lorson Ranch, Corvallis, Reagan Ranch, Trails at Aspen Ridge, Karmen Line, and Crossroads.

Figure 2. Rolling Meadows/Bull Hill Site Plan



The AM and PM peak hour volumes at the studied intersections are shown in Figure 3 and Figure 4. The daily traffic volumes in the existing conditions are shown in Figure 5.

Figure 3. Existing Traffic Volumes (AM Peak Hour)

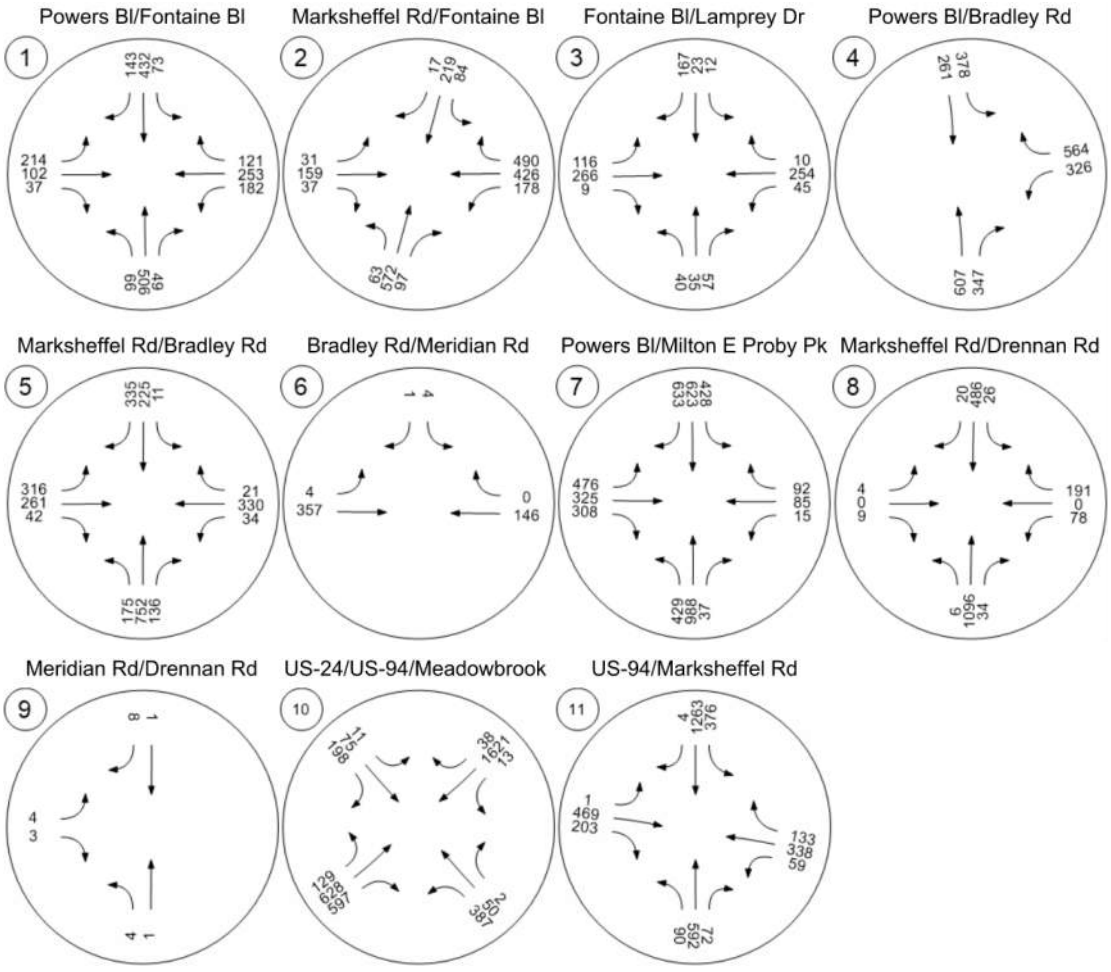
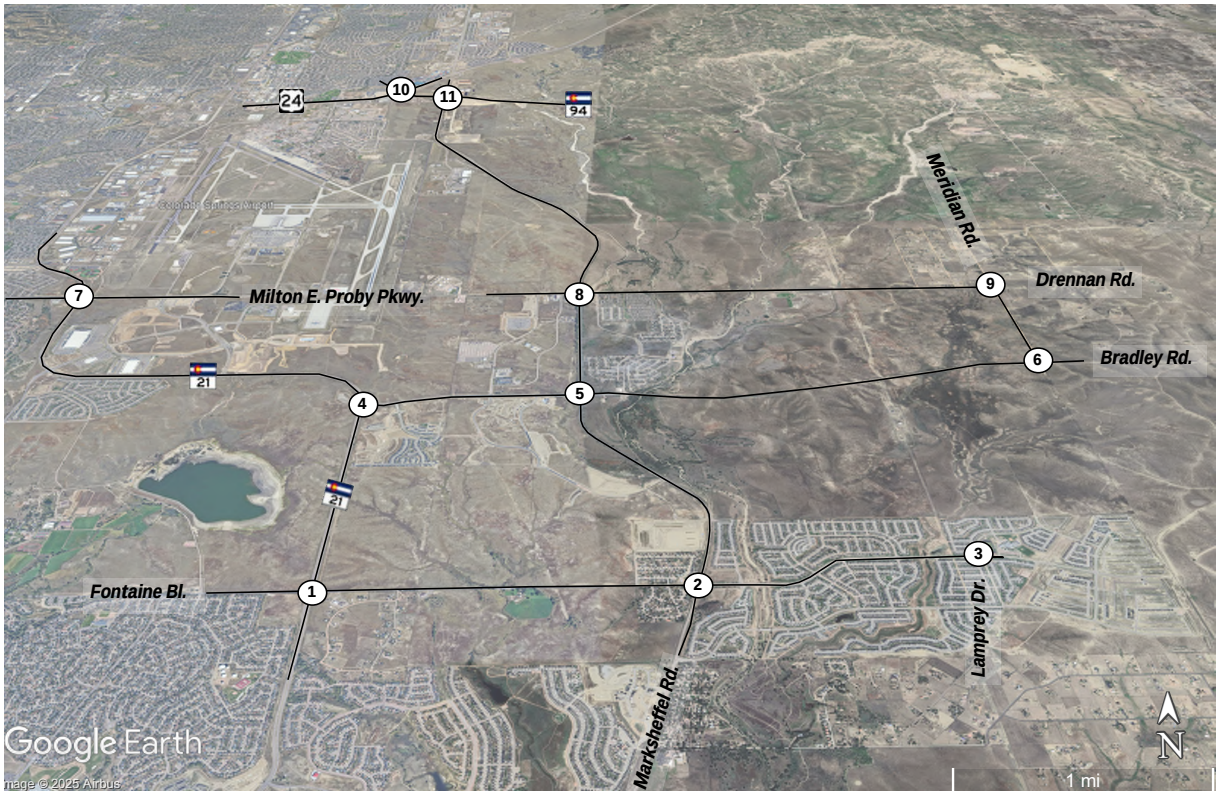


Figure 4. Existing Traffic Volumes (PM Peak Hour)



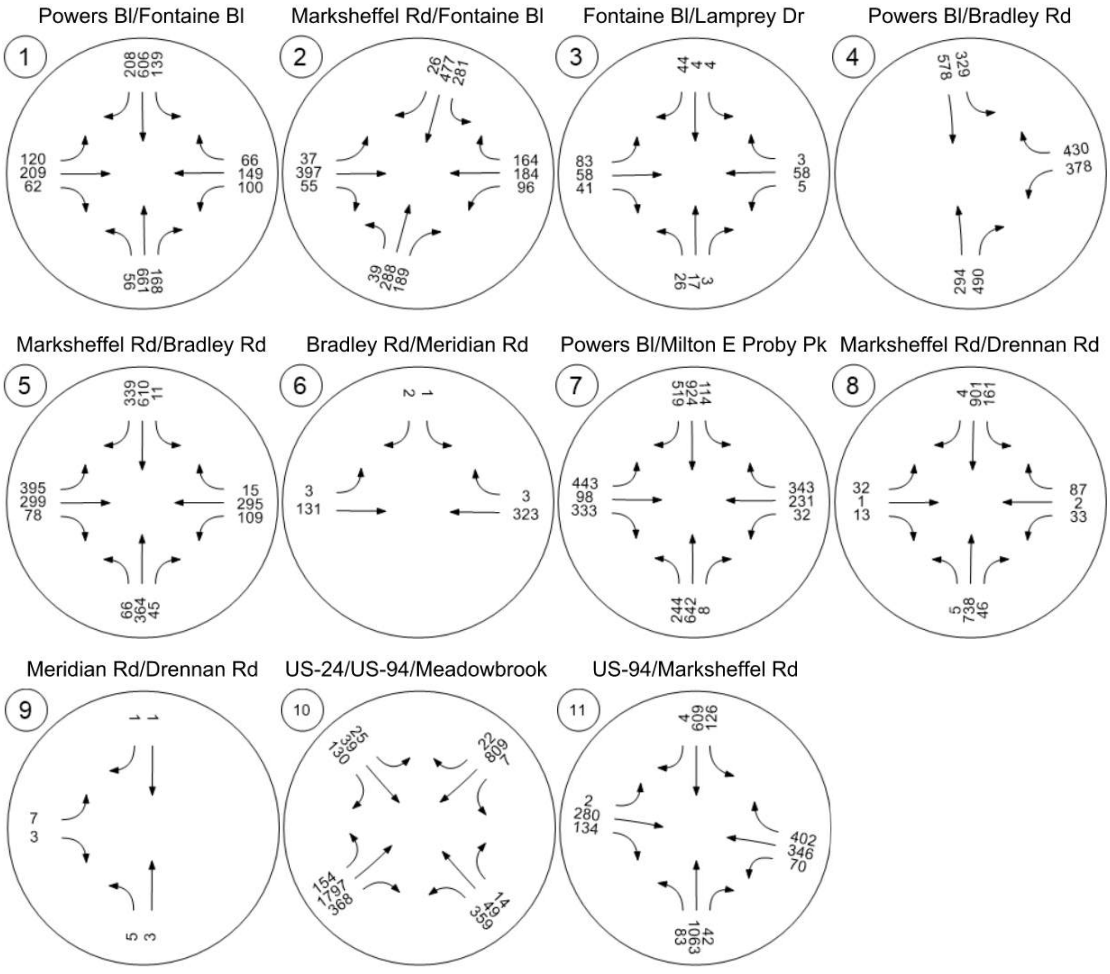
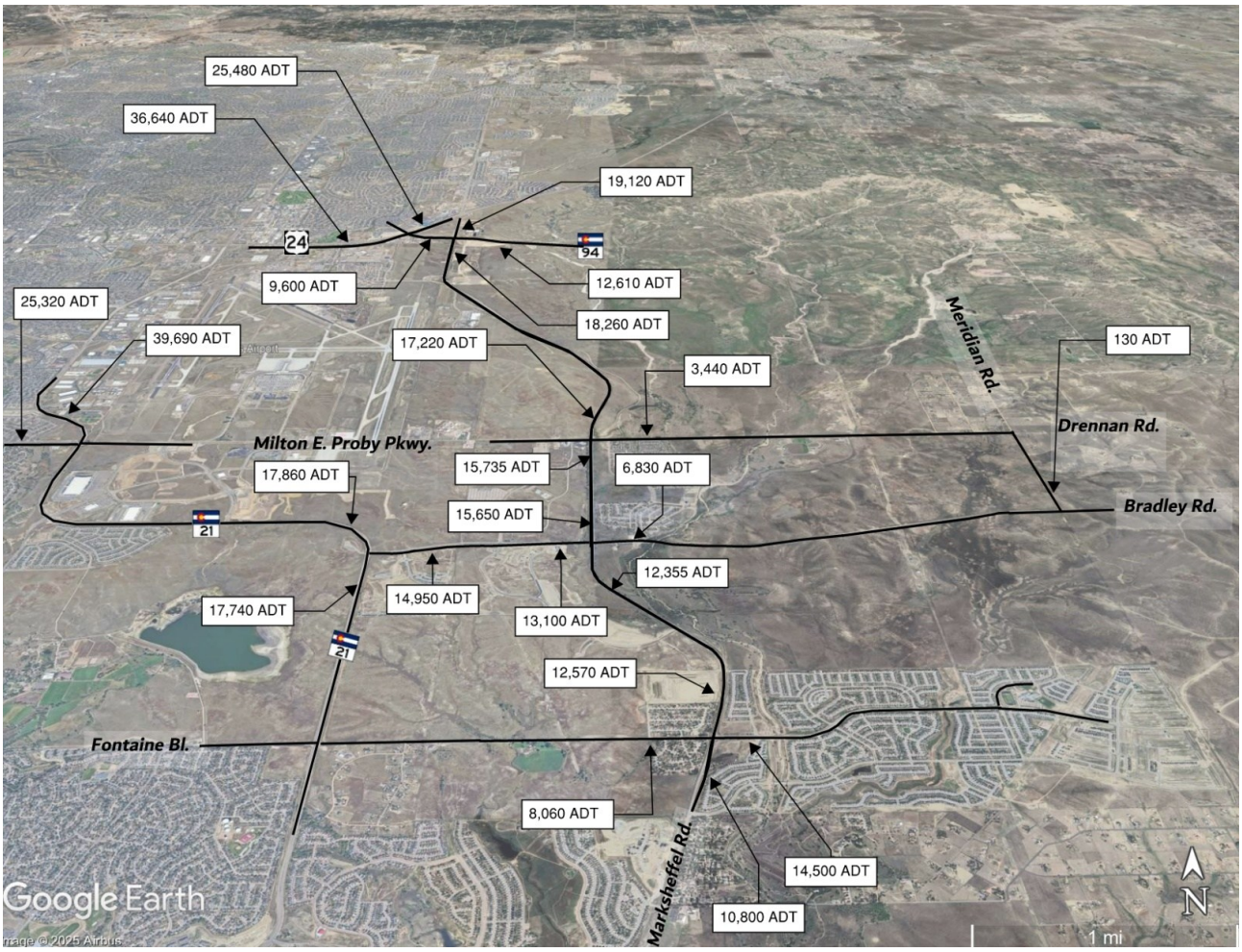
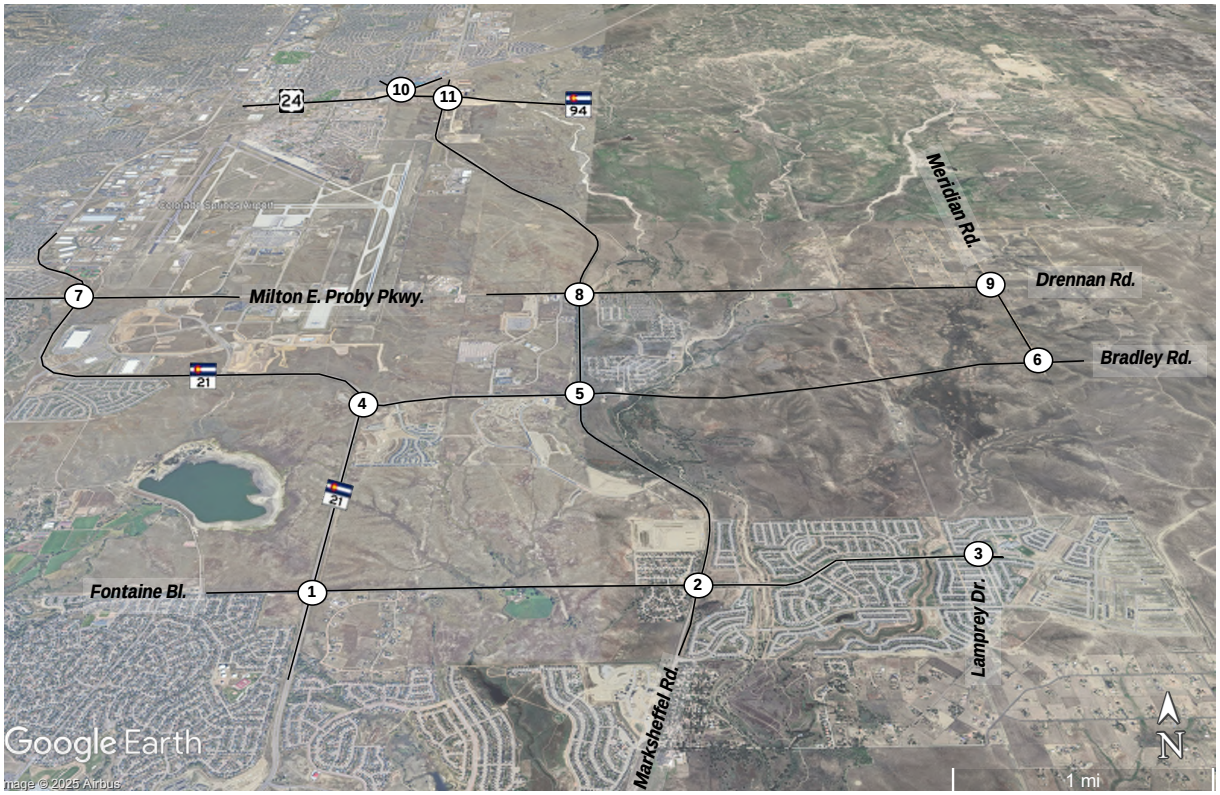


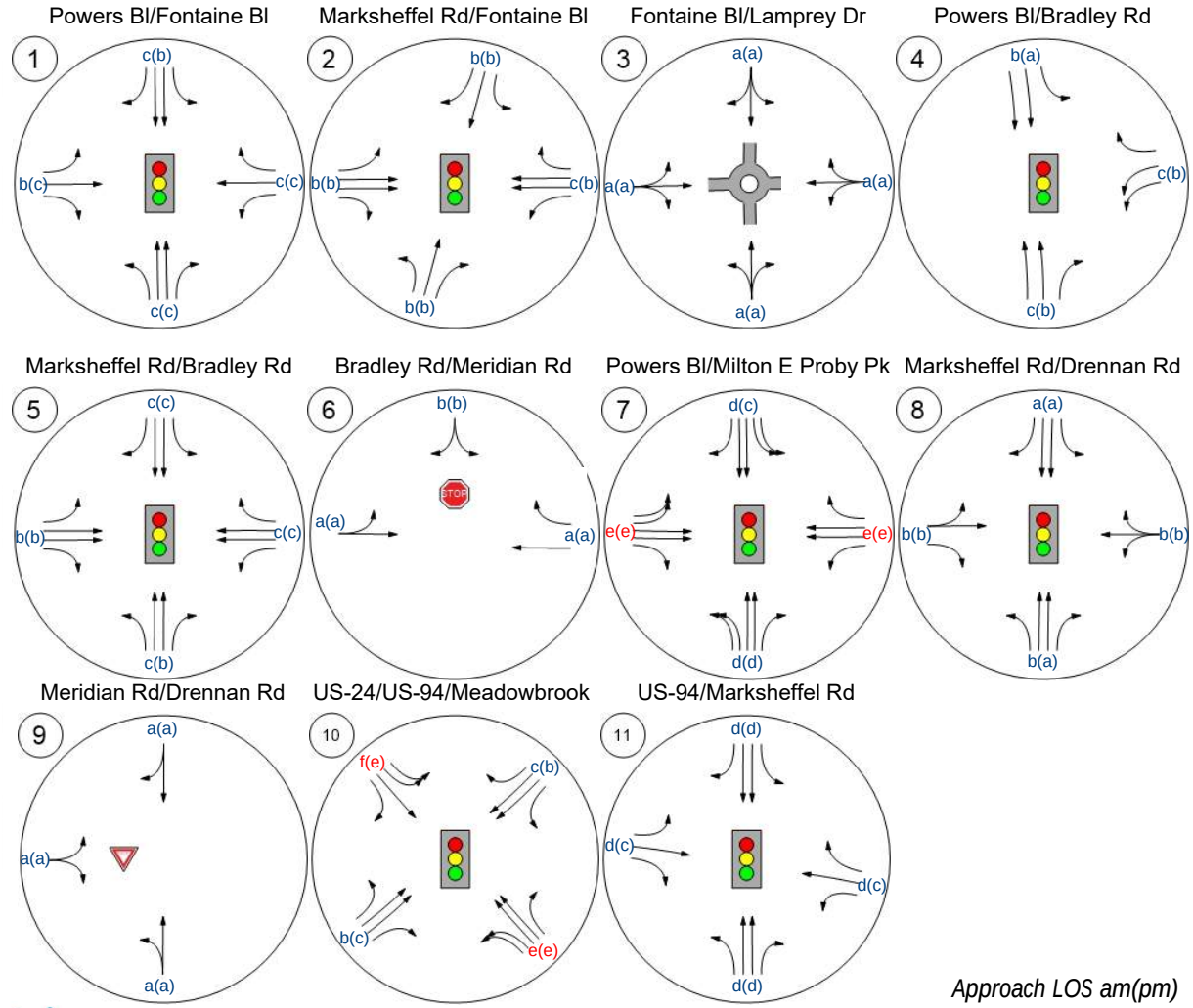
Figure 5. Existing Daily Traffic



The existing intersection configurations are shown in Figure 6.

Figure 6. Existing Intersection Configurations





Approach LOS am(pm)

Intersection LOS analysis was performed for the study area intersections, and the results are shown in Table 1 and Table 2.

Table 1. Existing Conditions Intersection Operations (AM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	WB Thru	0.441	20.7	C
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	SB Left	0.529	17.5	B
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	SB Right		8.6	A
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	WB Right	0.551	18.2	B
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	WB Thru	0.493	21.0	C
6	Bradley Rd/Meridian Rd	Two-way stop	HCM 7th Edition	SB Left	0.011	13.0	B
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	WB Left	0.631	48.5	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	SB Left	0.451	10.0	B
9	Meridian Rd/Drennan Rd	Two-way yield	HCM 7th Edition	EB Left	0.005	3.7	A
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Right	0.709	34.3	C
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	WB Left	0.671	42.1	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 2. Existing Conditions Intersection Operations (PM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	EB Thru	0.432	19.9	B
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	WB Left	0.408	15.0	B
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	EB Left		3.7	A
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	NB Right	0.439	13.0	B
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	WB Thru	0.481	20.3	C
6	Bradley Rd/Meridian Rd	Two-way stop	HCM 7th Edition	SB Left	0.002	12.1	B
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	WB Left	0.589	44.1	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	WB Right	0.324	7.5	A
9	Meridian Rd/Drennan Rd	Two-way yield	HCM 7th Edition	EB Left	0.010	3.7	A
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Right	0.678	27.9	C
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	SB Left	0.535	36.0	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 1 and Table 2 indicate all intersections operate at an acceptable LOS. Acceptable operations are generally defined as any operations at LOS D or better. The turn lane evaluation for the existing conditions is shown in Table 3.

Table 3. Existing Conditions Turn Lane Requirements

ID	Intersection	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Provided (Existing) (ft)	Improvement (ft)
1	Powers Bl/Fontaine Bl CDOT -SHAC Signalized	E-X	NBL	1	55	66	24	222	**600**	**100**	**920**	965	-
		E-X	NBR	1	55	168	37	222	**600**	**-**	**820**	860	-
		E-X	SBL	1	55	139	42	222	**600**	**140**	**960**	800	160
		E-X	SBR	1	55	208	44	222	**600**	**-**	**820**	685	135
		NR-A	EBL	1	35	214	84	120	**190**	**215**	**525**	405	120
		NR-A	EBR	1	35	62	17	120	**190**	**-**	**310**	670	-
		NR-A	WBL	1	35	182	69	120	**190**	**180**	**490**	425	65
		NR-A	WBR	1	35	121	34	120	**190**	**-**	**310**	670	-
		NR-A	NBR to EBT Acceleration Lane	1	35	168	-	120	***150 (Accel. Lane)***		**270**	660	-
		NR-A	SBR to WBT Acceleration Lane	1	35	208	-	120	***150 (Accel. Lane)***		**270**	400	-
		E-X	EBR to SBT Acceleration Lane	1	55	62	-	222	***960 (Accel. Lane)***	**-**	**1180**	1,070	110
		E-X	WBR to NBT Acceleration Lane	1	55	35	-	222	***960 (Accel. Lane)***	**-**	**1180**	545	635
2	Marksheffel Rd/Fontaine Bl CCS - TCM Signalized	Principal Arterial	NBL	1	45	63	28	180	**200**	**-**	**380**	700	-
		Principal Arterial	NBR	1	45	189	24	180	**200**	**-**	**380**	700	-
		Principal Arterial	SBL	1	55	281	133	220	**260**	**-**	**480**	560	-
		Principal Arterial	SBR	1	55	26	3	220	**260**	**-**	**480**	560	-
		Principal Arterial	EBL	1	35	37	22	140	**120**	**-**	**260**	500	-
		Principal Arterial	EBR	1	35	55	12	140	**120**	**-**	**260**	275	-
		Principal Arterial	WBL	1	45	178	123	180	**200**	**-**	**380**	515	-
		Principal Arterial	WBR	1	45	490	150	180	**200**	**-**	**380**	Continuous	-
4	Powers Bl/Bradley Rd CDOT -SHAC Signalized	E-X	NBR	1	65	490	90	300	**800**	**-**	**1100**	880	220
		E-X	SBL	1	65	378	101	300	**800**	**378**	**1480**	890	590
		NR-A	WBL	2	50	378	79	360	**140**	**189**	**690**	830	-
		NR-A	WBR	1	50	564	167	180	**320**	**-**	**500**	Continuous	-
		NR-A	NBR to EBT Acceleration Lane	1	50	490	-	180	***560 (Accel. Lane)***	**-**	**760**	860	-
		E-X	WBR to NBT Acceleration Lane	1	65	564	-	300	***1380 (Accel. Lane)***		**1680**	710	970
5	Marksheffel Rd/Bradley Rd CCS - TCM Signalized	Principal Arterial	NBL	1	55	175	69	220	**260**	**-**	**480**	940	-
		Principal Arterial	NBR	1	55	136	31	220	**260**	**-**	**480**	940	-
		Principal Arterial	SBL	1	55	11	4	220	**260**	**-**	**480**	920	-
		Principal Arterial	SBR	1	55	339	101	220	**260**	**-**	**480**	965	-
		Principal Arterial	EBL	1	50	395	170	200	**235**	**-**	**435**	720	-
		Principal Arterial	EBR	1	50	78	18	200	**235**	**-**	**435**	720	-
		Principal Arterial	WBL	1	45	109	39	180	**200**	**-**	**380**	965	-
		Principal Arterial	WBR	1	45	21	6	180	**200**	**-**	**380**	Continuous	-

Existing Conditions Turn Lane Requirements (Continued)

ID	Intersection	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Provided (Existing) (ft)	Improvement (ft)
7	Powers Bl/Milton E Proby Pkwy CDOT -SHAC Signalized	E-X	NBL	2	60	429	341	600	**700**	**215**	**1515**	895	620
		E-X	NBR	1	60	37	16	300	**700**	-	**1000**	450	550
		E-X	SBL	2	55	428	375	444	**600**	**214**	**1260**	750	510
		E-X	SBR	1	55	633	338	222	**600**	-	**820**	865	-
		E-X	EBL	2	55	476	368	444	**600**	**238**	**1280**	780	*
		E-X	EBR	1	55	333	231	222	**600**	-	**820**	275	**
		E-X	WBL	1	55	32	66	222	**600**	**40**	**860**	715	145
		E-X	WBR	1	55	343	279	222	**600**	-	**820**	590	230
		E-X	NBR to EBT Acceleration Lane	1	55	37	-	222	***960 (Accel. Lane)***	-	**1180**	500	680
		E-X	SBR to WBT Acceleration Lane	1	55	633	-	222	***960 (Accel. Lane)***	-	**1180**	725	455
		E-X	EBR to SBT Acceleration Lane	1	55	333	-	222	***960 (Accel. Lane)***	-	**1180**	355	825
		E-X	WBR to NBT Acceleration Lane	1	60	343	-	300	***1170 (Accel. Lane)***	-	**1470**	770	700
8	Marksheffel Rd/Drennan Rd CCS - TCM Signalized	Principal Arterial	NBL	1	55	6	1	220	**260**	-	**480**	895	-
		Principal Arterial	NBR	1	55	46	2	220	**260**	-	**480**	895	-
		Principal Arterial	SBL	1	45	161	47	180	**200**	-	**380**	650	-
		Principal Arterial	SBR	1	45	20	1	180	**200**	-	**380**	650	-
		Minor Arterial	EBL	1	45	32	11	180	**200**	-	**380**	-	***
		Minor Arterial	EBR	1	45	13	2	180	**200**	-	**380**	270	110
		Principal Arterial	WBL	1	45	78	29	180	**200**	-	**380**	0	380
10	Highway-24/Highway-94 CDOT -SHAC Signalized	E-X	NBL (US-94)	2	55	387	294	444	**600**	**194**	**1240**	1015	225
		E-X	NBR (US-94)	1	55	14	9	222	**600**	-	**820**	1015	-
		F-R	SBL (Newt Dr.)	2	30	25	21	192	-	**25**	**215**	400	-
		F-R	SBR (Newt Dr.)	1	30	198	243	96	-	**25**	**120**	400	-
		E-X	EBL (US-24)	1	55	154	88	222	**600**	**154**	**975**	1120	-
		E-X	EBR (US-24)	1	55	597	216	222	**600**	-	**820**	710	110
		E-X	WBL (US-24)	1	65	13	6	300	**800**	**25**	**1125**	975	150
		E-X	WBR (US-24)	1	65	38	12	300	**800**	-	**1100**	975	125
		NR-A	NBR to EBT Acceleration Lane	1	55	14	-	220	***740 (Accel. Lane)***	-	**960**	1570	-
		NR-A	SBR to WBT Acceleration Lane	1	65	198	-	300	***1080 (Accel. Lane)***	-	**1380**	895	485
		E-X	EBR to SBT Acceleration Lane	1	55	597	-	222	***960 (Accel. Lane)***		**1180**	640	540
11	Highway-94/Marksheffel Rd CDOT -SHAC Signalized	NR-A	NBL	1	55	90	79	222	**378**	**100**	**700**	600	100
		NR-A	NBR	1	55	72	41	222	**378**	-	**600**	600	-
		NR-A	SBL	1	50	376	347	180	**320**	**375**	**875**	630	245
		NR-A	SBR	1	50	4	2	180	**320**	-	**500**	630	-
		E-X	EBL	1	50	2	3	180	**500**	**25**	**705**	280	425
		E-X	EBR	1	50	203	122	180	**500**	-	**680**	475	205
		E-X	WBL	1	65	70	120	300	**500**	**100**	**900**	500	400
		E-X	WBR	1	65	402	212	300	**500**	-	**800**	500	300
		E-X	NBR to EBT Acceleration Lane	1	50	168	-	180	***760 (Accel. Lane)***		**940**	0	940
		E-X	SBR to WBT Acceleration Lane	1	65	208	-	300	***1,170 (Accel. Lane)***		**1470**	0	1470
		NR-A	EBR to SBT Acceleration Lane	1	50	62	-	180	***580 (Accel. Lane)***	-	**760**	0	760
		NR-A	WBR to NBT Acceleration Lane	1	55	35	-	220	***740 (Accel. Lane)***	-	**960**	0	960

*Turn lane is currently provided to the available intersection spacing
**Improvement should be made to the available intersection spacing
***Exclusive left-turn is not recommended due to low through traffic volume

The City of Colorado Springs (CCS) Traffic Criteria Manual (TCM), El Paso County Engineering Criteria Manual (ECM) and the CDOT State Highway Access Code (SHAC) were used to study the required turn lanes. A summary of the recommended improvements is as follows:

Powers Boulevard/Fontaine Boulevard (#1)

- A 160-ft extension of southbound left-turn lane.
- A 135-ft extension of southbound right-turn lane.
- A 120-ft extension of eastbound left-turn lane.
- A 65-ft extension of westbound left-turn lane.
- A 110-ft extension of eastbound right-turn to southbound thru acceleration lane.
- A 635-ft extension of westbound right-turn to northbound thru acceleration lane.

Powers Boulevard/Bradley Road (#4)

- A 220-ft extension of northbound right-turn lane.
- A 590-ft extension of southbound left-turn lane.
- A 970-ft extension of westbound right-turn to northbound thru acceleration lane.

Powers Boulevard/Milton E Proby Parkway (#7)

- A 620-ft extension of northbound left-turn lane.
- A 550-ft extension of northbound right-turn lane.
- A 510-ft extension of southbound left-turn lane.
- A 500-ft extension of eastbound left-turn lane. However, the turn lane is currently provided to the available intersection spacing.
- A 545-ft extension of eastbound right-turn lane. Turn lane should be maximized to the available intersection spacing.
- A 145-ft extension of westbound left-turn lane.
- A 230-ft extension of westbound right-turn lane.
- A 680-ft extension of northbound right-turn to eastbound thru acceleration lane.
- A 455-ft extension of southbound right-turn to westbound thru acceleration lane.
- A 825-ft extension of eastbound right-turn to southbound thru acceleration lane.
- A 700-ft extension of westbound right-turn to northbound thru acceleration lane.

Marksheffel Road/Drennan Road (#8)

- A 110-ft extension of eastbound right-turn lane.
- A 380-ft westbound left-turn lane. Include a 180-ft taper and 200-ft of deceleration lane.

Highway-24/Highway-94 (#10)

- A 225-ft extension of northbound left-turn (US-94) lane.
- A 110-ft extension of eastbound right-turn (US-24) lane.
- A 150-ft extension of westbound left-turn (US-24) lane.
- A 125-ft extension of westbound right-turn (US-24) lane.

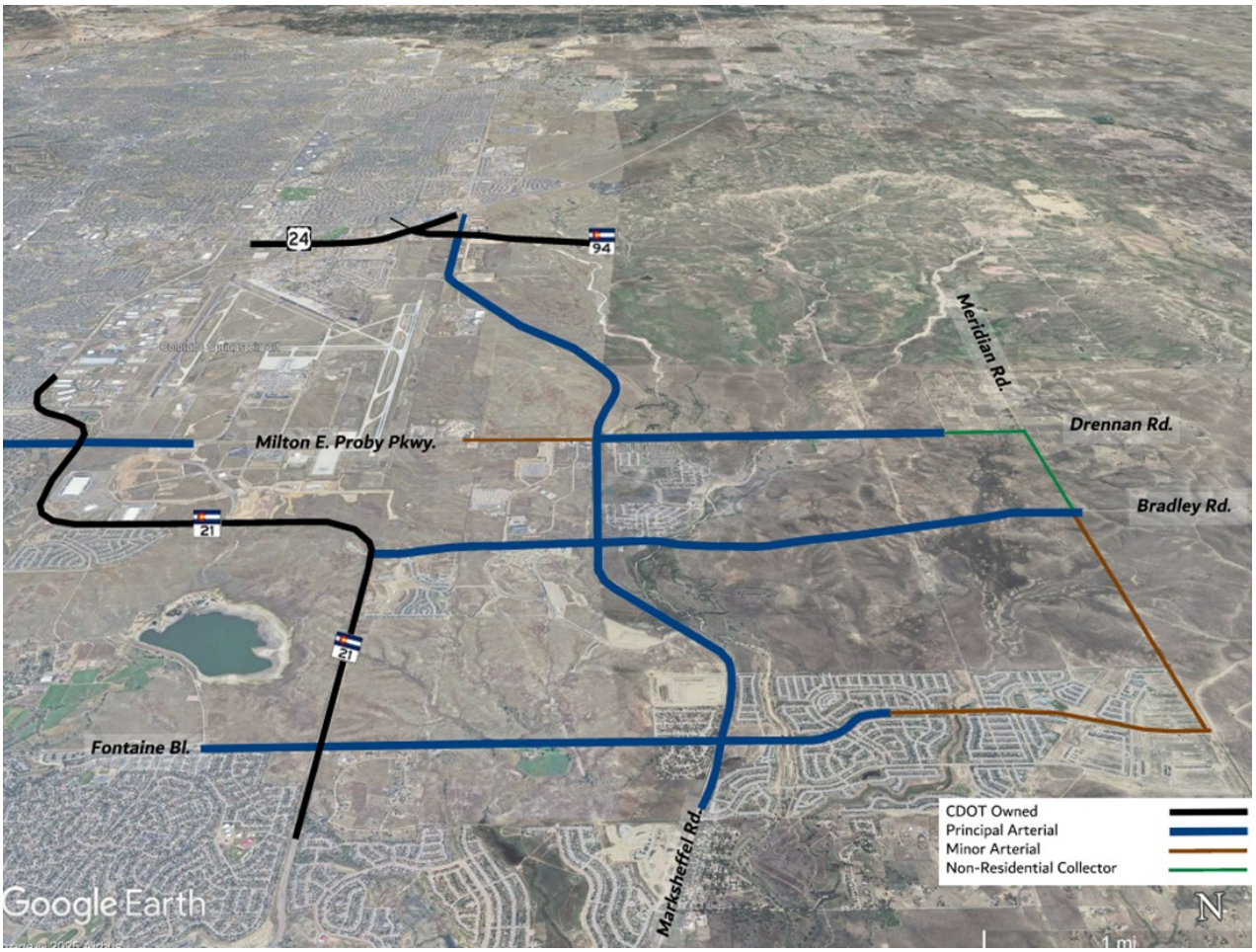
- A 485-ft extension of southbound right-turn to westbound thru acceleration lane.
- A 540-ft extension of eastbound right-turn to southbound thru acceleration lane.

Highway-94/Marksheffel Road (#11)

- A 100-ft extension of northbound left-turn lane.
- A 245-ft extension of southbound left-turn lane.
- A 425-ft extension of eastbound left-turn lane.
- A 205-ft extension of eastbound right-turn lane.
- A 400-ft extension of westbound left-turn lane.
- A 300-ft extension of westbound right-turn lane.
- A 940-ft northbound right-turn to eastbound thru acceleration lane. Include 180-ft of taper and 760-ft of acceleration lane.
- A 1,470-ft southbound right-turn to westbound thru acceleration lane. Include 300-ft of taper and 1,170-ft of acceleration lane.
- A 760-ft eastbound right-turn to southbound thru acceleration lane. Include 180-ft of taper and 580-ft of acceleration lane.
- A 960-ft westbound right-turn to northbound thru acceleration lane. Include 220-ft of taper and 740-ft of acceleration lane.

In this study, future conditions were evaluated under the assumption that the necessary improvements outlined above to the existing conditions have been implemented. Roadways adjacent to the new development were classified based on the 2045 Major Transportation Corridor Plan (EPC), or the City of Colorado Springs Major Thoroughfare Plan (CCS) and are shown in Figure 7.

Figure 7. Roadway Classification



3.1 Crash History

The El Paso County Road Safety Plan website was used to obtain the number of fatal and severe crashes in the vicinity of the project. Crash data from the year 2015 to 2019 were collected and shown as a density map on the website. As shown in Figure 8 and Figure 9, two fatal crashes occurred near the project. The development will ultimately convert the isolated roadways to well-traveled urban roadways which will improve the safety of the roadways by adding more lanes in each direction and concrete curb and gutter. Standard roadway cross-sections provided by the El Paso County will be used to ensure safe and ADA compliant sidewalks. However, unless the school plan is determined, it is impossible to define the exact school routes. This will be studied in future traffic impacts studies as details of each phase and/or filing are known. The first phase of the project does not include a school and only contains residential units. No public transit is available for this development. As a result, it was assumed 100 percent of the trips would be made by personal vehicles. Refer to section 4 for more information on trip generation.

Figure 8. Fatality Crash Map

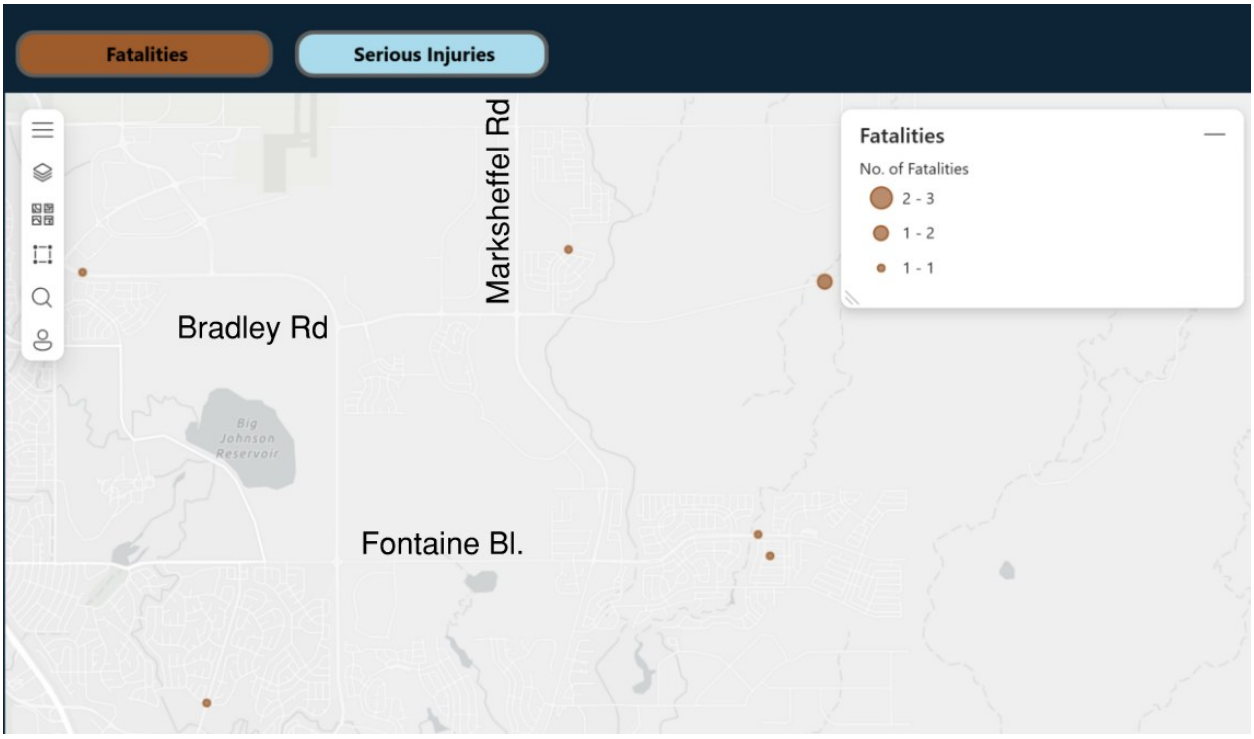
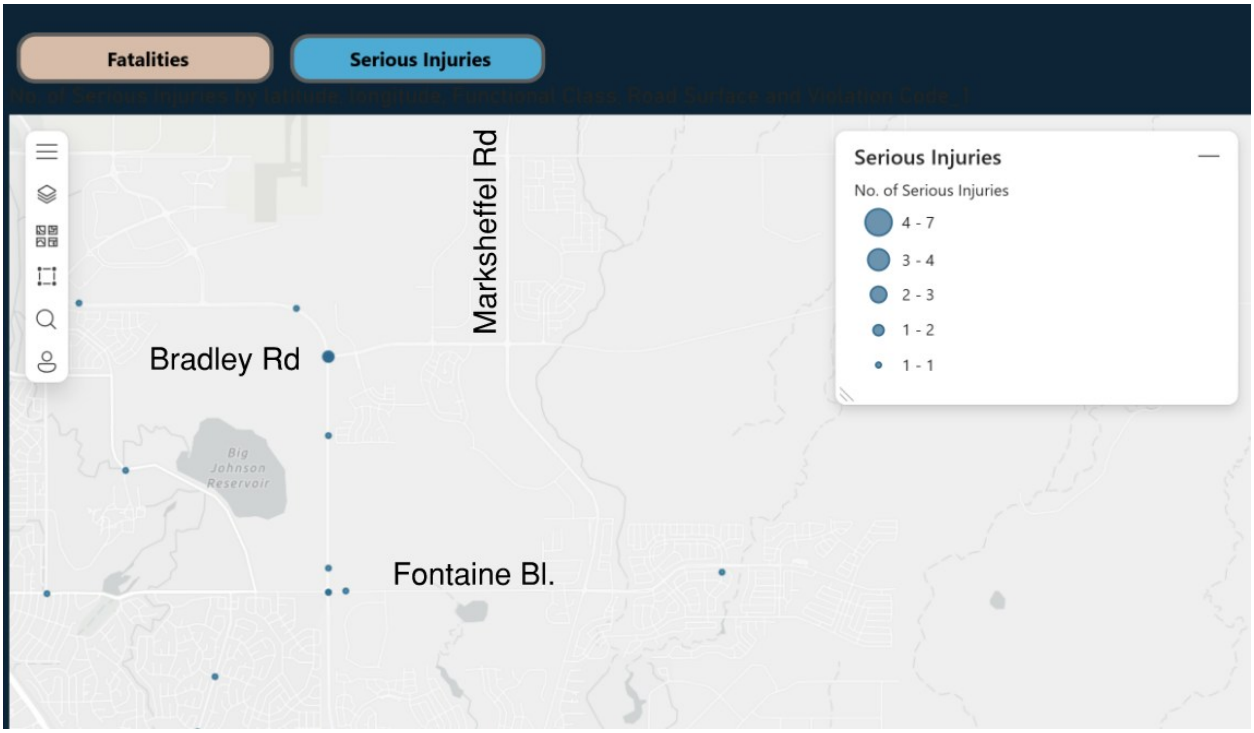


Figure 9. Serious Injury Crash Map



4. Projected Development Traffic

This section documents how much traffic the project development is expected to generate and how the external site trips will be distributed on the adjacent roadway network.

4.1 Trip Generation

The vehicle trips associated with the project were calculated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, *11th Edition*. This methodology consists of choosing an independent variable for the land use for a particular time of day. The independent variable correlates to the variation in trip ends and is related to the land use. The value of the independent variable is either multiplied by a weighted average or used in a regression equation to calculate the trips generated by the land use category. The *ITE Trip Generation Manual* provides guidance on when to use the weighted average versus the regression equation. Table 4 shows the trips that are expected to be generated by Rolling Meadows/Bull Hill at build out (2035) year. It was assumed that 100% of trips would be made by personal vehicles and no public transit use was assumed for this development. The single-family residences were generated for all of Rolling Meadows and all of Bull Hill separately with the total number of trips distributed to each zone based on the percentage of single-family units proposed in each zone. The same logic was followed for multi-family homes. The Antelope Ridge at Bull Hill (Phase 1) trip generation for the buildout (2028) year is discussed in Section 7. Antelope Ridge at Bull Hill.

Table 4. Rolling Meadows/Bull Hill Trip Generation

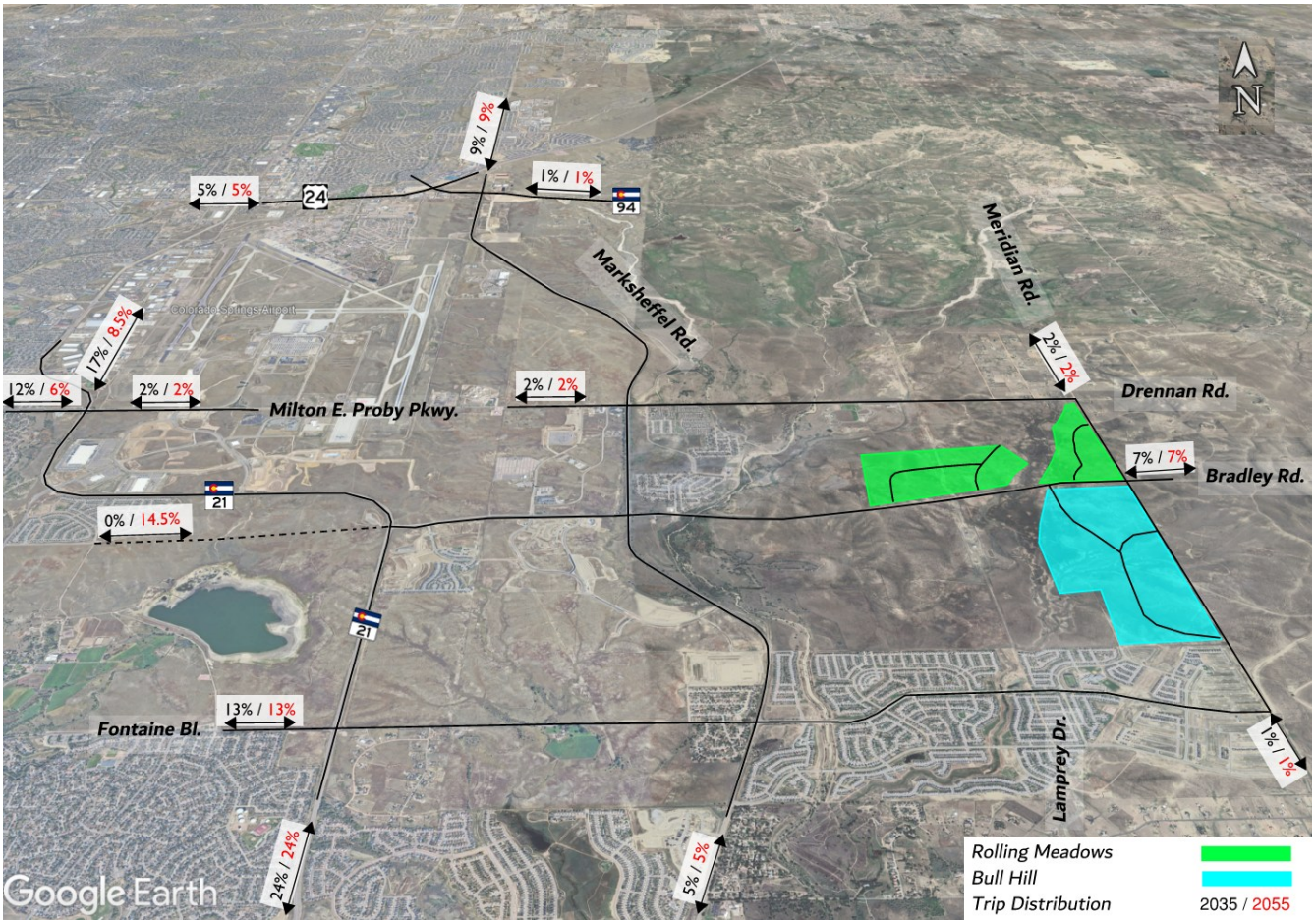
Rolling Meadows																
Parcel	ITE Code - Land Use	Quantity	Unit	Size(Acre)	%SFDU	%MFDU	AM Peak Hour Trips			PM Peak Hour Trips			Weekday Trips		
							In	Out	Total	In	Out	Total	In	Out	Total
A	210- Single-Family Detached Housing	275	Dwelling Unit	48.8	15.03%		39	118	158	145	85	229	1100	1100	2199
B	210- Single-Family Detached Housing	315	Dwelling Unit	54.3	17.21%		45	135	181	166	97	263	1259	1259	2519
C	210- Single-Family Detached Housing	340	Dwelling Unit	46	18.58%		49	146	195	179	105	284	1359	1359	2719
D	210- Single-Family Detached Housing	130	Dwelling Unit	14.6	7.10%		19	56	75	68	40	108	520	520	1040
E	210- Single-Family Detached Housing	170	Dwelling Unit	20.7	9.29%		24	73	97	89	52	142	680	680	1359
F	210- Single-Family Detached Housing	70	Dwelling Unit	9.7	3.83%		10	30	40	37	22	58	280	280	560
G	220- Multifamily Housing (Low-Rise)	400	Dwelling Unit	20		66.67%	33	106	139	117	69	185	1307	1307	2615
H	210- Single-Family Detached Housing	310	Dwelling Unit	57.5	16.94%		44	133	178	163	96	259	1239	1239	2479
I	210- Single-Family Detached Housing	145	Dwelling Unit	29.3	7.92%		21	62	83	76	45	121	580	580	1160
J	210- Single-Family Detached Housing	75	Dwelling Unit	9.8	4.10%		11	32	43	39	23	63	300	300	600
K	220- Multifamily Housing (Low-Rise)	200	Dwelling Unit	14.7		33.33%	17	53	70	58	34	93	654	654	1307
W	520-Elementary School	515	Student	15.9			206	175	381	38	44	82	585	585	1170
V	522-Middle School	1140	Student	30			412	351	763	82	89	171	1193	1193	2386
Total							**930**	**1,472**	**2,402**	**1,257**	**801**	**2,058**	**11,056**	**11,056**	**22,112**

Bull Hill																
Parcel	ITE Code - Land Use	Quantity	Unit	Size(Acre)	%SFDU	%MFDU	AM Peak Hour Trips			PM Peak Hour Trips			Weekday Trips		
							In	Out	Total	In	Out	Total	In	Out	Total
L	210- Single-Family Detached Housing	400	Dwelling Unit	58.6	14.40%		55	166	221	205	120	326	1547	1547	3094
M	210- Single-Family Detached Housing	372	Dwelling Unit	59.2	13.40%		51	154	205	191	112	303	1439	1439	2877
N(1)	210- Single-Family Detached Housing	100	Dwelling Unit	180.9	3.60%		14	41	55	51	30	81	387	387	773
N(II)	210- Single-Family Detached Housing	350	Dwelling Unit		12.60%		48	145	193	179	105	285	1353	1353	2707
N(III)	210- Single-Family Detached Housing	300	Dwelling Unit		10.80%		41	124	166	154	90	244	1160	1160	2320
N(IV)	210- Single-Family Detached Housing	360	Dwelling Unit		12.96%		50	149	199	185	108	293	1392	1392	2784
O	210- Single-Family Detached Housing	415	Dwelling Unit	50.8	14.94%		57	172	229	213	125	338	1605	1605	3210
P	210- Single-Family Detached Housing	410	Dwelling Unit	57.3	14.76%		57	170	226	210	123	334	1586	1586	3171
Q	210- Single-Family Detached Housing	35	Dwelling Unit	5.9	1.26%		5	14	19	18	11	28	135	135	271
R	210- Single-Family Detached Housing	35	Dwelling Unit	7.1	1.26%		5	14	19	18	11	28	135	135	271
S	220- Multifamily Housing (Low-Rise)	90	Dwelling Unit	7.6		38%	9	28	36	29	17	47	303	303	605
T	520-Elementary School	490	Student	15			196	167	363	36	42	78	556	556	1112
U	520-Elementary School	490	Student	15			196	167	363	36	42	78	556	556	1112
Y	220- Multifamily Housing (Low-Rise)	150	Dwelling Unit	11.8		63%	14	46	61	49	29	78	504	504	1009
Total							**798**	**1,558**	**2,356**	**1,574**	**966**	**2,540**	**12,658**	**12,658**	**25,316**
Grand Total							**1,728**	**3,030**	**4,758**	**2,831**	**1,767**	**4,598**	**23,714**	**23,714**	**47,428**

4.2 Trip Distribution

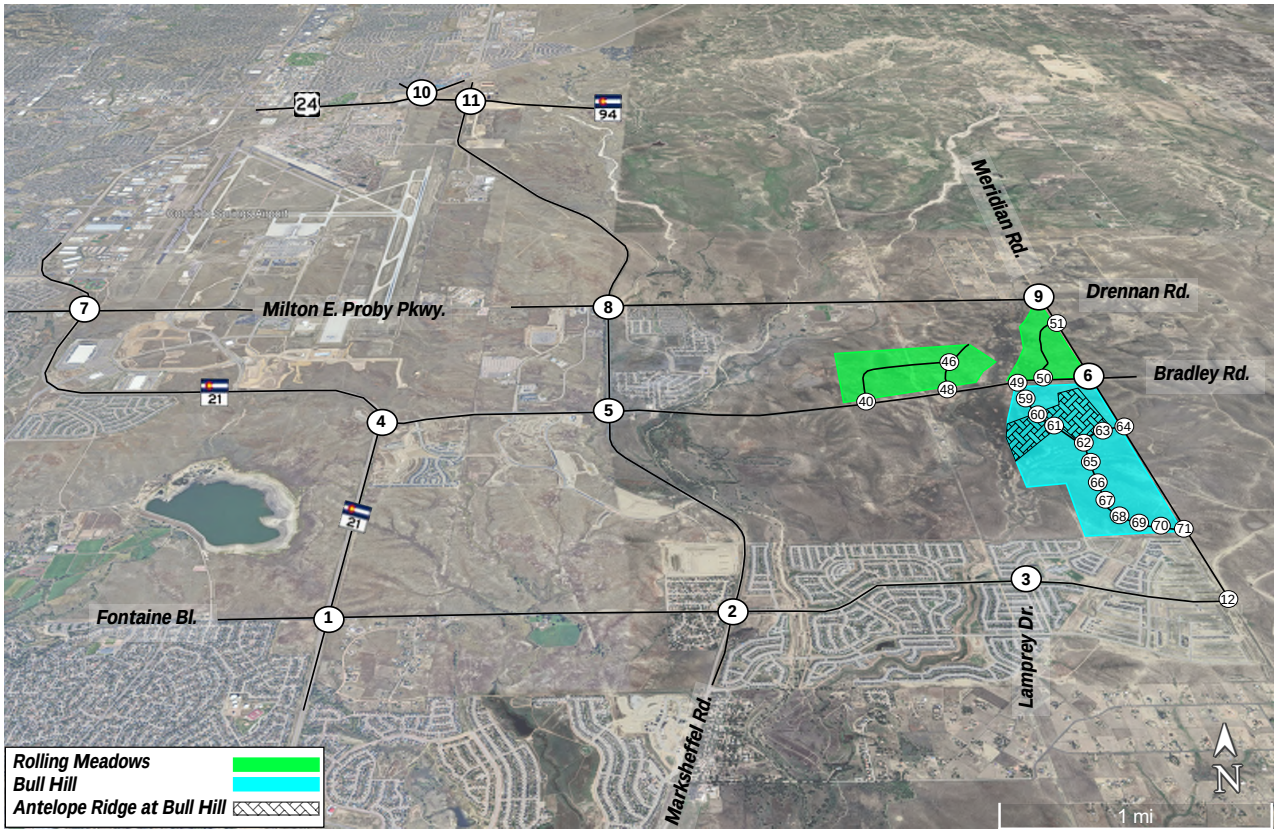
Figure 10 illustrates the expected external distribution of travel for the site-generated trips. This distribution was determined by reviewing current traffic volumes, future connections near the study area per the MTCP 2045 and trip distributions of surrounding developments. A different assumption for motorists traveling to and from the east was used for the first phase of the project (Antelope Ridge at Bull Hill), as roadway improvements on Bradley Road, Mesa Ridge Parkway, Curtis Road, and Meridian Road are not expected to be completed by 2028. For more information see the 2028 trip distribution, Figure 32.

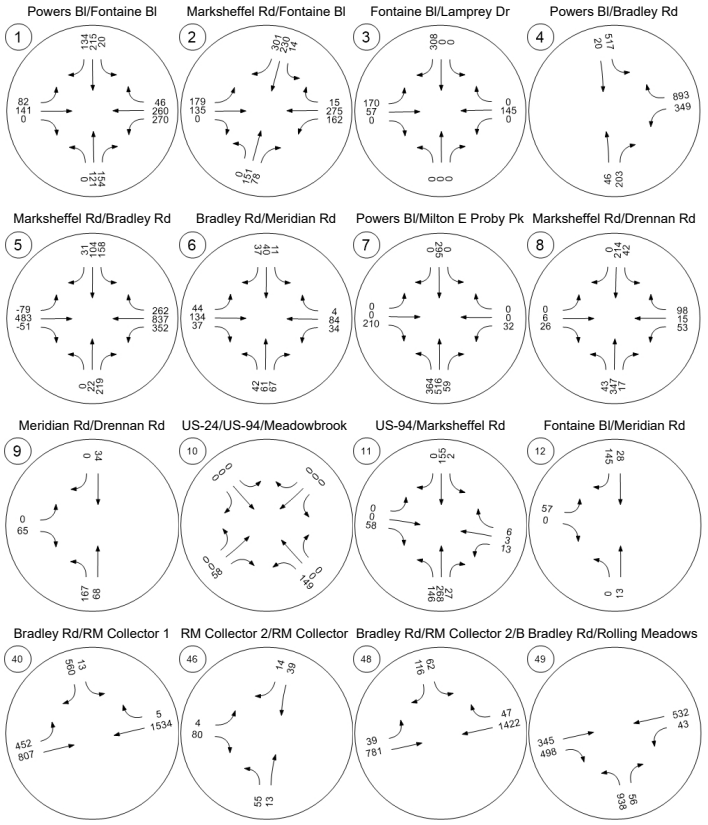
Figure 10. Trip Distribution

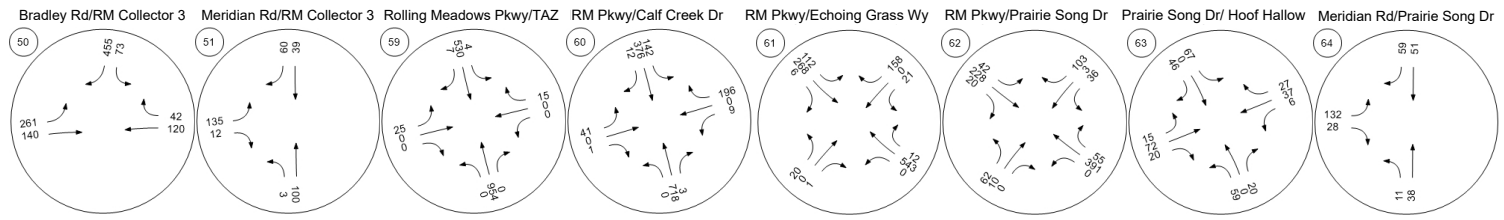


Note that an adjusted trip distribution assumption was assumed for other future developments located north of Drennan Road in the background and total conditions analyses. The AM and PM site traffic for Rolling Meadows/Bull Hill is shown in Figure 11 and Figure 12, respectively. The daily site traffic is shown in Figure 13.

Figure 11. RMBH Full Buildout (2035) Site Traffic (AM Peak Hour)







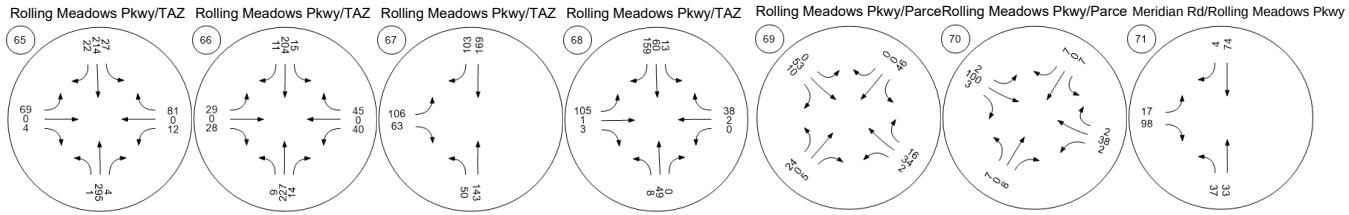
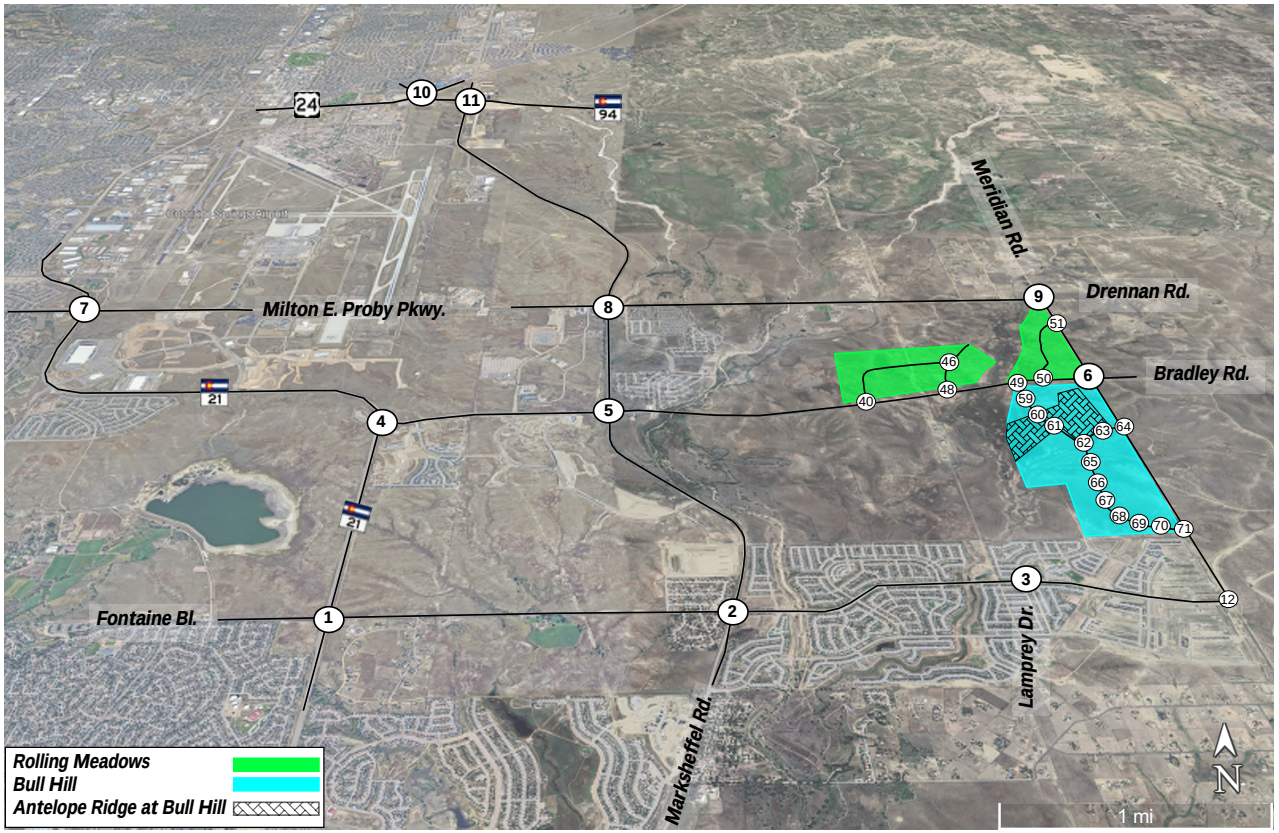
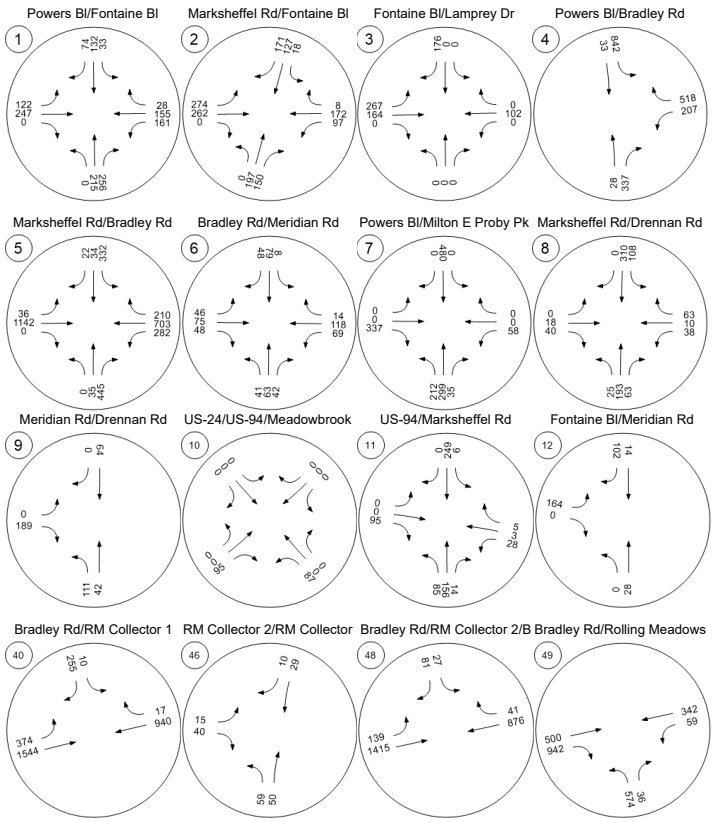
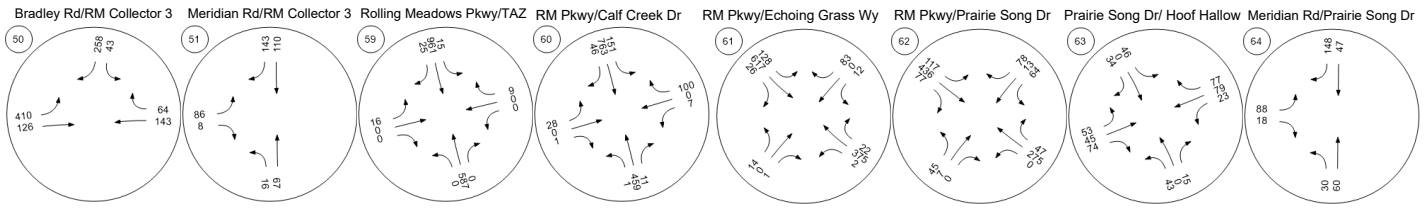


Figure 12. RMBH Full Buildout (2035) Site Traffic (PM Peak Hour)







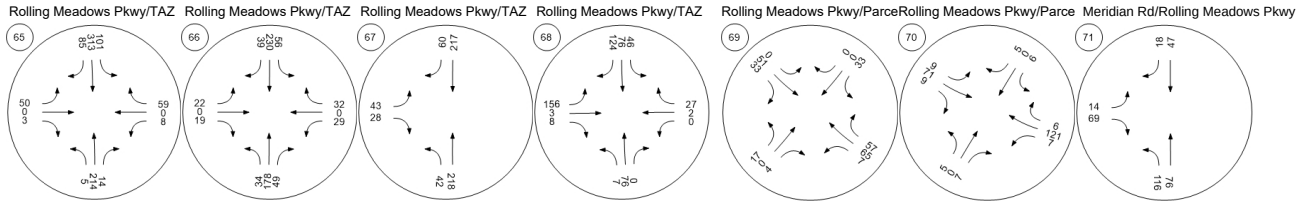
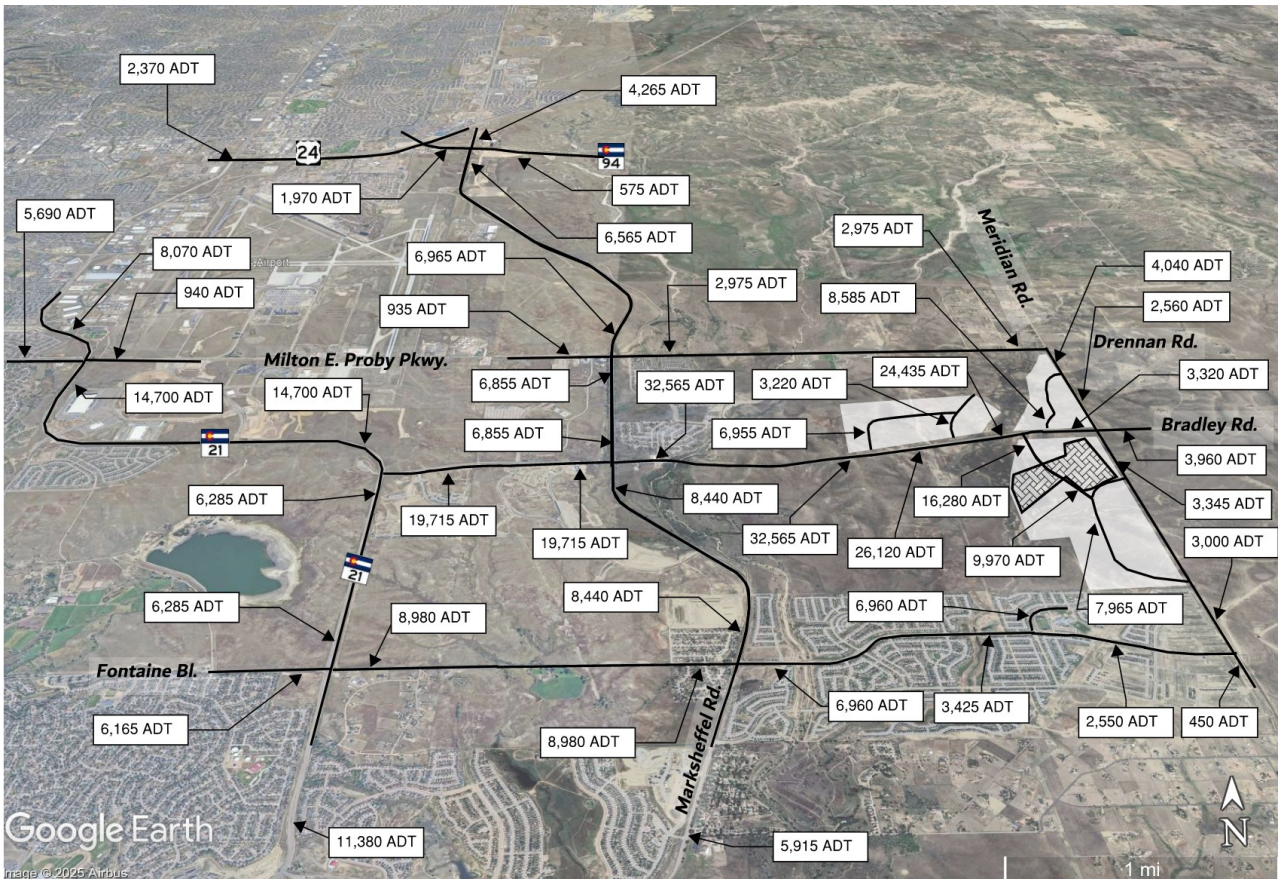


Figure 13. RMBH Full Buildout (2035) Daily Site Traffic



5. Buildout (2035) Traffic Analysis

Traffic conditions without the project have been analyzed for the buildout year (2035) and horizon year (2055) conditions.

5.1 Traffic Growth

In this study, the traffic from adjacent developments was aggregated to provide a more accurate representation of future conditions in the study area. As mentioned earlier, traffic from the Karmen Line development was included only in the horizon year (2055) analysis, while traffic from the remaining 11 developments was included in both the buildout year (2035) and horizon year (2055) analyses. In addition to the adjacent developments' traffic, Matrix applied appropriate growth factors to the studied intersections. Details on how the annual growth rates were estimated are provided below:

Marksheffel Road:

Matrix identified approximately 3,500 single-family detached homes already built within the Lorson Ranch development, located on both the north and south sides of Fontaine Boulevard. Additionally, the Grand Mountain K–8 school is located along Fontaine Boulevard and the traffic from this institution was also considered on our daily traffic analysis. Matrix also counted 660 single-family homes at the northwest corner of Marksheffel Road and Mesa Ridge Parkway. Aerial imagery from Google Earth and data from the

Assessor's website confirm that none of these developments existed prior to 2011. Collectively, these developments generate approximately 35,000 daily trips. As a result, Matrix concludes that the vast majority of current traffic on Marksheffel Road is attributable to these existing developments, and that it is not realistic to apply further growth to estimate future traffic volumes. Instead, Matrix used available data from 2006 to 2009 on the TCDS website to estimate background growth on Marksheffel Road and adjacent roadways. As a result, an annual growth rate of 0.65% was determined for this roadway, which equates to a growth factor of 1.0738 for the buildout year, and a growth factor of 1.222 for the horizon year.

Powers Boulevard:
The earliest (2004) and latest (2021) available traffic counts from the TCDS website were used to estimate the annual growth rate. The estimated annual growth rate for this roadway is 0.11%, which results in a growth factor of 1.0121 for the buildout year and 1.0346 for the horizon year.

State Highway 24 (US-24):
The earliest (2004) and latest available traffic counts (2024 on the west leg and 2025 on the east leg) from the TCDS website were used to estimate the annual growth rate. The estimated weighted average annual growth rate for this roadway is 2.54%, which results in a growth factor of 1.3177 for the buildout year and 2.1761 for the horizon year.

State Highway 94 (US-94):
The earliest (2006) and latest (2022) available traffic counts from the TCDS website were used to estimate the annual growth rate. The estimated annual growth rate for this roadway is 1.74 %, which results in a growth factor of 1.2089 for the buildout year and 1.7070 for the horizon year.

Adjacent Developments Traffic

Traffic studies for the adjacent developments were obtained, and the projected traffic from these developments was aggregated to provide a better representation of future background conditions. This approach ensured that cumulative traffic impacts from regional growth were appropriately considered in the analysis. A summary of the trip generation modeled in PTV Vistro is provided in Appendix C – Trip Generation. The list of referenced studies is as follows:

- Bradley Heights TIS prepared by Matrix Design Group (September 2021)
- Lorson Ranch Commercial South TIS P-22-011 prepared by Matrix Design Group (October 2022)
- The Village at Lorson Ranch TIS CS242 SF 248 prepared by Matrix Design Group (August 2024)
- Corvallis TIS OAR21115 prepared by Matrix Design Group (June 2021)
- Reagan Ranch TIS Addendum prepared by Matrix Design Group (January 2025)
- Crossroads North TIS prepared by Kimley-Horn and Associates (September 2024)
- Crossroads Mixed-Use TIS CR201 & SP207 prepared by Kimley-Horn and Associates (April 2021)
- Meadow Brook Park TIS CR201 & SP207 prepared by Kimley-Horn and Associates (April 2021)
- The Trails at Aspen Ridge TIS prepared by Matrix Design Group (April 2021)

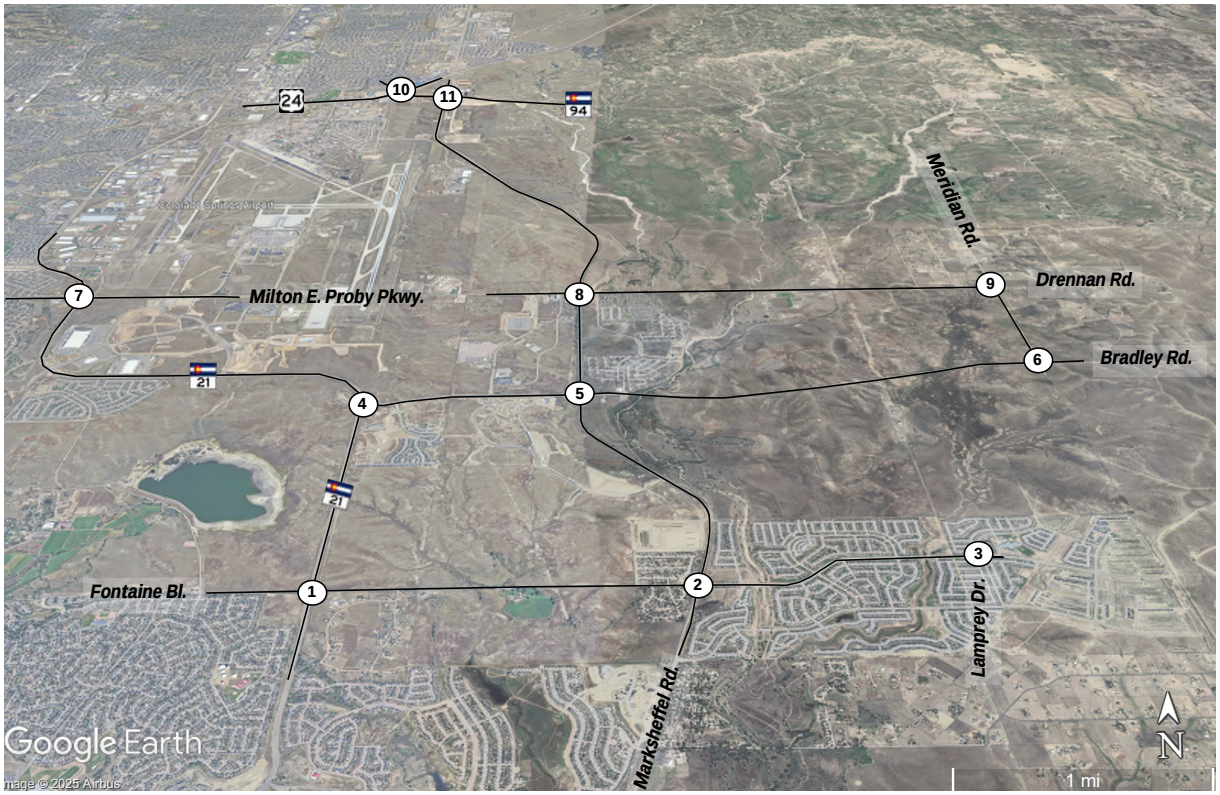
- Karmen Line (Norris Ranch) Traffic Study prepared by LSC Transportation Consultants (March 2023). Included only in 2055 analyses.
- Ridges at Lorson Ranch TIS PUDSP216 prepared by LSC Transportation Consultants (October 2021)
- The Hills at Lorson Ranch Transportation Memorandum PUDSP203 prepared by LSC Transportation Consultants (July 2021)

An excerpt from each TIS is provided in Appendix G – Supporting Documents.

5.2 Buildout (2035) Background Conditions

The buildout year's traffic volumes without the project are shown in Figure 14 and Figure 15. The buildout background daily volumes are shown in Figure 16 and the intersection configuration with approach LOS is shown in Figure 17. The intersection operations for the AM and PM peak hours are shown in Table 5 and Table 6, respectively.

Figure 14. Buildout (2035) Background Volumes (AM Peak Hour)



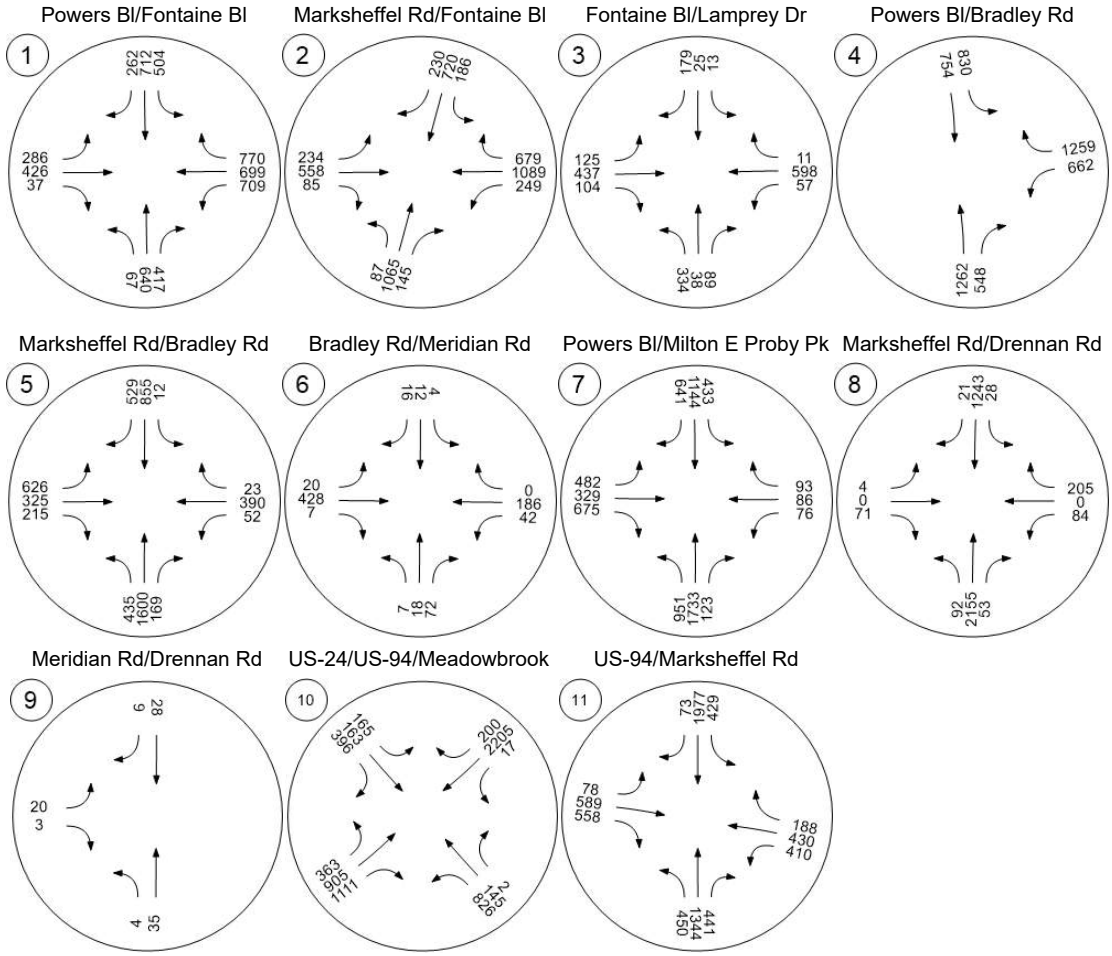
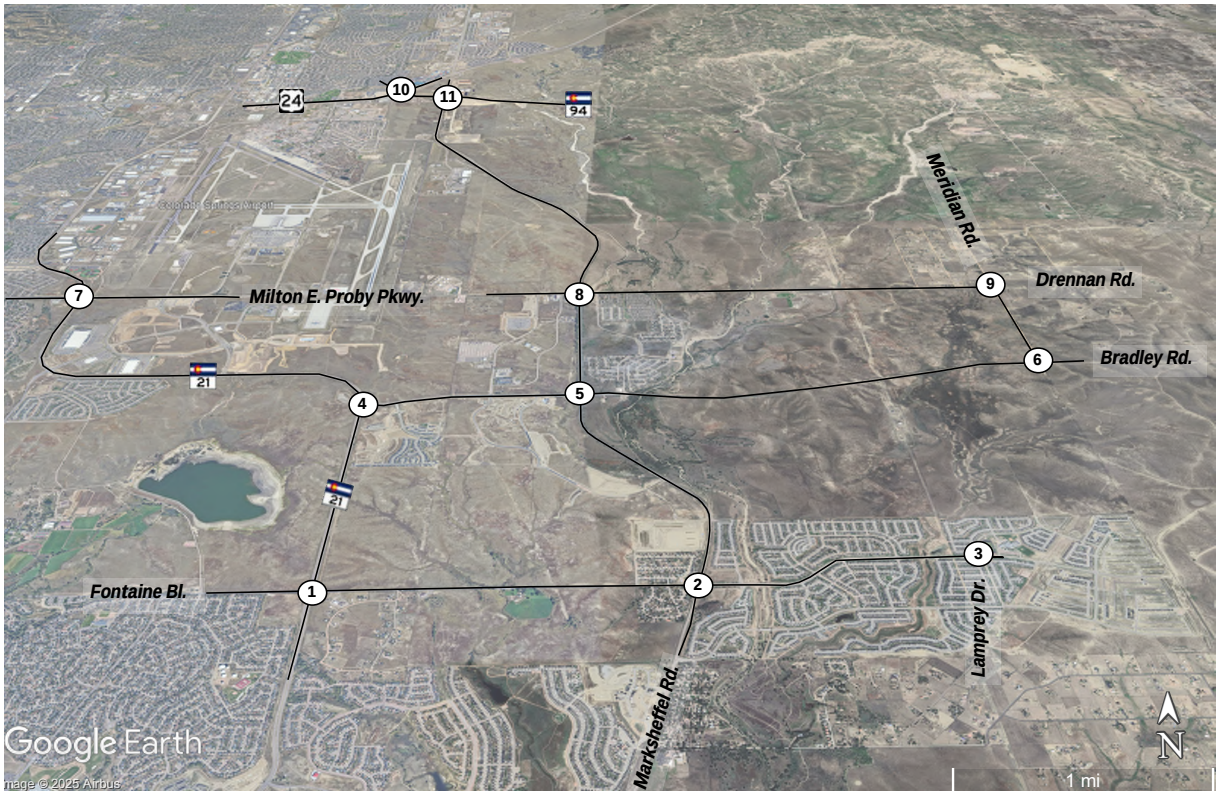


Figure 15. Buildout (2035) Background Volumes (PM Peak Hour)



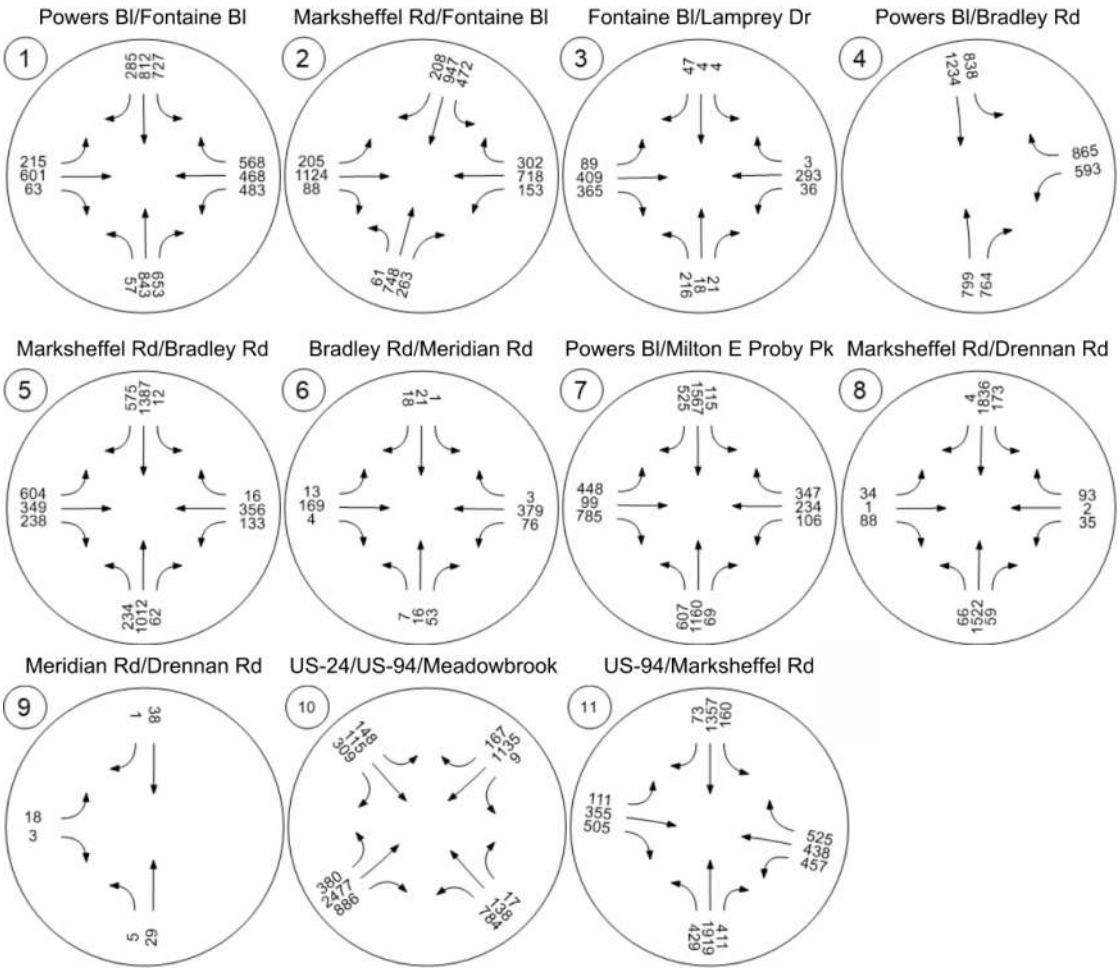
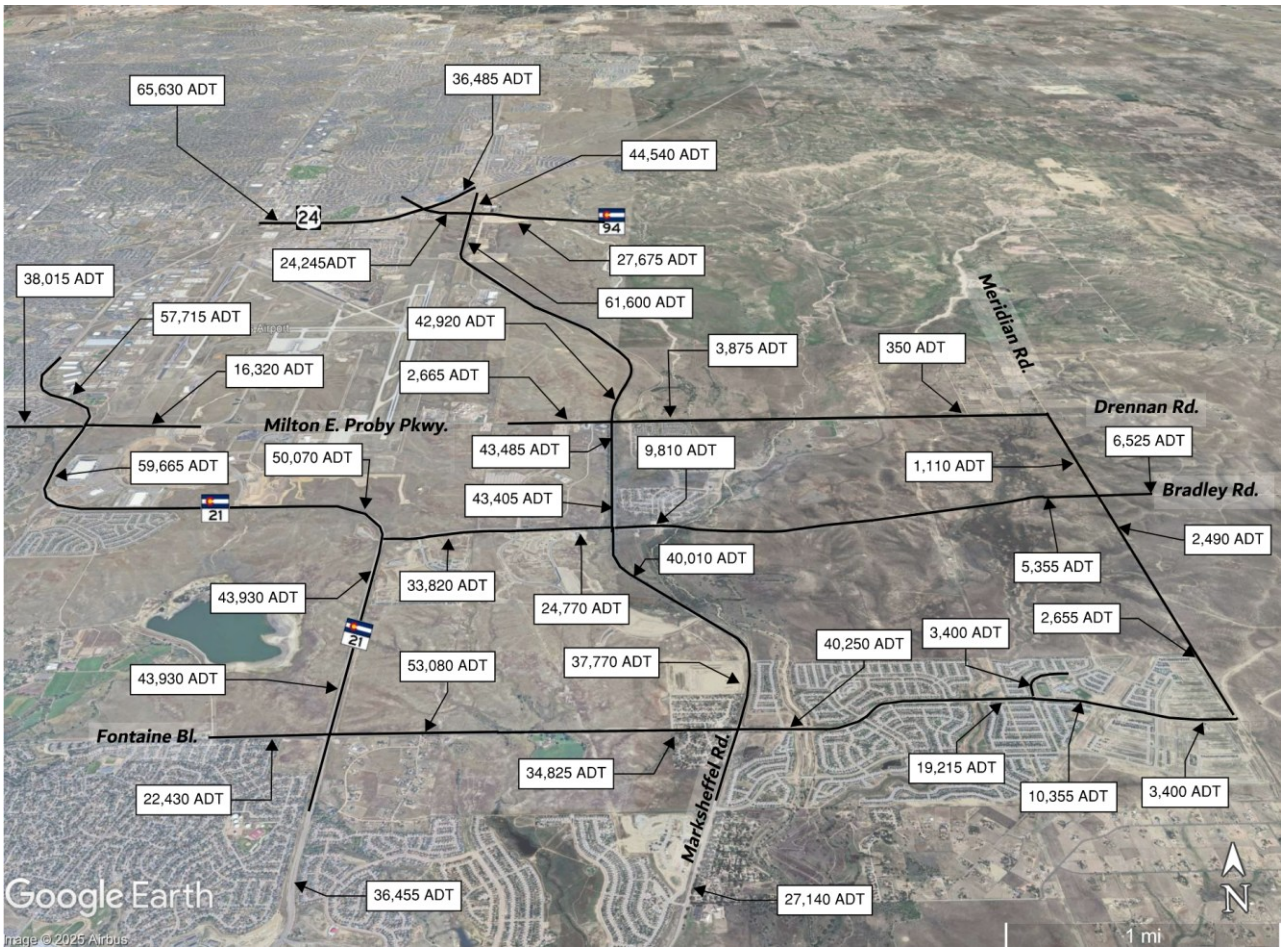
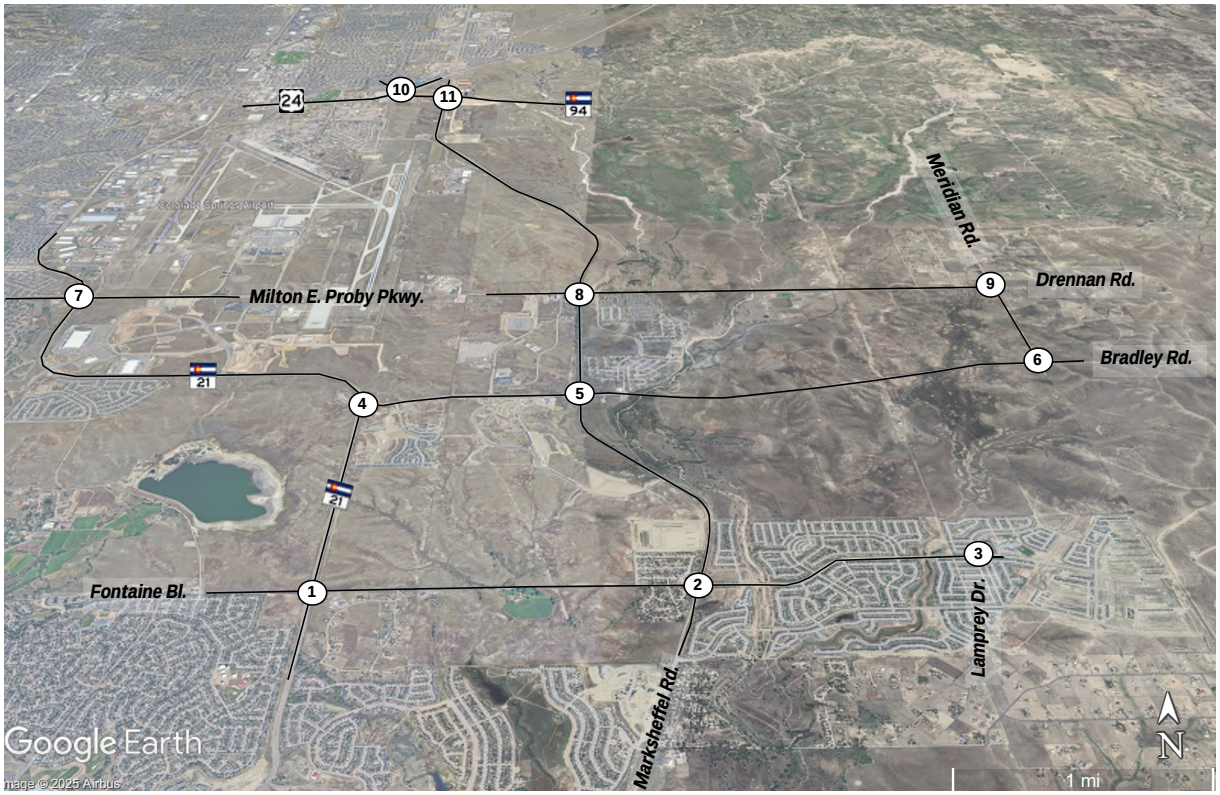


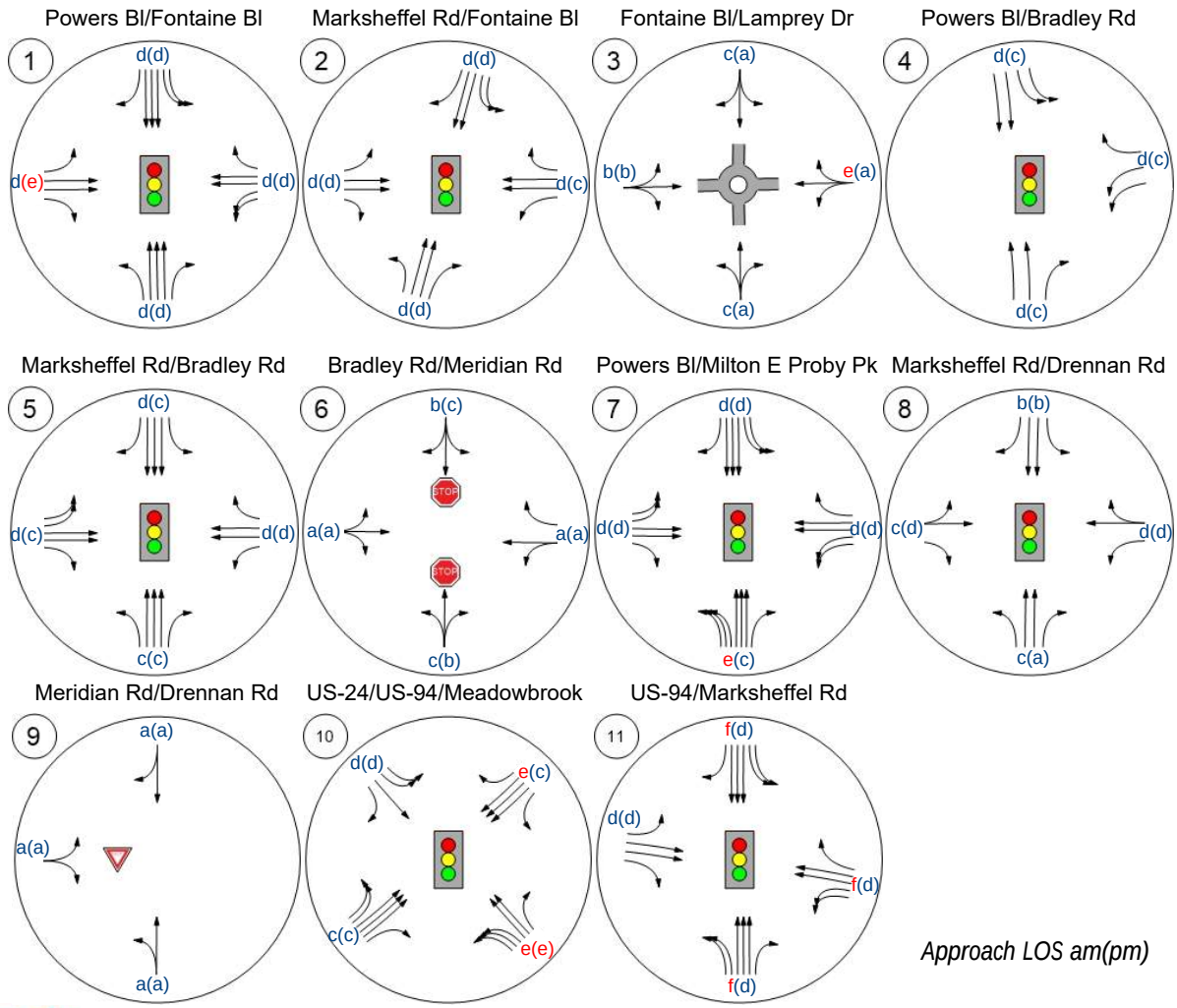
Figure 16. Buildout (2035) Background Daily Volumes



The turn lane configurations and LOS for the studied intersections are shown in Figure 17. The intersection analysis summary for the AM and PM peak hour is shown in Table 5 and Table 6, respectively.

Figure 17. Buildout (2035) Background Intersection Configuration and LOS





Approach LOS am(pm)

Table 5. Buildout (2035) Background Intersection Operations (AM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	NB Left	0.654	39.3	D
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	EB Left	0.807	45.3	D
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	WB Thru		24.0	C
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	WB Left	0.854	42.5	D
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	WB Thru	0.694	35.8	D
6	Bradley Rd/Meridian Rd	Two-way stop	HCM 7th Edition	SB Left	0.019	22.9	C
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	EB Right	0.760	53.0	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	SB Left	0.728	25.2	C
9	Meridian Rd/Drennan Rd	Two-way yield	HCM 7th Edition	EB Left	0.024	4.2	A
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Thru	0.798	47.5	D
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	NB Left	0.872	118.0	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 6. Buildout (2035) Background Intersection Operations (PM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	NB Right	0.786	49.8	D
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	EB Thru	0.778	41.7	D
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	EB Thru		11.3	B
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	WB Left	0.694	21.5	C
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	NB Left	0.684	31.3	C
6	Bradley Rd/Meridian Rd	Two-way stop	HCM 7th Edition	SB Left	0.004	21.7	C
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	EB Right	0.763	42.9	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	SB Left	0.690	11.0	B
9	Meridian Rd/Drennan Rd	Two-way yield	HCM 7th Edition	EB Left	0.022	4.2	A
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Thru	0.762	36.4	D
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	SB Left	0.712	46.7	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 5 and Table 6 indicate all intersections operate at an acceptable LOS except for US-94/Marksheffel Road (#11). Even though this intersection operates at LOS D in the PM peak hour, the intersection operates at LOS F in the AM peak hour. In this study, Matrix applied a broader external trip distribution compared to other traffic studies, as shown in Figure 10. A sensitivity analysis was performed at this intersection to account for an estimated amount of intra-zonal trips from the adjacent developments, except for Reagan Ranch, Crossroads North, and the Crossroads Mixed-Use development. The results show that that if 88.5% of trips generated from the remaining developments do not reach this intersection, it will operate at LOS D during the AM peak hour. A summary of this scenario is provided in Appendix D – Buildout Conditions, labeled as Scenario A. (Note: the remainder of the analyses uses the previously established trip generation values from Table 4.

Based on the assumption that traffic from adjacent developments will follow the trip distribution showed in Figure 10, an at-grade intersection would not provide acceptable LOS (note that an adjusted trip distribution assumption was assumed for developments north of Drennan Road). To mitigate impacts to the transportation network and this intersection in particular, Matrix recommends that further studies are

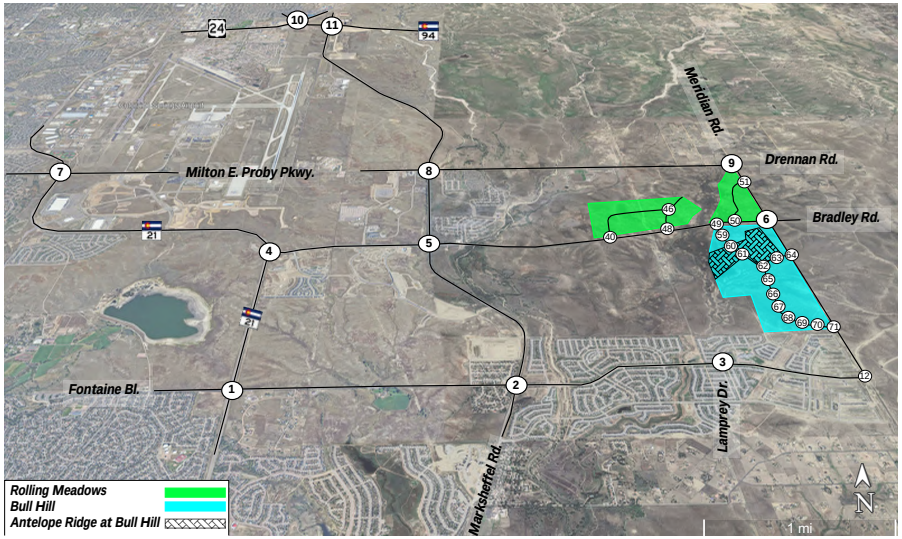
Why would CDOT be conducting studies? Road network is within County

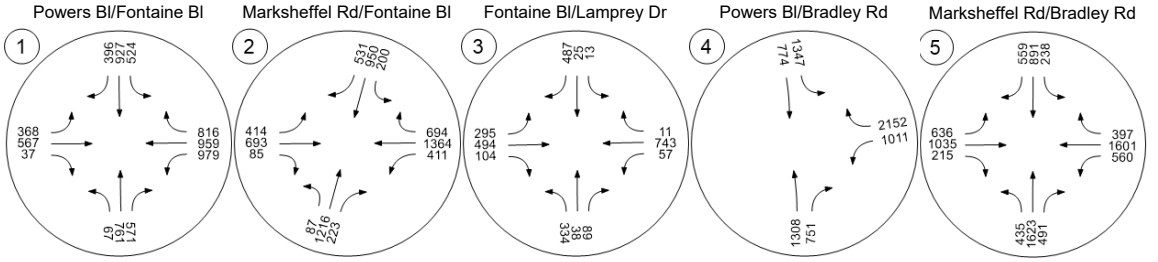
conducted by CDOT to identify the design options and opportunities for implementing an ultimate solution and determine the responsible party for its implementation. Options may include an at grade-separated interchange, which was also recommended in the Kimley-Horn study.

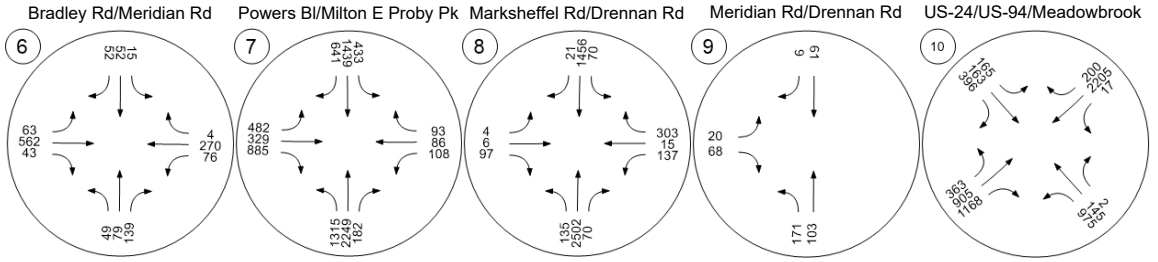
5.3 Buildout (2035) Total Conditions

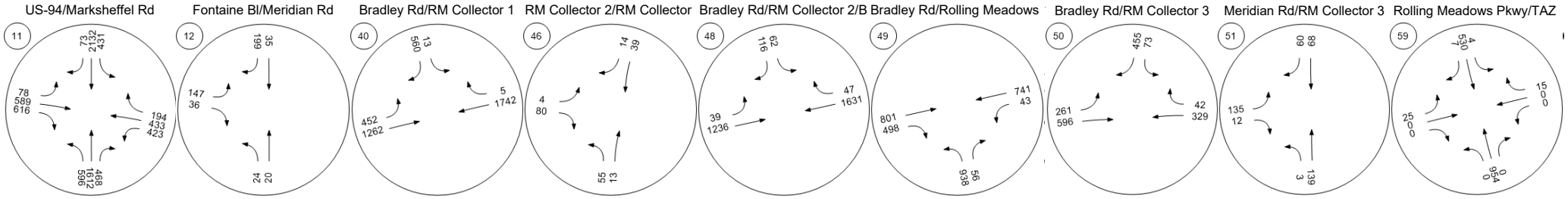
The AM and PM volumes with the addition of the project at buildout are shown in Figure 18 and Figure 19, respectively. The roadway classification and total daily volumes are shown in Figure 20. The turn lane configuration and approach LOS is shown in Figure 21. The intersection operations for the AM and PM peak hours are shown in Table 7 and Table 8, respectively. The turn lane evaluation for the buildout total is shown in Table 9.

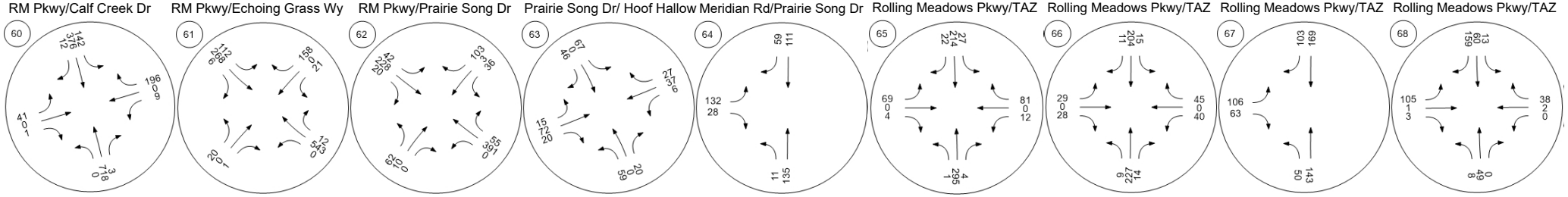
Figure 18. Buildout (2035) Total Volumes (AM Peak Hour)











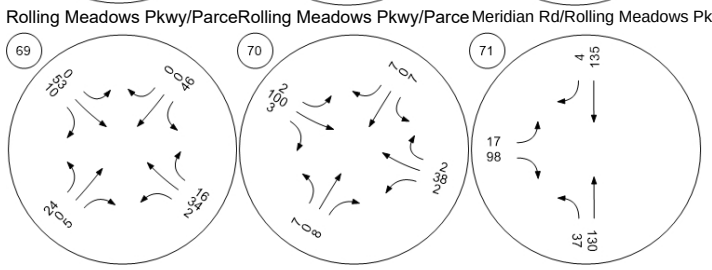
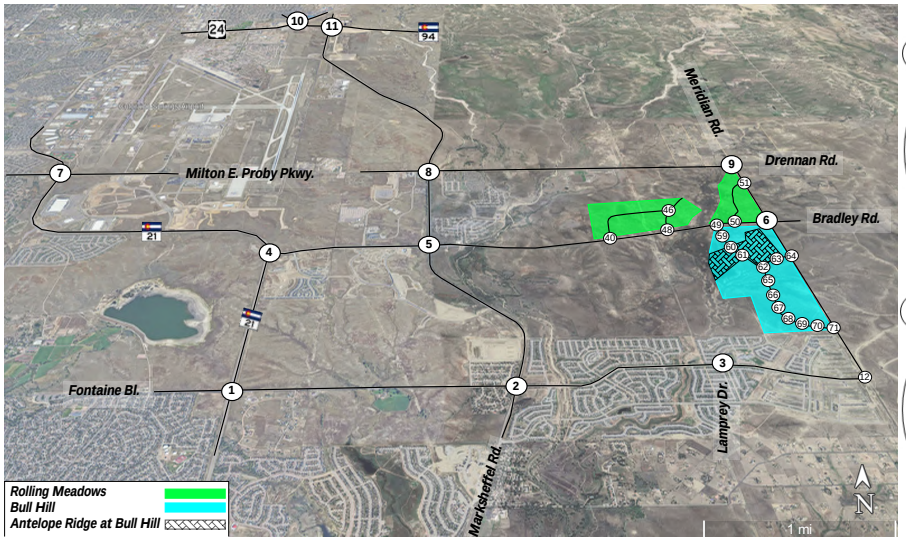
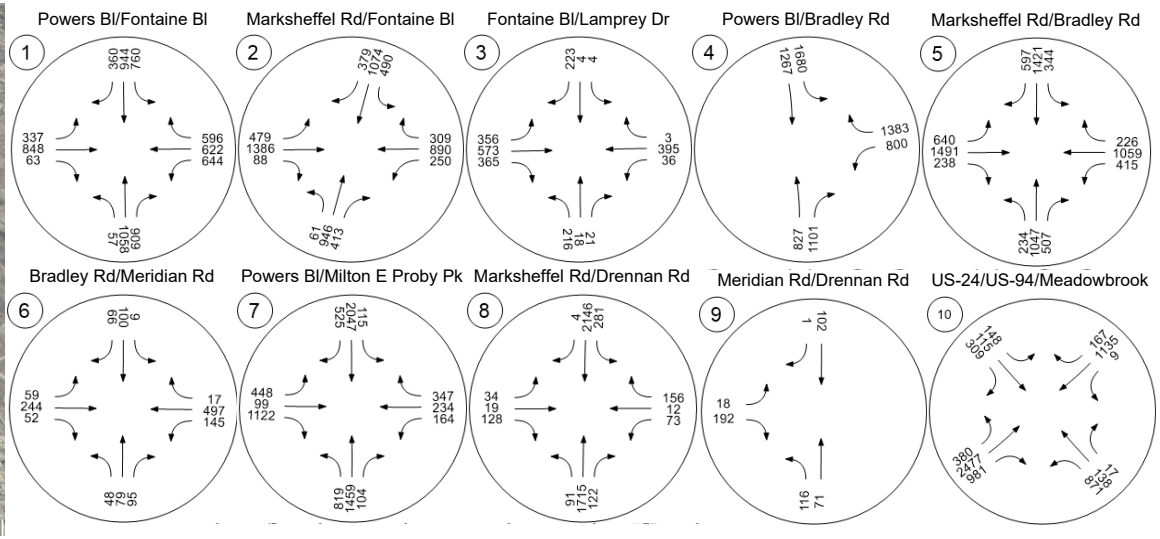
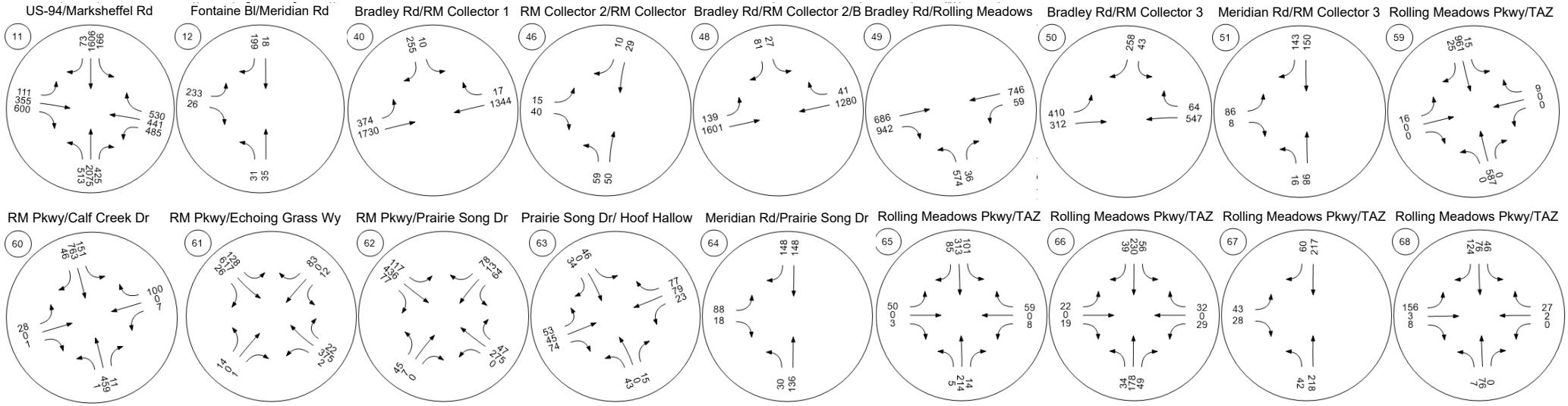
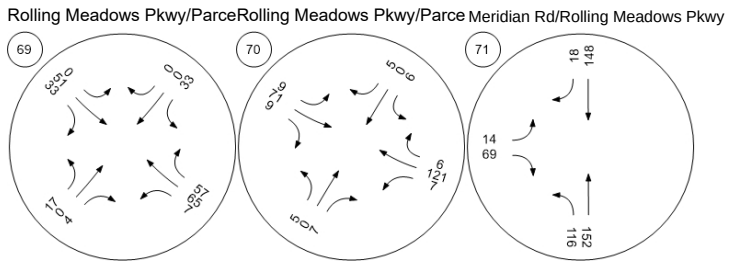


Figure 19. Buildout (2035) Total Volumes (PM Peak Hour)



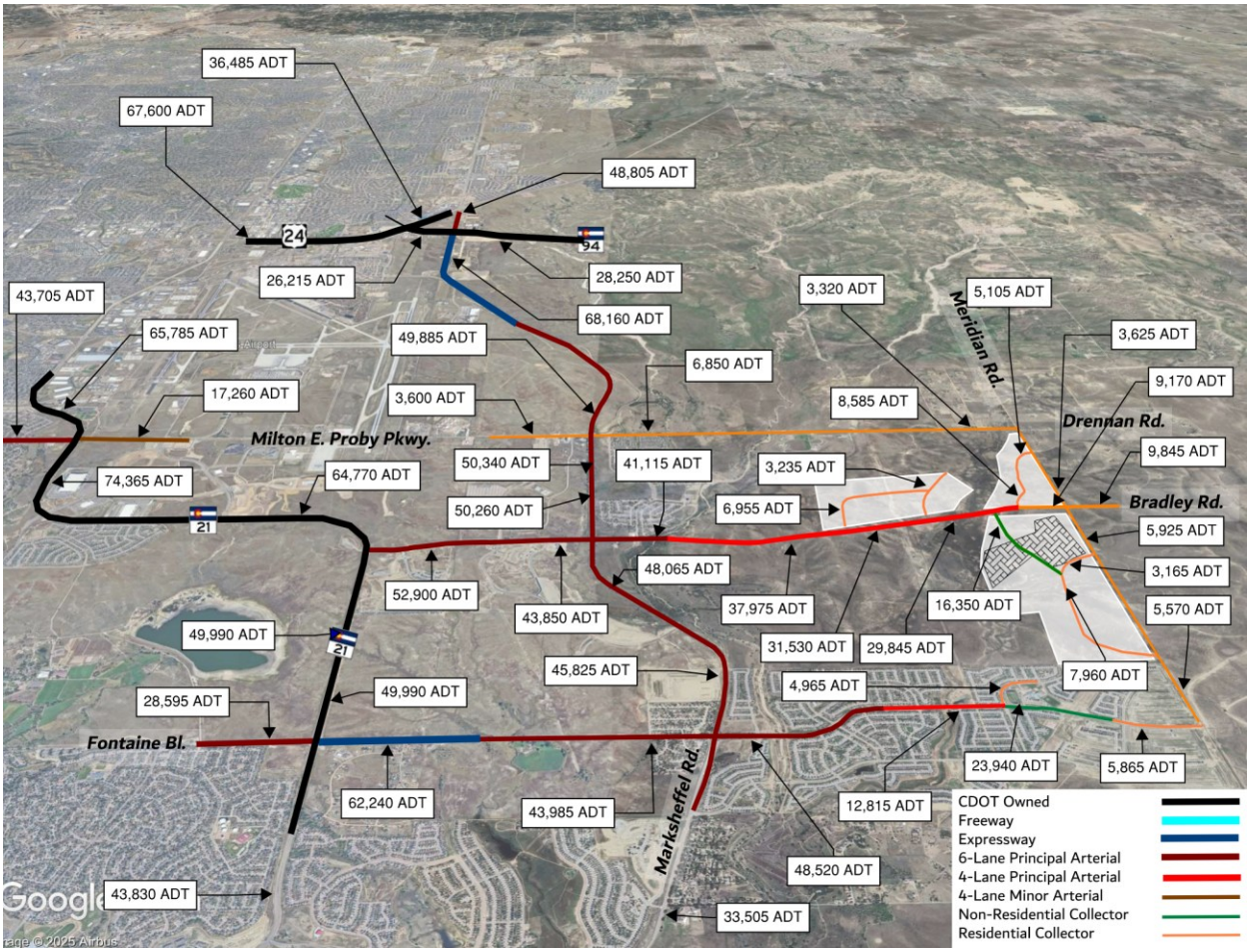






Roadways adjacent to the new development were classified based on the Roadway Design Standards from the El Paso County ECM and the City of Colorado Springs TCM. The roadway classification and daily volumes are shown in Figure 20.

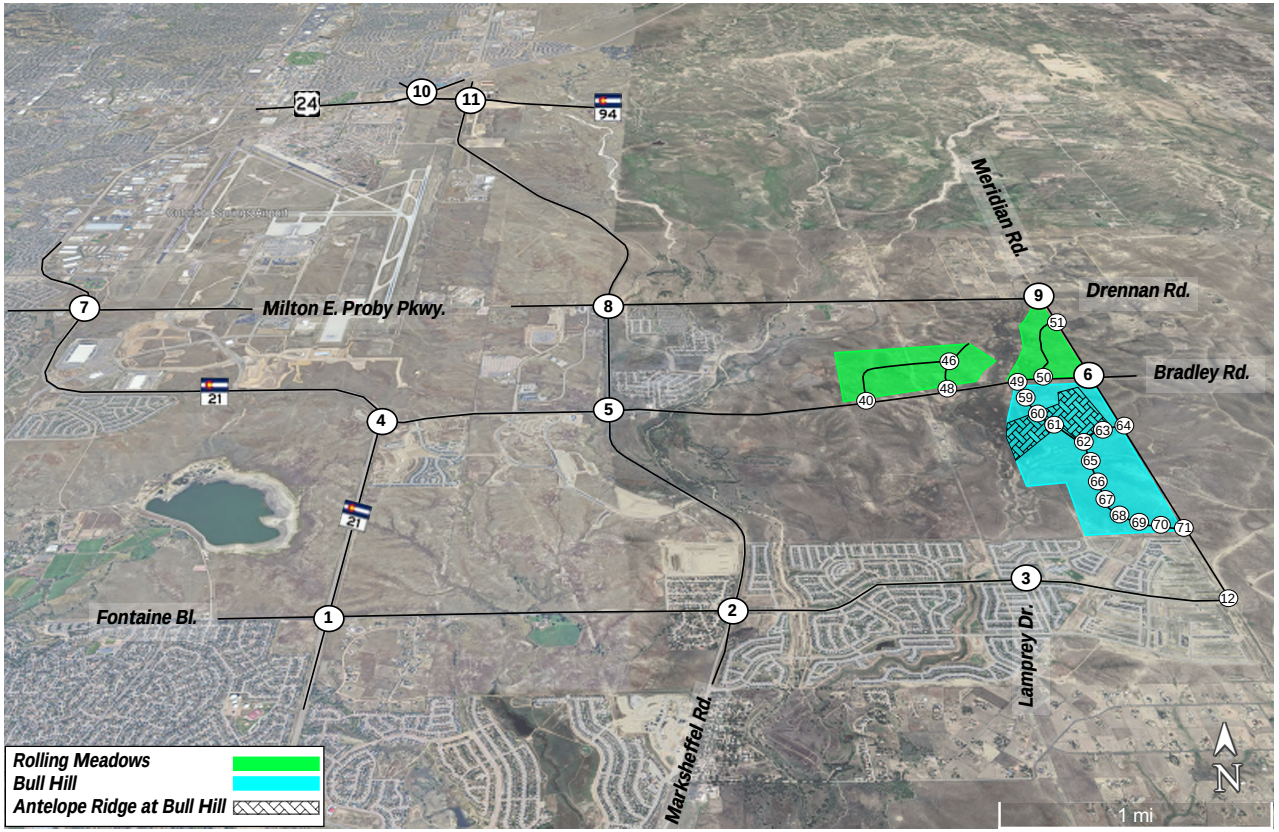
Figure 20. Buildout (2035) Total Roadway Classification and Daily Volumes

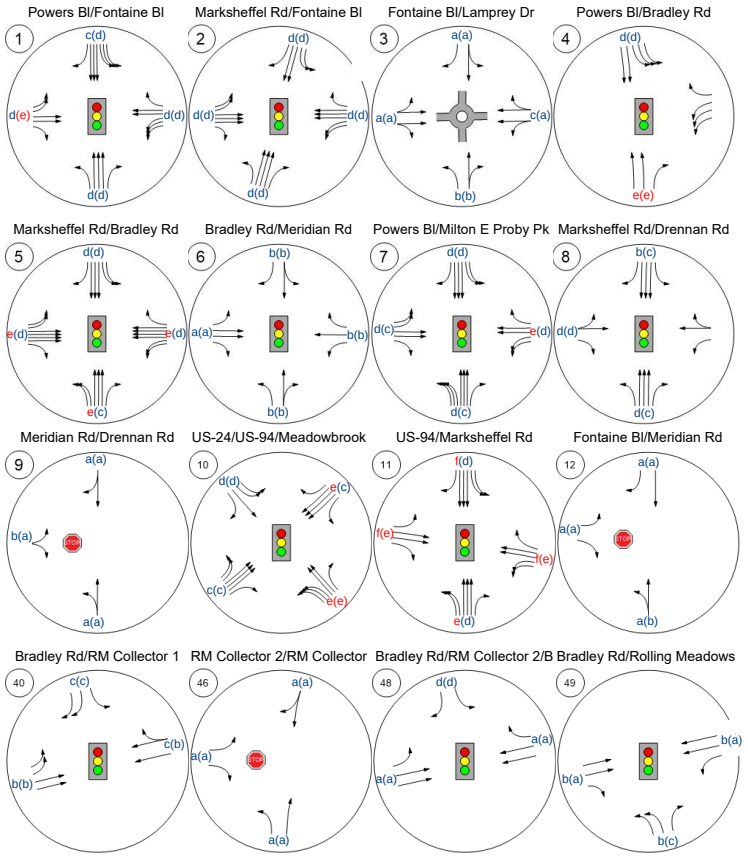


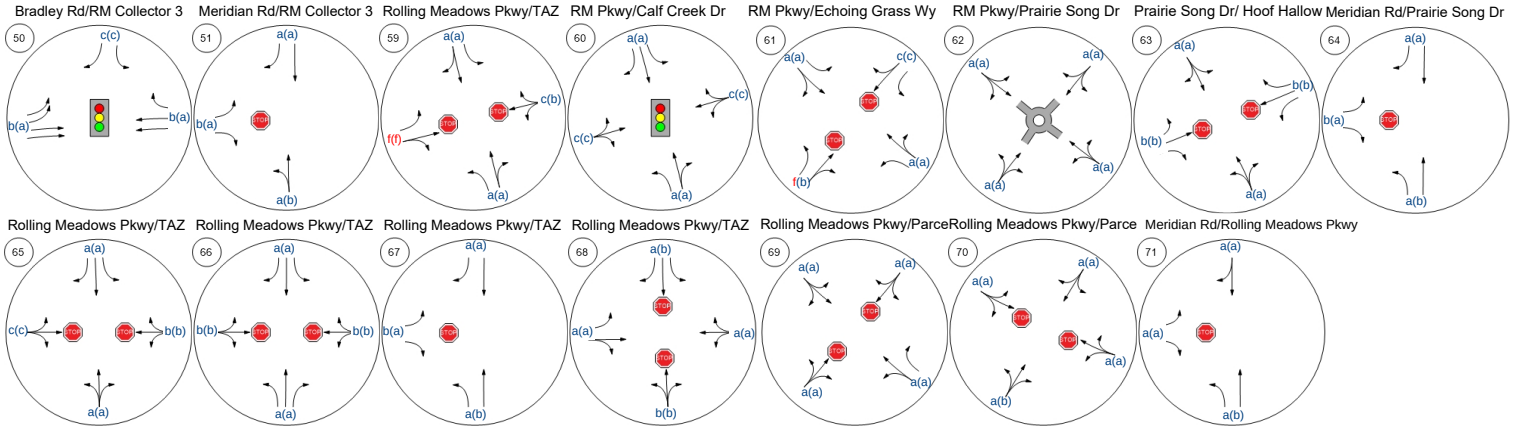
Bradley Road Considerations: Indicate if Bradley Road is meant to be an urban or rural section of road

As shown in Figure 21, while Bradley Road is functionally classified as a six-lane arterial per the CCS TCM, the traffic operational analysis indicates that a four-lane cross-section will be sufficient to accommodate traffic volumes in the year 2035. Note that the aggregated daily site traffic for the adjacent development was not adjusted to account for internal or pass-by trips for mixed-use developments (MXD), as there are no complete data points in the ITE trip generation handbook for applying these types of reductions to daily trip estimates. Although the NCHRP Report 684 has expanded the ITE methodology to account for internal trip capture during the AM peak hour, the daily internal trip estimates lacking sufficient data. One approach is to apply a flat percentage reduction in external trips, as determined by local planning, zoning, or transportation engineering officials. However, since this reduction typically ranges from 5% to 25%, the resulting estimates are less reliable. As a result, the actual daily traffic on the roadway may be lower than the estimates based on the ITE Trip Generation Manual due to potential trip reductions for adjacent developments.

Figure 21. Buildout (2035) Total Intersection Configuration and LOS







Approach LOS am(pm)

Table 7. Buildout (2035) Total Intersection Operations (AM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	NB Left	0.681	38.9	D
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	NB Left	0.765	43.8	D
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	WB Right		9.7	A
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	NB Thru	0.893	54.2	D
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	SB Left	0.877	67.3	E
6	Bradley Rd/Meridian Rd	Signalized	HCM 7th Edition	NB Left	0.265	11.0	B
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	WB Thru	0.794	50.9	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	NB Thru	0.665	35.3	D
9	Meridian Rd/Drennan Rd	Two-way stop	HCM 7th Edition	EB Left	0.051	14.1	B
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Thru	0.830	54.5	D
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	NB Left	0.955	94.1	F
12	Fontaine Bl/Meridian Rd	Two-way stop	HCM 7th Edition	EB Left	0.185	10.1	B
40	Bradley Rd/RM Collector 1	Signalized	HCM 7th Edition	SB Left	0.736	21.9	C
46	RM Collector 2/RM Collector 4	Two-way stop	HCM 7th Edition	EB Left	0.005	9.7	A
48	Bradley Rd/RM Collector 2/BH Collector 1	Signalized	HCM 7th Edition	SB Right	0.538	5.5	A
49	Bradley Rd/Rolling Meadows Pkwy	Signalized	HCM 7th Edition	WB Left	0.540	15.0	B
50	Bradley Rd/RM Collector 3	Signalized	HCM 7th Edition	SB Right	0.338	14.8	B
51	Meridian Rd/RM Collector 3	Two-way stop	HCM 7th Edition	EB Left	0.195	10.9	B
59	Rolling Meadows Pkwy/TAZ 14 Access 1/TAZ 15 Access 1	Two-way stop	HCM 7th Edition	EB Left	0.351	75.2	F
60	Rolling Meadows Pkwy/Calf Creek Dr	Signalized	HCM 7th Edition	WB Right	0.491	7.9	A
61	Rolling Meadows Pkwy/Echoing Grass Wy	Two-way stop	HCM 7th Edition	EB Left	0.244	57.3	F
62	Rolling Meadows Pkwy/Prairie Song Dr	Roundabout	HCM 7th Edition	WB Thru		6.1	A
63	Prairie Song Dr/Hoof Hallow Pl/TAZ 16A Access 1	Two-way stop	HCM 7th Edition	WB Left	0.015	12.9	B
64	Meridian Rd/Prairie Song Dr	Two-way stop	HCM 7th Edition	EB Left	0.206	11.5	B
65	Rolling Meadows Pkwy/TAZ 14 Access 3/TAZ 16A Access 2	Two-way stop	HCM 7th Edition	EB Left	0.233	19.5	C
66	Rolling Meadows Pkwy/TAZ 16B Access 1/TAZ 18 Access 1	Two-way stop	HCM 7th Edition	EB Left	0.078	14.7	B
67	Rolling Meadows Pkwy/TAZ 16B Access 2/TAZ 18 Access 2	Two-way stop	HCM 7th Edition	EB Left	0.211	13.4	B
68	Rolling Meadows Pkwy/TAZ 16B Access 3/TAZ 18 Access 3	Two-way stop	HCM 7th Edition	NB Left	0.022	14.7	B
69	Rolling Meadows Pkwy/Parcel V Acees 2	Two-way stop	HCM 7th Edition	WB Left	0.058	9.4	A
70	Rolling Meadows Pkwy/Parcel V Access 1	Two-way stop	HCM 7th Edition	EB Left	0.003	10.0	A
71	Meridian Rd/BH Collector 1	Two-way stop	HCM 7th Edition	EB Left	0.029	11.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 8. Buildout (2035) Total Intersection Operations (PM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	NB Left	0.779	46.7	D
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	NB Left	0.739	44.5	D
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	NB Left		8.0	A
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	NB Right	0.896	50.8	D
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	EB Left	0.747	45.0	D
6	Bradley Rd/Meridian Rd	Signalized	HCM 7th Edition	EB Left	0.367	12.0	B
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	WB Thru	0.821	40.6	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	SB Thru	0.586	35.2	D
9	Meridian Rd/Drennan Rd	Two-way stop	HCM 7th Edition	EB Left	0.038	13.3	B
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Thru	0.780	39.2	D
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	NB Thru	0.765	190.0	F
12	Fontaine Bl/Meridian Rd	Two-way stop	HCM 7th Edition	EB Left	0.299	11.1	B
40	Bradley Rd/RM Collector 1	Signalized	HCM 7th Edition	SB Left	0.568	13.1	B
46	RM Collector 2/RM Collector 4	Two-way stop	HCM 7th Edition	EB Left	0.022	10.0	A
48	Bradley Rd/RM Collector 2/BH Collector 1	Signalized	HCM 7th Edition	SB Right	0.516	6.2	A
49	Bradley Rd/Rolling Meadows Pkwy	Signalized	HCM 7th Edition	NB Left	0.503	12.3	B
50	Bradley Rd/RM Collector 3	Signalized	HCM 7th Edition	SB Right	0.384	15.7	B
51	Meridian Rd/RM Collector 3	Two-way stop	HCM 7th Edition	EB Left	0.152	11.9	B
59	Rolling Meadows Pkwy/TAZ 14 Access 1/TAZ 15 Access 1	Two-way stop	HCM 7th Edition	EB Left	0.254	76.3	F
60	Rolling Meadows Pkwy/Calf Creek Dr	Signalized	HCM 7th Edition	WB Right	0.482	5.5	A
61	Rolling Meadows Pkwy/Echoing Grass Wy	Two-way stop	HCM 7th Edition	EB Left	0.179	57.0	F
62	Rolling Meadows Pkwy/Prairie Song Dr	Roundabout	HCM 7th Edition	EB Thru		7.8	A
63	Prairie Song Dr/Hoof Hallow Pl/TAZ 16A Access 1	Two-way stop	HCM 7th Edition	EB Left	0.119	13.4	B
64	Meridian Rd/Prairie Song Dr	Two-way stop	HCM 7th Edition	EB Left	0.158	12.0	B
65	Rolling Meadows Pkwy/TAZ 14 Access 3/TAZ 16A Access 2	Two-way stop	HCM 7th Edition	EB Left	0.227	24.5	C
66	Rolling Meadows Pkwy/TAZ 16B Access 1/TAZ 18 Access 1	Two-way stop	HCM 7th Edition	EB Left	0.074	17.1	C
67	Rolling Meadows Pkwy/TAZ 16B Access 2/TAZ 18 Access 2	Two-way stop	HCM 7th Edition	EB Left	0.100	13.5	B
68	Rolling Meadows Pkwy/TAZ 16B Access 3/TAZ 18 Access 3	Two-way stop	HCM 7th Edition	NB Left	0.024	17.6	C
69	Rolling Meadows Pkwy/Parcel V Acees 2	Two-way stop	HCM 7th Edition	EB Left	0.024	9.8	A
70	Rolling Meadows Pkwy/Parcel V Access 1	Two-way stop	HCM 7th Edition	WB Left	0.014	10.4	B
71	Meridian Rd/BH Collector 1	Two-way stop	HCM 7th Edition	EB Left	0.035	13.7	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

A summary of deficient intersections is as follows:

Marksheffel Road/Bradley Road (#5)

This intersection operates at LOS E during the AM peak and at LOS D during the PM peak. As a mitigation scenario, Matrix assumed that 30 percent of the site traffic travelling to/from west and south will be rerouted to the future Mesa Ridge Parkway located to the south of Lorson Boulevard. Under this assumption the intersection will operate at LOS D during the AM peak hour and will remain operating at LOS D during the PM peak hour. The intersection operation summary with the assumed diverted trips (listed in the "Diverted" row) is shown in Appendix D- Buildout Conditions Analyses, labeled as Scenario B.

US-94/Marksheffel Road (#11)

This intersection operates at LOS F during the AM peak hour and at LOS D during the PM peak hour. Matrix applied a broader external trip distribution assumption for future developments after coordination with the reviewing agencies, as shown in Figure 10. A portion of these trips will likely be intra-zonal or will only cross into adjacent TAZs. To investigate this intersection further, a sensitivity analysis was performed at this intersection to account for internal trip capture from the RMBH and adjacent developments, except for Reagan Ranch, Crossroads North, and the Crossroads Mixed-Use development. The results show that, under the assumption that 88.5% of trips generated from the remaining developments will not reach this intersection, it will operate at LOS D during the AM peak hour. A summary of this scenario is located in Appendix D – Buildout Conditions, labeled as Scenario C.

Based on the assumption that traffic from adjacent developments will follow the trip distribution shown in Figure 10, it appears that an at-grade intersection would not provide acceptable traffic operations. Note that an adjusted trip distribution assumption was assumed for future developments located north of Drennan Road.

Rolling Meadows Parkway /TAZ 14 Access 1 (#59)

This stopped-controlled intersection operates at LOS F during both AM and PM peak hours. However, the queue on the worst movement (eastbound left-turn) is no more than 33-ft (which translates to maximum of two vehicles) at any hour. It should be noted that in urban and suburban settings, it is not uncommon for motorists on cross-streets to experience more than usual delays for one to two hours per day. As a result, Matrix does not recommend any mitigation.

Rolling Meadows Parkway /Echoing Grass Way (#61)

This stopped-controlled intersection operates at LOS F during the AM peak and LOS E during the PM peak hour. However, the queue on the worst movement (eastbound left-turn) is no more than 22-ft (1 vehicle) at any hour. As a result, Matrix does not recommend any mitigation.

Table 9. Buildout (2035) Total Turn Lane Evaluations

ID	Intersection	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Improvement (ft) (vs Improved Existing)
1	Powers Bl/Fontaine Bl CDOT - SHAC Signalized	E-X	NBL	1	55	67	99	222	600	100	920	-
		E-X	NBR	1	55	909	-	222	600	-	820	-
		E-X	SBL	3	55	760	332	667	600	253	1520	Two Additional Turn Lanes
		E-X	SBR	1	55	396	-	222	600	-	820	-
		NR-A	EBL	2	45	368	243	324	273	184	780	Additional Turn Lane
		NR-A	EBR	1	45	63	-	162	273	-	435	-
		NR-A	WBL	3	45	979	361	486	-	326	810	Two Additional Turn Lanes
		NR-A	WBR	1	45	816	-	162	273	-	435	-
		NR-A	NBR to EBT Acceleration Lane	1	45	909	-	162	388 *(Accel. Lane)*	-	550	-
		NR-A	SBR to WBT Acceleration Lane	1	45	396	-	162	388 *(Accel. Lane)*	-	550	150
		E-X	EBR to SBT Acceleration Lane	1	55	63	-	222	960 *(Accel. Lane)*	-	1180	-
		E-X	WBR to NBT Acceleration Lane	1	55	816	-	222	960 *(Accel. Lane)*	-	1180	-
2	Marksheffel Rd/Fontaine Bl CCS -TCM Signalized	Principal Arterial	NBL	1	45	87	133	180	200	-	380	-
		Principal Arterial	NBR	1	45	413	243	180	200	-	380	-
		Principal Arterial	SBL	2	45	490	298	360	200	-	560	Additional Turn Lane
		Principal Arterial	SBR	1	45	531	259	180	200	-	380	-
		Principal Arterial	EBL	2	45	479	271	360	200	-	560	Additional Turn Lane
		Principal Arterial	EBR	1	45	88	42	180	200	-	380	105
		Principal Arterial	WBL	2	45	411	249	360	200	-	560	Additional Turn Lane
		Principal Arterial	WBR	1	45	694	-	180	200	-	380	
		Principal Arterial	WBR to NBT Acceleration Lane	1	45	694	-	162	388 *(Accel. Lane)*	-	550	New Accelration Lane
3	Fontaine Bl/Lamprey Dr EPC - ECM Roundabout	Local	NBL	1	25	216	94	120	115	100	335	335
		Residential Collector	SBL/SBT	1	35	487	-	160	155	50	365	365
			SBR to WBT Acceleration Lane	1	Occurs at Roundabout	487	-	90	-	-	90	New Merging Taper
4	Powers Bl/Bradley Rd CDOT - SHAC Signalized	E-X	NBR	1	65	1101	890	300	800	-	1100	-
		E-X	SBL	3	65	1688	854	900	800	563	2265	Two Additional Turn Lanes
		NR-A	WBL	3	45	1011	512	486	-	337	825	Additional turn lane
		NR-A	WBR	1	45	2152	-	162	338	-	500	-
		E-X	WBR to NBT Acceleration Lane	1	65	2168	-	300	1380 *(Accel. Lane)*	-	1680	-
5	Marksheffel Rd/Bradley Rd CCS -TCM Signalized	Principal Arterial	NBL	2	45	435	579	360	260	-	620	Additional turn lane
		Principal Arterial	NBR	1	45	507	-	180	260	-	440	-
		Principal Arterial	SBL	2	45	344	518	360	260	-	620	Additional turn lane
		Principal Arterial	SBR	1	45	597	-	180	260	-	440	-
		Principal Arterial	EBL	2	45	640	922	360	235	-	595	Additional turn lane
		Principal Arterial	EBR	1	45	238	-	180	235	-	415	-
		Principal Arterial	WBL	2	45	560	716	360	200	-	560	Additional turn lane
		Principal Arterial	WBR	1	45	397	-	180	200	-	380	-
		Principal Arterial	NBR to EBT Acceleration Lane	1	45	507	-	162	388 *(Accel. Lane)*	-	550	-
		Principal Arterial	SBR to WBT Acceleration Lane	1	45	597	-	162	388 *(Accel. Lane)*	-	550	-
		Principal Arterial	EBR to SBT Acceleration Lane	1	45	238	-	162	388 *(Accel. Lane)*	-	550	-
		Principal Arterial	WBR to NBT Acceleration Lane	1	45	397	-	162	388 *(Accel. Lane)*	-	550	-

Buildout (2035) Total Turn Lane Evaluations (Continued)

ID	Intersection	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Improvement (ft) (vs Improved Existing)
6	Bradley Rd/Meridian Rd EPC-ECM Signalized	Collector	NBL	1	35	49	24	**160**	**155**	**24**	**340**	340
		Collector	SBR	1	35	66	13	**160**	**155**	**13**	**330**	330
		Principal Arterial	EBL	1	45	63	28	**200**	**235**	**28**	**465**	465
		Principal Arterial	EBR	1	45	52	5	**200**	**235**	**5**	**440**	440
		Principal Arterial	WBL	1	45	145	48	**200**	**235**	**48**	**485**	485
		Principal Arterial	WBR	1	45	123	2	**200**	**235**	**2**	**435**	-
7	Powers Bl/Milton E Proby Pkwy CDOT -SHAC Signalized	E-X	NBL	3	60	1315	594	**900**	**700**	**438**	**2040**	Additional turn lane
		E-X	NBR	1	60	182	-	**300**	**700**	**-**	**1000**	-
		E-X	SBL	2	55	433	367	**444**	**600**	**217**	**1260**	-
		E-X	SBR	1	55	641	-	**222**	**600**	**-**	**820**	-
		E-X	EBL	2	55	482	395	**444**	**600**	**241**	**1285**	Turn lane is currently provided to the available intersection spacing
		E-X	EBR	1	55	1122	-	**222**	**600**	**-**	**820**	Improvement should be made to the available intersection spacing
		E-X	WBL	2	55	164	143	**444**	**600**	**82**	**1125**	Additional turn lane
		E-X	WBR	1	55	347	-	**222**	**600**	**-**	**820**	-
		E-X	NBR to EBT Acceleration Lane	1	55	182	-	**222**	**960** ***(Accel. Lane)***	**-**	**1180**	-
		E-X	SBR to WBT Acceleration Lane	1	55	641	-	**222**	**960** ***(Accel. Lane)***	**-**	**1180**	-
		E-X	EBR to SBT Acceleration Lane	1	55	1122	-	**222**	**960** ***(Accel. Lane)***	**-**	**1180**	-
		E-X	WBR to NBT Acceleration Lane	1	60	347	-	**300**	**1170** ***(Accel. Lane)***	**-**	**1470**	-
8	Marksheffel Rd/Drennan Rd CCS - TCM Signalized	Principal Arterial	NBL	1	45	135	44	**180**	**200**	**-**	**380**	-
		Principal Arterial	NBR	1	45	122	31	**180**	**200**	**-**	**380**	-
		Principal Arterial	SBL	1	45	281	146	**180**	**200**	**-**	**380**	-
		Principal Arterial	SBR	1	45	21	4	**180**	**200**	**-**	**380**	-
		Minor Arterial	EBL	1	40	34	55	**160**	**155**	**-**	**315**	Exclusive left-turn is not recommended due to low through traffic volume
		Principal Arterial	WBL	1	45	137	123	**180**	**200**	**-**	**380**	-
10	Highway-24/Highway-94 CDOT -SHAC Signalized	E-X	NBL (US-94)	3	55	975	470	**666**	**600**	**325**	**1590**	Additional turn lane
		E-X	NBR (US-94)	1	55	17	12	**222**	**600**	**-**	**820**	-
		F-R	SBL (Newt Dr.)	2	30	165	140	**192**	**-**	**83**	**275**	-
		F-R	SBR (Newt Dr.)	1	30	396	-	**96**	**-**	**25**	**120**	-
		E-X	EBL (US-24)	2	55	380	212	**444**	**600**	**190**	**1235**	Additional turn lane
		E-X	EBR (US-24)	1	55	1168	-	**222**	**600**	**-**	**820**	-
		E-X	WBL (US-24)	1	65	17	10	**300**	**800**	**25**	**1125**	-
		E-X	WBR (US-24)	1	65	200	84	**300**	**800**	**-**	**1100**	-
		NR-A	SBR to WBT Acceleration Lane	1	65	396	-	**300**	**1080** ***(Accel. Lane)***	**-**	**1380**	-
		E-X	EBR to SBT Acceleration Lane	1	55	1168	-	**222**	**960** ***(Accel. Lane)***	**-**	**1180**	-

Buildout (2035) Total Turn Lane Evaluations (Continued)

ID	Intersection	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Improvement (ft)
11	Highway-94/Marksheffel Rd CDOT -SHAC Signalized	NR-A	NBL	2	45	596	613	**324**	**111**	**298**	**735**	Additional turn lane
		NR-A	NBR	1	45	468	-	**162**	**273**	**-**	**435**	-
		NR-A	SBL	2	45	431	373	**324**	**111**	**216**	**650**	Additional turn lane
		NR-A	SBR	1	45	73	43	**162**	**338**	**-**	**500**	-
		E-X	EBL	1	50	111	148	**180**	**500**	**111**	**790**	85
		E-X	EBR	1	50	616	-	**180**	**500**	**-**	**680**	-
		E-X	WBL	2	65	485	387	**600**	**800**	**243**	**1645**	Additional turn lane
		E-X	WBR	1	65	530	-	**300**	**800**	**-**	**1100**	300
		E-X	SBR to WBT Acceleration Lane	1	65	73	-	**300**	**1,170 *(Accel. Lane)***	**-**	**1470**	1470
		NR-A	EBR to SBT Acceleration Lane	1	45	616	-	**180**	**580 *(Accel. Lane)***	**-**	**760**	760
		NR-A	WBR to NBT Acceleration Lane	1	45	530	-	**180**	**740 *(Accel. Lane)***	**-**	**960**	-
12	Fontaine Bl/Meridian Rd EPC - ECM Stop-Controlled	Minor Arterial	SBR	1	35	199	-	**160**	**155**	**-**	**315**	Required New Turn Lane
		Minor Arterial	EBLT	1	35	233	31	**160**	**155**	**233**	**550**	Required New Turn Lane
40	Bradley Rd/RM Collector #1 EPC - ECM Signalized	Collector	SBL	1	35	13	12	**160**	**155**	**12**	**325**	Required New Turn Lane
		Collector	SBR	2	35	560	100	**320**	**155**	**100**	**575**	Required New Turn Lane
		Principal Arterial	EBL	2	45	452	200	**400**	**235**	**200**	**835**	Required New Turn Lane
		Collector	EBLto NBT Receiving Lane	1	35	-	-	**120**	***270 (Accel. Lane)***	**-**	**390**	270-ft accel. lane plus a 120-ft merging taper
46	RM Collector #2 / RM Collector #4 EPC - ECM Stop-Controlled	Collector	NBL	1	35	55	3	**160**	**155**	**-**	**315**	Required New Turn Lane
		Collector	EBL	1	35	4	-	**160**	**155**	**-**	**315**	Required New Turn Lane
48	Bradley Rd/RM Collector #2/BH Collector #1 EPC - ECM Signalized	Collector	SBL	1	35	62	80	**160**	**155**	**80**	**395**	Required New Turn Lane
		Principal Arterial	EBL	1	45	139	22	**200**	**235**	**22**	**455**	Required New Turn Lane
		Principal Arterial	WBR	1	45	47	4	**200**	**235**	**4**	**440**	Required New Turn Lane
49	Bradley Rd/Rolling Meadows Pkwy EPC - ECM Signalized	Collector	NBL	2	35	938	255	**320**	**155**	**255**	**730**	Required New Turn Lane
		Principal Arterial	EBR	1	45	942	160	**200**	**235**	**160**	**595**	Required New Turn Lane
		Principal Arterial	WBL	1	45	59	29	**200**	**235**	**29**	**465**	Required New Turn Lane
50	Bradley Rd/RM Collector #3 EPC - ECM Signalized	Collector	SBL	1	35	73	41	**160**	**155**	**41**	**355**	Required New Turn Lane
		Principal Arterial	EBL	2	45	410	136	**400**	**235**	**135**	**770**	Required New Turn Lane
		Principal Arterial	WBR	1	45	64	9	**200**	**235**	**9**	**445**	Required New Turn Lane
		Collector	EBLto NBT Receiving Lane	1	45	-	-	**162**	***550 (Accel. Lane)***	**-**	**710**	550-ft accel. lane plus a162-ft merging taper
51	Meridian Rd/RM Collector #3 CCS - TCM Stop-Controlled	Collector	SBR	1	35	143	18	**140**	**120**	**-**	**260**	Required New Turn Lane
		Collector	EBL	1	35	86	-	**140**	**120**	**-**	**260**	Required New Turn Lane
59	Rolling Meadows Pkwy/TAZ 14 Access EPC - ECM Stop-Controlled	Collector	NBL	1	35	-	-	**-**	**-**	**50**	**50**	Required New Turn Lane
		Collector	SBL	1	35	15	2	**160**	**155**	**50**	**365**	Required New Turn Lane
		Collector	SBR	1	35	25	-	**160**	**155**	**-**	**315**	Required New Turn Lane
		Local	EBLT	1	25	25	33	**120**	**115**	**50**	**285**	Required New Turn Lane
60	Rolling Meadows Pkwy/Calf Creek Dr EPC - ECM Signalized	Collector	NBL	1	35	-	2	**160**	**155**	**50**	**365**	Required New Turn Lane
		Collector	SBL	1	35	151	85	**160**	**155**	**70**	**385**	Required New Turn Lane
		Collector	SBR	1	35	46	9	**160**	**155**	**25**	**340**	Required New Turn Lane

Buildout (2035) Total Turn Lane Evaluations (Continued)

ID	Intersection	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Improvement (ft) (vs Improved Existing)
61	Rolling Meadows Pkwy/Echoing Grass Wy EPC - ECM Stop-Controlled	Collector	NBL	1	35	2	-	160	155	50	365	Required New Turn Lane
		Collector	SBL	1	35	128	11	160	155	50	365	Required New Turn Lane
		Collector	EBL	1	25	19	21	120	115	25	260	Required New Turn Lane
		Collector	WBL	1	25	21	13	150	115	25	290	Required New Turn Lane
63	Prairie Song Dr/Hoof Hallow Pl/TAZ 16A Access 1 EPC - ECM Stop-Controlled	Collector	EBL	1	35	59	11	160	155	50	365	Required New Turn Lane
		Collector	EBR	1	35	74	6	160	155	-	315	Required New Turn Lane
		Collector	WBL	1	35	23	4	160	155	50	365	Required New Turn Lane
		Collector	WBR	1	35	71	6	160	155	-	315	Required New Turn Lane
64	Meridian Rd/Prairie Song Dr EPC - ECM Stop-Controlled	Collector	NBL	1	35	30	2	160	155	50	365	Required New Turn Lane
		Collector	SBR	1	35	142	-	160	155	-	315	Required New Turn Lane
		Collector	EBL	1	35	127	20	160	155	150	465	Required New Turn Lane
65	Rolling Meadows Pkwy/TAZ-14 Access 3 EPC - ECM Stop-Controlled	Collector	SBL	1	35	101	8	160	155	100	415	Required New Turn Lane
		Collector	SBR	1	35	55	-	160	155	-	315	Required New Turn Lane
66	Rolling Meadows Pkwy/TAZ-16B Access 1 EPC - ECM Stop-Controlled	Collector	NBL	1	35	34	2	160	155	25	340	Required New Turn Lane
		Collector	NBR	1	35	49	-	160	155	-	315	Required New Turn Lane
		Collector	SBL	1	35	56	4	160	155	25	340	Required New Turn Lane
		Collector	SBR	1	35	47	-	160	155	-	315	Required New Turn Lane
67	Rolling Meadows Pkwy/TAZ-16B Access 2 EPC - ECM Stop-Controlled	Collector	NBL	1	35	50	3	160	155	-	315	Required New Turn Lane
		Collector	SBR	1	35	102	0	160	155	-	315	Required New Turn Lane
		Local	EBL	1	25	107	20	120	115	100	335	Required New Turn Lane
68	Rolling Meadows Pkwy/TAZ-16B Access 3 EPC - ECM Stop-Controlled	Collector	SBL	1	35	46	7	160	155	50	365	Required New Turn Lane
		Collector	SBR	1	35	124	11	160	155	-	315	Required New Turn Lane
		Local	EBL	1	25	156	29	120	155	150	425	Required New Turn Lane
69	Rolling Meadows Pkwy/TAZ-16B Access 3 EPC - ECM	Collector	NBR	1	35	57	6	160	155	-	315	Required New Turn Lane
71	Rolling Meadows Pkwy/Meridian Rd EPC - ECM Stop-Controlled	Collector	NBL	1	35	116	7	160	155	115	430	Required New Turn Lane
		Collector	EBL	1	35	16	2	160	155	25	340	Required New Turn Lane

A summary of the recommended improvements is as follows:

Powers Boulevard/Fontaine Boulevard (#1)

- Two additional southbound left-turn lanes. Include 667-ft of taper, 600-ft of deceleration lane and 253-ft of storage for a total length of 1,520-ft.
- An additional eastbound left-turn lane. Include 324-ft of taper, 273-ft of deceleration lane and 184-ft of storage for a total length of 780-ft.
- Two additional westbound left-turn lanes. Include 486-ft of taper and 326-ft of storage for a total length of 810-ft.
- A 150-ft extension of southbound right-turn to westbound thru acceleration lane.

Marksheffel Road/Fontaine Boulevard (#2)

- An additional southbound left-turn lane. Include 360-ft of taper and 200-ft of deceleration lane for a total length of 560-ft.
- An additional eastbound left-turn lane. Include 360-ft of taper and 200-ft of deceleration lane for a total length of 560-ft.
- A 105-ft extension of eastbound right-turn lane.
- An additional westbound left-turn lane. Include 360-ft of taper and 200-ft of deceleration lane for a total length of 560-ft.
- A 550-ft westbound right-turn to northbound thru acceleration lane. Include 162-ft of taper and 1,380-ft of acceleration lane.

Fontaine Boulevard/Lamprey Drive (#3)

A multi lane roundabout is proposed, and two circulating lanes are recommended at this location. The required exclusive, and by-pass lanes in the vicinity of the roundabout are summarized below.

- A 335-ft northbound left-turn lane. Include 120-ft of taper and 115-ft of deceleration lane.
- A 365-ft shared southbound left/thru turn lane. Include 160-ft of taper and 155-ft of deceleration lane.
- A 90-ft merging taper for southbound right to westbound thru. A southbound right-turn by-pass lane is recommended at this roundabout.

Powers Boulevard/Bradley Road (#4)

- Two additional southbound left-turn lanes. Include 900-ft of taper, 800-ft of deceleration lane and 563-ft of storage for a total length of 2,265-ft.
- An additional westbound left-turn lane. Include a 486-ft of taper and 337-ft of storage for a total length of 825-ft.

Marksheffel Road/Bradley Road (#5)

- An additional northbound left-turn lane. Include 360-ft of taper and 260-ft of deceleration lane for a total length of 620-ft.
- An additional southbound left-turn lane. Include 360-ft of taper and 260-ft of deceleration lane for a total length of 620-ft.
- An additional eastbound left-turn lane. Include 360-ft of taper and 235-ft of deceleration lane for a total length of 595-ft.
- An additional westbound left-turn lane. Include 360-ft of taper and 200-ft of deceleration lane for a total length of 560-ft.

Bradley Road/Meridian Road (#6)

- A 340-ft northbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 25-ft of storage.
- A 330-ft southbound right-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 15-ft of storage.
- A 465-ft eastbound left-turn lane. Include 200-ft of taper, 235-ft of deceleration lane and 30-ft of storage.
- A 440-ft eastbound right-turn lane. Include 200-ft of taper, 235-ft of deceleration lane and 5-ft of storage.
- A 485-ft westbound left-turn lane. Include 200-ft of taper, 235-ft of deceleration lane and 50-ft of storage.

Powers Boulevard/Milton E Proby Parkway (#7)

- An additional northbound left-turn lane. Include 900-ft of taper, 700-ft of deceleration lane and 438-ft of storage for a total length of 2,040-ft.
- An additional westbound left-turn lane. Include 444-ft of taper, 600-ft of deceleration lane and 82-ft of storage for a total length of 1,125-ft.

Highway-24/Highway-94 (#10)

- An additional northbound left-turn lane. Include 666-ft of taper, 600-ft of deceleration lane and 325-ft of storage for a total length of 1,590-ft.
- An additional eastbound left-turn lane. Include 444-ft of taper, 600-ft of deceleration lane and 190-ft of storage for a total length of 1,235-ft.

Highway-94/Marksheffel Road (#11)

- An additional northbound left-turn lane. Include 324-ft of taper, 111-ft of deceleration lane and 298-ft of storage for a total length of 735-ft.
- An additional southbound left-turn lane. Include 324-ft of taper, 111-ft of deceleration lane and 216-ft of storage for a total length of 650-ft.
- A 85-ft extension of eastbound left-turn lane.
- An additional westbound left-turn lane. Include 600-ft of taper, 800-ft of deceleration lane and 243-ft of storage for a total length of 1,645-ft.
- A 300-ft extension of westbound right-turn lane.
- A 1470-ft southbound right-turn to westbound thru acceleration lane.
- A 760-ft eastbound right-turn to southbound thru acceleration lane.

Fontaine Boulevard/Meridian Road (#12)

- A 315-ft southbound right-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.
- A 550-ft eastbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 233-ft of storage.

Bradley Road/RM Collector #1 (#40)

- A 325-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 10-ft of storage.
- A 575-ft southbound right-turn lane. Include 320-ft of taper, 155-ft of deceleration lane and 100-ft of storage.
- A 835-ft eastbound left-turn lane. Include 400-ft of taper, 235-ft of deceleration and 200-ft of storage.
- A 390-ft eastbound left to northbound thru acceleration lane. Include 120-ft of taper and 270-ft of acceleration lane.

RM Collector #2/RM Collector #3 (#46)

- A 315-ft northbound left-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.
- A 315-ft eastbound left-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.

Bradley Road/RM Collector #2/BH Collector #1 (#48)

- A 395-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 80-ft of storage.
- A 455-ft eastbound left-turn lane. Include 200-ft of taper, 235-ft of deceleration lane and 20-ft of storage.
- A 440-ft westbound right-turn lane. Include 200-ft of taper, 235-ft of deceleration lane and 5-ft of storage.

Bradley Road/Rolling Meadows Parkway (#49)

- A 730-ft double northbound left-turn lane. Include 320-ft of taper, 155-ft of deceleration lane and 255-ft of storage.
- A 595-ft eastbound right-turn lane. Include 200-ft of taper, 235-ft of deceleration lane and 160-ft of storage.
- A 465-ft westbound left-turn lane. Include 200-ft of taper, 235-ft of deceleration lane and 30-ft of storage.

Bradley Road/RM Collector #3 (#50)

- A 355-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 40-ft of storage.
- A 770-ft double eastbound left-turn lane. Include 400-ft of taper, 235-ft of deceleration lane and 135-ft of storage.
- A 445-ft westbound right-turn lane. Include 200-ft of taper, 235-ft of deceleration lane and 10-ft of storage.
- A 710-ft eastbound left to northbound thru acceleration lane. Include 162-ft of taper and 550-ft of acceleration lane.

Meridian Road/RM Collector #3 (#51)

- A 260-ft southbound right-turn lane. Include 140-ft of taper and 120-ft of deceleration lane.
- A 260-ft eastbound left-turn lane. Include 140-ft of taper and 120-ft of deceleration.

Rolling Meadows Parkway /TAZ 14 Access #1 (#59)

- A 50-ft northbound left-turn lane. Include 50-ft of storage.
- A 365-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.
- A 315-ft southbound right-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.
- A 285-ft eastbound left-turn lane. Include 120-ft of taper, 155-ft of deceleration and 50-ft of storage.

Rolling Meadows Parkway/Calf Creek Drive (#60)

- A 365-ft northbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.
- A 385-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 70-ft of storage.
- A 340-ft southbound right-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 25-ft of storage.

Rolling Meadows Parkway/Echoing Grass Way (#61)

- A 365-ft northbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.
- A 365-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.
- A 260-ft eastbound left-turn lane. Include 120-ft of taper, 115-ft of deceleration and 25-ft of storage.
- A 290-ft westbound left-turn lane. Include 150-ft of taper and 115-ft of deceleration lane and 25-ft of storage.

Prairie Song Drive/Hoof Hallow Place(#63)

- A 365-ft eastbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.
- A 315-ft eastbound right-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.
- A 365-ft westbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.
- A 315-ft westbound right-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.

Meridian Road/Prairie Song Drive (#64)

- A 365-ft northbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.
- A 315-ft southbound right-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.
- A 465-ft eastbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 150-ft of storage.

Rolling Meadows Parkway / TAZ 14 Access #3 (#65)

- A 415-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 100-ft of storage.
- A 315-ft southbound right-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.

Rolling Meadows Parkway / TAZ 16B Access #1 (#66)

- A 340-ft northbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 25-ft of storage.
- A 315-ft northbound right-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.
- A 340-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 25-ft of storage.
- A 315-ft southbound right-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.

Rolling Meadows Parkway / TAZ 16B Access #2 (#67)

- A 315-ft northbound left-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.
- A 315-ft southbound right-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.
- A 335-ft eastbound left-turn lane. Include 120-ft of taper, 115-ft of deceleration and 100-ft of storage.

Rolling Meadows Parkway / TAZ 16B Access #3 (#68)

- A 365-ft northbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.
- A 315-ft southbound right-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.
- A 425-ft eastbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration and 150-ft of storage.

Rolling Meadows Parkway / Parcel V Access #2 (#69)

- A 315-ft northbound right-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.

Rolling Meadows Parkway /Meridian Road (#71)

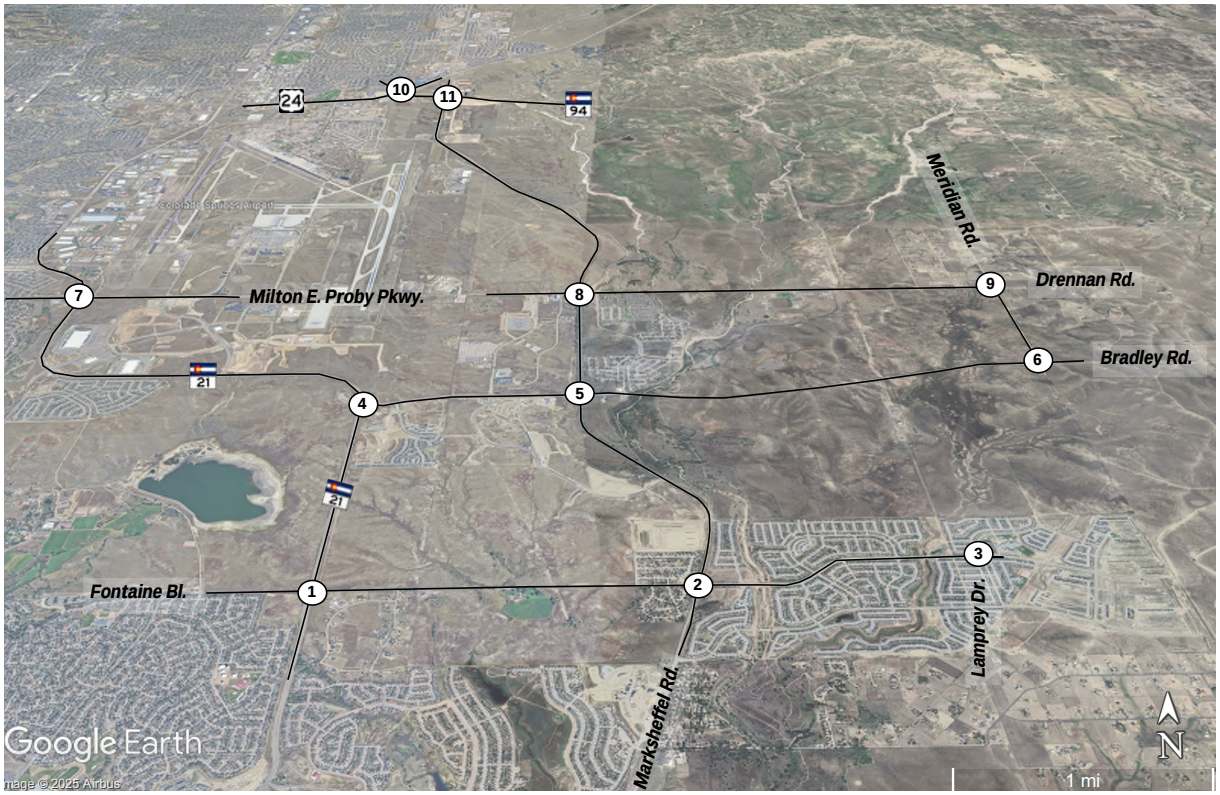
- A 430-ft northbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 115-ft of storage.
- A 340-ft eastbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 25-ft of storage.

6. Horizon (2055) Analysis

6.1 Horizon (2055) Background Conditions

It was assumed that the Karmen Line development, located east of the RMBH site, will be constructed by 2055. By applying the growth factors discussed earlier to the existing traffic counts and including traffic from all adjacent developments into the transportation network, the projected AM and PM peak hour volumes were developed, as shown in Figure 22 and Figure 23 , respectively. Figure 24 shows the daily traffic volumes.

Figure 22. Horizon (2055) Background Volumes (AM Peak Hour)



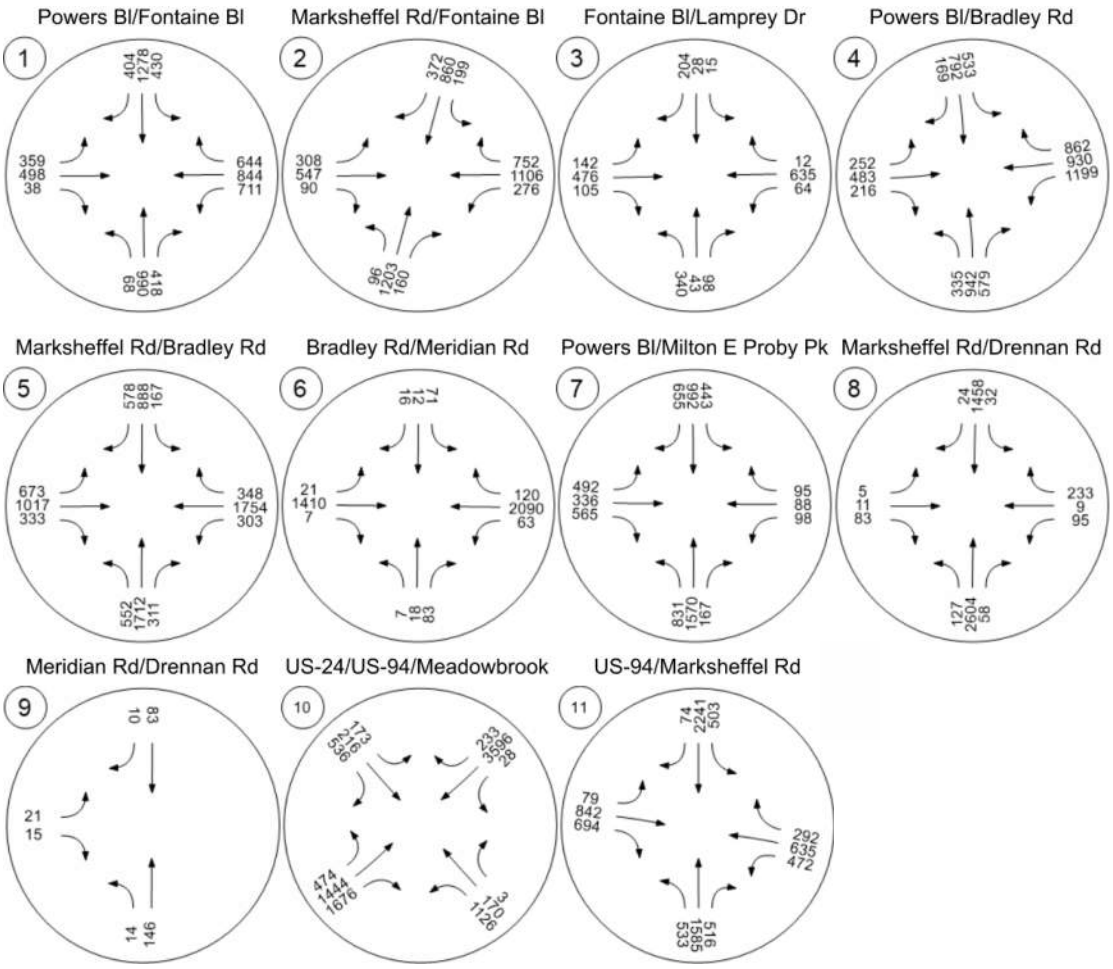
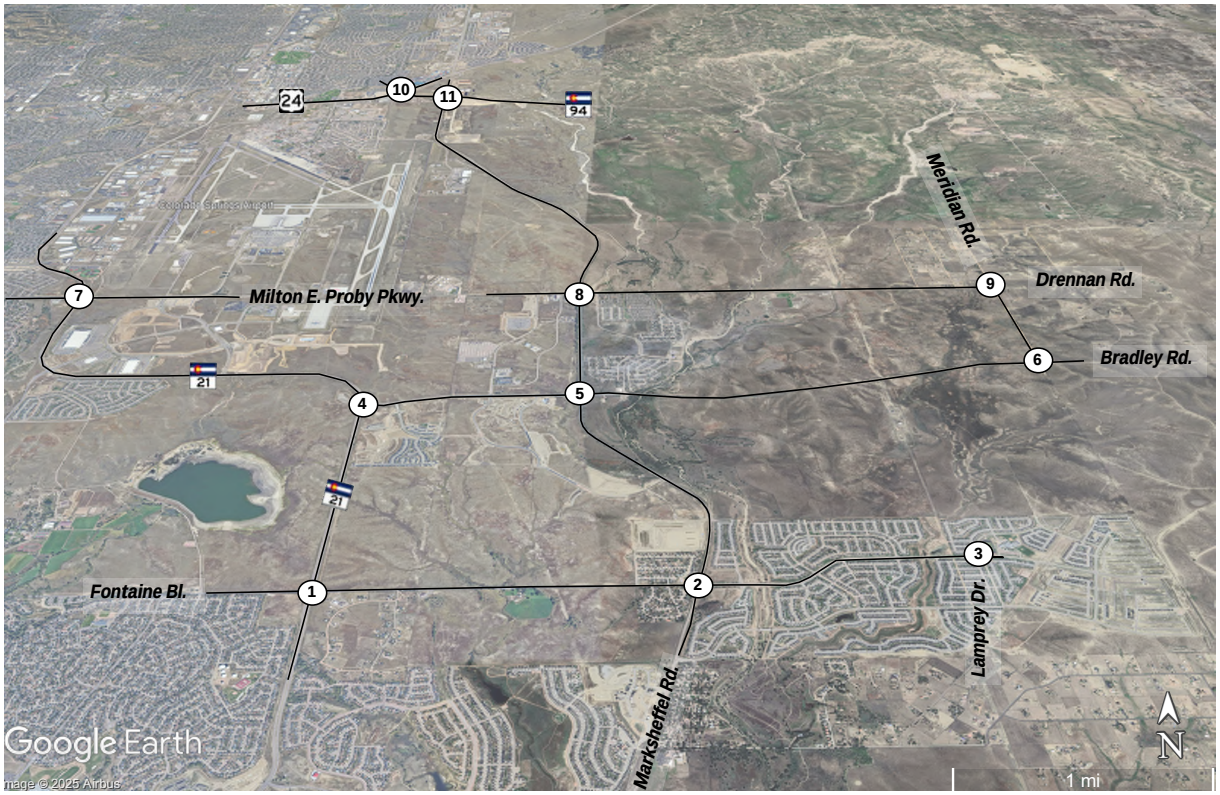


Figure 23. Horizon (2055) Background Volumes (PM Peak Hour)



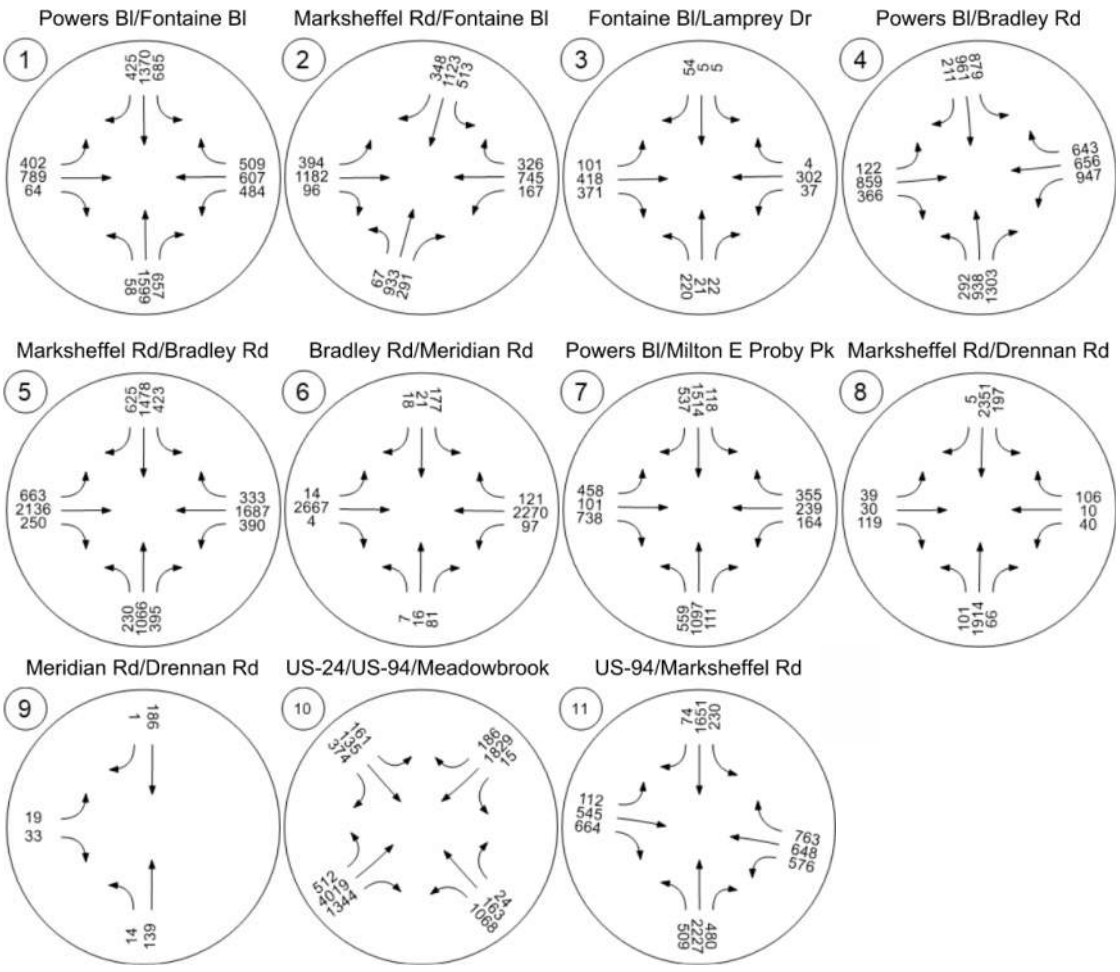
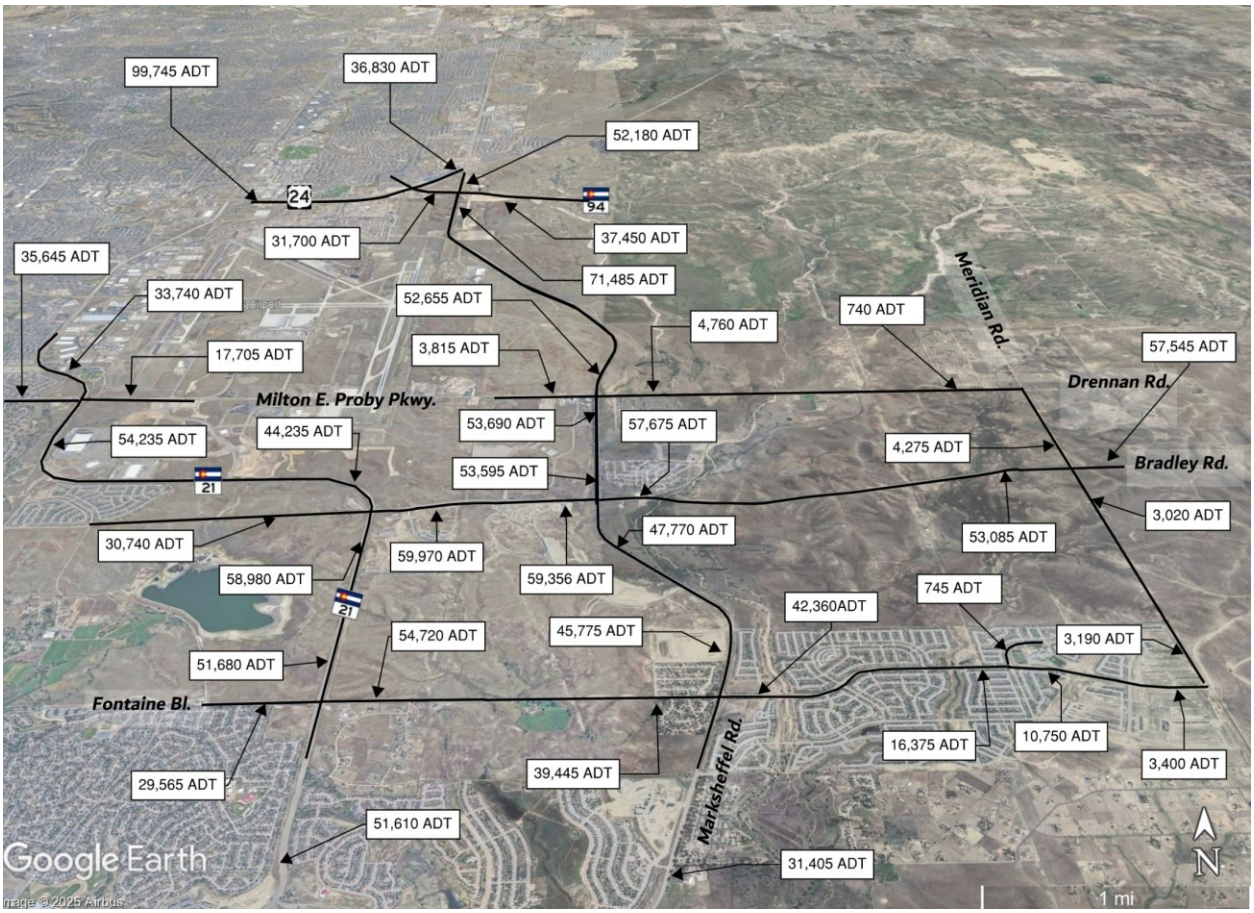
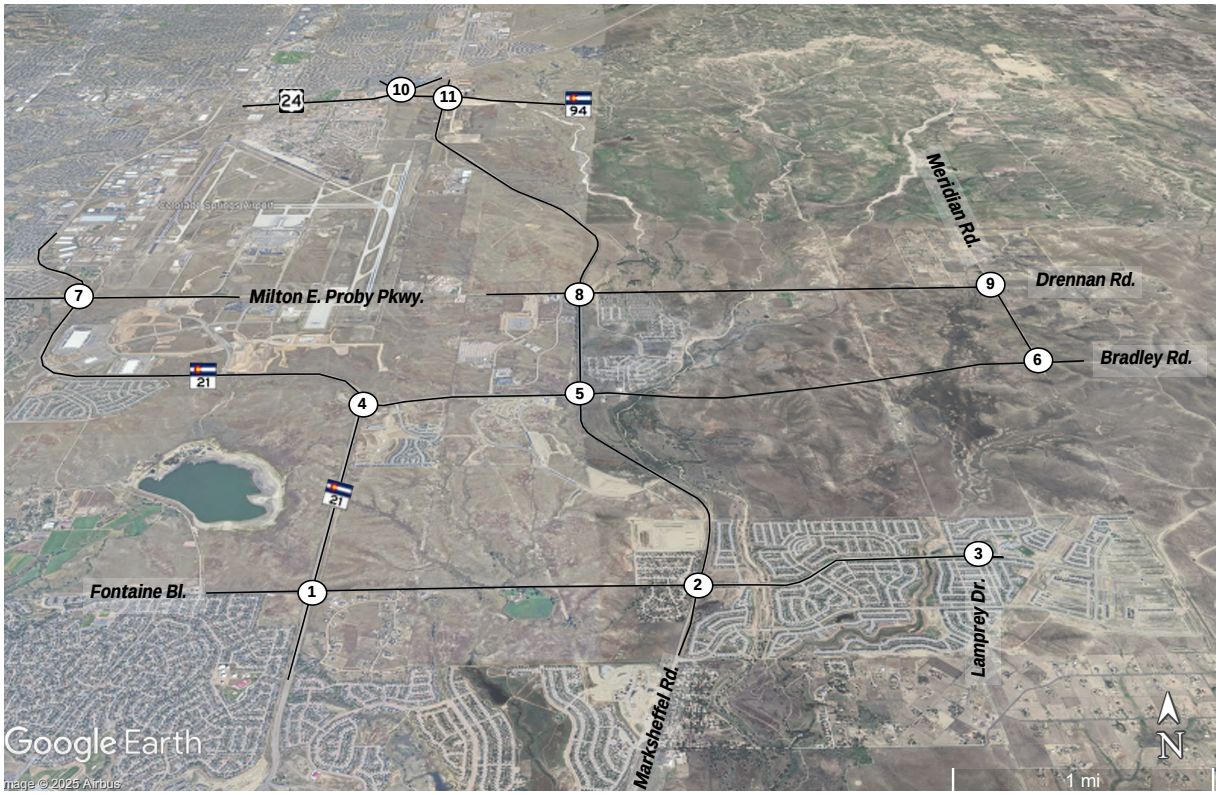


Figure 24. Horizon (2055) Background Daily Volumes



The intersection configuration and approach LOS are shown in Figure 25. The intersection operations for AM and PM peak hour are shown in Table 10 and Table 11, respectively.

Figure 25. Horizon (2055) Background Intersection Configuration and LOS



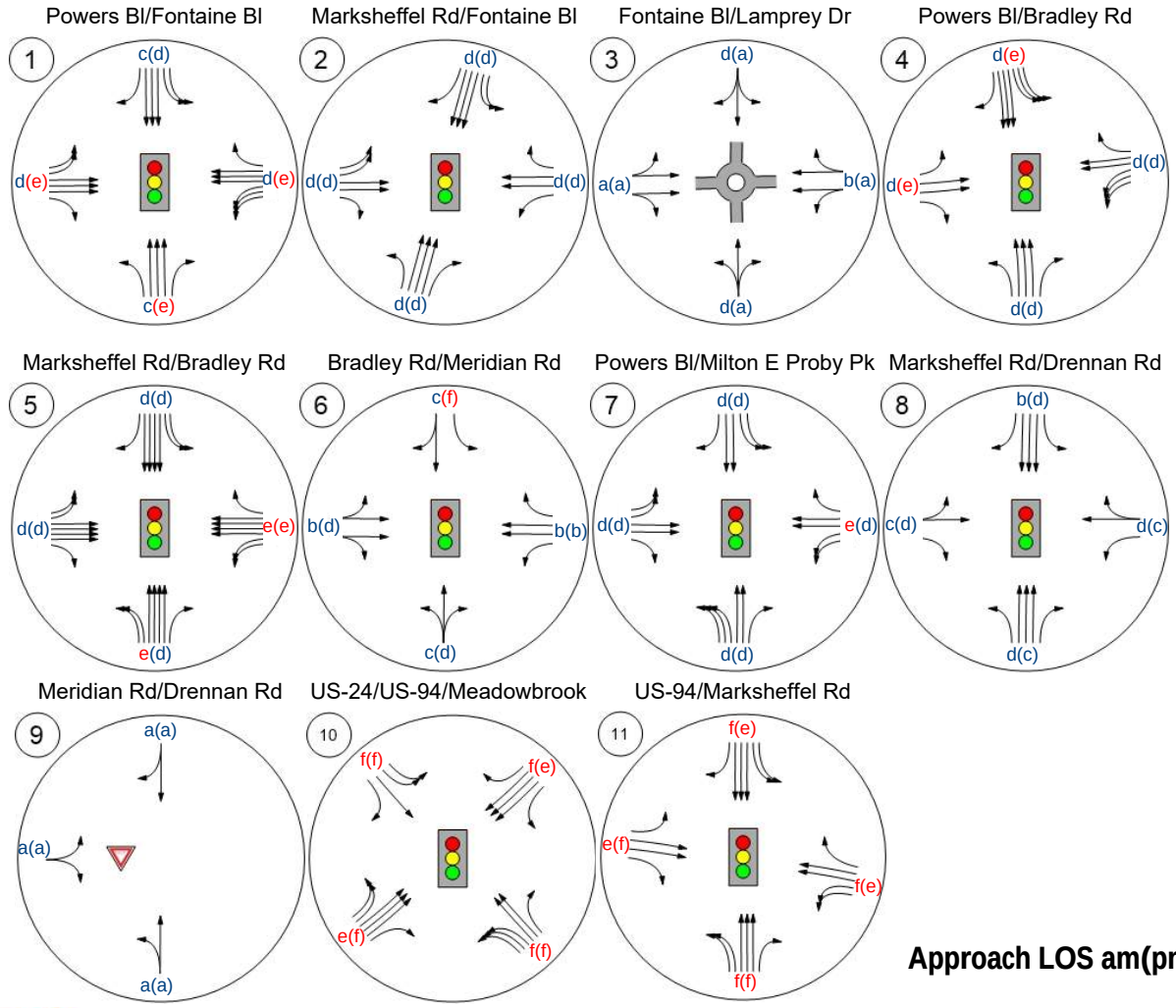


Table 10. Horizon (2055) Background Intersection Operations (AM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	NB Left	0.639	33.8	C
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	WB Thru	0.754	42.0	D
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	NB Left		14.4	B
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	NB Left	0.760	44.4	D
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	SB Left	0.819	54.1	D
6	Bradley Rd/Meridian Rd	Signalized	HCM 7th Edition	SB Left	0.696	14.8	B
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	WB Thru	0.800	49.5	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	WB Left	0.649	30.3	C
9	Meridian Rd/Drennan Rd	Two-way yield	HCM 7th Edition	EB Left	0.033	5.6	A
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Thru	1.278	204.5	F
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	WB Left	1.051	165.0	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 11. Horizon (2055) Background Intersection Operations (PM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	NB Left	0.826	54.5	D
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	SB Left	0.784	44.2	D
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	NB Left		6.5	A
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	EB Thru	0.824	50.9	D
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	NB Left	0.787	50.9	D
6	Bradley Rd/Meridian Rd	Signalized	HCM 7th Edition	WB Left	1.340	37.0	D
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	NB Left	0.797	39.5	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	EB Left	0.613	30.8	C
9	Meridian Rd/Drennan Rd	Two-way yield	HCM 7th Edition	EB Left	0.034	6.7	A
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Thru	1.163	148.2	F
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	EB Left	0.968	101.1	F

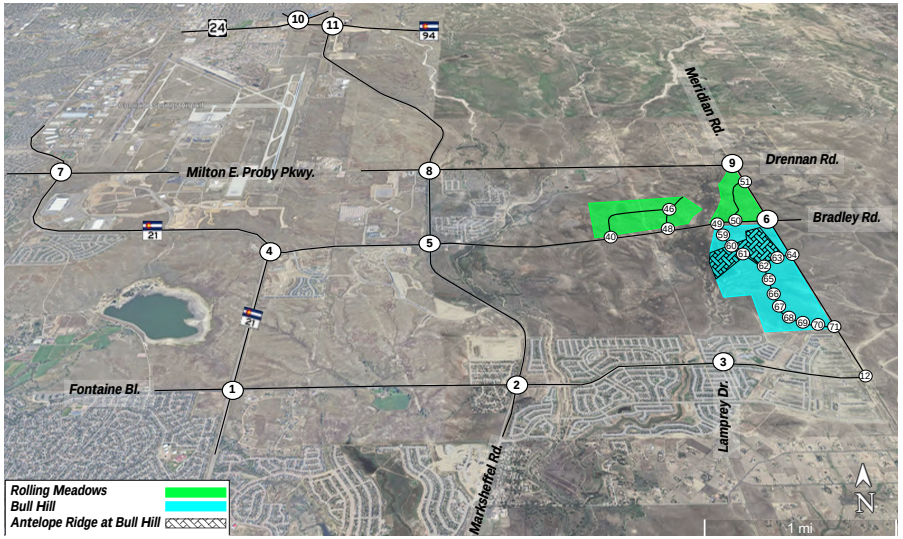
V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 10 and Table 11 indicate all intersections operate at an acceptable LOS except for the intersection of US-24/US-94/Meadowbrook Parkway (#10) and US-94/Marksheffel Road (#11). Both intersections operate at a LOS F in the AM and PM peak hour, with volume-to-capacity ratio at or over one. As shown in Table 10 and Table 11, the analysis indicates that an at-grade intersection will likely not operate adequately under horizon year conditions. Therefore, the feasibility of constructing interchanges at these two locations, or an additional arterial roadway may warrant further investigation. According to the Kimley-Horn Sensitivity Traffic Analysis (September 2024) for Crossroads North, Reagan Ranch, and Crossroads Mixed Use, the intersection of US-24/US-94 operates at an unacceptable LOS and is at full capacity. The letter indicates that a grade-separated intersection including a northbound-to-westbound left-turn flyover ramp will be required in the horizon year (2040). All other intersections studied operate at an acceptable LOS in the horizon background scenario.

6.2 Horizon (2055) Total Conditions

When the project traffic is added to the 2055 background traffic, the resulting AM and PM peak hour volumes are shown in Figure 26 and Figure 27, respectively. Figure 28 shows the daily traffic volumes and roadway classifications under horizon year total conditions. The roadway intersections configuration with approach LOS are shown in Figure 29.

Figure 26. Horizon (2055) Total Volumes (AM Peak Hour)



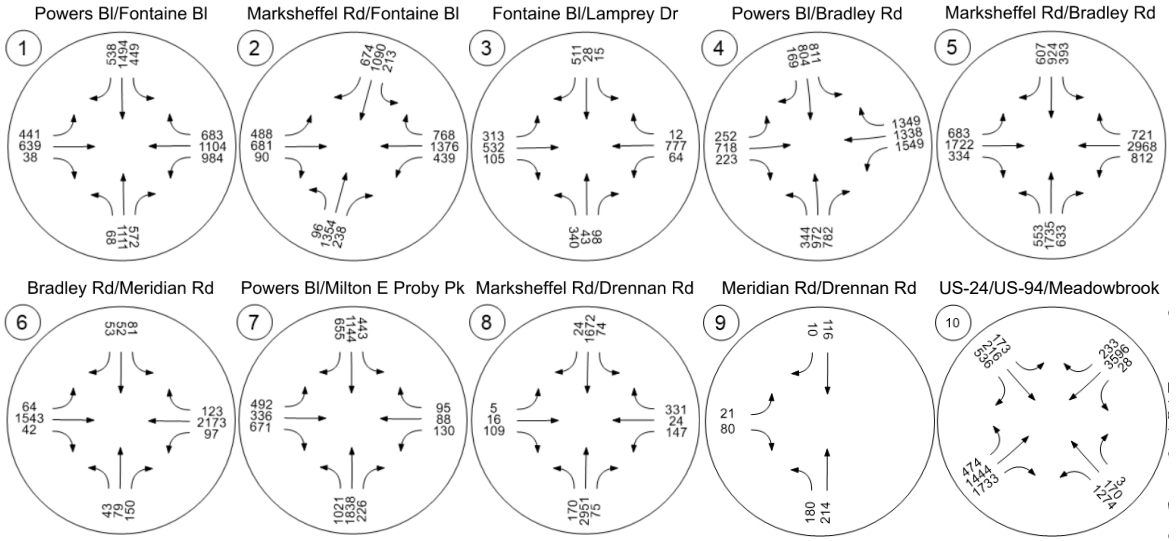
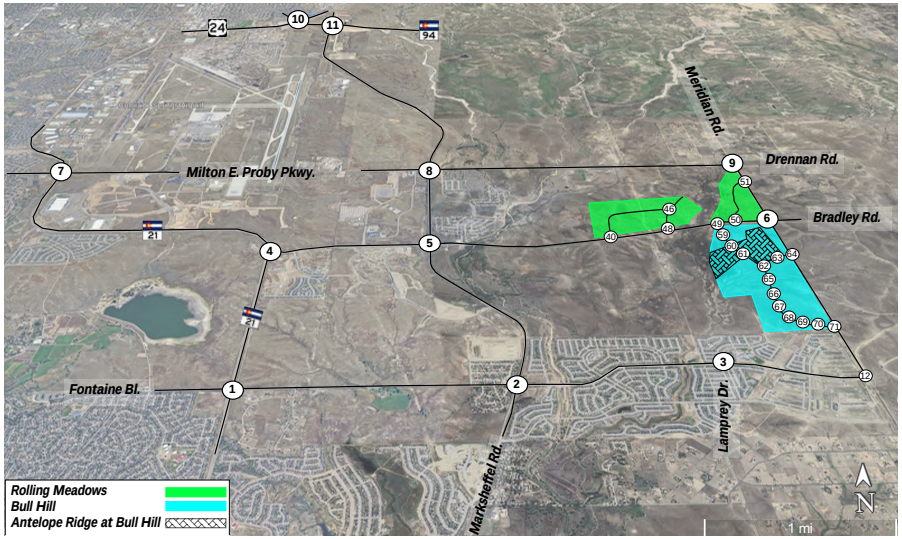
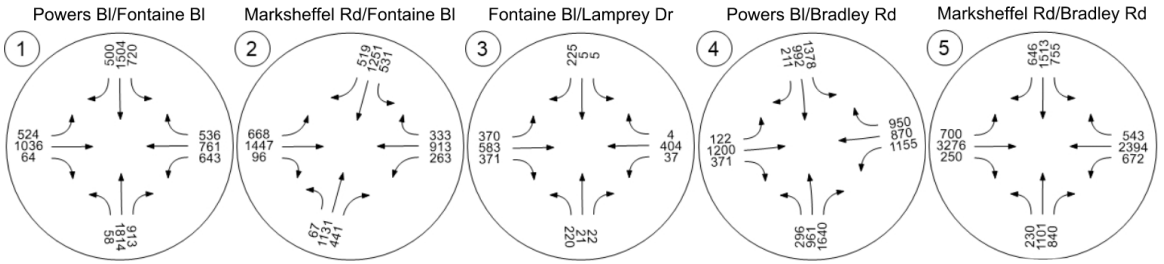
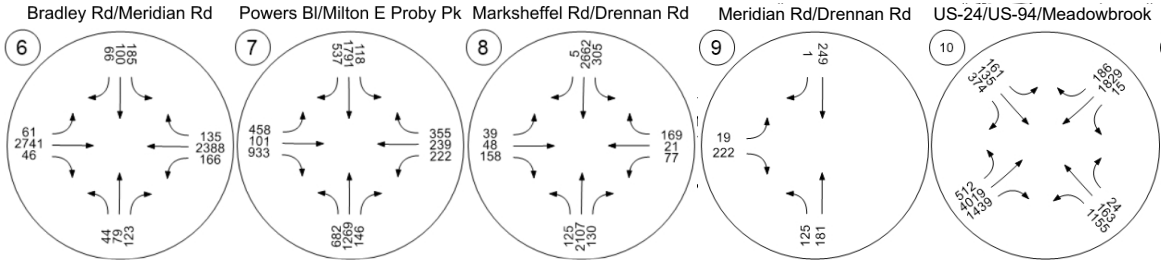
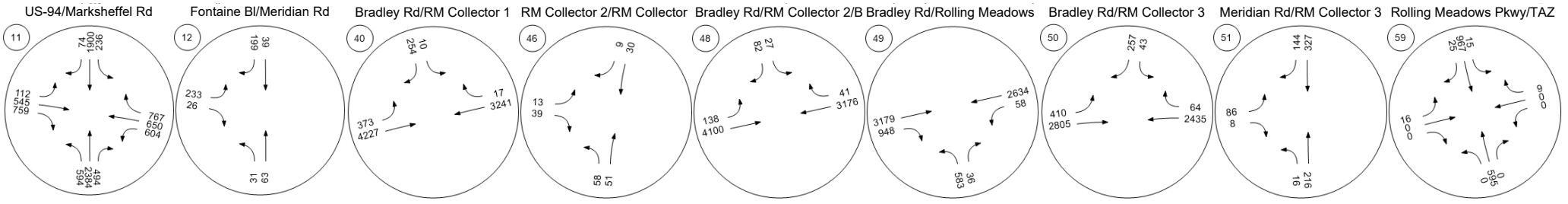


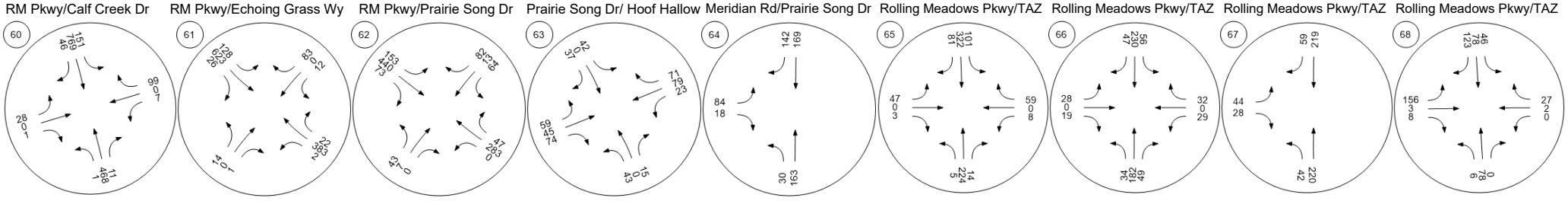
Figure 27. Horizon (2055) Total Volumes (PM Peak Hour)











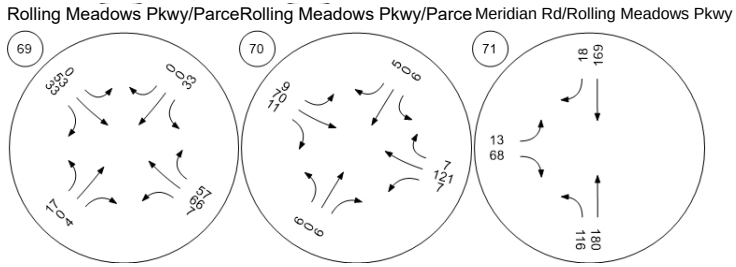
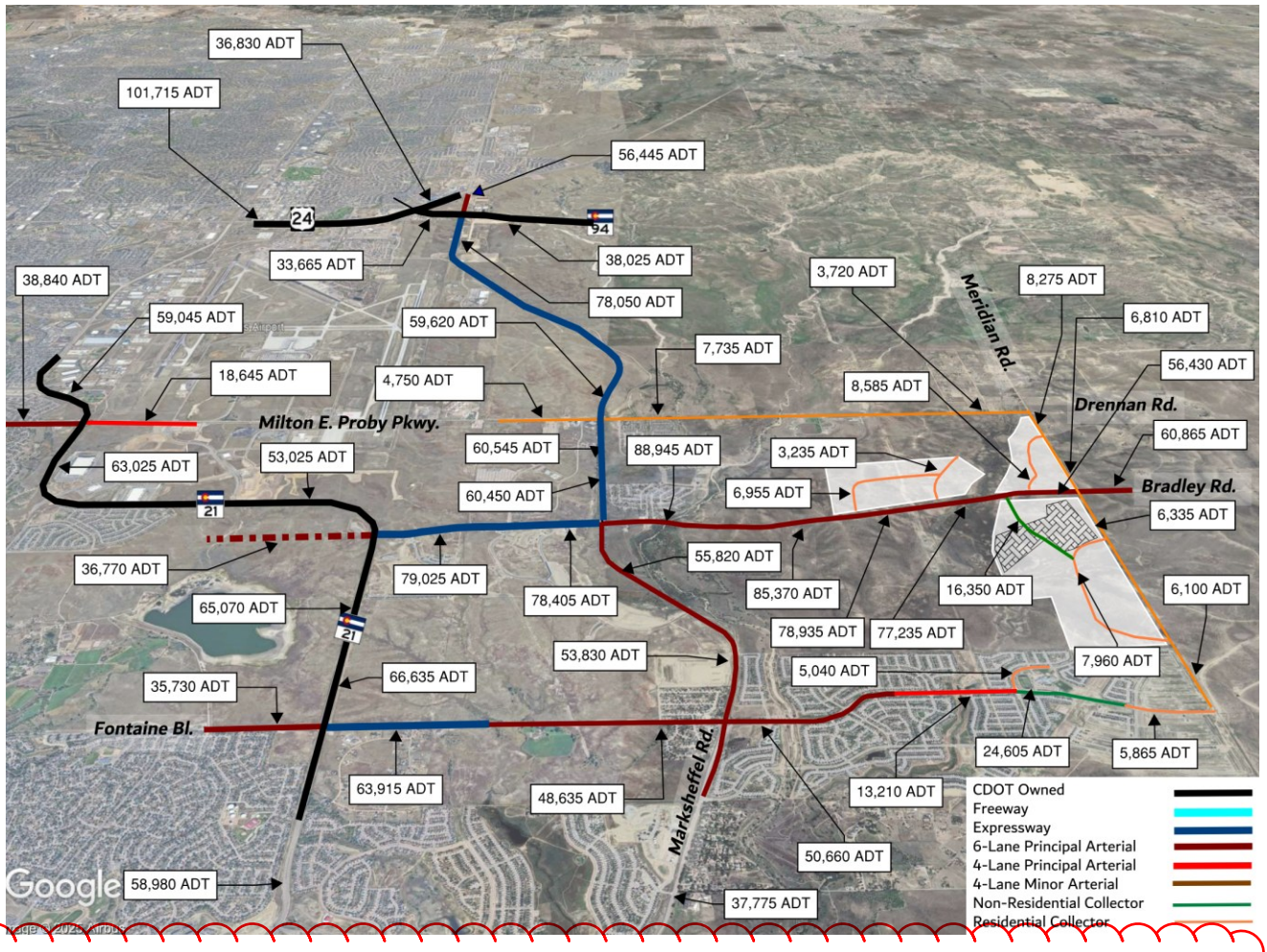


Figure 28. Horizon (2055) Total Roadway Classification and Daily Volumes



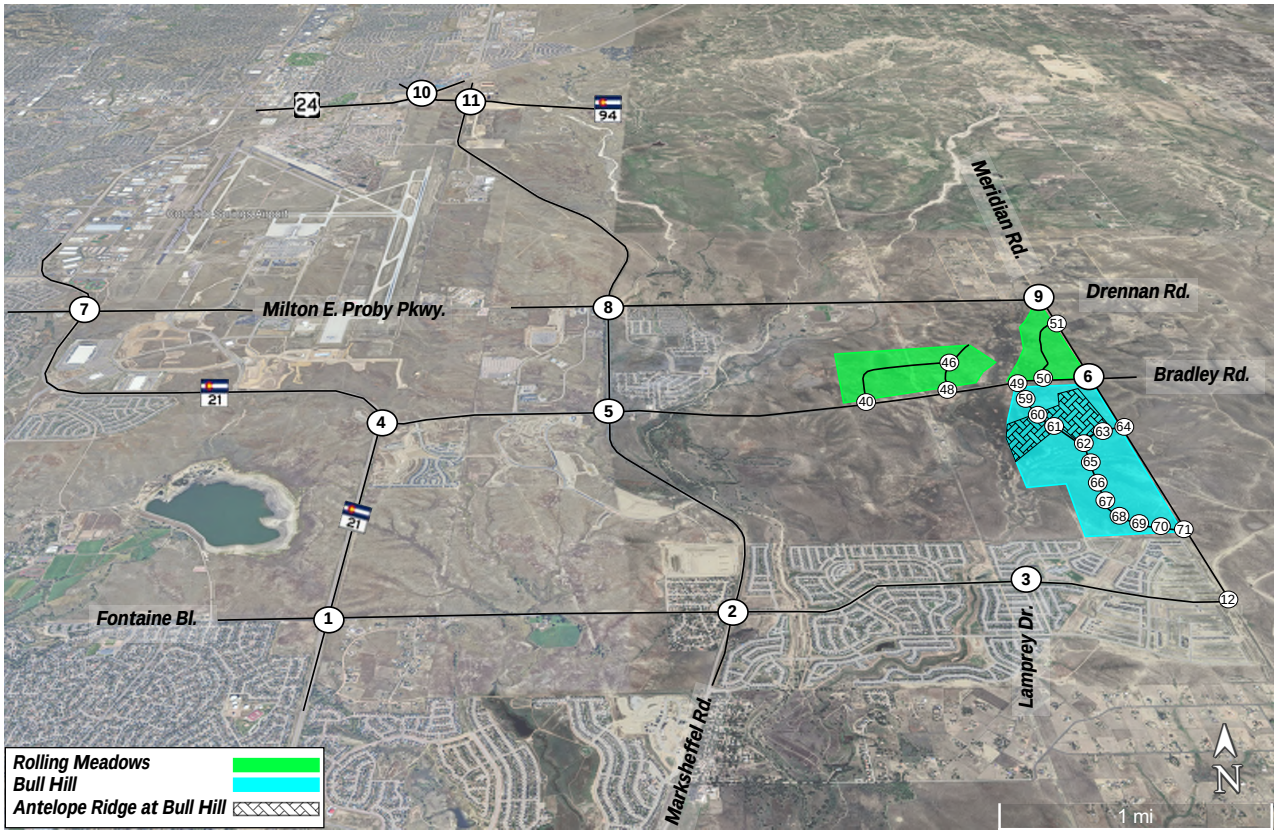
As shown in Figure 28, the 2055 horizon year cross section classifies certain segments as freeway or expressway facilities. However, Matrix's analysis indicate that the corridor will operate effectively as a six-lane arterial. Additional capacity beyond three through lanes in each direction is only needed at intersections. The roadway segments themselves function adequately as a six-lane roadway. Intersections requiring a fourth through lane will need to have the fourth lane added with sufficient length to not be blocked by the through queues and will require the receiving lane to have adequate length to allow for a proper merging condition. Even though the Karmen Line development was annexed , Matrix included the development in the horizon year analyses. Based on our analysis, without the Karmen Line development (similar condition to the buildout year), a four-lane roadway will be sufficient to accommodate the projected traffic volumes.

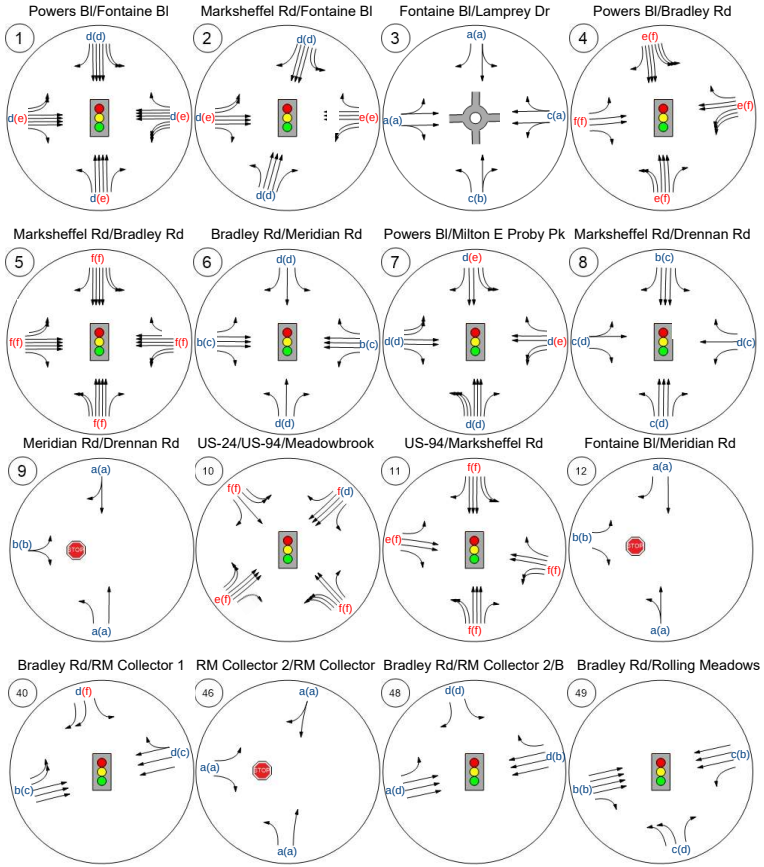
The intersection operations for the horizon total scenario in the AM and PM peak hour are shown in Table 12 and Table 13, respectively. The turn lane evaluation for the horizon total scenario is shown in Table 14.

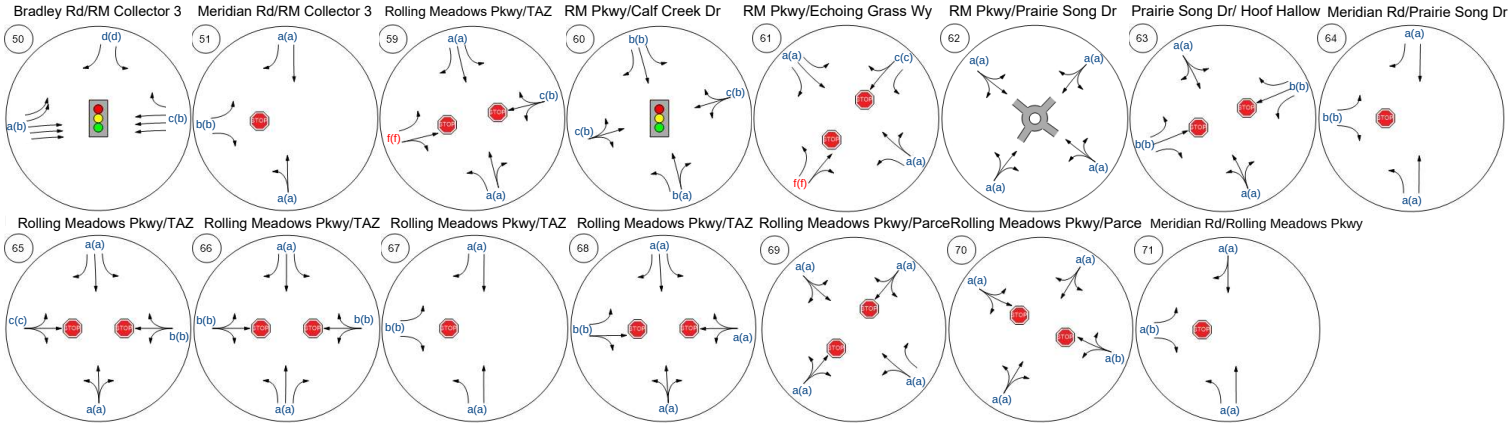
Since it has been shown that 4 through lanes may be needed based on previous, but not approved, development proposals, should enough right-of-way for this cross-section be provided even if it is ultimately constructed by someone else?

Light blue comments were made by EPC Traffic Operations Manager Scott Barnhart. Email: ScottBarnhart@elpasoco.com

Figure 29. Horizon (2055) Total Intersection Configuration and LOS







Approach LOS am(pm)

Table 12. Horizon (2055) Total Intersection Operations (AM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	NB Left	0.634	42.0	D
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	WB Thru	0.803	51.5	D
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	WB Right		11.0	B
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	EB Thru	0.904	76.1	E
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	EB Left	1.091	129.1	F
6	Bradley Rd/Meridian Rd	Signalized	HCM 7th Edition	NB Right	0.571	17.6	B
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	WB Thru	0.745	43.9	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	SB Left	0.735	31.4	C
9	Meridian Rd/Drennan Rd	Two-way stop	HCM 7th Edition	EB Left	0.071	17.2	C
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	NB Left	1.309	220.0	F
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	EB Thru	1.134	158.5	F
12	Fontaine Bl/Meridian Rd	Two-way stop	HCM 7th Edition	EB Left	0.191	10.4	B
40	Bradley Rd/RM Collector 1	Signalized	HCM 7th Edition	SB Left	0.961	34.5	C
46	RM Collector 2/RM Collector 4	Two-way stop	HCM 7th Edition	EB Left	0.004	9.7	A
48	Bradley Rd/RM Collector 2/BH Collector 1	Signalized	HCM 7th Edition	SB Left	0.799	26.7	C
49	Bradley Rd/Rolling Meadows Pkwy	Signalized	HCM 7th Edition	NB Left	0.861	23.8	C
50	Bradley Rd/RM Collector 3	Signalized	HCM 7th Edition	SB Right	0.713	21.8	C
51	Meridian Rd/RM Collector 3	Two-way stop	HCM 7th Edition	EB Left	0.253	13.4	B
59	Rolling Meadows Pkwy/TAZ 14 Access 1/TAZ 15 Access 1	Two-way stop	HCM 7th Edition	EB Left	0.353	75.8	F
60	Rolling Meadows Pkwy/Calf Creek Dr	Signalized	HCM 7th Edition	SB Left	0.497	11.4	B
61	Rolling Meadows Pkwy/Echoing Grass Wy	Two-way stop	HCM 7th Edition	EB Left	0.239	58.4	F
62	Rolling Meadows Pkwy/Prairie Song Dr	Roundabout	HCM 7th Edition	WB Thru		6.5	A
63	Prairie Song Dr/Hoof Hallow Pl/TAZ 16A Access 1	Two-way stop	HCM 7th Edition	WB Left	0.015	12.8	B
64	Meridian Rd/Prairie Song Dr	Two-way stop	HCM 7th Edition	EB Left	0.208	11.8	B
65	Rolling Meadows Pkwy/TAZ 14 Access 3/TAZ 16A Access 2	Two-way stop	HCM 7th Edition	EB Left	0.225	19.7	C
66	Rolling Meadows Pkwy/TAZ 16B Access 1/TAZ 18 Access 1	Two-way stop	HCM 7th Edition	EB Left	0.100	14.9	B
67	Rolling Meadows Pkwy/TAZ 16B Access 2/TAZ 18 Access 2	Two-way stop	HCM 7th Edition	EB Left	0.212	13.9	B
68	Rolling Meadows Pkwy/TAZ 16B Access 3/TAZ 18 Access 3	Two-way stop	HCM 7th Edition	WB Thru	0.007	11.5	B
69	Rolling Meadows Pkwy/Parcel V Acees 2	Two-way stop	HCM 7th Edition	WB Left	0.054	9.4	A
70	Rolling Meadows Pkwy/Parcel V Access 1	Two-way stop	HCM 7th Edition	WB Thru	0.125	10.0	A
71	Meridian Rd/BH Collector 1	Two-way stop	HCM 7th Edition	EB Left	0.029	11.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 13. Horizon (2055) Total Intersection Operations (PM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	SB Left	0.817	52.6	D
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	WB Thru	0.813	54.4	D
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	NB Left		8.3	A
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	WB Left	1.073	111.9	F
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	SB Left	1.149	148.9	F
6	Bradley Rd/Meridian Rd	Signalized	HCM 7th Edition	WB Left	0.765	28.7	C
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	EB Left	0.907	54.1	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	NB Left	0.692	32.5	C
9	Meridian Rd/Drennan Rd	Two-way stop	HCM 7th Edition	EB Left	0.061	18.5	C
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Thru	1.181	154.3	F
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	WB Left	0.948	103.9	F
12	Fontaine Bl/Meridian Rd	Two-way stop	HCM 7th Edition	EB Left	0.320	11.7	B
40	Bradley Rd/RM Collector 1	Signalized	HCM 7th Edition	SB Right	0.951	28.4	C
46	RM Collector 2/RM Collector 4	Two-way stop	HCM 7th Edition	EB Left	0.019	10.0	A
48	Bradley Rd/RM Collector 2/BH Collector 1	Signalized	HCM 7th Edition	SB Right	0.903	30.4	C
49	Bradley Rd/Rolling Meadows Pkwy	Signalized	HCM 7th Edition	NB Left	0.745	16.4	B
50	Bradley Rd/RM Collector 3	Signalized	HCM 7th Edition	SB Right	0.736	15.0	B
51	Meridian Rd/RM Collector 3	Two-way stop	HCM 7th Edition	EB Left	0.211	15.3	C
59	Rolling Meadows Pkwy/TAZ 14 Access 1/TAZ 15 Access 1	Two-way stop	HCM 7th Edition	EB Left	0.255	76.6	F
60	Rolling Meadows Pkwy/Calf Creek Dr	Signalized	HCM 7th Edition	NB Left	0.485	13.2	B
61	Rolling Meadows Pkwy/Echoing Grass Wy	Two-way stop	HCM 7th Edition	EB Left	0.179	57.1	F
62	Rolling Meadows Pkwy/Prairie Song Dr	Roundabout	HCM 7th Edition	EB Thru		8.3	A
63	Prairie Song Dr/Hoof Hallow Pl/TAZ 16A Access 1	Two-way stop	HCM 7th Edition	EB Left	0.128	13.3	B
64	Meridian Rd/Prairie Song Dr	Two-way stop	HCM 7th Edition	EB Left	0.160	12.5	B
65	Rolling Meadows Pkwy/TAZ 14 Access 3/TAZ 16A Access 2	Two-way stop	HCM 7th Edition	EB Left	0.222	25.0	C
66	Rolling Meadows Pkwy/TAZ 16B Access 1/TAZ 18 Access 1	Two-way stop	HCM 7th Edition	EB Left	0.094	17.4	C
67	Rolling Meadows Pkwy/TAZ 16B Access 2/TAZ 18 Access 2	Two-way stop	HCM 7th Edition	EB Left	0.103	13.6	B
68	Rolling Meadows Pkwy/TAZ 16B Access 3/TAZ 18 Access 3	Two-way stop	HCM 7th Edition	EB Left	0.280	13.2	B
69	Rolling Meadows Pkwy/Parcel V Acees 2	Two-way stop	HCM 7th Edition	EB Left	0.024	9.9	A
70	Rolling Meadows Pkwy/Parcel V Access 1	Two-way stop	HCM 7th Edition	WB Left	0.014	10.5	B
71	Meridian Rd/BH Collector 1	Two-way stop	HCM 7th Edition	EB Left	0.035	14.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

As shown in Table 12 and Table 13, four out of six deficient intersections, namely Powers Boulevard/Bradley Road (#4), Marksheffel Road/Bradley Road (#5), US-24/US-94 (#10), and US-94/Marksheffel Road (#11) have the volume/capacity of above one or slightly lower than one despite the number of through and auxiliary lanes designed for these intersection in this study. Matrix compared its estimated volumes with the PPACG 2050 demand model, and the annual growth rates on Marksheffel Road north of Bradley Road, Fontaine Boulevard west of Marksheffel Road, and Powers Boulevard north of Bradley Road are all within one percent of the estimates in the 2050 travel demand model. Bradley Road west of Marksheffel Road, on the other hand, showed a higher annual growth rate, a 2 percent above the PPACG estimate (5.9% per year in the Matrix forecast vs. 3.92% per year in the PPACG model). Because adding too many lanes to a roadway can increase several safety risks such as increasing the length of the crosswalk or the length of the mast arm for signalized intersections, it is necessary to investigate additional arterial roadways, specifically east-west roadways as well grade separated interchanges in long term planning.

Rolling Meadows Parkway/TAZ 14 Access 1 (#59)

This stopped-controlled intersection operates at LOS F during both AM and PM peak hours. However, the queue on the worst movement (eastbound left-turn) is no more than 34-ft (1.34 vehicles) at any hour. As a result, Matrix does not recommend any mitigation.

Rolling Meadows Parkway/Echoing Grass Way (#61)

This stopped-controlled intersection operates at LOS F during both AM and PM peak hours. However, the queue on the worst movement (eastbound left-turn) is no more than 22-ft (1 vehicle) at any hour. As a result, Matrix does not recommend any mitigation.

Table 14. Horizon (2055) Total Turn Lane Evaluations

ID	Intersection	Access Category/Roadway Classification	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Improvement (ft) (vs Buildout Total)
1	Powers Bl/Fontaine Bl CDOT - SHAC Signalized	E-X	NBL	1	55	67	104	222	600	100	920	-
		E-X	NBR	1	55	913	-	222	600	-	820	-
		E-X	SBL	2	55	720	522	444	600	360	1405	-
		E-X	SBR	1	55	538	-	222	600	-	820	-
		NR-A	EBL	2	45	524	384	324	273	262	860	80
		NR-A	EBR	1	45	64	-	162	273	-	435	-
		NR-A	WBL	3	45	984	363	486	-	328	815	-
		NR-A	WBR	1	45	683	-	162	273	-	435	-
		NR-A	NBR to EBT Acceleration	1	45	913	-	162	388 *(Accel. Lane)*	N/A	550	-
		NR-A	SBR to WBT Acceleration	1	45	538	-	162	388 *(Accel. Lane)*	N/A	550	550
		E-X	EBR to SBT Acceleration	1	55	64	-	222	960 *(Accel. Lane)*	N/A	1180	-
		E-X	WBR to NBT Acceleration	1	55	683	-	222	960 *(Accel. Lane)*	N/A	1180	-
2	Marksheffel Rd/Fontaine Bl CCS -TCM Signalized	Principal Arterial	NBL	1	45	96	84	180	200	-	380	-
		Principal Arterial	NBR	1	45	441	258	180	200	-	380	-
		Principal Arterial	SBL	2	45	531	368	360	200	-	560	-
		Principal Arterial	SBR	1	45	674	356	180	200	-	380	-
		Principal Arterial	EBL	2	45	668	454	360	200	-	560	-
		Principal Arterial	EBR	1	45	96	50	180	200	-	380	-
		Principal Arterial	WBL	2	45	439	284	360	200	-	560	-
		Principal Arterial	WBR	1	45	768	512	180	200	-	380	-
3	Fontaine Bl/Lamprey Dr EPC - ECM Roundabout	Local	NBL	1	25	340	111	120	115	111	345	345
		Residential Collector	SBL/SBT	1	35	487	-	160	155	50	365	365
			SBR to WBT Acceleration	1	Occurs at Roundabout	487	-	90	-	-	90	-
4	Powers Bl/Bradley Rd CDOT - SHAC Signalized	E-X	NBL	2	65	344	284	600	800	172	1570	Additional turn lane
		E-X	NBR	1	65	1640	-	300	800	-	1100	-
		E-X	SBL	3	65	1378	1042	900	800	459	2160	Additional turn lane
		E-X	SBR	1	65	211	-	300	800	-	1100	Additional turn lane
		NR-A	EBL	1	45	252	471	162	273	252	685	Additional turn lane
		NR-A	EBR	1	45	371	-	162	273	-	435	Additional turn lane
		NR-A	WBL	3	45	1549	918	486	-	516	1000	170
		NR-A	WBR	1	45	1349	-	162	273	-	435	-
		NR-A	NBR to EBT Acceleration	1	45	1640	-	162	388 *(Accel. Lane)*	-	550	-
		NR-A	SBR to WBT Acceleration	1	45	211	-	162	388 *(Accel. Lane)*	-	550	-
		E-X	EBR to SBT Acceleration	1	65	371	-	300	1380 *(Accel. Lane)*	-	1680	-
		E-X	WBR to NBT Acceleration	1	65	1349	-	300	1380 *(Accel. Lane)*	-	1680	-
5	Marksheffel Rd/Bradley Rd CCS -TCM Signalized	Principal Arterial	NBL	2	45	553	560	360	260	-	620	Additional turn lane
		Principal Arterial	NBR	1	45	840	-	180	260	-	440	-
		Principal Arterial	SBL	2	45	755	1130	360	260	-	620	Additional turn lane
		Principal Arterial	SBR	1	45	646	-	180	260	-	440	-
		Principal Arterial	EBL	2	45	700	927	360	235	-	595	-
		Principal Arterial	EBR	1	45	334	-	180	235	-	415	-
		Principal Arterial	WBL	2	45	812	1003	360	200	-	560	Additional turn lane
		Principal Arterial	WBR	1	45	721	-	180	200	-	380	-
		Principal Arterial	NBR to EBT Acceleration	1	45	840	-	162	388 *(Accel. Lane)*	-	550	-
		Principal Arterial	SBR to WBT Acceleration	1	45	646	-	162	388 *(Accel. Lane)*	-	550	New Accelration Lane
		Principal Arterial	EBR to SBT Acceleration	1	45	334	-	162	388 *(Accel. Lane)*	-	550	-
		Principal Arterial	WBR to NBT Acceleration	1	45	812	-	162	388 *(Accel. Lane)*	-	550	New Accelration Lane

Horizon (2055) Total Turn Lane Evaluations (Continued)

ID	Intersection	Access Category/Roadway Classification	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Improvement (ft) (vs Buildout Total)
6	Bradley Rd/Meridian Rd EPC -ECM Signalized	Collector	NBL	1	35	44	49	**160**	**155**	**49**	**365**	25
		Collector	NBR	1	35	150	100	**160**	**155**	**100**	**415**	Additional turn lane
		Collector	SBL	1	35	185	217	**160**	**155**	**217**	**530**	Additional turn lane
		Collector	SBR	1	35	99	41	**160**	**155**	**41**	**355**	25
		Principal Arterial	EBL	1	45	64	25	**200**	**235**	**25**	**460**	5
		Principal Arterial	EBR	1	45	46	9	**200**	**235**	**9**	**445**	5
		Principal Arterial	WBL	1	45	166	109	**200**	**235**	**109**	**545**	60
		Principal Arterial	WBR	1	45	135	27	**200**	**235**	**27**	**460**	25
7	Powers Bl/Milton E Proby Pkwy CDOT - SHAC Signalized	E-X	NBL	3	60	1021	402	**900**	**700**	**340**	**1940**	-
		E-X	NBR	1	60	226	-	**300**	**700**	**-**	**1000**	-
		E-X	SBL	2	55	443	296	**444**	**600**	**222**	**1265**	-
		E-X	SBR	1	55	655	-	**222**	**600**	**-**	**820**	-
		E-X	EBL	2	55	492	416	**444**	**600**	**246**	**1290**	Turn lane is currently provided to the available intersection
		E-X	EBR	1	55	933	-	**222**	**600**	**-**	**820**	Improvement should be made to the available intersection spacing
		E-X	WBL	2	55	222	204	**444**	**600**	**111**	**1155**	30
		E-X	WBR	1	55	355	-	**222**	**600**	**-**	**820**	-
		E-X	NBR to EBT Acceleration	1	55	1021	-	**222**	**960** ***(Accel. Lane)***	**-**	**1180**	-
		E-X	SBR to WBT Acceleration	1	55	655	-	**222**	**960** ***(Accel. Lane)***	**-**	**1180**	-
		E-X	EBR to SBT Acceleration	1	55	933	-	**222**	**960** ***(Accel. Lane)***	**-**	**1180**	-
		E-X	WBR to NBT Acceleration	1	60	355	-	**300**	**1170** ***(Accel. Lane)***	**-**	**1470**	-
8	Marksheffel Rd/Drennan Rd CCS -TCM Signalized	Principal Arterial	NBL	1	45	170	158	**180**	**200**	**-**	**380**	-
		Principal Arterial	NBR	1	45	130	59	**180**	**200**	**-**	**380**	-
		Principal Arterial	SBL	1	45	305	243	**180**	**200**	**-**	**380**	-
		Principal Arterial	SBR	1	45	24	10	**180**	**200**	**-**	**380**	-
		Minor Arterial	EBL	1	40	39	184	**160**	**155**	**-**	**315**	Exclusive left-turn is not recommended due to low through
		Minor Arterial	WBL	1	45	147	368	**180**	**200**	**-**	**380**	-
		Principal Arterial	WBR	1	45	331	-	**180**	**200**	**-**	**380**	Additional turn lane
9	Meridian Rd/ Drennan Rd EPC - ECM Stop-Controlled	Collector	NBL	1	35	180	12	**160**	**155**	**-**	**315**	Additional turn lane
10	Highway-24/Highway-94 CDOT - SHAC Signalized	E-X	NBL (US-94)	3	55	1274	1347	**666**	**600**	**425**	**1690**	100
		E-X	NBR (US-94)	1	55	24	26	**222**	**600**	**-**	**820**	-
		F-R	SBL (Newt Dr.)	2	30	173	233	**192**	**-**	**87**	**280**	-
		F-R	SBR (Newt Dr.)	1	30	536	-	**96**	**-**	**25**	**120**	-
		E-X	EBL (US-24)	2	55	512	759	**444**	**600**	**256**	**1300**	65
		E-X	EBR (US-24)	1	55	1733	-	**222**	**600**	**-**	**820**	-
		E-X	WBL (US-24)	1	65	28	25	**300**	**800**	**25**	**1125**	-
		E-X	WBR (US-24)	1	65	233	165	**300**	**800**	**-**	**1100**	-
		NR-A	NBR to EBT Acceleration	1	55	24	-	**222**	**740** ***(Accel. Lane)***	**-**	**960**	New Acceleration Lane
		NR-A	SBR to WBT Acceleration	1	65	536	-	**300**	**1080** ***(Accel. Lane)***	**-**	**1380**	-
		E-X	EBR to SBT Acceleration	1	55	1733	-	**222**	**960** ***(Accel. Lane)***	**-**	**1180**	-

Horizon (2055) Total Turn Lane Evaluations (Continued)

ID	Intersection	Access Category/Roadway Classification	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Improvement (ft) (vs Buildout Total)
11	Highway-94/Marksheffel Rd CDOT - SHAC Signalized	NR-A	NBL	2	45	679	1098	324	111	340	775	40
		NR-A	NBR	1	45	543	276	162	273	-	435	-
		NR-A	SBL	2	45	505	802	324	111	253	690	40
		NR-A	SBR	1	45	74	72	162	338	-	500	-
		E-X	EBL	1	50	112	157	180	500	112	790	-
		E-X	EBR	1	50	759	-	180	500	-	680	-
		E-X	WBL	2	65	604	120	600	800	302	1700	55
		E-X	WBR	1	65	767	-	300	800	-	1100	-
		E-X	SBR to WBT Acceleration	1	65	74	-	300	1,170 *(Accel. Lane)*	-	1470	-
		NR-A	EBR to SBT Acceleration	1	45	759	-	180	580 *(Accel. Lane)*	-	760	-
		NR-A	WBR to NBT Acceleration	1	45	767	-	180	740 *(Accel. Lane)*	-	960	-
12	Fontaine Bl/Meridian Rd EPC - ECM Stop-Controlled	Minor Arterial	SBR	1	35	199	-	160	155	-	315	-
		Minor Arterial	EBLT	1	35	233	35	160	155	233	550	-
40	Bradley Rd/RM Collector #1 EPC - ECM Signalized	Collector	SBL	1	35	13	24	160	155	24	340	15
		Collector	SBR	2	35	560	176	320	155	176	650	75
		Principal Arterial	EBL	2	45	453	394	400	235	394	1030	195
		Collector	EBLto NBT Receiving Lane	1	35	-	-	120	*270 (Accel. Lane)*	-	390	-
46	RM Collector #2 / RM Collector #4 EPC - ECM Stop-Controlled	Collector	NBL	1	35	58	3	160	155	-	315	-
		Collector	EBL	1	35	13	-	160	155	-	315	-
48	Bradley Rd/RM Collector #2/BH Collector #1 EPC - ECM Signalized	Collector	SBL	1	35	62	78	160	155	78	395	-
		Principal Arterial	EBL	1	45	139	30	200	235	30	465	10
		Principal Arterial	WBR	1	45	47	5	200	235	5	440	-
49	Bradley Rd/Rolling Meadows Pkwy EPC - ECM Signalized	Collector	NBL	2	35	946	405	320	155	405	880	150
		Principal Arterial	EBR	1	45	948	249	200	235	249	685	90
		Principal Arterial	WBL	1	45	58	22	200	235	22	455	-
		Principal Arterial	EBT Accel. Lane	1	45	-	-	162	*550 (Accel. Lane)*	-	710	-
50	Bradley Rd/RM Collector #3 EPC - ECM Signalized	Collector	SBL	1	35	73	41	160	155	41	355	-
		Principal Arterial	EBL	2	45	410	59	400	235	59	695	-
		Principal Arterial	WBR	1	45	64	4	200	235	4	440	-
		Collector	EBLto NBT Receiving Lane	1	45	-	-	162	*550 (Accel. Lane)*	-	710	-
51	Meridian Rd/RM Collector #3 CCS -TCM Stop-Controlled	Collector	SBR	1	35	143	18	140	120	-	260	-
		Collector	EBL	1	35	86	-	140	120	-	260	-
59	Rolling Meadows Pkwy/TAZ 14 Access EPC - ECM Stop-Controlled	Collector	NBL	1	35	-	-	-	-	50	50	-
		Collector	SBL	1	35	15	2	160	155	50	365	-
		Collector	SBR	1	35	25	-	160	155	-	315	-
		Local	EBLT	1	25	25	33	120	115	50	285	-
60	Rolling Meadows Pkwy/Calf Creek Dr EPC - ECM Signalized	Collector	NBL	1	35	-	2	160	155	50	365	-
		Collector	SBL	1	35	151	85	160	155	70	385	-
		Collector	SBR	1	35	46	9	160	155	25	340	-

Horizon (2055) Total Turn Lane Evaluations (Continued)

ID	Intersection	Access Category/Roadway Classification	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Improvement (ft) (vs Buildout Total)
61	Rolling Meadows Pkwy/Echoing Grass Wy EPC - ECM Stop-Controlled	Collector	NBL	1	35	2	-	160	155	50	365	-
		Collector	SBL	1	35	128	11	160	155	50	365	-
		Collector	EBL	1	25	19	21	120	115	25	260	-
		Collector	WBL	1	25	21	13	150	115	25	290	-
63	Prairie Song Dr/Hoof Hallow Pl/TAZ 16A Access 1 EPC - ECM Stop-Controlled	Collector	EBL	1	35	59	11	160	155	50	365	-
		Collector	EBR	1	35	74	6	160	155	-	315	-
		Collector	WBL	1	35	23	4	160	155	50	365	-
		Collector	WBR	1	35	71	6	160	155	-	315	-
64	Meridian Rd/Prairie Song Dr EPC - ECM Stop-Controlled	Collector	NBL	1	35	30	2	160	155	-	315	-
		Collector	SBR	1	35	142	-	160	155	-	315	-
		Collector	EBL	1	35	127	20	160	155	150	465	-
65	Rolling Meadows Pkwy/TAZ-14 Access 3 EPC - ECM Stop-Controlled	Collector	SBL	1	35	101	8	160	155	100	415	-
		Collector	SBR	1	35	55	-	160	155	-	315	-
66	Rolling Meadows Pkwy/TAZ-16B Access 1 EPC - ECM Stop-Controlled	Collector	NBL	1	35	34	2	160	155	25	340	-
		Collector	NBR	1	35	49	-	160	155	-	315	-
		Collector	SBL	1	35	56	4	160	155	25	340	-
		Collector	SBR	1	35	47	-	160	155	-	315	-
67	Rolling Meadows Pkwy/TAZ-16B Access 2 EPC - ECM Stop-Controlled	Collector	NBL	1	35	50	3	160	155	-	315	-
		Collector	SBR	1	35	102	0	160	155	-	315	-
		Local	EBL	1	25	107	20	120	115	100	335	-
68	Rolling Meadows Pkwy/TAZ-16B Access 3 EPC - ECM Stop-Controlled	Collector	SBL	1	35	46	7	160	155	50	365	-
		Collector	SBR	1	35	124	11	160	155	-	315	-
		Local	EBL	1	25	156	29	120	155	150	425	-
69	Rolling Meadows Pkwy/TAZ-16B Access 3 EPC - ECM Stop-Controlled	Collector	NBR	1	35	57	6	160	155	-	315	-
71	Rolling Meadows Pkwy/Meridian Rd EPC - ECM Stop-Controlled	Collector	NBL	1	35	116	7	160	155	115	430	-
		Collector	EBL	1	35	16	2	160	155	25	340	-

A summary of the recommended improvements is as follows:

Powers Boulevard/Fontaine Boulevard (#1)

- A 80-ft extension of eastbound left-turn lane.
- A 550-ft extension of southbound right-turn to westbound thru acceleration lane.

Fontaine Boulevard/Lamprey Drive (#3)

- A 345-ft northbound left-turn lane. Include 120-ft of taper, 115-ft of deceleration lane and 111-ft of storage.
- A 365-ft shared southbound left/thru turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.

Powers Boulevard/Bradley Road (#4)

- An additional northbound left-turn lane. Include 600-ft of taper, 800-ft of deceleration lane and 172-ft of storage for a total length of 1,570-ft.
- An additional southbound left-turn lane. Include 900-ft of taper, 800-ft of deceleration lane and 459-ft of storage for a total length of 2,160-ft.
- An additional southbound right-turn lane. Include 300-ft of taper and 800-ft of deceleration lane for a total length of 1,100-ft.
- An additional eastbound left-turn lane. Include 162-ft of taper, 273-ft of deceleration lane and 253-ft of storage for a total length of 685-ft.
- An additional eastbound right-turn lane. Include 162-ft of taper and 273-ft of deceleration lane for a total length of 435-ft.
- A 170-ft extension of westbound left-turn lane.

Marksheffel Road/Bradley Road (#5)

- An additional northbound left-turn lane. Include 360-ft of taper and 260-ft of deceleration lane for a total length of 620-ft.
- An additional southbound left-turn lane. Include 360-ft of taper and 260-ft of deceleration lane for a total length of 620-ft.
- An additional westbound left-turn lane. Include 360-ft of taper and 200-ft of deceleration lane for a total length of 560-ft.
- A 550-ft southbound right-turn to westbound thru acceleration lane. Include 162-ft of taper and 388-ft of acceleration lane.
- A 550-ft westbound right-turn to northbound thru acceleration lane. Include 162-ft of taper and 388-ft of acceleration lane.

Bradley Road/Meridian Road (#6)

- A 25-ft extension of northbound left-turn lane.
- An additional northbound right-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 100-ft of storage for a total length of 415-ft.
- An additional southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 215-ft of storage for a total length of 530-ft.
- A 25-ft extension of southbound right-turn lane.
- A 5-ft extension of eastbound left-turn lane.
- A 5-ft extension of eastbound right-turn lane.
- A 60-ft extension of westbound left-turn lane.
- A 25-ft extension of westbound right-turn lane.

Powers Boulevard/Milton E Proby Parkway (#7)

- A 30-ft extension of westbound left-turn lane.

Marksheffel Road/Drennan Road (#8)

- An additional westbound right-turn lane. Include 180-ft of taper and 200-ft of deceleration lane for a total length of 380-ft.

Meridian Road/ Drennan Road (#9)

- An additional northbound left-turn lane. Include 160-ft of taper and 155-ft of deceleration lane for a total length of 315-ft.

Highway-24/Highway-94 (#10)

- A 100-ft extension of northbound left-turn lane.
- A 65-ft extension of eastbound left-turn lane.
- A 960-ft northbound right to eastbound thru acceleration lane. Include 222-ft of taper and 740-ft of acceleration lane.

Highway-94/Marksheffel Road (#11)

- A 40-ft extension of northbound left-turn lane.
- A 40-ft extension of southbound left-turn lane.
- A 55-ft extension of westbound left-turn.

Bradley Road/RM Collector #1 (#40)

- A 15-ft extension of southbound left-turn lane.
- A 75-ft extension of southbound right-turn lane.
- A 195-ft extension of eastbound left-turn lane.

Bradley Road/RM Collector #2/BH Collector #1 (#48)

- A 10-ft extension of eastbound left-turn lane.

Bradley Road/Rolling Meadows Parkway (#49)

- A 150-ft extension of northbound left-turn lane.
- A 90-ft extension of eastbound right-turn lane.

7. Antelope Ridge at Bull Hill

Antelope Ridge (Phase 1), a development within the Bull Hill development, is located south of Bradley Road and spans both sides of a planned north-south collector roadway. This collector is proposed to be constructed approximately 3,800 feet west of Meridian Road. Phase 1 is planned to include 472 single-family detached residential units. Buildout is anticipated in the year 2028. Figure 30 shows the vicinity map and the location of the project. The trip generation and trip distribution are shown in Table 15 and Figure 32, respectively. Figure 31 shows the site plan. This initial phase will consist of 472 single-family detached homes. It was assumed that 30 percent of the adjacent developments would be built by 2028.

Figure 30. Antelope Ridge at Bull Hill Vicinity Map

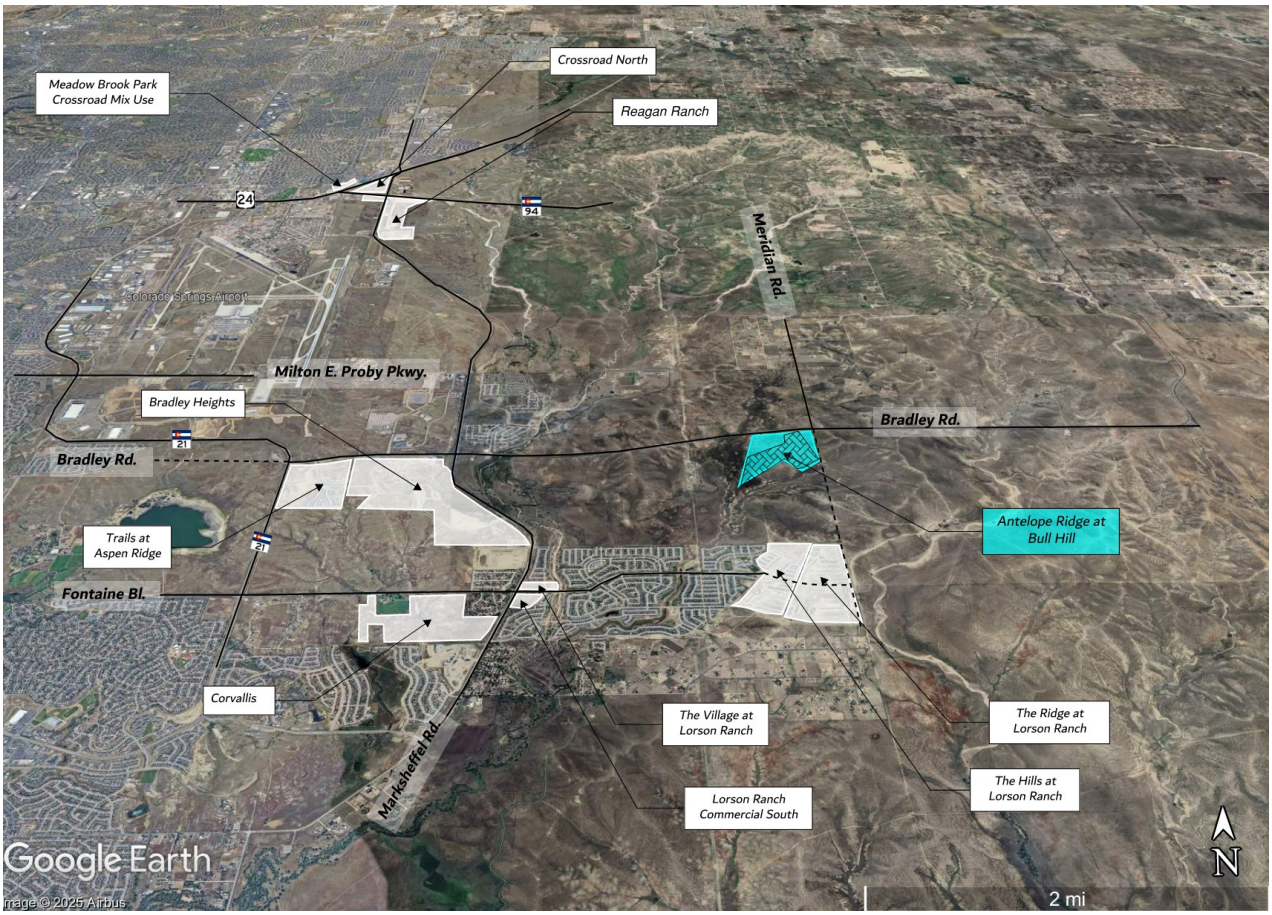


Figure 31. Antelope Ridge at Bull Hill Site Plan

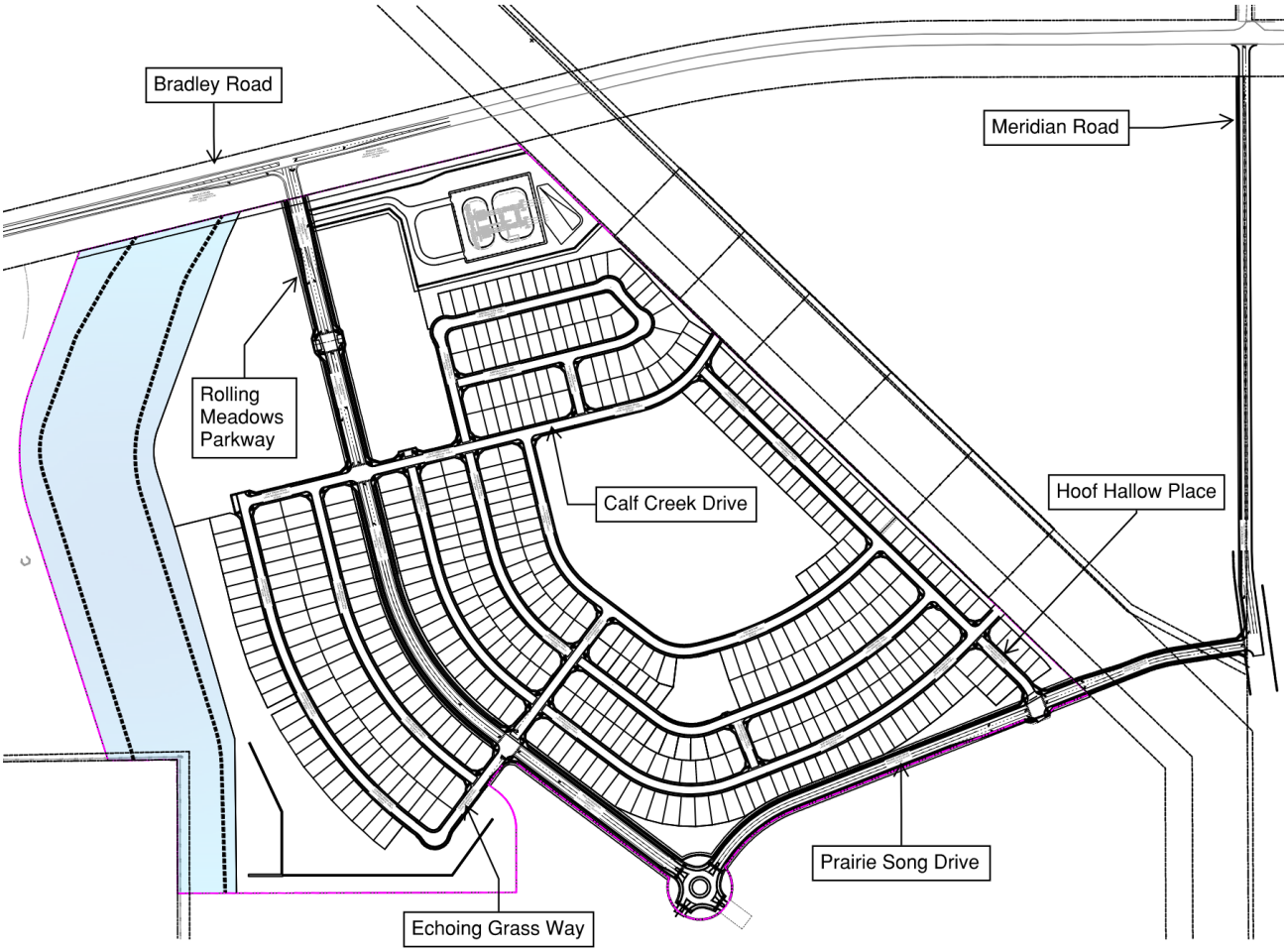
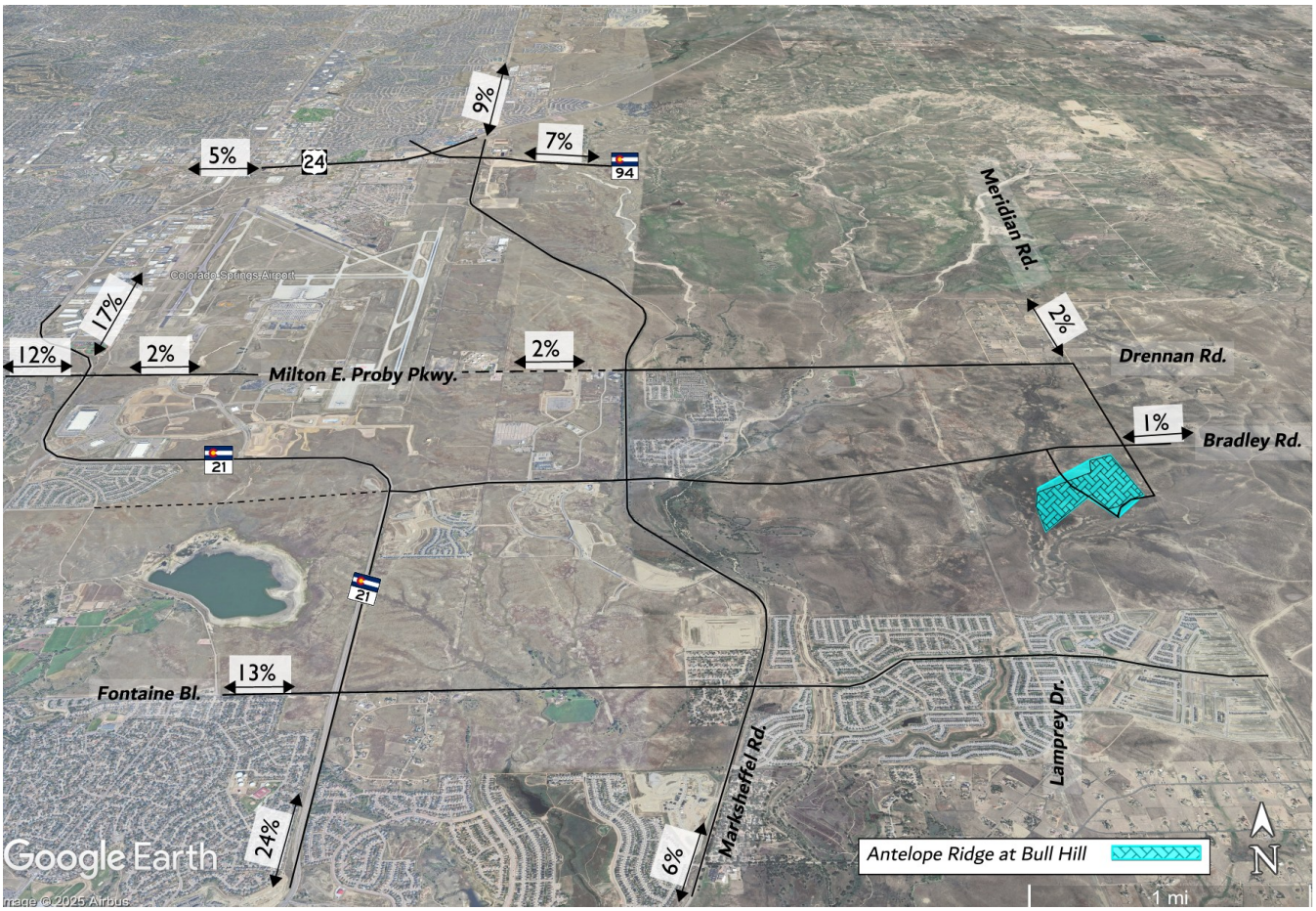


Table 15. Antelope Ridge at Bull Hill Trip Generation

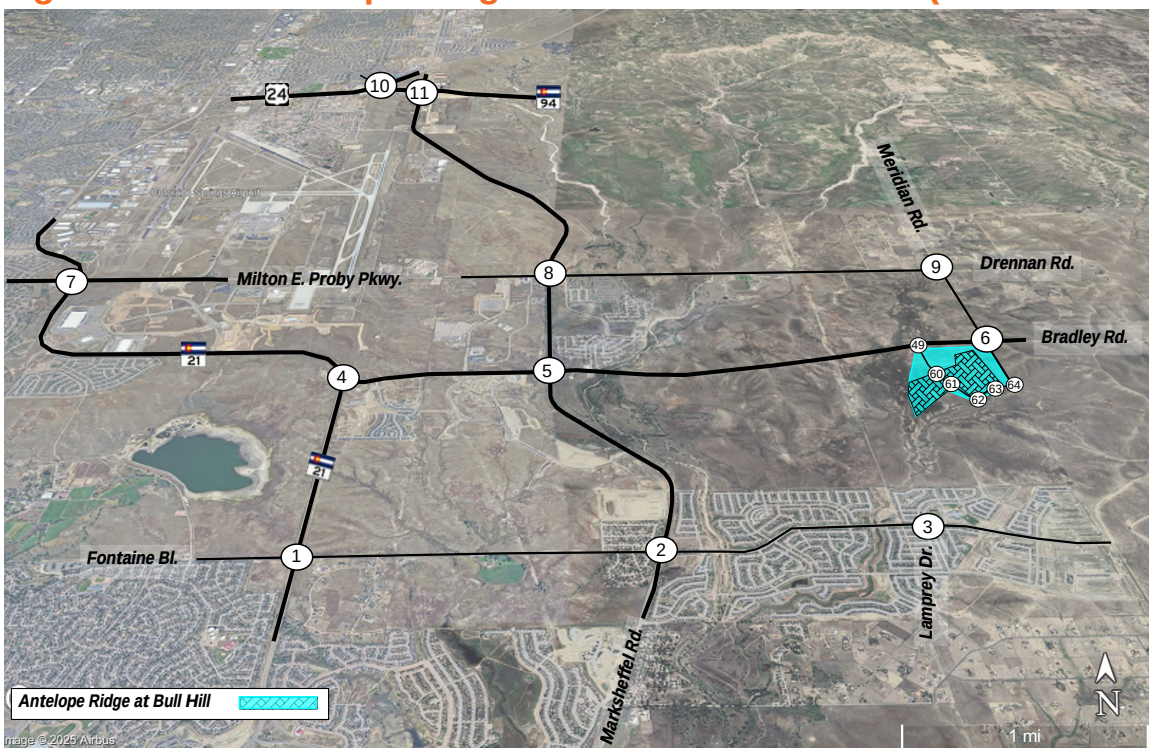
Development	DU	Land Use	AM PEAK HOUR			PM PEAK HOUR			WEEKDAY		
			Entry	Exit	Total	Entry	Exit	Total	Entry	Exit	Total
Antelope Ridge at Bull Hill	472	210 - Single-Family Detached Housing	76	229	**305**	269	158	**427**	2,103	2,103	**4,206**

Figure 32. Antelope Ridge at Bull Hill (Phase 1) Trip Distribution



As shown in Figure 32, the trip distribution for the Antelope Ridge at Bull Hill Phase 1 development for the buildout year (2028) was adjusted, since Meridian Road north of Fontaine Boulevard will not be constructed and the improvements on Curtis Road are unlikely to be completed by then. The site trips for the Antelope Ridge project in the AM Peak hour are shown in Figure 33 and the site trips in the PM peak hour are shown in Figure 34. The daily site traffic is shown in Figure 35.

Figure 33. Antelope Ridge at Bull Hill Site Traffic (AM Peak Hour)



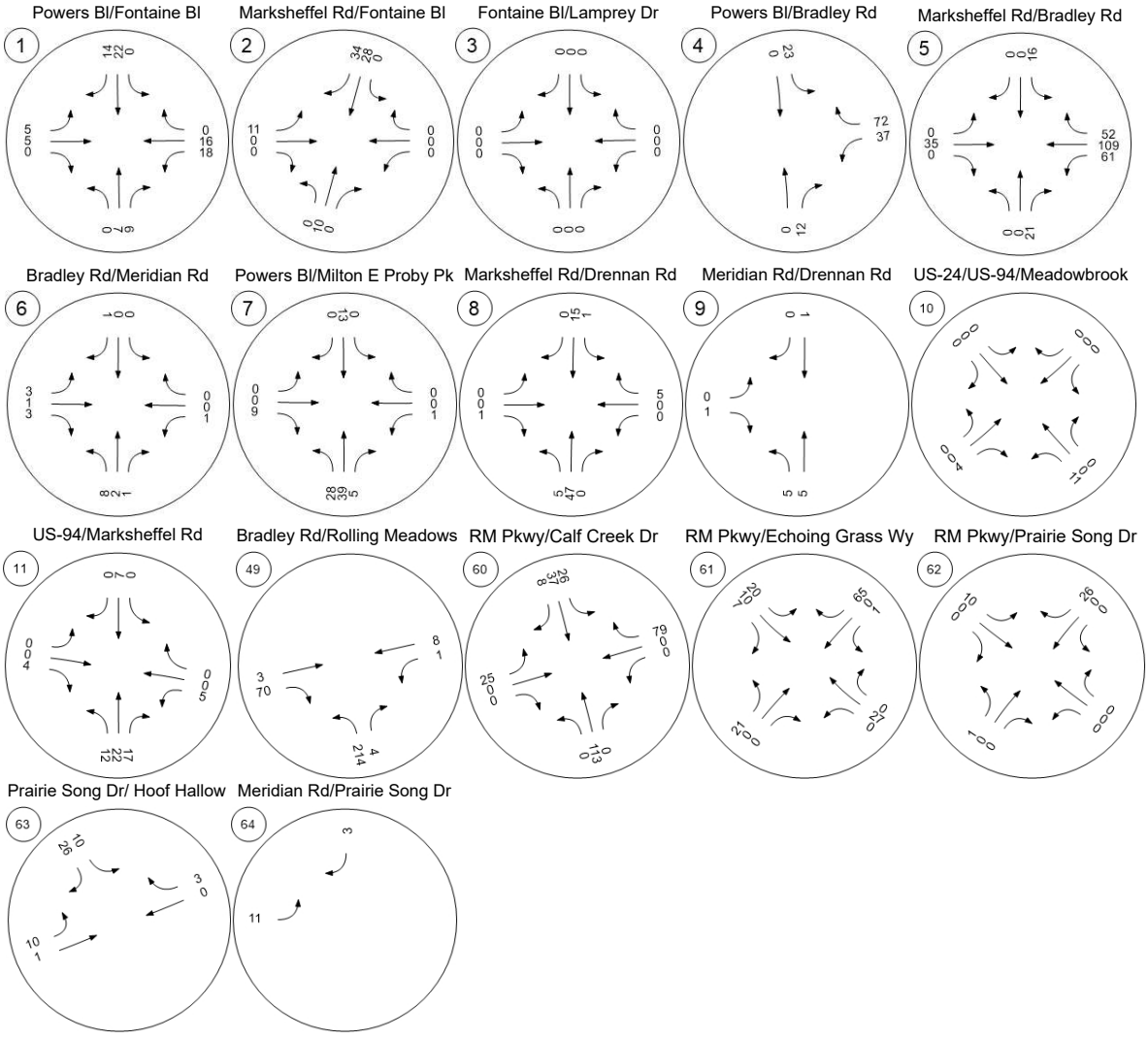
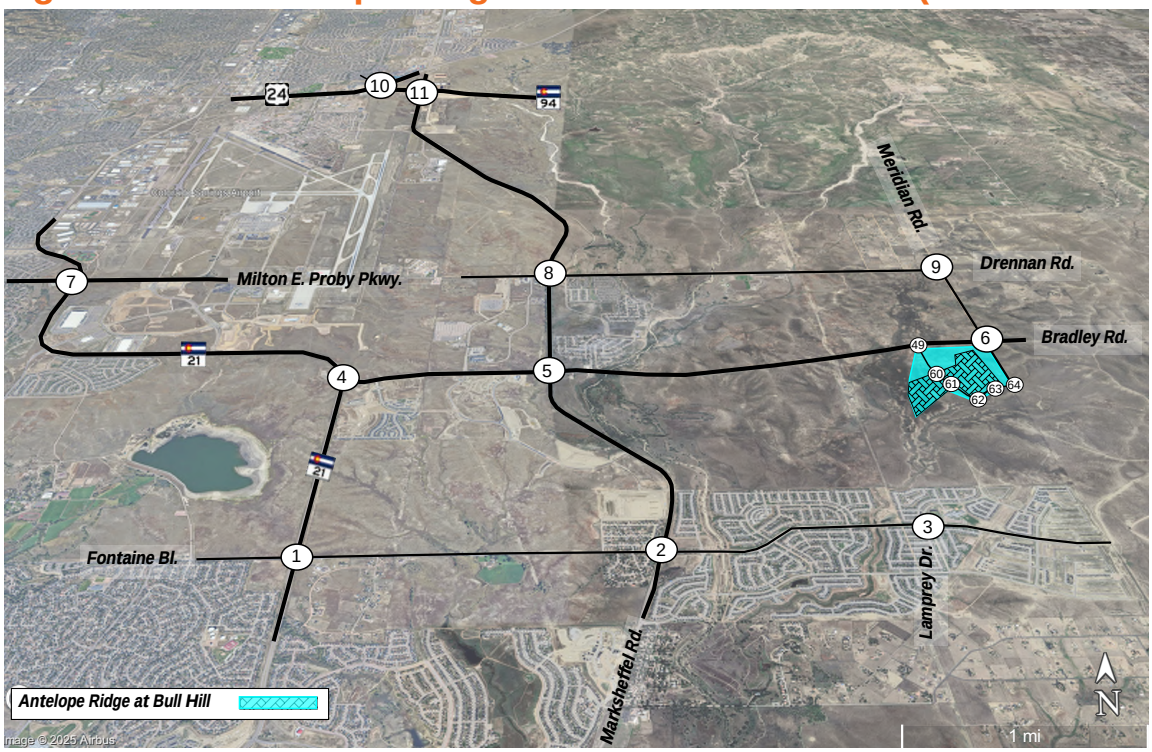


Figure 34. Antelope Ridge at Bull Hill Site Traffic (PM Peak Hour)



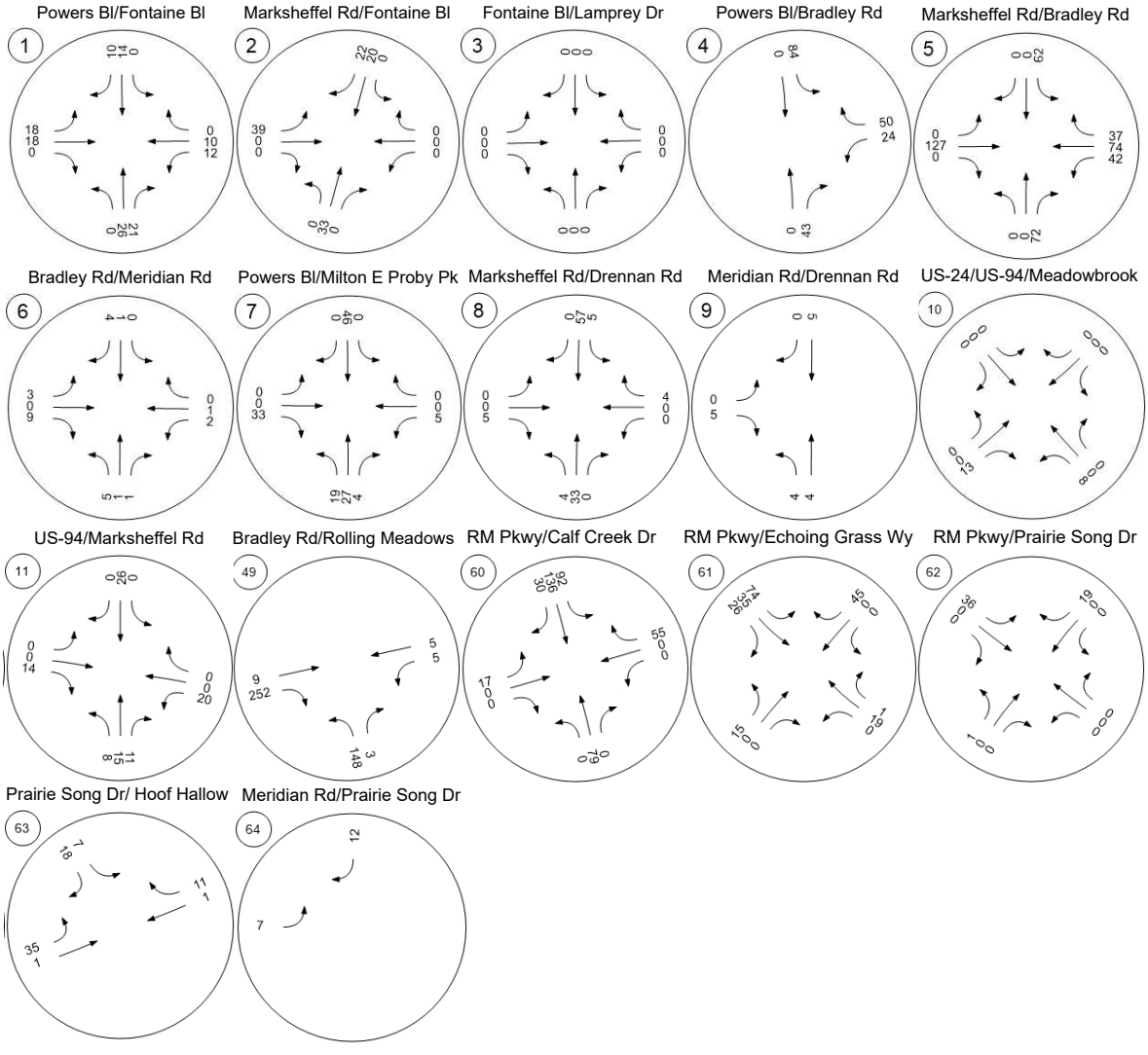
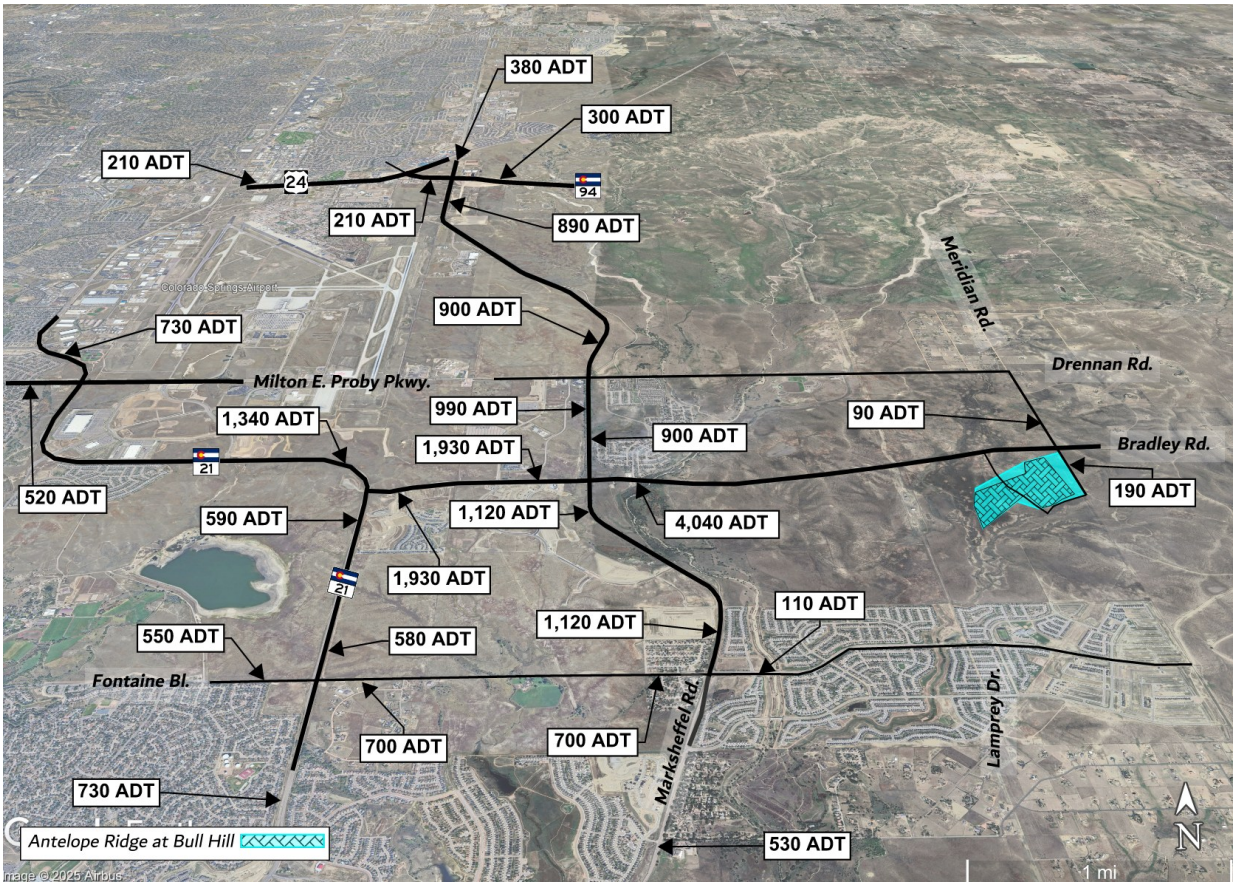


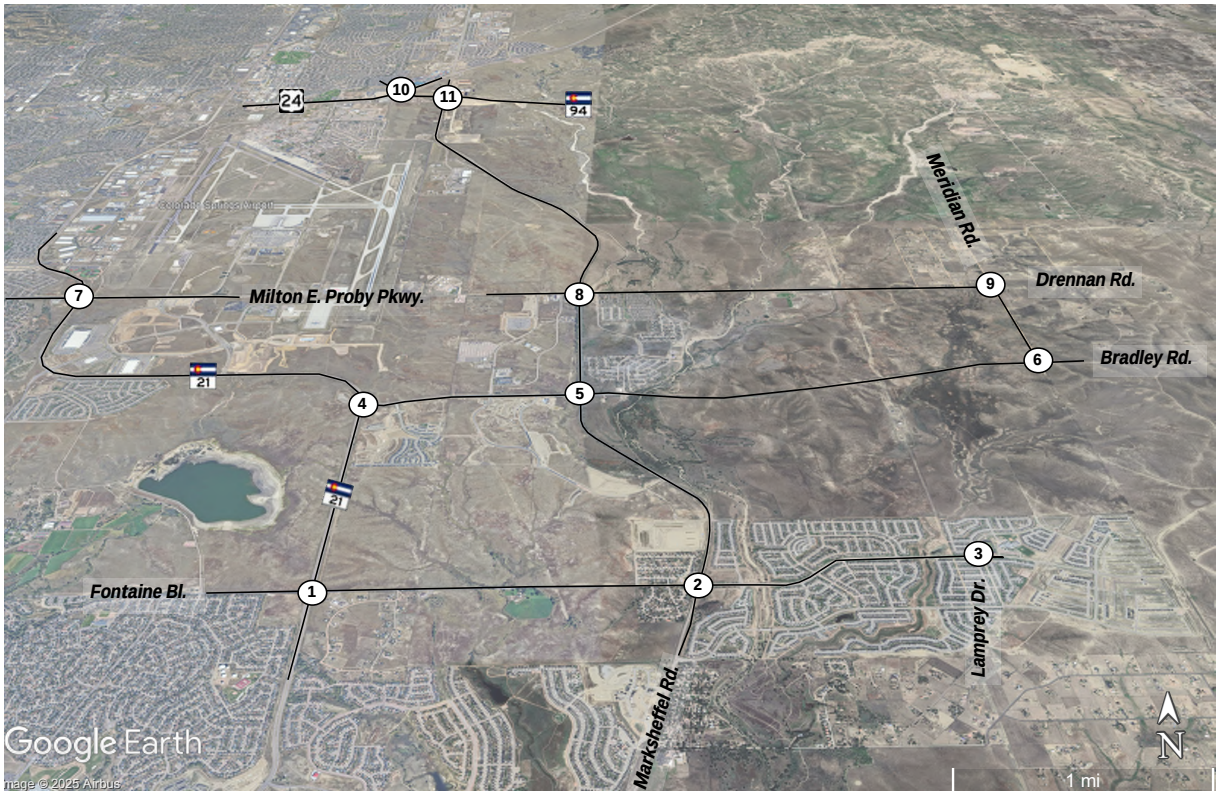
Figure 35. Antelope Ridge at Bull Hill Daily Site Traffic



7.1 Buildout (2028) Background Conditions

The volumes for the AM and PM peak hour without the project are shown in Figure 36 and Figure 37, respectively. The daily volumes without the project are shown in Figure 38.

Figure 36. Buildout (2028) Background Volumes (AM Peak Hour)



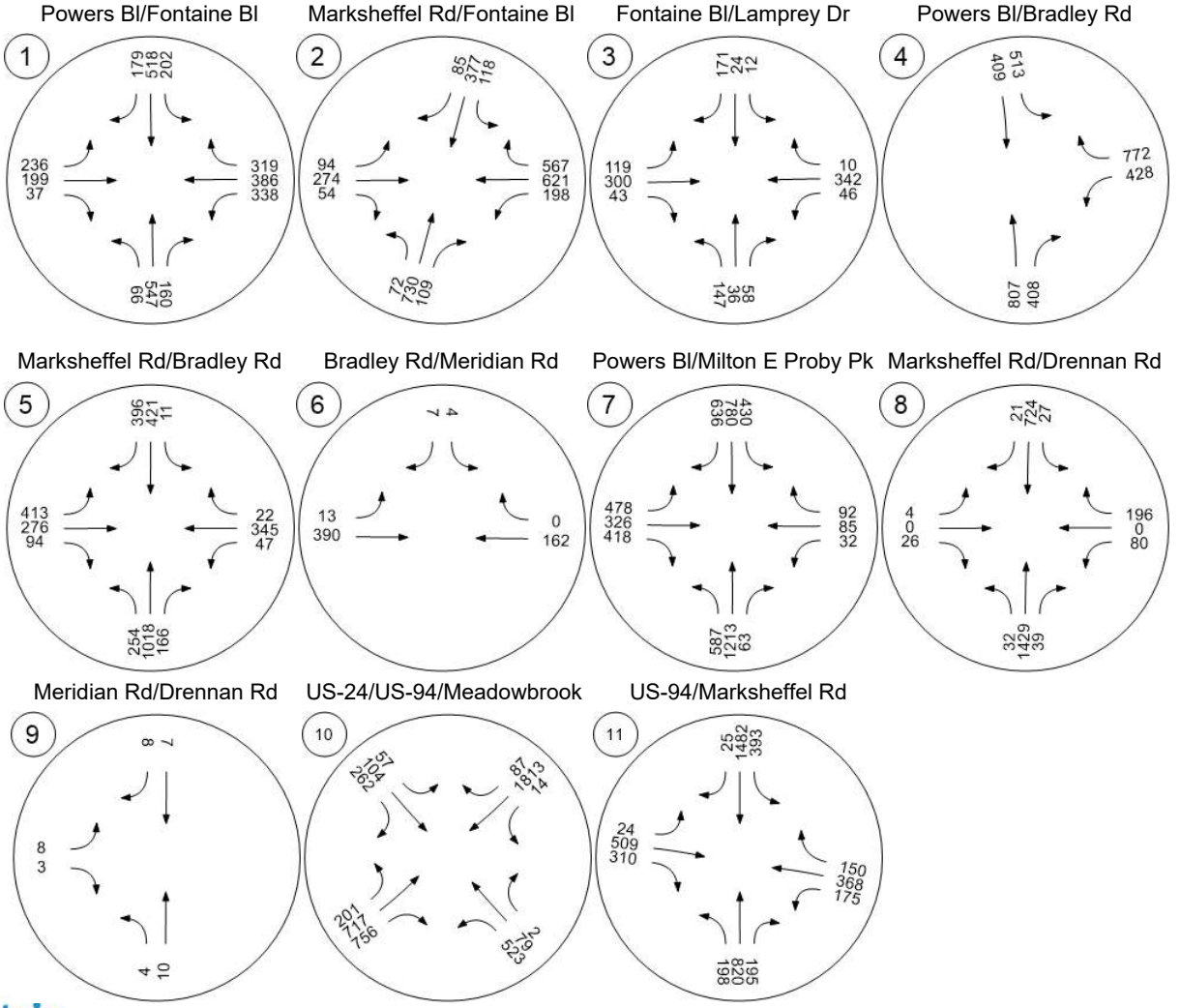


Figure 37. Buildout (2028) Background Volumes (PM Peak Hour)

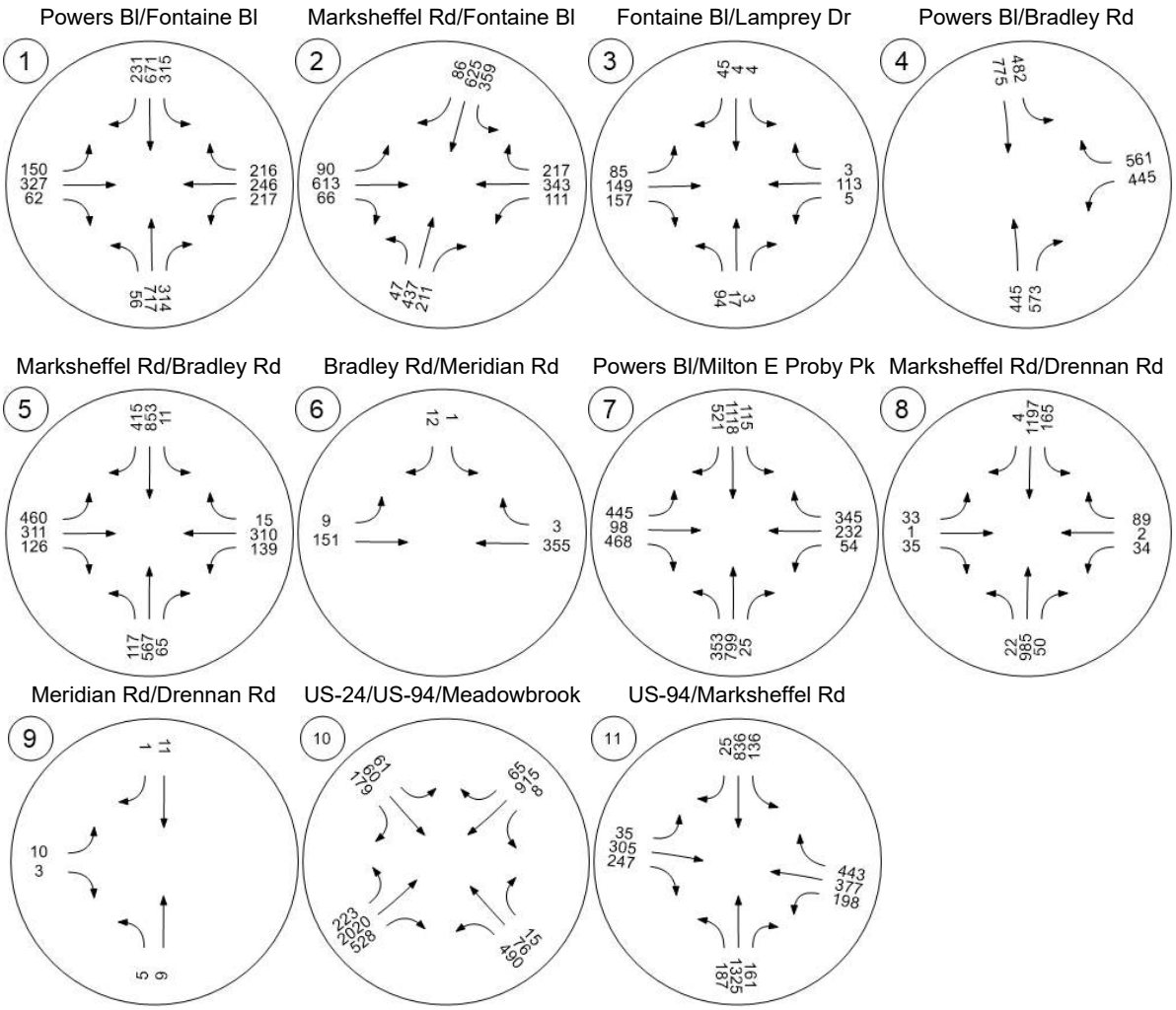
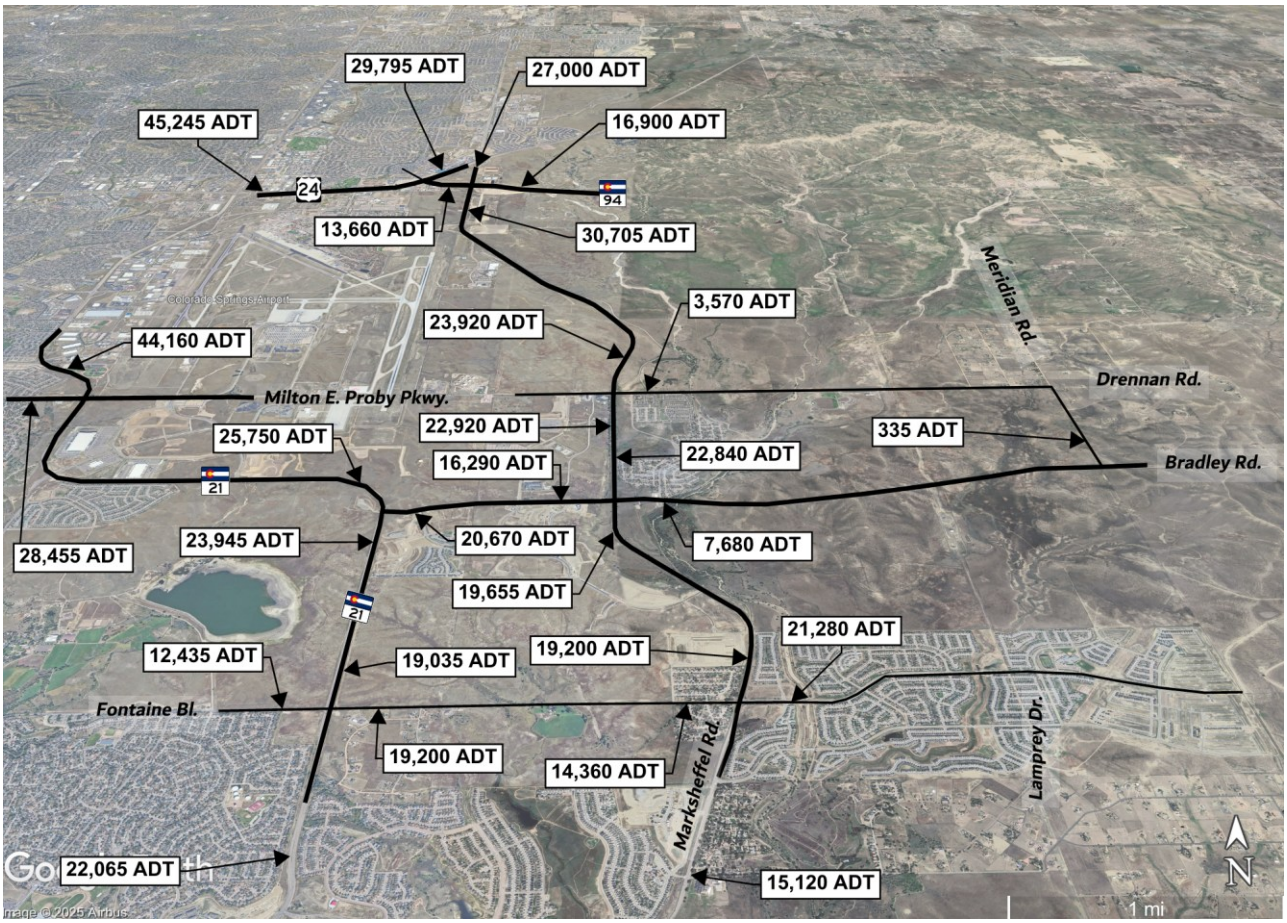


Figure 38. Buildout (2028) Background Daily Volumes



The intersection configuration with approach LOS is shown below in Figure 39. The intersection operations for the buildout (2028) background in AM and PM peak hours are shown in Table 16 and Table 17, respectively.

Figure 39. Buildout (2028) Background Intersection Configurations and LOS

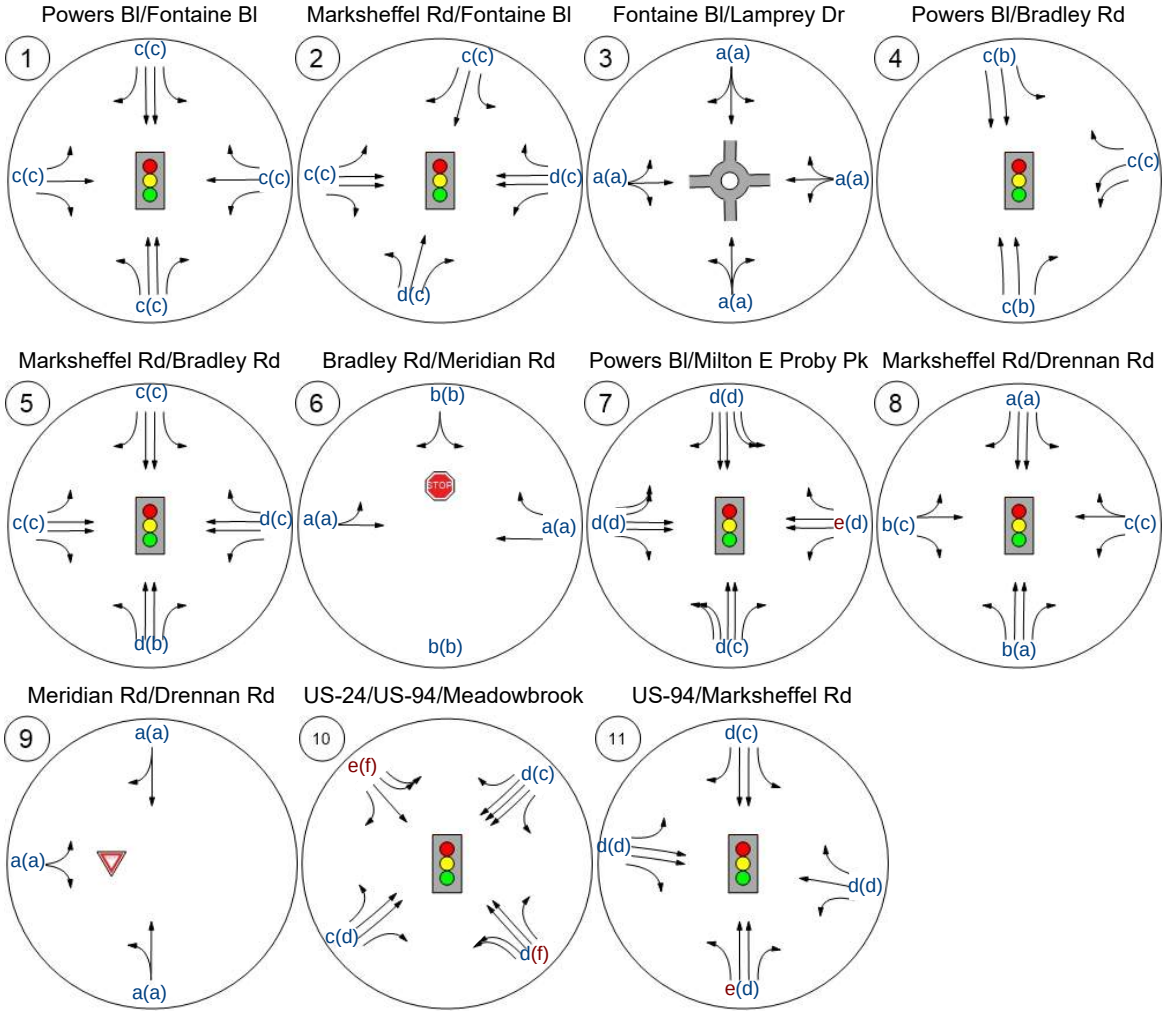


Table 16. Buildout (2028) Background Intersection Operations (AM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	WB Thru	0.582	26.8	C
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	WB Right	0.699	38.2	D
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	WB Thru		8.0	A
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	SB Left	0.716	30.7	C
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	EB Left	0.673	36.0	D
6	Bradley Rd/Meridian Rd	Two-way stop	HCM 7th Edition	SB Left	0.009	13.3	B
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	WB Left	0.687	41.4	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	WB Left	0.503	11.3	B
9	Meridian Rd/Drennan Rd	Two-way yield	HCM 7th Edition	EB Left	0.009	3.8	A
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Right	0.707	36.3	D
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	NB Left	0.765	54.9	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 17. Buildout (2028) Background Intersection Operations (PM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	EB Thru	0.636	26.6	C
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	EB Thru	0.646	30.9	C
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	EB Right		5.0	A
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	WB Right	0.560	16.9	B
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	SB Thru	0.617	25.8	C
6	Bradley Rd/Meridian Rd	Two-way stop	HCM 7th Edition	SB Left	0.002	12.6	B
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	WB Left	0.710	35.9	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	WB Left	0.417	7.7	A
9	Meridian Rd/Drennan Rd	Two-way yield	HCM 7th Edition	EB Left	0.011	3.8	A
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Right	0.834	48.2	D
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	SB Left	0.676	35.4	D

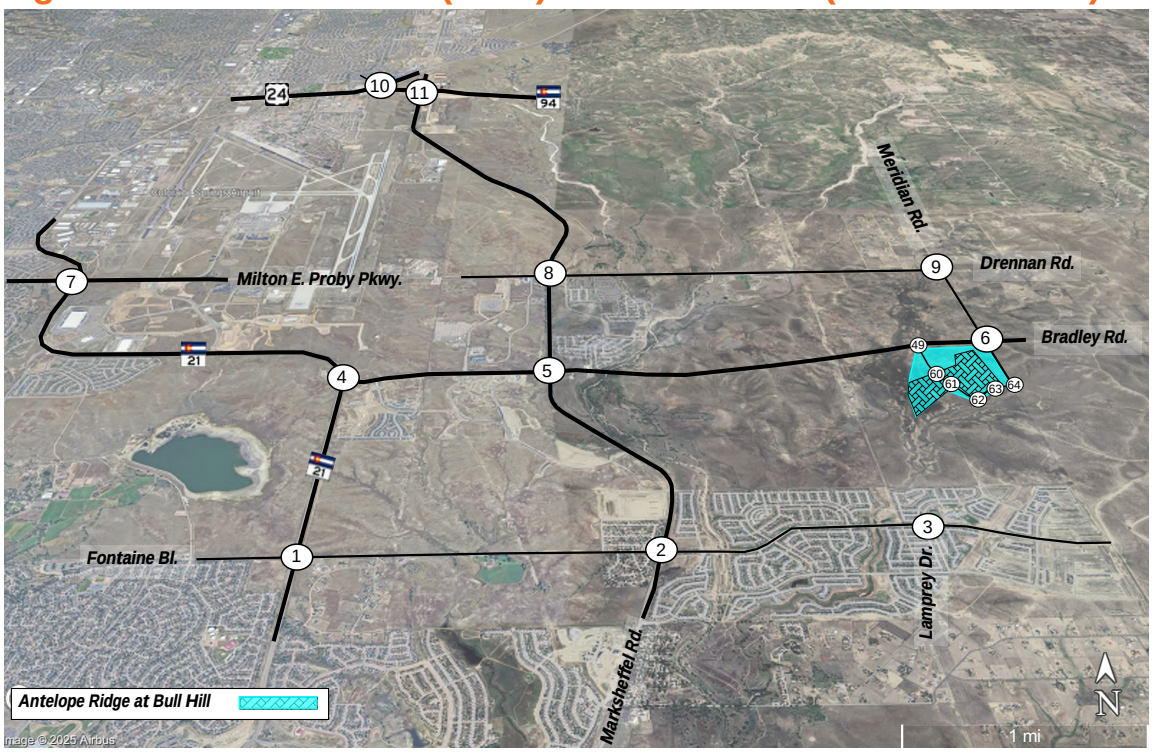
V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

As shown in Table 16 and Table 17, all intersections operate at an acceptable LOS in the buildout (2028) year without the Phase 1 project.

7.2 Buildout (2028) Total Conditions

The AM and PM volumes with the addition of the project at buildout (2028) year are shown in Figure 40 and Figure 41, respectively. Daily traffic is shown in Figure 42. The lane configurations with approach LOS are shown in Figure 43.

Figure 40. Buildout (2028) Total Volumes (AM Peak Hour)



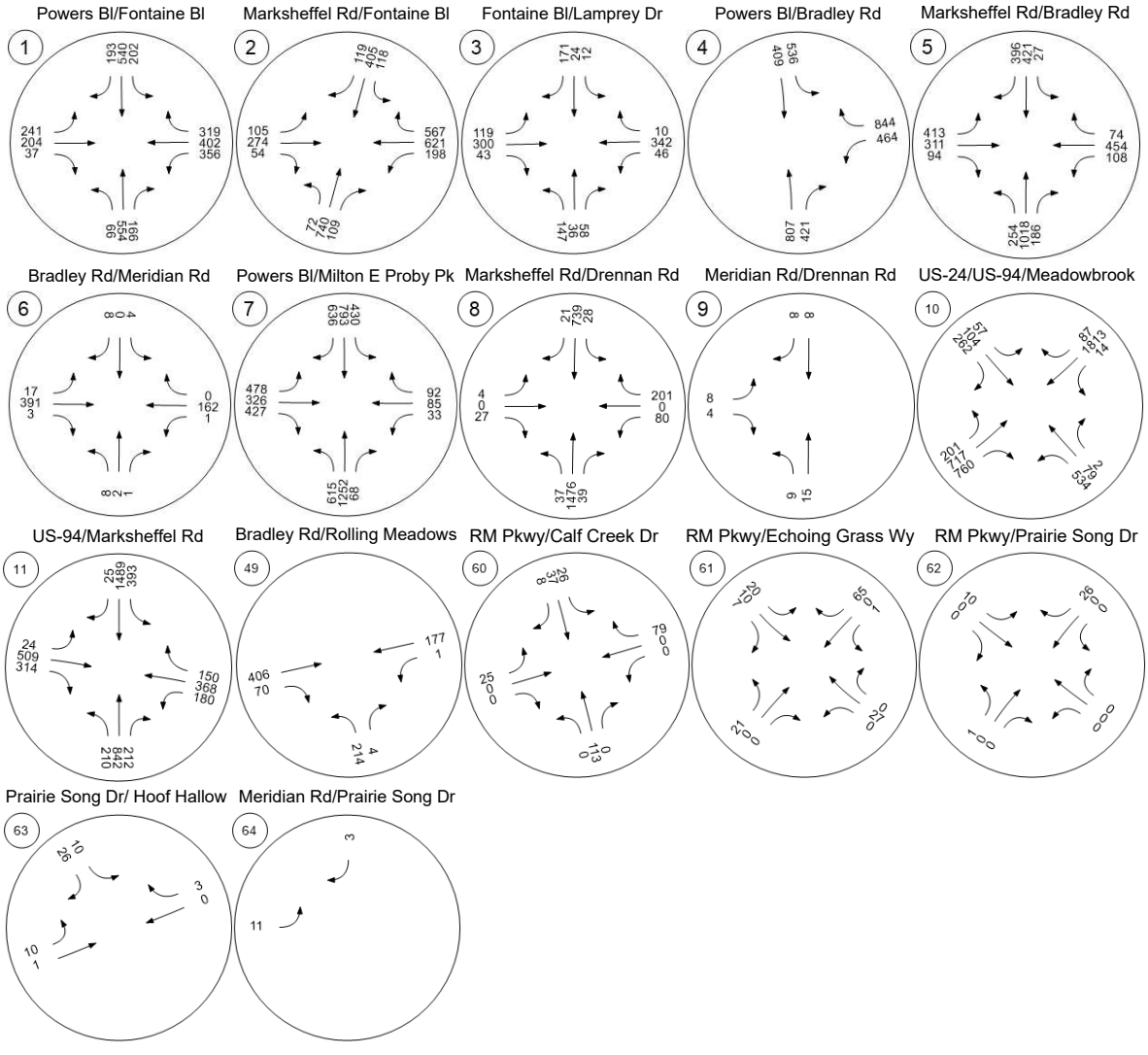
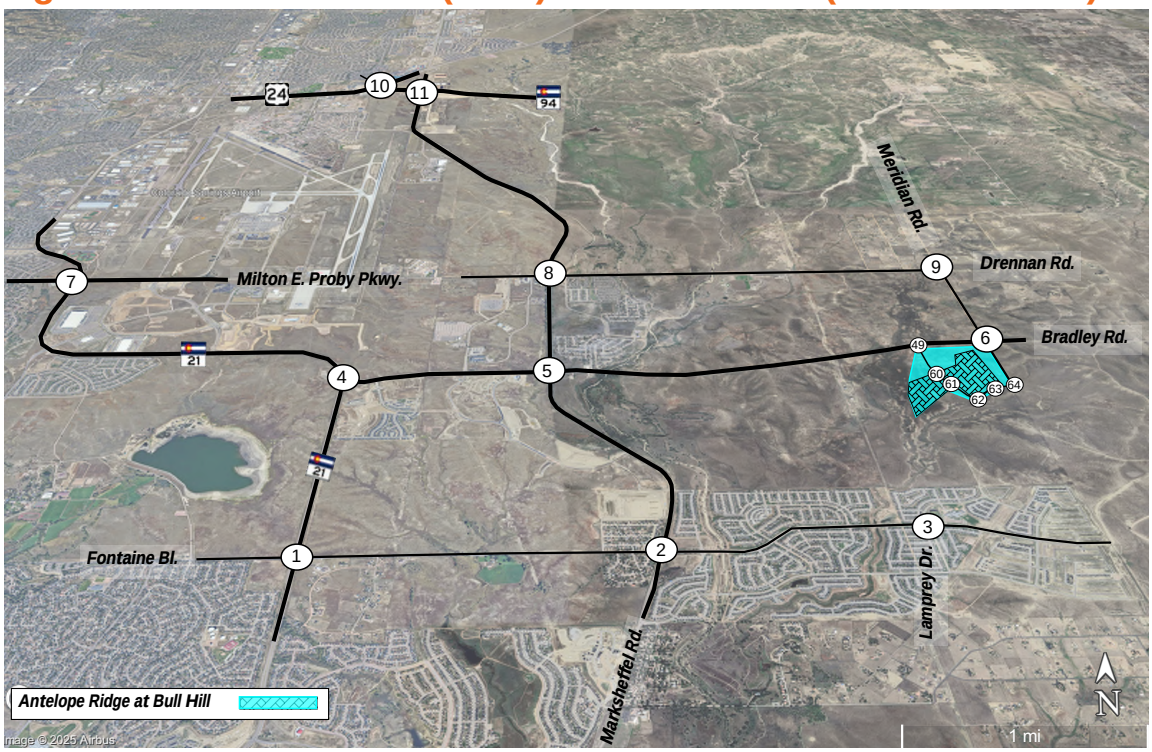


Figure 41. Buildout (2028) Total Volumes (PM Peak Hour)



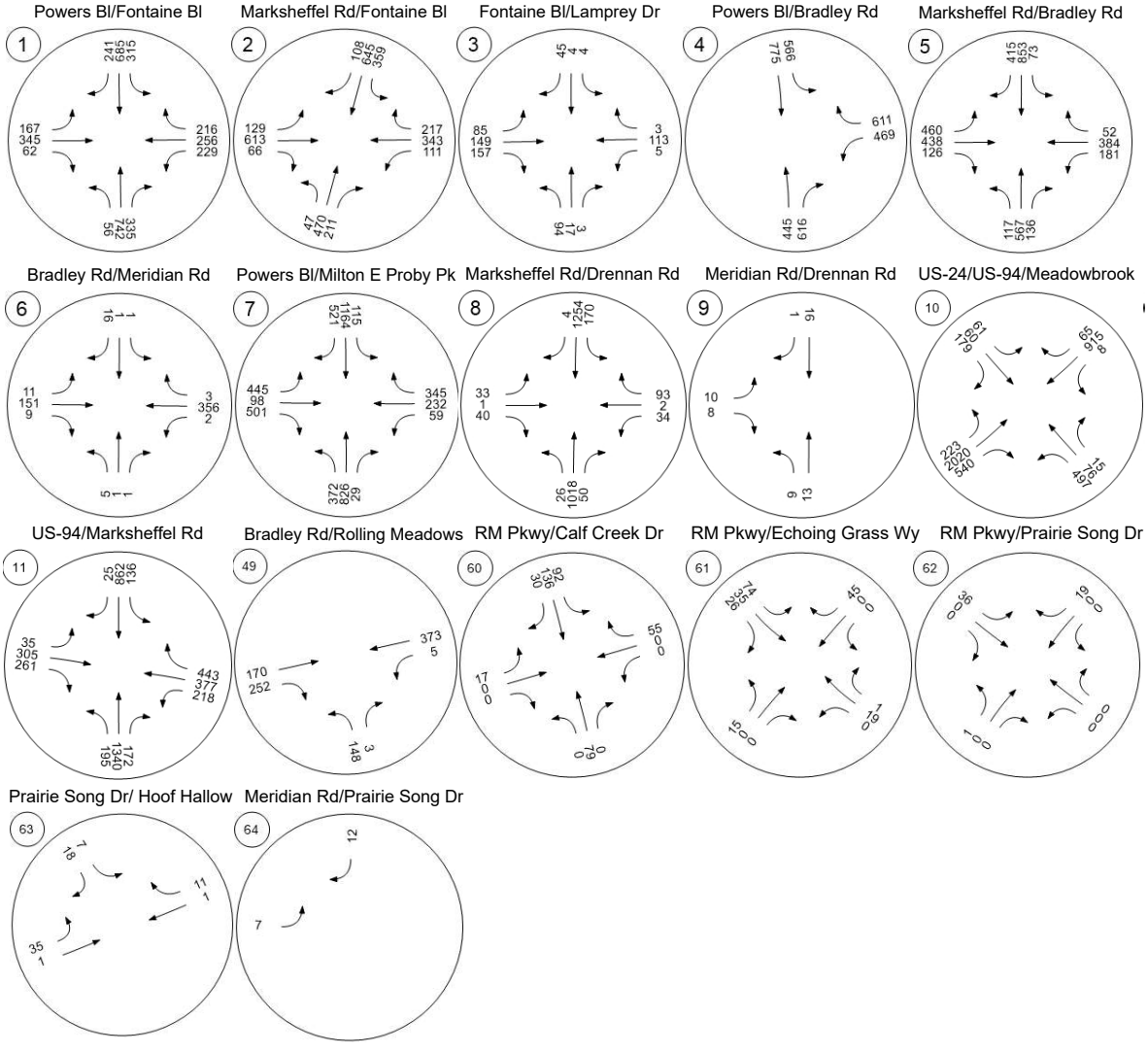


Figure 42. Buildout (2028) Total Daily Volumes

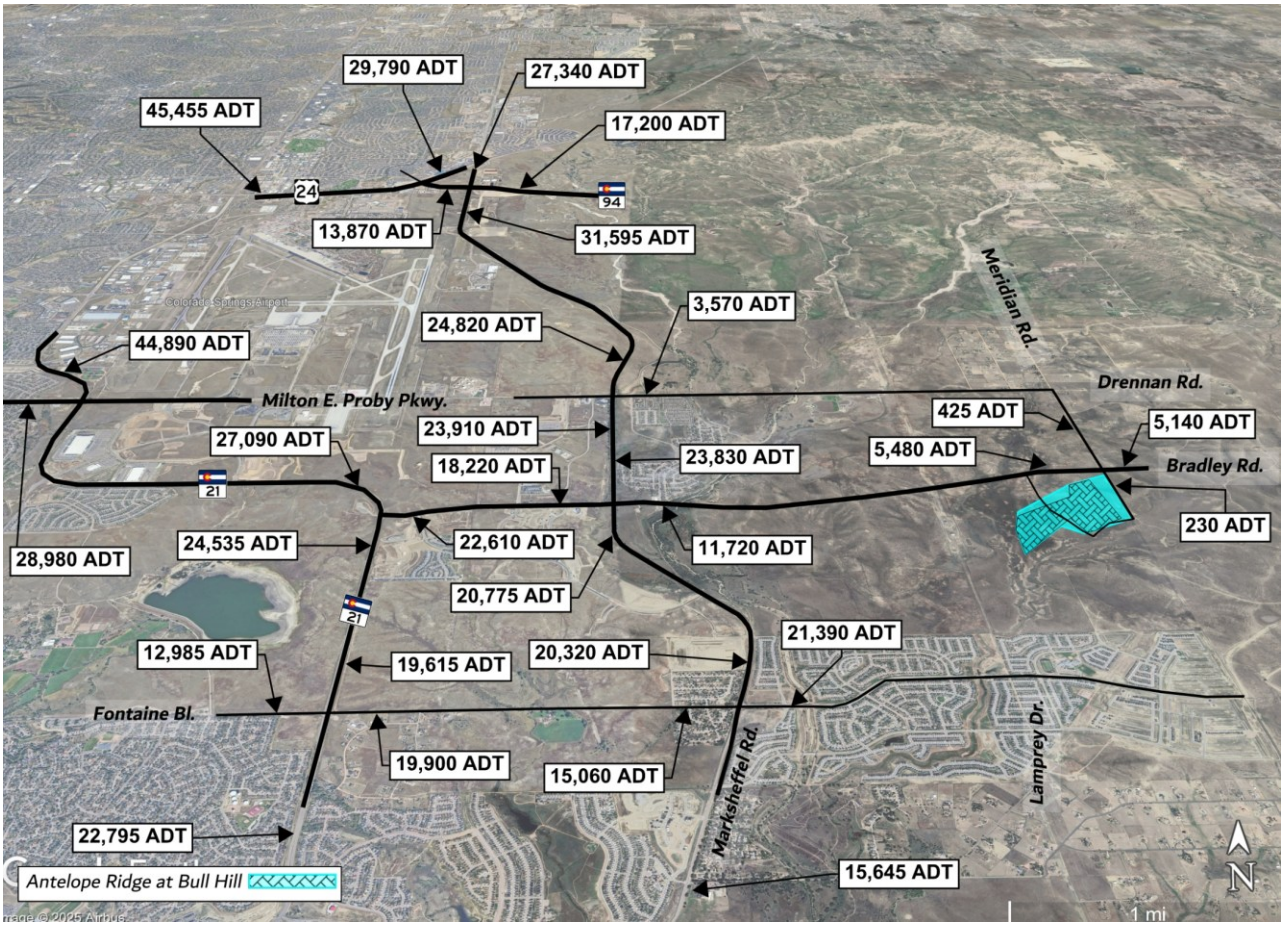
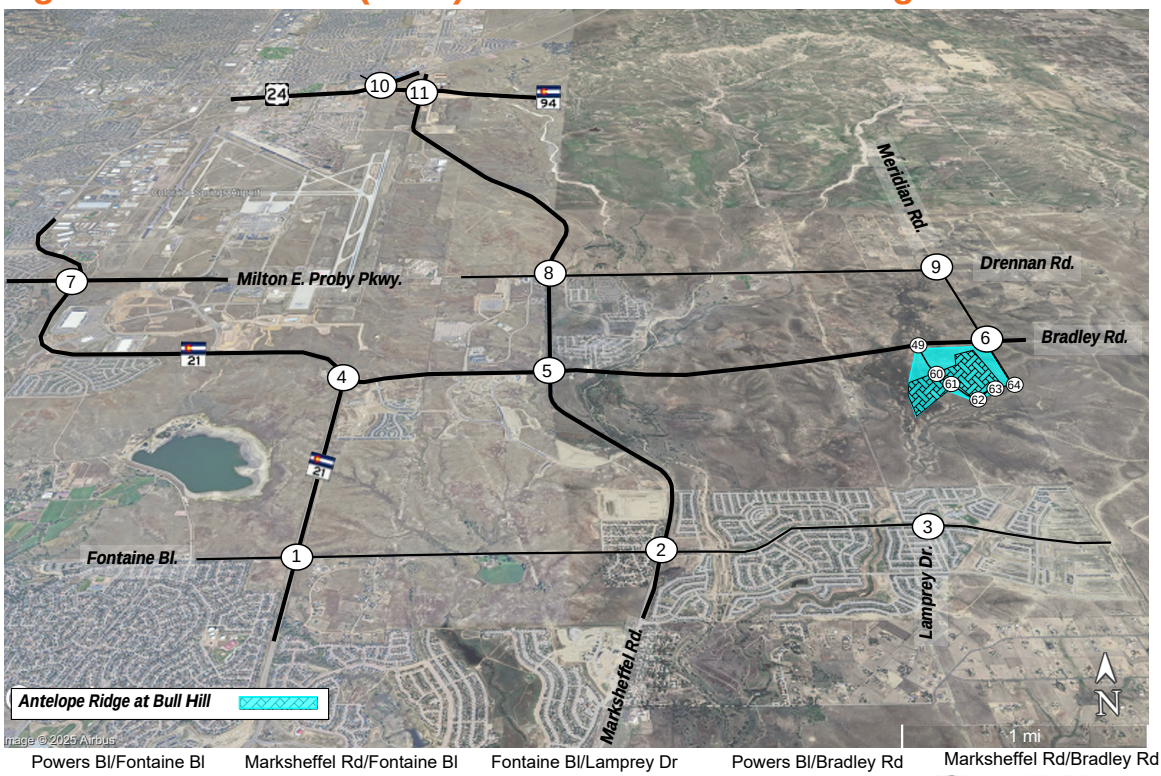
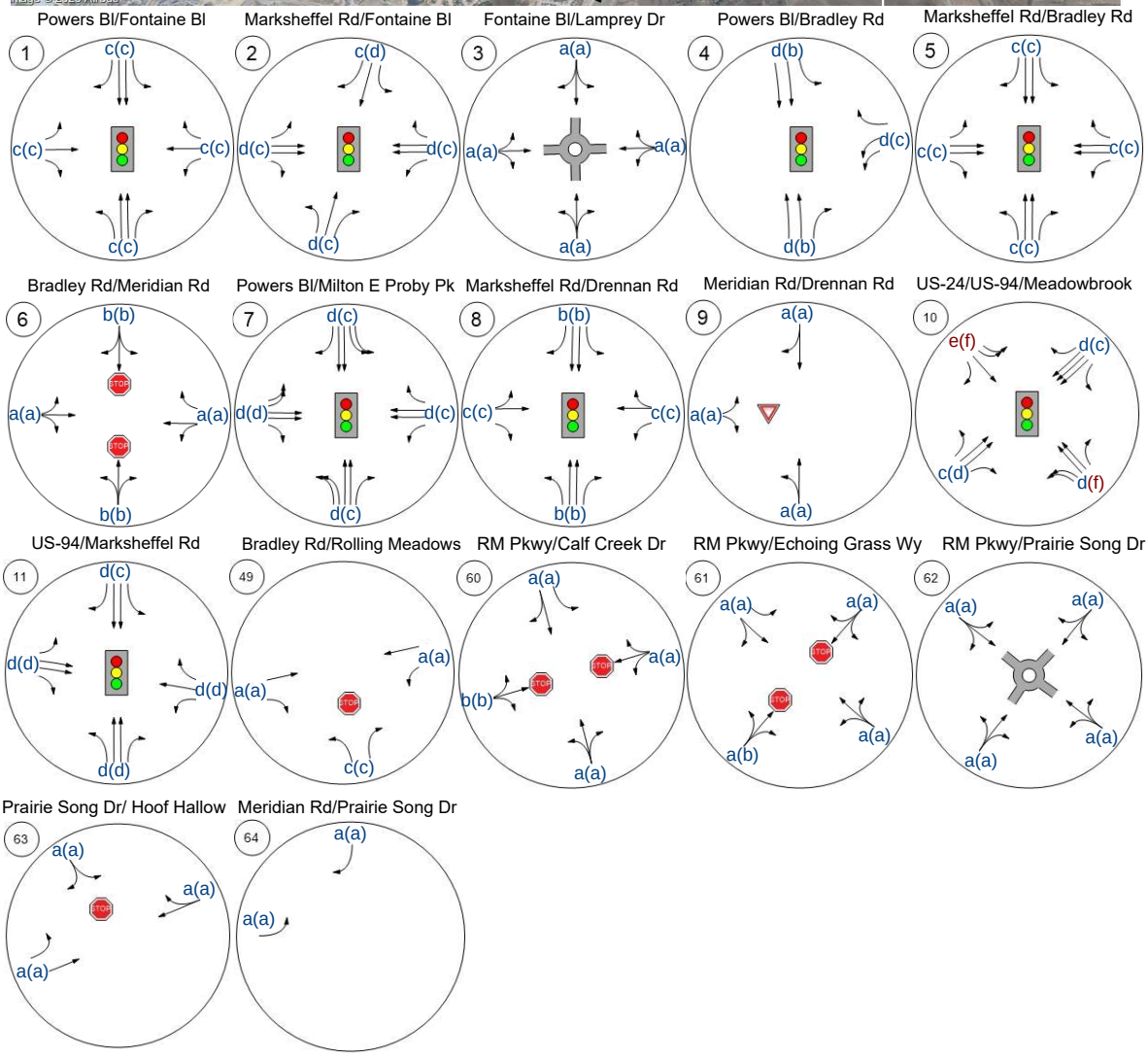


Figure 43. Buildout (2028) Total Intersection Configurations and LOS





The intersection analysis summary for the AM and PM peak hour is shown in Table 18 and Table 19, respectively.

Table 18. Buildout (2028) Total Intersection Operations (AM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	WB Thru	0.592	29.0	C
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	NB Thru	0.710	39.2	D
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	WB Thru		8.0	A
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	SB Left	0.764	37.6	D
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	EB Left	0.660	29.5	C
6	Bradley Rd/Meridian Rd	Two-way stop	HCM 7th Edition	NB Left	0.024	14.8	B
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	WB Left	0.693	42.2	D
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	EB Left	0.526	13.8	B
9	Meridian Rd/Drennan Rd	Two-way yield	HCM 7th Edition	EB Left	0.009	3.9	A
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Right	0.715	42.9	D
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	NB Left	0.787	44.5	D
49	Bradley Rd/Rolling Meadows Pkwy	Two-way stop	HCM 7th Edition	NB Left	0.527	21.9	C
60	Rolling Meadows Pkwy/Calf Creek Dr	Two-way stop	HCM 7th Edition	EB Left	0.044	11.2	B
61	Rolling Meadows Pkwy/Echoing Grass Wy	Two-way stop	HCM 7th Edition	EB Left	0.029	9.7	A
62	Rolling Meadows Pkwy/Prairie Song Dr	Roundabout	HCM 7th Edition	SB Right		2.8	A
63	Prairie Song Dr/ Hoof Hallow Pl	Two-way stop	HCM 7th Edition	SB Left	0.011	8.8	A
64	Meridian Rd/Prairie Song Dr	Two-way stop	HCM 7th Edition	EB Left	0.000	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 19. Buildout (2028) Total Intersection Operations (PM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	EB Thru	0.662	28.8	C
2	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	NB Thru	0.654	31.9	C
3	Fontaine Bl/Lamprey Dr	Roundabout	HCM 7th Edition	EB Right		5.0	A
4	Powers Bl/Bradley Rd	Signalized	HCM 7th Edition	WB Right	0.620	22.0	C
5	Marksheffel Rd/Bradley Rd	Signalized	HCM 7th Edition	EB Left	0.642	27.4	C
6	Bradley Rd/Meridian Rd	Two-way stop	HCM 7th Edition	NB Left	0.012	14.0	B
7	Powers Bl/Milton E Proby Pkwy	Signalized	HCM 7th Edition	WB Left	0.683	32.9	C
8	Marksheffel Rd/Drennan Rd	Signalized	HCM 7th Edition	EB Left	0.423	15.3	B
9	Meridian Rd/Drennan Rd	Two-way yield	HCM 7th Edition	EB Left	0.012	4.0	A
10	US-24/US-94/Meadowbrook Pkwy	Signalized	HCM 7th Edition	SB Right	0.836	49.1	D
11	US-94/Marksheffel Rd	Signalized	HCM 7th Edition	SB Thru	0.686	47.6	D
49	Bradley Rd/Rolling Meadows Pkwy	Two-way stop	HCM 7th Edition	NB Left	0.349	16.9	C
60	Rolling Meadows Pkwy/Calf Creek Dr	Two-way stop	HCM 7th Edition	EB Left	0.041	13.6	B
61	Rolling Meadows Pkwy/Echoing Grass Wy	Two-way stop	HCM 7th Edition	EB Left	0.025	10.9	B
62	Rolling Meadows Pkwy/Prairie Song Dr	Roundabout	HCM 7th Edition	EB Left		2.8	A
63	Prairie Song Dr/ Hoof Hallow Pl	Two-way stop	HCM 7th Edition	SB Left	0.009	9.1	A
64	Meridian Rd/Prairie Song Dr	Two-way stop	HCM 7th Edition	SB Right	0.000	0.0	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

As shown in Table 18 and Table 19 ,all studied intersections are projected to operate at acceptable LOS for the buildout (2028) year. The turn lane requirements for the Antelope Ridge at Bull Hill project in buildout (2028) year is shown in Table 20.

Table 20. Buildout (2028) Total Turn Lane Evaluation

ID	Intersection	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Provided (ft)	Improved Existing	Improvement (ft)
1	Powers Bl/Fontaine Bl CDOT -SHAC Signalized	E-X	NBL	1	55	66	37	**222**	**600**	**100**	**920**	965	920	
		E-X	NBR	1	55	340	98	**222**	**600**	**-**	**820**	860	820	
		E-X	SBL	1	55	315	220	**222**	**600**	**315**	**1135**	800	960	175
		E-X	SBR	1	55	240	69	**222**	**600**	**-**	**820**	685	820	
		NR-A	EBL	1	45	240	180	**162**	**273**	**240**	**675**	405	525	150
		NR-A	EBR	1	45	62	31	**162**	**273**	**-**	**435**	670	310	
		NR-A	WBL	1	45	361	281	**162**	**273**	**361**	**795**	425	490	305
		NR-A	WBR	1	45	319	137	**162**	**273**	**-**	**435**	670	310	
		NR-A	NBR to EBT Acceleration	1	45	340	-	**162**	***388 (Accel. Lane)***		**550**	660	270	
		NR-A	SBR to WBT Acceleration	1	45	240	-	**162**	***388 (Accel. Lane)***		**550**	400	270	150
		E-X	EBR to SBT Acceleration	1	55	62	-	**222**	***960 (Accel. Lane)***	**-**	**1180**	1,070	1,180	
		E-X	WBR to NBT Acceleration	1	55	319	-	**222**	***960 (Accel. Lane)***	**-**	**1180**	545	1,180	
2	Marksheffel Rd/Fontaine Bl CCS - TCM Signalized	Principal Arterial	NBL	1	45	72	35	**180**	**200**	**-**	**380**	700	380	
		Principal Arterial	NBR	1	45	211	74	**180**	**200**	**-**	**380**	700	380	
		Principal Arterial	SBL	1	45	357	232	**180**	**200**	**-**	**380**	560	480	
		Principal Arterial	SBR	1	45	117	32	**180**	**200**	**-**	**380**	560	480	
		Principal Arterial	EBL	1	45	127	95	**180**	**200**	**-**	**380**	500	260	
		Principal Arterial	EBR	1	45	66	27	**180**	**200**	**-**	**380**	275	260	105
		Principal Arterial	WBL	1	45	198	203	**180**	**200**	**-**	**380**	515	380	
		Principal Arterial	WBR	1	45	565	315	**180**	**200**	**-**	**380**	Continuous	380	
4	Powers Bl/Bradley Rd CDOT -SHAC Signalized	E-X	NBR	1	65	611	161	**300**	**800**	**-**	**1100**	880	1100	-
		E-X	SBL	1	65	566	399	**300**	**800**	**566**	**1665**	890	1480	185
		NR-A	WBL	2	45	466	155	**324**	**176**	**233**	**735**	830	690	-
		NR-A	WBR	1	45	844	412	**162**	**338**	**-**	**500**	Continuous	500	-
		NR-A	NBR to EBT Acceleration	1	45	611	-	**162**	***388 (Accel. Lane)***	**-**	**550**	860	760	-
		E-X	WBR to NBT Acceleration	1	65	844	-	**300**	***1380 (Accel. Lane)***		**1680**	710	1680	-
5	Marksheffel Rd/Bradley Rd CCS - TCM Signalized	Principal Arterial	NBL	1	45	254	126	**180**	**200**	**-**	**380**	940	480	-
		Principal Arterial	NBR	1	45	184	41	**180**	**200**	**-**	**380**	940	480	-
		Principal Arterial	SBL	1	45	73	23	**180**	**200**	**-**	**380**	920	480	-
		Principal Arterial	SBR	1	45	415	126	**180**	**200**	**-**	**380**	965	480	-
		Principal Arterial	EBL	1	45	460	317	**180**	**200**	**-**	**380**	720	435	-
		Principal Arterial	EBR	1	45	126	40	**180**	**200**	**-**	**380**	720	435	-
		Principal Arterial	WBL	1	45	178	72	**180**	**200**	**-**	**380**	965	380	-
		Principal Arterial	WBR	1	45	74	20	**180**	**200**	**-**	**380**	Continuous	380	-
7	Powers Bl/Milton E Proby Pkwy CDOT -SHAC Signalized	E-X	NBL	2	60	615	312	**600**	**700**	**308**	**1610**	895	1515	95
		E-X	NBR	1	60	68	22	**300**	**700**	**-**	**1000**	450	1000	-
		E-X	SBL	2	55	430	257	**444**	**600**	**215**	**1260**	750	1260	-
		E-X	SBR	1	55	636	284	**222**	**600**	**-**	**820**	865	820	-
		E-X	EBL	2	55	478	303	**444**	**600**	**239**	**1285**	780	1280	-
		E-X	EBR	1	55	501	245	**222**	**600**	**-**	**820**	275	820	-
		E-X	WBL	1	55	59	71	**222**	**600**	**50**	**870**	715	860	10
		E-X	WBR	1	55	345	52	**222**	**600**	**-**	**820**	590	820	-
		E-X	NBR to EBT Acceleration	1	55	68	-	**222**	***960 (Accel. Lane)***	**-**	**1180**	500	1180	-
		E-X	SBR to WBT Acceleration	1	55	636	-	**222**	***960 (Accel. Lane)***	**-**	**1180**	725	1180	-
		E-X	EBR to SBT Acceleration	1	55	501	-	**222**	***960 (Accel. Lane)***	**-**	**1180**	355	1,180	-
		E-X	WBR to NBT Acceleration	1	60	345	-	**300**	***1170 (Accel. Lane)***	**-**	**1470**	770	1,470	-

Buildout (2028) Total Turn Lane Evaluation (Continued)

ID	Intersection	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Provided (ft)	Improved Existing	Improvement (ft)
8	Marksheffel Rd/Drennan Rd CCS - TCM Signalized	Principal Arterial	NBL	1	45	37	10	180	200	-	380	895	480	-
		Principal Arterial	NBR	1	45	50	11	180	200	-	380	895	480	-
		Principal Arterial	SBL	1	45	165	68	180	200	-	380	650	380	-
		Principal Arterial	SBR	1	45	21	4	180	200	-	380	650	380	-
		Minor Arterial	EBL	1	40	33	26	160	155	-	315	-	380	-
		Minor Arterial	EBR	1	40	40	14	160	155	-	315	270	380	-
		Principal Arterial	WBL	1	45	80	48	180	200	-	380	0	380	-
10	Highway-24/Highway-94 CDOT -SHAC Signalized	E-X	NBL (US-94)	2	55	534	531	444	600	267	1310	1015	1240	70
		E-X	NBR (US-94)	1	55	15	15	222	600	-	820	1015	820	-
		F-R	SBL (Newt Dr.	2	30	61	79	192	-	50	240	400	215	-
		F-R	SBR (Newt Dr.	1	30	262	242	96	-	262	360	400	120	-
		E-X	EBL (US-24)	1	55	223	200	222	600	223	1045	1120	975	-
		E-X	EBR (US-24)	1	55	760	256	222	600	-	820	710	820	-
		E-X	WBL (US-24)	1	65	14	7	300	800	25	1125	975	1125	-
		E-X	WBR (US-24)	1	65	87	32	300	800	-	1100	975	1100	-
		NR-A	NBR to EBT Acceleration	1	55	15	-	220	*740 (Accel. Lane)*	-	960	1570	960	-
		NR-A	SBR to WBT Acceleration	1	65	262	-	300	*1080 (Accel. Lane)*	-	1380	895	1380	-
		E-X	EBR to SBT Acceleration	1	55	760	-	222	*960 (Accel. Lane)*		1180	640	1,180	-
11	Highway-94/Marksheffel Rd CDOT -SHAC Signalized	NR-A	NBL	1	45	209	188	162	273	209	645	600	700	-
		NR-A	NBR	1	45	211	56	162	273	-	435	600	600	-
		NR-A	SBL	1	45	393	295	162	273	393	830	630	875	-
		NR-A	SBR	1	45	25	0	162	273	-	435	630	500	-
		E-X	EBL	1	50	35	35	180	500	40	720	280	705	15
		E-X	EBR	1	50	314	0	180	500	-	680	475	680	-
		E-X	WBL	1	65	217	201	300	500	217	1015	500	900	115
		E-X	WBR	1	65	443	0	300	500	-	800	500	800	-
		E-X	NBR to EBT Acceleration	1	50	211	-	180	*760 (Accel. Lane)*		940	0	940	-
		E-X	SBR to WBT Acceleration	1	65	25	-	300	*1,170 (Accel. Lane)*		1470	0	1470	-
		NR-A	EBR to SBT Acceleration	1	45	314	-	162	*388(Accel. Lane)*	-	550	0	760	-
		NR-A	WBR to NBT Acceleration	1	45	443	-	162	*388 (Accel. Lane)*	-	550	0	960	-
49	Bradley Rd/Rolling Meadows Pkwy EPC - ECM Stopped - Controlled	Collector	NBL	1	35	214	75	160	155	200	515			Required New Turn Lane
		Principal Arterial	EBR	1	45	252	-	200	235	-	435			Required New Turn Lane
		Principal Arterial	WBL	1	45	5	1	200	235	50	485			Required New Turn Lane
60	Rolling Meadows Pkwy/Calf Creek Dr EPC - ECM Stopped - Controlled	Collector	SBL	1	35	92	4	160	155	70	385			Required New Turn Lane
61	Rolling Meadows Pkwy/Echoing Grass Wy EPC - ECM Stop-Controlled	Collector	SBL	1	35	63	4	160	155	50	365			Required New Turn Lane
63	Prairie Song Dr/Hoof Hallow Pl EPC - ECM Stop-Controlled	Collector	EBL	1	35	35	2	160	155	50	365			Required New Turn Lane

The required improvements for the buildout year (2028) are in respect that the improvements in the existing conditions have been met. For required improvements in the existing conditions see Table 3. A summary of the recommended improvements is as follows:

Powers Boulevard/Fontaine Boulevard (#1)

- A 175-ft extension of southbound left-turn lane.
- A 150-ft extension of eastbound left-turn lane.
- A 305-ft extension of westbound left-turn lane.
- A 150-ft extension of eastbound right-turn to southbound thru acceleration lane.

Marksheffel Road/Fontaine Boulevard (#2)

- A 105-ft extension of eastbound right-turn lane.

Powers Boulevard/Bradley Road (#4)

- A 185-ft extension of southbound left-turn lane.

Powers Boulevard/Milton E Proby Parkway (#7)

- A 95-ft extension of northbound left-turn lane.
- A 10-ft extension of westbound left-turn lane.

Highway-24/Highway-94 (#10)

- A 70-ft extension of northbound left-turn (US-94) lane.

Highway-94/Marksheffel Road (#11)

- A 15-ft extension of eastbound left-turn lane.
- A 115-ft extension of westbound left-turn lane.

Bradley Road/Rolling Meadows Parkway (#49)

- A 515-ft northbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 200-ft of storage lane.
- A 435-ft eastbound right-turn lane. Include 200-ft of taper and 235-ft of deceleration lane.
- A 485-ft westbound left-turn lane. Include 200-ft of taper, 235-ft of deceleration lane and 50-ft of storage.

Rolling Meadows Parkway /Calf Creek Drive (#60)

- A 385-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 70-ft of storage.

Rolling Meadows Parkway / Echoing Grass Way (#61)

- A 365-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.

Prairie Song Drive/ Hoof Hollow Place(#63)

- A 365-ft eastbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.

Access Spacing and Line of Sight

Access spacing within the proposed development has been planned in accordance with the requirements established in the El Paso County ECM. As specified in Table 2-7, Roadway Design Standards for Urban Collectors and Locals, the minimum required spacing is 660 feet for non-residential collectors and 330 feet

when intersecting local roadways. The intersections of Rolling Meadows Parkway/Calf Creek Drive (#60), Rolling Meadows Parkway/Echoing Grass Way (#61), and Prairie Song Drive/Hoof Hollow Place (#63) comply with the applicable ECM criteria and design standards. A deviation is requested for the proposed local intersection along Rolling Meadows Parkway from the ROW line of Bradley Road. For more information regarding the deviation request, please see the summary of requested deviations at the end of this report. As for the line of sights, minimum sight distance for the proposed intersections complies with EPC standards and exhibits showing the line of sight for the first phase of the project are provided in Appendix F – Antelope Ridge at Bull Hill Analyses.

Conclusions and Recommendations

This study evaluated the transportation impacts of the proposed RMBH development through three key planning horizons: Phase 1 (2028), full buildout (2035), and the long-range horizon year (2055). The analysis included 31 off-site and internal intersections, identified necessary improvements, and incorporated traffic growth from adjacent planned developments, and the current traffic. Traffic forecasts, and external trip distribution were developed in coordination with CDOT, El Paso County, and the City of Colorado Springs, using conservative assumptions and regionally accepted methodologies.

The findings indicate that, while the proposed development will generate significant traffic volumes, the transportation network can accommodate the demand with strategic improvements in the interim analysis (2035). Most intersections will operate at acceptable levels of service provided the recommended configurations, and turn lanes are implemented in a timely manner. Bradley Road is projected to exceed the daily volume threshold for a four-lane principal arterial by 2035 by only 1,000 vehicles per day at the intersection of Marksheffel Road and Bradley Road. At the location this occurs, additional through lanes are being added to address the increased demand. Otherwise, Bradley Road is expected to function adequately with a four-lane cross-section due to regional connectivity improvements and trip distribution patterns. More specifically, the connection between the future Mesa Ridge Parkway and Meridian Road. The estimated daily volumes are based on a conservative analysis and may not be reached under typical conditions.

In this analysis, the intersection of US-94 and Marksheffel Road presents operational challenges. Even with planned improvements, it is projected to operate at LOS F during the AM peak by 2035. A sensitivity analysis accounting for internal trip capture suggests only marginal improvement. Therefore, a long-term solution such as a grade-separated interchange should be explored further.

Matrix recommends that the City of Colorado Springs, El Paso County, and CDOT prioritize the implementation of the improvements identified for both the near-term (2028), buildout (2035), and horizon (2055) scenarios outlined in Table 20 for the first phase (2028), Table 9, Figure 21 for the buildout (2035) year, and Table 14, and Figure 29 for horizon (2055) year. Four of the studied intersections in the horizon (2055) analyses, namely, Powers Boulevard/Bradley Road (#4), Marksheffel Road/Bradley Road (#5), US-24/US-94 (#10), and US-94/Marksheffel Road (#11) are projected to operate over capacity. Considering the fact that adding too many lanes to a roadway can increase several safety risks such as increasing the length of the crosswalk or the length of the mast arm for signalized intersections, it is necessary to investigate additional arterial roadways, specifically east-west roadways as well grade separated interchanges in long term planning. Continuous monitoring of traffic growth, development phasing, and regional infrastructure projects will be essential to ensure adequate roadway performance as the area develops. At the time of writing this report, Karmen Line was voted out by the citizens of Colorado Springs. However, Matrix anticipated that there will be a new development in the next 20 years.

Our analysis indicated that if there is a similar development to Karmen Line, either an additional east-west roadway or converting these intersections to a grade separated roadway is required. In the case no development similar to Karmen Line will be developed, the volumes will be similar to the 2035 volumes, and the roadway network will work in both buildout and horizon years. Future traffic impact studies for adjacent developments should continue to coordinate with this report's assumptions and recommendations to ensure consistency and mitigate cumulative impacts. A traffic letter will be provided for each phase to demonstrate the trigger points for the required improvements outlined in this report.

The summary of required improvements for the existing and Phase 1 is outlined in Table 21. The required improvements for the buildout year (2028) are in respect that the improvements in the existing conditions have been met. All acceleration and deceleration lanes were designed per the EPC ECM criteria. There is enough space to provide a NBTR to EBT acceleration lane at Bradley Rd/Rolling Meadows Parkway (intersection #49). The deceleration lane on Rolling Meadows Parkway was designed to avoid any overlap. The cost estimate and escrow amount will be determined at final plat stage.

Table 21. Summary of Required Improvements

ID	Intersection	Improvements	Responsibility
Existing Conditions			
1	Powers Boulevard/Fontaine Boulevard	A 160-ft extension of southbound left-turn lane. A 135-ft extension of southbound right-turn lane. A 120-ft extension of eastbound left-turn lane. A 65-ft extension of westbound left-turn lane. A 110-ft extension of eastbound right-turn to southbound thru acceleration lane. A 635-ft extension of westbound right-turn to northbound thru acceleration lane.	The Project is not responsible for these improvements.
4	Powers Boulevard/Bradley Road	A 220-ft extension of northbound right-turn lane. A 590-ft extension of southbound left-turn lane. A 970-ft extension of westbound right-turn to northbound thru acceleration lane.	The Project is not responsible for these improvements.
7	Powers Boulevard/Milton E Proby Parkway	A 620-ft extension of northbound left-turn lane. A 550-ft extension of northbound right-turn lane. A 510-ft extension of southbound left-turn lane. A 500-ft extension of eastbound left-turn lane. However, the turn lane is currently provided to available intersection spacing. A 545-ft extension of eastbound right-turn lane. Turn lane should be maximized to the available intersection spacing. A 145-ft extension of westbound left-turn lane. A 230-ft extension of westbound right-turn lane. A 680-ft extension of northbound right-turn to eastbound thru acceleration lane. A 455-ft extension of southbound right-turn to westbound thru acceleration lane. A 825-ft extension of eastbound right-turn to southbound thru acceleration lane. A 700-ft extension of westbound right-turn to northbound thru acceleration lane.	The Project is not responsible for these improvements.

ID	Intersection	Improvements	Responsibility
8	Marksheffel Road/Drennan Road	A 110-ft extension of eastbound right-turn lane. A 380-ft westbound left-turn lane. Include a 180-ft taper and 200-ft of deceleration lane.	The Project is not responsible for these improvements.
10	Highway-24/Highway-94	A 225-ft extension of northbound left-turn lane. A 110-ft extension of eastbound right-turn lane. A 150-ft extension of westbound left-turn lane. A 125-ft extension of westbound right-turn lane. A 485-ft extension of southbound right-turn to westbound thru acceleration lane. A 540-ft extension of eastbound right-turn to southbound thru acceleration lane.	The Project is not responsible for these improvements.
11	Highway-94/Marksheffel Road	A 100-ft extension of northbound left-turn lane. A 245-ft extension of southbound left-turn lane. A 425-ft extension of eastbound left-turn lane. A 205-ft extension of eastbound right-turn lane. A 400-ft extension of westbound left-turn lane. A 300-ft extension of westbound right-turn lane. A 940-ft northbound right-turn to eastbound thru acceleration lane. Include 180-ft of taper and 760-ft of acceleration lane. A 1,470-ft southbound right-turn to eastbound thru acceleration lane. Include 300-ft of taper and 1,170-ft of acceleration lane. A 760-ft eastbound right-turn to southbound thru acceleration lane. Include 180-ft of taper and 580-ft of acceleration lane. A 960-ft westbound right-turn to northbound thru acceleration lane. Include 220-ft of taper and 740-ft of acceleration lane.	The Project is not responsible for these improvements.
Buildout (2028) Total			
1	Powers Boulevard/Fontaine Boulevard	A 175-ft extension of southbound left-turn lane. A 150-ft extension of eastbound left-turn lane. A 305-ft extension of westbound left-turn lane. A 150-ft extension of eastbound right-turn to southbound thru acceleration lane.	The project Fair Share is shown in Table 22.
2	Marksheffel Road/Fontaine Boulevard	A 105-ft extension of eastbound right-turn lane.	The project Fair Share is shown in Table 22.
4	Powers Boulevard/Bradley Road	A 185-ft extension of southbound left-turn lane.	The project Fair Share is shown in Table 22.
6	Bradley Road/Meridian Road	The south leg of Meridian Road from Bradley Road to Prairie Song Drive. A shared northbound left/thru/right-turn lane.	The Project is responsible for these improvements.
7	Powers Boulevard/Milton E Proby Parkway	A 95-ft extension of northbound left-turn lane. A 10-ft extension of westbound left-turn lane.	The project Fair Share is shown in Table 22.
10	Highway-24/Highway-94	A 70-ft extension of northbound left-turn (US-94) lane.	The project Fair Share is shown in Table 22.
11	Highway-94/Marksheffel Road	A 15-ft extension of eastbound left-turn lane. A 115-ft extension of westbound left-turn lane.	The project Fair Share is shown in Table 22.
49	Bradley Road/Rolling Meadows Parkway	A 515-ft northbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 200-ft of storage lane. A 435-ft eastbound right-turn lane. Include 200-ft of taper and 235-ft of deceleration lane. A 485-ft westbound left-turn lane. Include 200-ft of taper, 235-ft of deceleration lane and 50-ft of storage lane.	The Project is responsible for these Improvements.

ID	Intersection	Improvements	Responsibility
60	Rolling Meadows Parkway / Calf Creek Drive	A 385-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 70-ft of storage.	The Project is responsible for this Improvement.
61	Rolling Meadows Parkway / Echoing Grass Way	A 365-ft southbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.	The Project is responsible for this Improvement.
62	Rolling Meadows Parkway / Prairie Song Drive	A roundabout.	The Project is responsible for this Improvement.
63	Prairie Song Drive/ Hoof Hollow Place	A 365-ft eastbound left-turn lane. Include 160-ft of taper, 155-ft of deceleration lane and 50-ft of storage.	The Project is responsible for this Improvement.

The fair share calculations for the Antelope Ridge at Bull Hill project are shown in Table 22. With the possibility of Bradley Road returning to El Paso County, the development plans to amend the MTCP to add Bradley Road and the improvements required. Upon its inclusion in the MTCP, reimbursements of associated costs would be pursued.

Table 22. Antelope Ridge at Bull Hill Fair Share Calculations

ID	Intersection	2028 Total AM	2028 Total PM	Site AM	Site PM	Existing AM	Existing PM	Fair Share 2028 AM	Fair Share 2028 PM	2028 Fair Share (Weighted Average)
1	Powers Bl/Fontaine Bl	3280	3649	93	129	2178	2544	8.44%	11.67%	10.14%
2	Marksheffel Rd/Fontaine Bl	3382	3319	83	114	2373	2233	8.23%	10.50%	9.35%
4	Powers Bl/Bradley Rd	3481	3482	144	201	2483	2499	14.43%	20.45%	17.44%
7	Powers Bl/ Milton E. Proby	5235	4707	95	134	4439	3931	11.93%	17.27%	14.46%
10	US-24/US-94/Meadowbrook Pkwy	4630	4659	15	21	3749	3773	1.70%	2.37%	2.04%
11	US-94/Marksheffel Rd	4711	4364	62	89	3600	3161	5.58%	7.40%	6.45%

Finally, the applicant is required to pay road impact fees to El Paso County. The County allows the applicant to pay three different upfront fee amounts. The applicant can either pay the full fee amount, a smaller upfront fee to the 5 mill Public Improvement District (PID), or an even smaller upfront fee amount to the 10 mill PID. The different fee amounts are shown in Table 23, calculated based on 4,600 single-family dwelling units and 840 multi-family dwelling units for the entire development and based on 472 single-family dwelling units for the first phase of the project. The applicant will choose which fee method to follow at the subdivision application. If the applicant chooses one of the PIDs, the PID will collect taxes over time. Table 23 summarizes the road impact fees. The road impact fees are an estimate based upon the current fee schedule. Road impact fees are calculated at time of payment, and the fee schedule is subject to change.

Table 23. Road Impact Fee

Rolling Meadows/Bull Hill					
Land Use	**Unit**	**No. Units**	**Full Fee**	**5 Mill PID**	**10 Mill PID**
Single-Family	Dwelling	4,607	$ 18,893,307.00	$ 9,094,218.00	$ 1,349,851.00
Multi-Family	Dwelling	840	$ 2,171,400.00	$ 1,320,480.00	$ 469,560.00
Total			**$ 21,064,707.00**	**$ 10,414,698.00**	**$ 1,819,411.00**
Antelope Ridge at Bull Hill (Phase 1)					
Land Use	**Unit**	**No. Units**	**Full Fee**	**5 Mill PID**	**10 Mill PID**
Single-Family	Dwelling	472	$ 1,935,672.00	$ 931,728.00	$ 138,296.00

The school impact fee will be determined as more information becomes available regarding this land use during the future access permit process. A traffic letter or traffic memorandum is required for each phase to determine the trigger point for the improvements outline in the MTIS.

Finally, there were three deviation requests to El Paso County, and they are listed as follows:

1) MAXIMUM CROSSWALK LENGTH AND PEDESTRIAN REFUGE AREAS

Requested Deviation: A deviation from providing 48 feet maximum crosswalk length is requested.

2) MID-BLOCK RAMPS ON LOCAL ROADWAYS

Requested Deviation: A deviation from providing mid-block crosswalks on local roadways when the distance between ramps is greater than 600 feet.

3) INTERSECTION SPACING BETWEEN ARTERIAL AND NON-RESIDENTIAL COLLECTOR

Requested Deviation: A reduction of the 660 feet minimum intersection spacing between a local road centerline and an arterial right-of-way. The spacing shall be approximately 547 feet for the first local intersection along Rolling Meadows Parkway south of Bradley Road.

Unresolved:
Discuss intersection spacing for entire project. Appears 1st intersection on Rolling Meadows to Calf Creek (from CDs) may also not meet spacing requirement. If so, please add it to deviation request.

V4_Traffic Impact Report.pdf Markup Summary

Callout (2)

Subject: Callout
Page Label: 8
Author: CDurham
Date: 5/20/2026 8:02:40 AM
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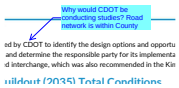
Deficiencies in the current road system will be fixed prior to any development being allowed to occur, or development can wait until County or other party has fixed deficiencies. Cost recovery could also be an option from future developments.



Subject: Callout
Page Label: 42
Author: CDurham
Date: 5/19/2026 5:09:51 PM
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Why would CDOT be conducting studies? Road network is within County

Cloud+ (1)

Subject: Cloud+
Page Label: 68
Author: Joseph Sandstrom
Date: 5/18/2026 2:26:57 PM
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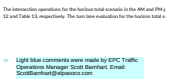
Since it has been shown that 4 through lanes may be needed based on previous, but not approved, development proposals, should enough right-of-way for this cross-section be provided even if it is ultimately constructed by someone else?

Engineer (1)



Subject: Engineer
Page Label: 68
Author: Joseph Sandstrom
Date: 5/18/2026 2:27:12 PM
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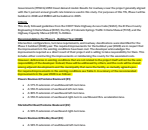
Light blue comments were made by EPC Traffic Operations Manager Scott Barnhart. Email: ScottBarnhart@elpasoco.com

Highlight (2)



Subject: Highlight
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Author: CDurham
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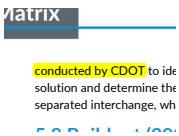
However, deficiencies in existing conditions that are not related to the project itself will not be the sole
responsibility of the developer. Instead, these will be addressed by others, and the costs will be shared
among adjacent developments and the municipality that owns the facility, as mutually agreed upon.
For required improvements in the existing conditions see Table 3. A summary of the recommended
improvements in the year 2028 is as follows:



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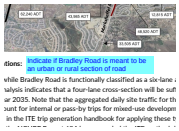
conducted by CDOT

Text Box (2)



Subject: Text Box
Page Label: 45
Author: CDurham
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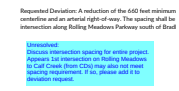
Indicate if Bradley Road is meant to be an urban or rural section of road



Subject: Text Box
Page Label: 104
Author: CDurham
Date: 5/19/2026 5:24:11 PM
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Unresolved:
Discuss intersection spacing for entire project. Appears 1st intersection on Rolling Meadows to Calf Creek (from CDs) may also not meet spacing requirement. If so, please add it to deviation request.