

# Traffic Impact Study (TIS) – Traffic Memorandum

## 16888 Elbert Road (Parcel 4122000002) – Special Uses

### Revision 5

Based on the nature and extent of comments additional comments may be necessary

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# Signature Page

Please add title page at the very beginning of report, include contact and Admin information with the signature page as page 2.

## 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.

[Redacted signature]

[Name, P.E. # \_\_\_\_\_ ] Date

Please advise which CO licensed traffic engineer will be completing and signing the report

Provide engineer stamp and signature

## Developer's Statement

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

[Redacted signature]

Richard Holmes, Owner & Developer  
Holmes Enterprises LLC  
16888 Elbert Road, Peyton, CO 80831  
Mobile/Text: 719-963-0687  
Email: [holmesenterprisesllcco@gmail.com](mailto:holmesenterprisesllcco@gmail.com)

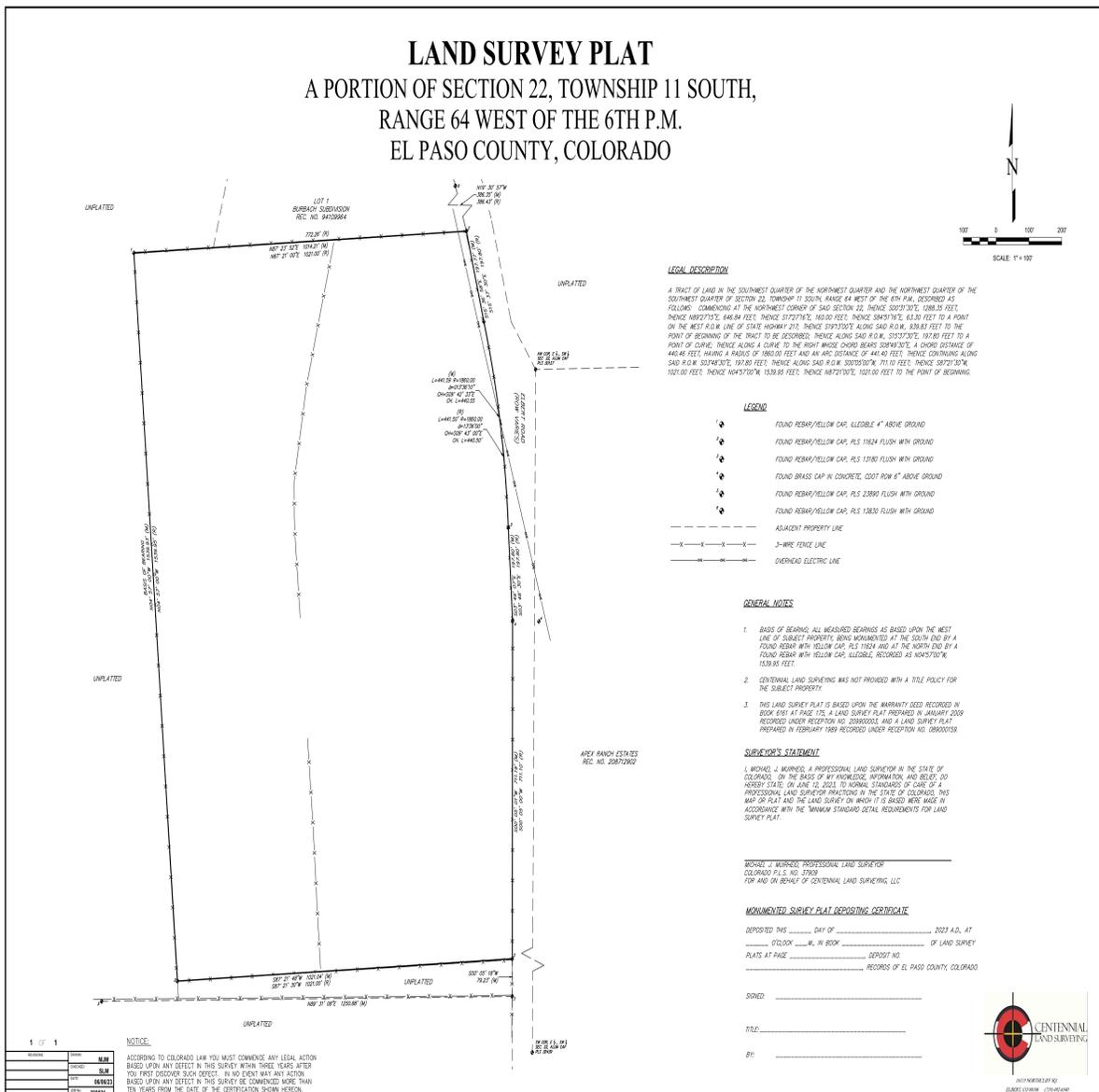
# Existing/Background Conditions Narrative

## Parcel Information

TRACT IN SW4NW4 AND IN NW4SW4 SEC 22-11-64 DES AS FOLS; COM AT NW COR OF SD SEC, TH S 0<31'30" E 1288.35 FT, N 89<27'15" E 646.84 FT, S 17<27'16" E 160.0 FT, S 84<51'16" E 63.60 FT TO A PT ON W R/W LN OF HWY 217, S 19<13' E ALG SD R/W LN 939.83 FT FOR POB, TH ALG SD R/W LN S 15<37'30" E 197.8 FT, TH ALG A CUR TO R WHOSE CHORD BEARS S 8<49'30" E CHORD DIST 440.46 FT, HAVING A RAD OF 1860.0 FT AN ARC DIST OF 441.4 FT, S 3<48'30" E 197.8 FT, S 0<05' W 711.1 FT, S 87<21'30" W 1021.0 FT, N 4<57' W 1539.95 FT, N 87<21' E 1021.0 FT TO POB

## Boundary Survey

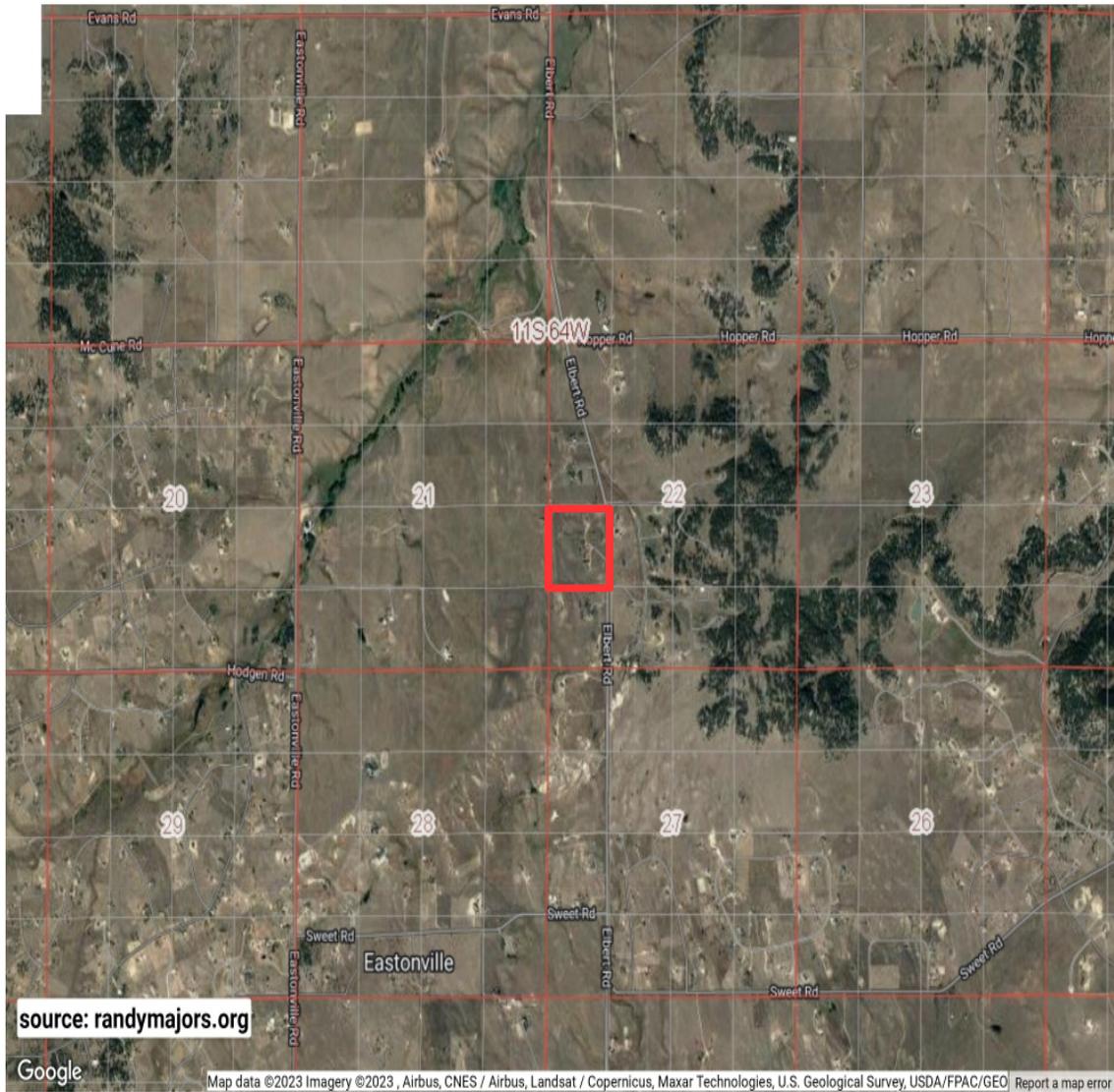
The following is the boundary survey completed on June 12, 2023



# El Paso County Section Map

mmhregmaptools

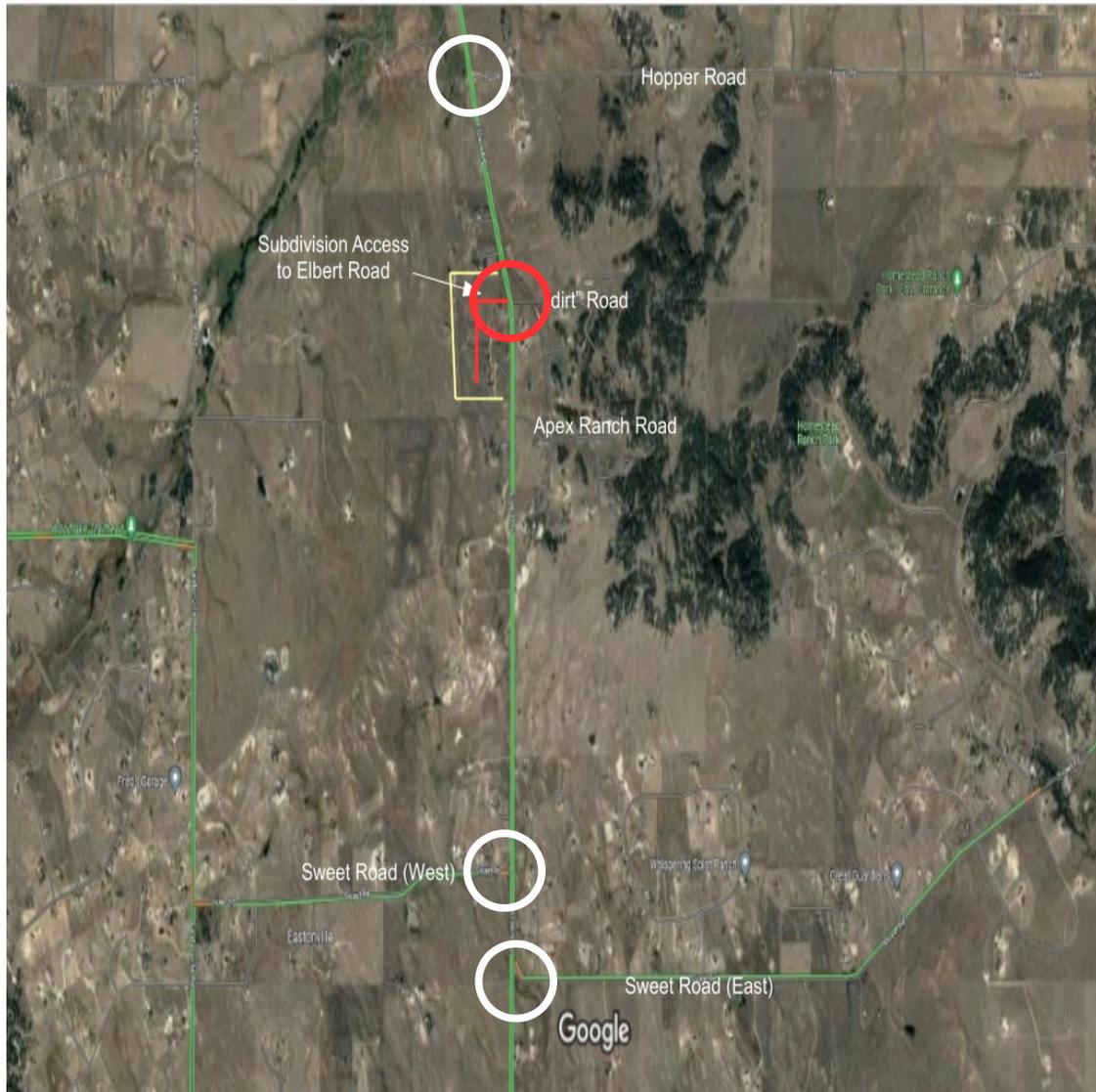
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1 of 1

9/30/2023, 9:53 AM

# Intersections Evaluated in the TIS



## Study Area (Traffic Memorandum)

Adjacent roadways, intersections, and high-volume accesses

- Hopper Road and Elbert Road intersections
- Apex Ranch Road and Elbert Road intersections
- The 2 Sweet Road(east and west) and Elbert Road intersections
- Current parcel's driveway (16888 Elbert Road) and Elbert Road access point

Internal public roads

Internal road to service the 4 homes on the property and the Special Uses that are located nearest the entrance to the subdivision.

Site plan shows 3

Pedestrian and Bicycle Continuity

As Elbert Road does not have facilities for Pedestrians and Bicycles, no continuity for those facilities to be added.

Access to most direct public transportation

Elbert Road is the most direct access to public transportation, however, Elbert Road does not provide public transportation.

## Background Traffic

### Short-Range Volume Projections

Current peak A.M. and P.M. traffic for the subdivision's intersection with Elbert Road (using the traffic count data at the current 16888 Elbert Road driveway access point) is shown in the following table.

Traffic Count was derived by manually counting the vehicle traffic conducted by SMH consultants.

The 5 intersections were evaluated:

1. Hopper Road and Elbert Road
2. 16888 Elbert Road Driveway (count for subdivision intersection) and Elbert Road
3. Apex Ranch Road and Elbert Road
4. Sweet Road (west) and Elbert Road
5. Sweet Road (east) and Elbert Road

The peak times were measured as follows:

Weekend days: Sunday 3/19/2023

Peak A.M. 7:30am-9:45am

Peak Noon 11:30am-1:45pm

Peak P.M. 5:00pm-7:00pm

Week days: Wednesday 3/22/2023

Peak A.M. 6:30am-8:30am

Peak P.M. 5:30pm-87:30pm

<b>Peak Time</b>	<b>Traffic Count Northbound on Elbert Road</b>	<b>Traffic Count Southbound on Elbert Road</b>
Weekday A.M.	7	11
Weekday P.M.	14	15
Weekend A.M.	13	11
Weekend Noon	16	19
Weekend P.M.	14	1

Please update all tables and explanation.

### Trip Generation Rate

Each Home: 10 ADT, 1 peak hour

Total 3 Homes: 30 ADT, 3 peak

Special Uses:

Bed & Breakfast (12 guests): 24 ADT, 4 peak

Business Event Center (max 50 persons per event, 2 persons in a vehicle): 50 ADT, 10 peak

ITE Use #312 has 48 ADT for 12 rooms.

ITE use 495 has more trips for the BEC based on sqft of facility more like 173 ADT please reanalyze

Peak Time	3 Homes ADT 30/5=6	3 Homes Peak ADT	BEC ADT	BEC Peak ADT	B&B ADT	B&B Peak ADT	Peak ADT Totals
Weekday A.M.	6	1	event*	4	2	1	6
Weekday P.M.	6	1	event*	4	2	1	6
<b>Weekday Totals</b>	<b>12</b>	<b>2</b>		<b>4</b>	<b>4</b>	<b>2</b>	<b>12</b>
Weekend A.M.	6	1	event*	4	2	1	6
Weekend Noon	6	0	event*	4	2	0	4
Weekend P.M.	6	1	event*	4	2	1	6
<b>Weekend Totals</b>	<b>18</b>	<b>2</b>	<b>event*</b>	<b>12</b>	<b>6</b>	<b>2</b>	<b>16</b>

ADT will be higher than 12 and 16.

BEC – Business Event Center

event\* - event's traffic to occur outside of peak traffic times.

Weekend event times: 10am-12am (midnight) - through out the day midnight

Weekday event times: 7pm-12pm (midnight)

B&B – Bed and Breakfast (max 12 guests)

Note the fullest and best use of the BEC must be calculated without limits on time or days of use. The County will not place conditions of use or limits on # of patrons so the traffic generation will be based on the type use and the facility size. Peak hour for morning and evening should be shown and explained. EX] Peak hour use for the BEC between 4-6pm 15 VPH

Recommended example format for ADT and peak/hr

The proposed residential development is projected to generate about 650 total vehicle trips on the average weekday during a 24-hour period, with approximately half entering and half exiting the site. During the morning peak hour, approximately 13 entering vehicles and 36 exiting vehicles are estimated to be generated. Approximately 40 entering and 23 exiting vehicles are estimated to be generated by the site during the afternoon peak hour.

Analysis Period	Weekday		
	In	Out	Total
Morning Peak Hour	13	36	49
Afternoon Peak Hour	40	23	63
Daily/24-hour	325	325	650

Revision 5

clarify these as peak hr not ADT

Clearly state in text and in supporting documents what the ADT and peak hour traffic levels are at all accesses currently, at full development, and long term (twenty years out.) Include intermediate stages for phased development.

**Cumulative & Generated/Development Traffic**

The table below shows the cumulative traffic from the peak ADT background traffic plus the peak ADT generated traffic from the development. Since the 3 homes were counted in the traffic count, they are not included in the Generated Traffic count.

Peak Time	Traffic Count Northbound on Elbert Road (BT+GT)	Traffic Count Southbound on Elbert Road (BG+GT)
Weekday A.M.	9 (7+2)	13 (11+2)
Weekday P.M.	16 (14+2)	17 (15+2)
Weekend A.M.	15 (13+2)	13 (11+2)
Weekend Noon	18 (16+1)	20 (19+1)
Weekend P.M.	16 (14+2)	18 (14+2)

show site generated traffic in a clearer table as recommended above with corrections to values.

BT = Background Traffic

GT = Generated/Development Traffic

**Long Range Volume Projections**

Per El Paso County (EPC) planning for Elbert Road, in 10-20 years, the number of lanes for Elbert Road to increase from 2 lanes to 4 lanes.

The 2016 EPC MTCP shows the 2040-2060 Long Range Plan as Elbert as a Minor Arterial which would be a 2-lane not 4 lane. This is beyond 10yrs. Please correct as this long range projection statement is not correct

**Other Studies Conducted**

No other studies conducted with the last 5 years.

Overlook at Holmestead PCD File # SP238 TIS has been submitted. This is the new planned 62 lot development to the east off Apex Ranch Road. Recommend review of this report. The traffic from this new development coming out of Apex Ranch Road needs to be included in the analysis.

## Views of All Intersections Evaluated in the Study

The following are the aerial views the intersections were evaluated.

### Hopper Road (runs east) and Elbert Road (north-south) Intersection

Hopper Road is an east-west 2 lane dirt road.



### Proposed Apex Ranch “dirt” road (runs east) and Elbert Road (north-south) Intersection

The dirt road is a 1 lane road and is to align with subdivision's road.

The subdivision road (runs west)



**Apex Ranch Road (runs east) and Elbert Road (north-south) Intersection**  
Apex Ranch Road is a 2-lane paved road, 30' wide with 5' shoulder on each side



**Sweet Road (runs west) and Elbert Road Intersection**  
Sweet Road is a 2-lane, paved and striped road.



## Sweet Road (runs east) and Elbert Road Intersection

Sweet Road is a 2-lane, paved and striped road.



**ROAD AND TRAFFIC CONDITIONS AND MTCP CLASSIFICATION**

Figure 1 shows the roads adjacent to and in the vicinity of the site. Adjacent roads serving the site are identified below followed by a brief description of each:

**Elbert Road** is a paved, "unimproved," two-lane Rural Minor Arterial that extends for 10 miles north from Judge Orr Road to the El Paso County/Elbert County line. The roadway continues into Elbert County to State Highway 86 (in Elbert County). The posted speed limit at the Elbert Road/Apex Ranch Road intersection is 55 miles per hour (mph). No auxiliary turn lanes currently exist at Elbert Road's intersections with Apex Ranch Road or Sweet Road.

**Apex Ranch Road** is a paved Rural Local roadway extending east-to-west for 0.5 miles between Elbert Road and its terminus to the east. The posted speed limit along this paved road is 25 mph. The westbound approach to the Elbert Road intersection is stop-sign controlled with a single lane.

**Sweet Road** is a Rural Collector extending generally east-to-west for 14.5 miles between Eastonville and Eurich Road. The segment of Sweet Road between Elbert Road and Eastonville Road is paved. Sweet Road is discontinuous at Elbert Road, with an offset of approximately 1,000 feet, between north and south intersections with Elbert Road. No auxiliary turn lanes exist at either of the two Elbert Road intersections with Sweet Road.

Elbert Road, ect

Descriptions, classification, and link ADT of major roads in Study Area  
Not applicable.

Elbert Road is depicted as part of the 2040-2060 Coordinator Preservation Plan as detailed in the 2016 MTCP pg72-73 and Map #17

### MTCP Functional and Corridor Preservation Classifications

None.

### Descriptions of Intersections Evaluated with Existing Controls

#### Hopper Road & Elbert Road Intersection

3-way intersection with Hopper road running eastward from Elbert Road. Stop sign is present on Hopper Road for traffic entering Elbert Road.

### **Parcel's Private Road & Elbert Road Intersection**

The current 3-way intersection will become a 4-way intersection. Adding a stop sign is recommended for vehicle traffic existing the parcel's private road and entering Elbert Road.

### **Apex Ranch Road & Elbert Road Intersection**

3-way intersection with Apex Ranch Road running eastward from Elbert Road. Stop sign is present on the Apex Ranch Road for traffic entering Elbert Road.

### **Sweet Road (west) & Elbert Road Intersection**

3-way intersection with Sweet Road (west) running westward from Elbert Road. Stop sign is present on the Sweet Road (west) for traffic entering Elbert Road.

### **Sweet Road (east) & Elbert Road Intersection**

3-way intersection with Sweet Road (east) running westward from Elbert Road. Stop sign is present on the Sweet Road (east) for traffic entering Elbert Road.

### **Cross Section Standards for Road Segments**

The road segments meet designated classifications.

Elbert Road does not meet cross section standards. Pavement width is only 22ft. Major Collector is paved width of 32ft. This will require entrance improvements. CD level detail will need to be provided for the new entrance.

# Traffic Count Data

## Traffic Count Sunday 3/19/2023 7:30am-9:45am

Sunday (03/19/2023)

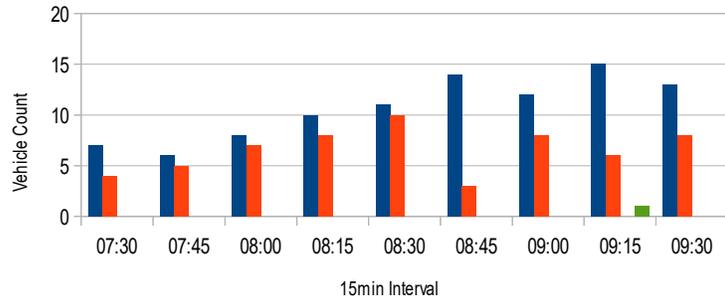
All traffic count data should be placed at the end of the report and summarization provided in the body of the report where needed.

15 min Intervals	Elbert Road South Bound	Elbert Road North Bound	Entering Driveway from Northbound Elbert Road	Exiting Driveway to Northbound Elbert Road
07:30	7	4		
07:45	6	5		
08:00	8	7		
08:15	10	8		
08:30	11	10		
08:45	14	3		
09:00	12	8		
09:15	15	6		1
09:30	13	8		
<b>Totals</b>	<b>96</b>	<b>59</b>		<b>1</b>
<b>Average</b>	<b>11</b>	<b>7</b>		<b>0</b>

2496  
1456

16888 Driveway - N/S Elbert Road

Sunday 3/19/2023 7:30am-9:45am



■ Elbert Road South Bound      ■ Elbert Road North Bound  
 ■ Entering Driveway from Northbound Elbert Road      ■ Exiting Driveway to Northbound Elbert Road

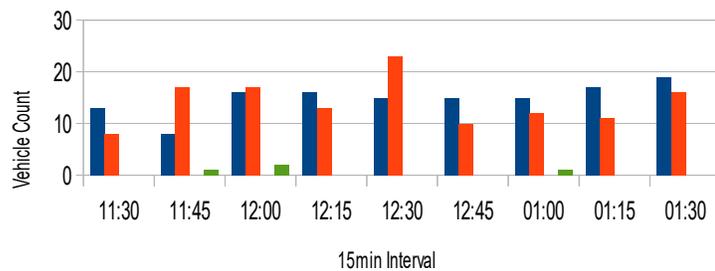
## Traffic Count Sunday 3/19/2023 11:30am-1:45pm

Sunday (03/19/2023)

15 min Intervals	Elbert Road South Bound	Elbert Road North Bound	Entering Driveway from Northbound Elbert Road	Exiting Driveway to Southbound Elbert Road
11:30	13	8		
11:45	8	17		1
12:00	16	17		2
12:15	16	13		
12:30	15	23		
12:45	15	10		
01:00	15	12		1
01:15	17	11		
01:30	19	16		
<b>Totals</b>	<b>134</b>	<b>127</b>	<b>0</b>	<b>4</b>
<b>Average</b>	<b>15</b>	<b>14</b>	<b>0</b>	<b>1</b>

16888 Driveway - N/S Elbert Road

Sunday 3/19/2023 11:30am-1:45pm



■ Elbert Road South Bound      ■ Elbert Road North Bound  
 ■ Entering Driveway from Northbound Elbert Road      ■ Exiting Driveway to Southbound Elbert Road

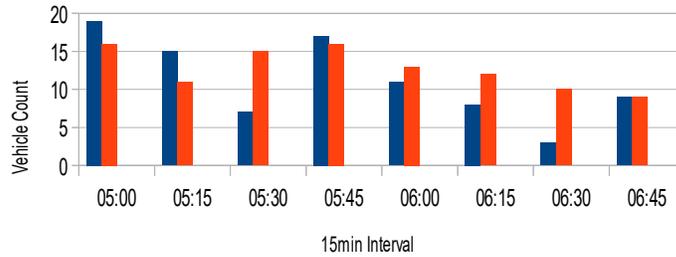
### Traffic Count Sunday 3/19/2023 5:00pm-7:00pm

#### Sunday (03/19/2023)

15 min Intervals	Elbert Road South Bound	Elbert Road North Bound	Entering Driveway from Northbound Elbert Road	Exiting Driveway to Southbound Elbert Road
05:00	19	16		
05:15	15	11		
05:30	7	15		
05:45	17	16		
06:00	11	13		
06:15	8	12		
06:30	3	10		
06:45	9	9		
<b>Totals</b>	<b>89</b>	<b>102</b>		
<b>Average</b>	<b>11</b>	<b>13</b>		

#### 16888 Driveway - N/S Elbert Road

Sunday 3/19/2023 5:00pm-7:00pm



- Elbert Road South Bound
- Elbert Road North Bound
- Entering Driveway from Northbound Elbert Road
- Exiting Driveway to Southbound Elbert Road

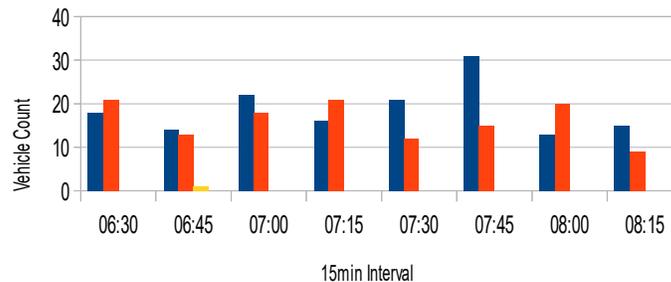
### Traffic Count Wednesday 3/22/2023 6:30am-8:30am

#### Wednesday (03/22/2023)

15 min Intervals	Elbert Road South Bound	Elbert Road North Bound	Entering Driveway from Northbound Elbert Road	Exiting Driveway to Southbound Elbert Road
06:30	18	21		
06:45	14	13	1	
07:00	22	18		
07:15	16	21		
07:30	21	12		
07:45	31	15		
08:00	13	20		
08:15	15	9		
<b>Totals</b>	<b>150</b>	<b>129</b>	<b>1</b>	
<b>Average</b>	<b>19</b>	<b>16</b>	<b>1</b>	

#### 16888 Driveway - N/S Elbert Road

Wednesday 3/22/2023 6:30am-8:30am



- Elbert Road South Bound
- Elbert Road North Bound
- Entering Driveway from Northbound Elbert Road
- Exiting Driveway to Southbound Elbert Road

3024  
1764

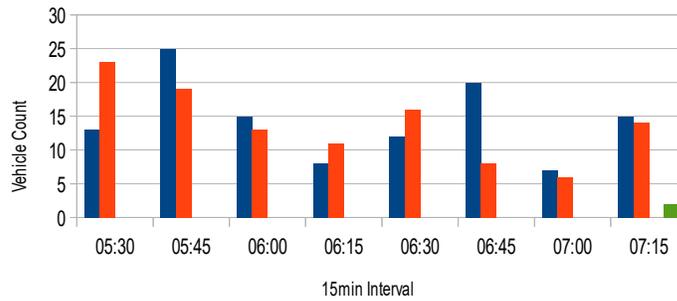
# Traffic Count Wednesday 3/22/2023 5:30pm-7:30pm

## Wednesday (03/22/2023)

15 min Intervals	Elbert Road South Bound	Elbert Road North Bound	Entering Driveway from Northbound Elbert Road	Exiting Driveway to Northbound Elbert Road
05:30	13	23		
05:45	25	19		
06:00	15	13		
06:15	8	11		
06:30	12	16		
06:45	20	8		
07:00	7	6		
07:15	15	14		2
<b>Totals</b>	<b>115</b>	<b>110</b>	<b>0</b>	<b>2</b>
<b>Average</b>	<b>14</b>	<b>14</b>	<b>0</b>	<b>2</b>

16888 Driveway - N/S Elbert Road

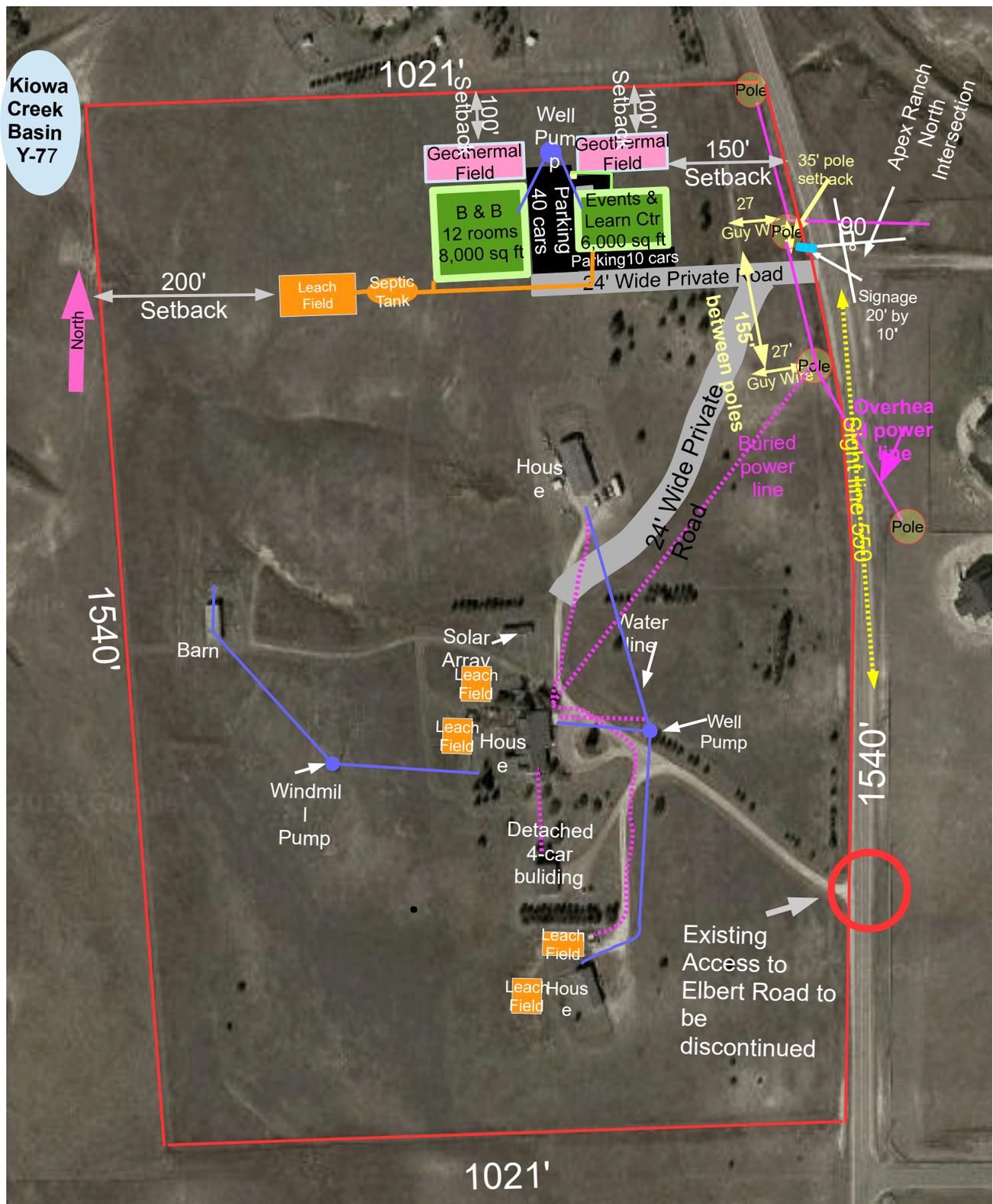
Wednesday 3/22/2023 5:30pm-7:30pm



- Elbert Road South Bound
- Elbert Road North Bound
- Entering Driveway from Northbound Elbert Road
- Exiting Driveway to Northbound Elbert Road

# Proposed Development and Trip Generation

## Site Plan



property is unplatted  
and a single parcel,  
no individual lots  
3 Single family homes

The parcel is 37.5 acres A-35 zoned.

3 of the lots currently have 1 home each.

The Business Event Center (BEC) and Bed & Breakfast (B&B), are both under EPC Special Uses land use guidelines. These two Special Uses are symbiotic uses helping to reduce peak traffic for guest that are connected or attending BEC events.

### ITE Land Use Types and ITE Trip Generation

ITE Land Use Code	M-F A.M. Peak (Avg/Hr)	M-F P.M. Peak (Avg/Hr)	Sat-Sun A.M. Peak (Avg/Hr)	Sat-Sun Noon Peak (Avg/Hr)	Sat-Sun P.M. Peak (Avg/Hr)
215 Single-Family Attached Housing	6 (3)	6 (3)	6 (3)	6 (3)	6 (3)
252 Senior Adult Housing-Multifamily	1 (.5)	1 (.5)	1 (.5)	1 (.5)	1 (.5)
312 B&B/Business Hotel	4 (2)	4 (2)	4 (2)	4 (2)	4 (2)
495 Recreational Community Center	0 (0)	6 (3)	12 (6)	11 (6)	14 (6)
Left Turns	5 (3)	8 (4)	11 (5)	11 (4)	12 (4)

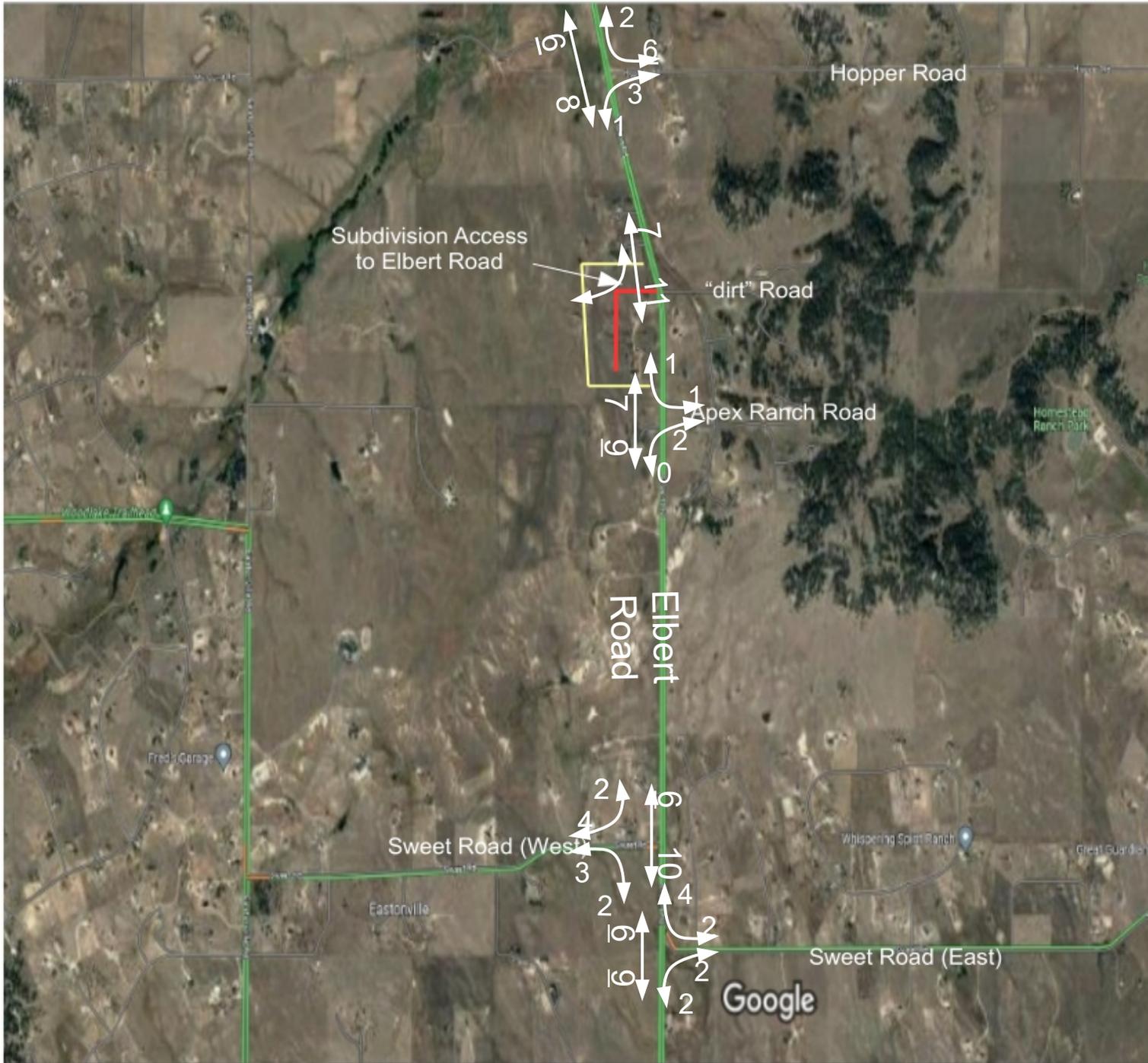
### Adjustments to Trip Generation

None.

# Trip Distribution Maps for Each Evaluated Intersection

## Weekend Days A.M. Peak Average Hourly Flows for Intersections

Label all maps as existing, short term and long term.



Add legend to all and update ADT and peak hr for all

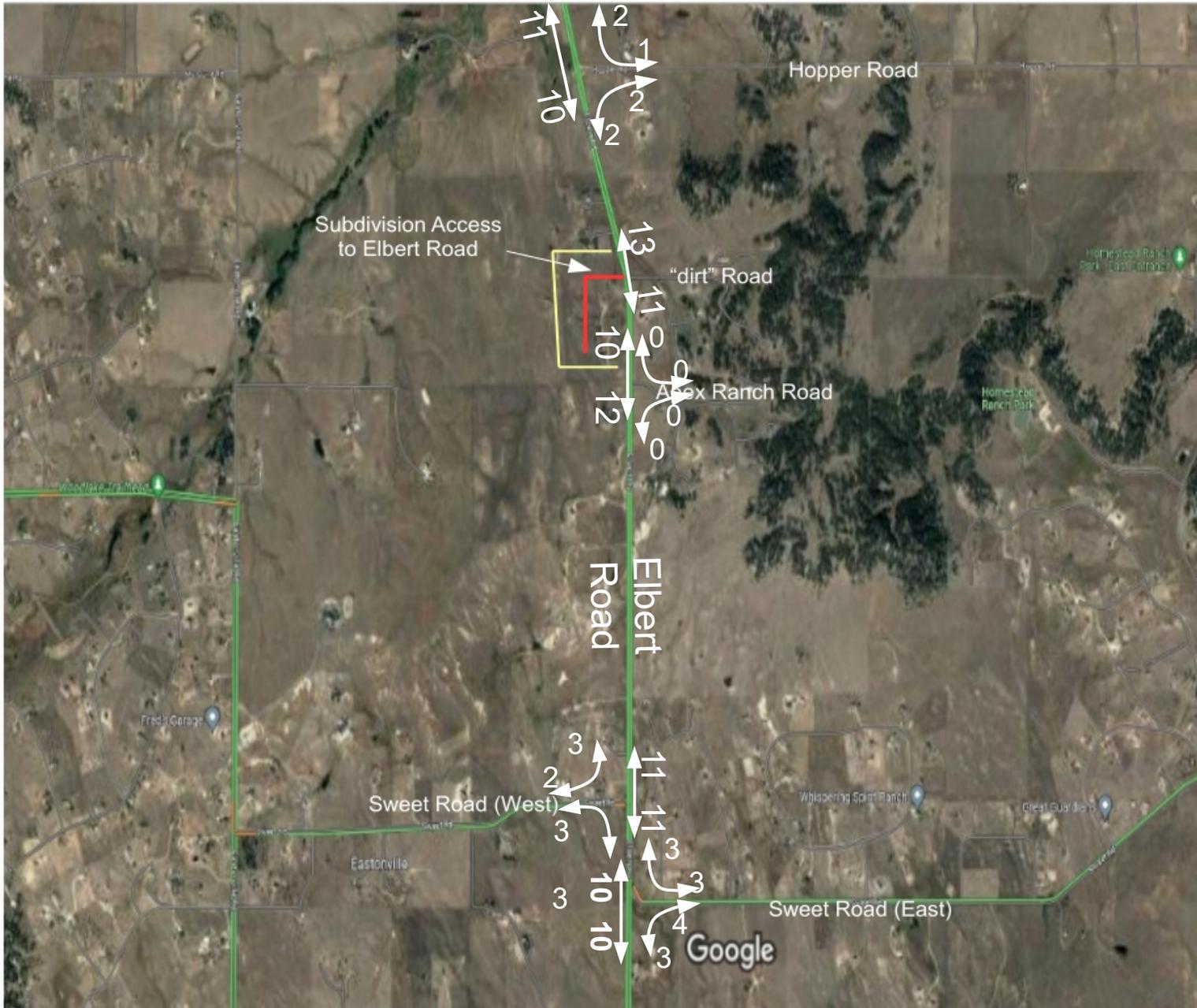
- ⌋ = Stop Sign
- $\frac{X}{X}$  = AM Individual Movement Peak-Hour LOS
- $\frac{X}{X}$  = PM Individual Movement Peak-Hour LOS
- $\frac{XX}{XX}$  = AM Weekday Peak-Hour Traffic (Veh/Hour)
- $\frac{XX}{XX}$  = PM Weekday Peak-Hour Traffic (Veh/Hour)
- X,XXX = Average Daily Traffic (Vehicles/Day)

REVISION 3

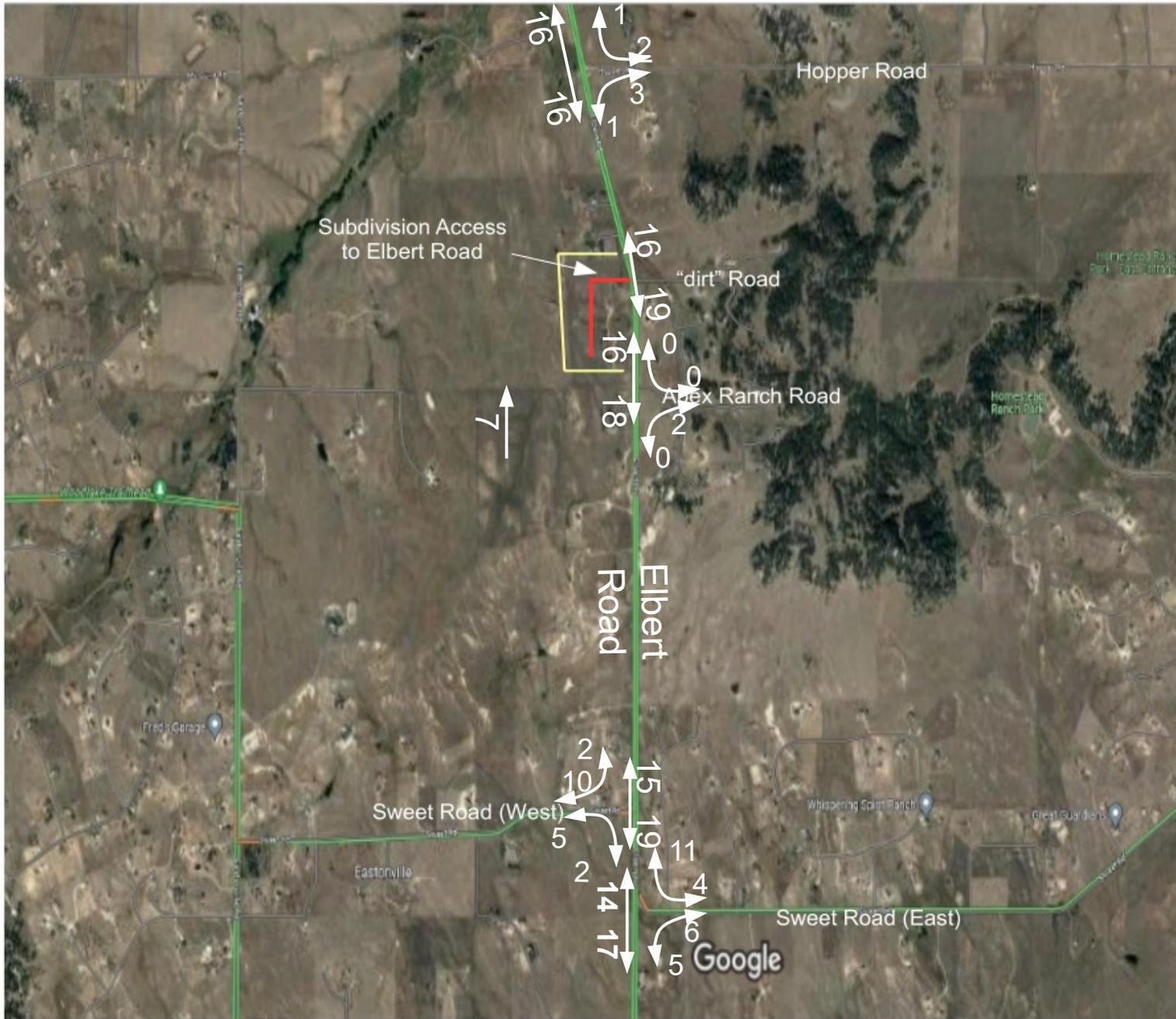
# Weekend Days Noon Average Hourly Traffic Flow for Intersections



# Weekend Days P.M. Average Hourly Traffic Flow for Intersections



# Week Days A.M. Average Hourly Traffic Flow for Intersections



# Week Days P.M. Average Hourly Traffic Flow for Intersections



## Expected Year of Completion

The build out is expected to be completed in 5 years.

## Onsite Road Classification

The onsite road classification is Public Road.

The onsite internal road is expected to be private. Private road is shown on site dev plan

## On-Site Traffic Control

The 3 existing homes do not warrant the need for on-site traffic

Explain stop condition at the private road intersection with Elbert. This will be stopped controlled and will require a stop sign.

## Private Road Intersection Spacing

Each home, Bed & Breakfast, and Business Event Center to have private road. No issue with their intersection spacing found.

Explain that the new private road entrance will meet collector 1/4 mile spacing to Apex Ranch

## ECM Criteria for Stacking, Storage, & Tapering

As the generated traffic is with traffic Level of Service (LOS) C or B, the criteria for stacking, storage and tapering is met.

## Sight Distance

All sight distances are met.

State what the sight distances actually are for the access pts and whether its met for both NB and SB approach. Provide the ECM criteria section, design vehicle (single unit truck in this case) and what the actual line of sight is and what the required line of sight distance is. Refer to ECM Table 2.35. Explain if any grade adjustment is necessary per Table 2-34.

## Evaluation and Mitigation

### Analysis Horizon

#### Short-Term Horizon (5 years)

Build out completed with the proposed generated ADT.

#### Intermediate Horizon (10 years)

Increase in size of the events at the Business Events Center is planning. This would necessitate adding left turn lanes at the intersection with Elbert Road. TIS to be submitted.

Level of service analysis not provided. Must explain and show that the LOS for the directly adjacent intersections is not negatively impacted.

## Long-Range Horizon (15+ years)

Additional special uses to be added to the subdivision. This would necessitate updating the intersection facilities at intersection with Elbert Road. TIS to be submitted. Also, due to increased ADT traffic on Elbert Road (not from this subdivision), EPC would need to expand Elbert Road from 2 lanes to 4 lanes.

## Capacity of Major Road Segments

The capacity for subdivision and Special Uses ADT Short-Range

50?

ADT for Business Events Center is limited to 100 attendees throughout the day (9am-4pm, 8pm-midnight).

3000 Design ADT

Current ADT on Elbert Road is estimated (from traffic count data) to be 1750.

Elbert Road is a Local Major Collector road, with 2 lanes ADT Rural Threshold Capacity of 3,000

Short-range (5 years) and Intermediate range (10 years) projected ADT traffic to remain under 3,000.

Long-range (15-20 years), ADT traffic on Elbert Road to require additional lanes.

## Capacity for Signalized Intersections

will be required

The private road intersecting Elbert Road does not require signalization. A stop sign is recommended for the vehicle traffic entering Elbert Road.

## Provision for Left-Turns

Vehicle traffic at the intersection with Elbert Road will not require a left turn lane in the short-term. Should the event attendance (Business Event Center) reach 100 attendees, then a left turn lane would be needed. TIS to be submitted.

Include detailed Auxiliary Turn Lane Analysis per ECM 2.37.D Address both Northbound and Southbound with specific for a minor arterial and lower classification per 2.3.7.D. State the ECM standard, and if met or not based on trip gen

## Free Right Turns

Vehicle traffic at the intersection with Elbert Road will not require adding free right turn lane for the short-term. Should the event attendance (Business Event Center) reach 100 (or more) attendees, then a free right turn lane would be needed. TIS to be submitted.

## Sub-Standard LOS Situations

There is no sub-standard LOS situation.

## Safety-Based Warrants for Turn Lanes

No safety-based warrants needed.

Revision 5

Exclusive Left Turn Lane Required. Exclusive left turn lanes shall be provided wherever left turn lanes are specified as being needed by an approved TIS, identified in the MTCP, required by the ECM, or determined to be warranted by the ECM Administrator. Information in the TIS shall be used to determine whether an exclusive left turn lane is warranted. Warrant determinations shall also be based on this chapter, which include:

- Expressways Left Turn Lane (State Highway Access Code Designation - EX): A left turn lane is required for any access that allows left turn ingress movement, except for field approaches. A left turn acceleration lane may be required if the design would be a benefit to safety and operation of the roadway.
- Principal Arterials Left Turn Lane (State Highway Access Code Designation - RA for Rural and NR-A for Urban): A left turn lane is required for an access with a projected peak hour left ingress turning volume of 10 VPH or greater. A left turn acceleration lane may be required if it would be a benefit to the safety and operation of the roadway.
- Minor Arterials (State Highway Access Code Designation - RB for Rural and NR-B for Urban) and Lower Classifications Left Turn Lane: A left turn lane is required for any access with a projected peak hour ingress turning volume of 25 VPH or greater.

2. Exclusive Right Turn Lanes Required. Exclusive right turn lanes shall be provided wherever right turn lanes are specified as being needed by an approved TIS, identified in the MTCP, required by the ECM or determined to be warranted by the ECM Administrator. Information in the TIS shall be used to determine whether an exclusive right turn lane is warranted. Warrant determinations shall also be based on this chapter, which include:

- Expressway Right Turn Lane (State Highway Access Code Designation - EX): A right turn lane is required for any access with a projected peak hour right turn ingress turning volume of 10 VPH or greater. A right turn acceleration lane is required for any access with a projected peak hour right turn egress turning volume of 10 VPH or greater.
- Principal Arterials Right Turn Lane (State Highway Access Code Designation - RA for Rural and NR-A for Urban): A right turn lane is required for any access with a projected peak hour right ingress turning volume of 25 VPH or greater. A right turn acceleration lane is required for any access with a projected peak hour right turning volume of 50 VPH or greater when the posted speed on the roadway is greater than 40 MPH. A right turn acceleration lane may also be required at a signalized intersection if a free right-turn is needed to maintain an appropriate level of service in the intersection.
- Minor Arterials (State Highway Access Code Designation - RB for Rural and NR-B for Urban) and Lower Classifications Right Turn Lane: A right turn lane is required for any access with a projected peak hour right turning volume of 50 VPH or greater. An acceleration lane is generally not required.

## Weaving Analysis

Not applicable.

not correct value see above ECM Section 2.3.7.D

## Summary of Necessary Turn Lanes

As the number of left-turns during peak time is less than 10, no left turn lane(s) are needed. The number of attendees to any event is cap at 50. In the future, this 50-person cap may increase, at which time the TIS will be resubmitted to add left and/or right turn lanes as needed.

## Signal Warrant Analysis

Not applicable.

## Graphical Depiction of Improvements To Meet Level of Service

Not applicable.

## Trigger Points for Future Improvements

This should be based on traffic not people

Business Events Center events exceed 50 persons - Left-turn lane required entering Elbert Road

Business Events Center events reach 100 persons – Right-turn lane required entering Elbert Road.

## Summary of Accident History

Accident/safety concerns (accident statistics): This section of Elbert Road is at 7250' elevation and, as a result, icy conditions do occur. This has lead to vehicles (when traveling too fast on the icy road) to slip off the roadway with a frequency of 1-2 times per winter season. Accidents do not occur in non-icy conditions.

## Pedestrian/Bicycle Needs

Elbert Road has no safe space for bicycles and pedestrians - it is unsafe for bicycles to travel on Elbert Road.

## School and Pedestrian Plans

Peyton School buses do service the area. School bus to use the subdivision's apron adjoining Elbert Road to pickup and drop off students.

## Master Plan Trails

No master plan trails.

## Short-Term / Long-Term Background Project Lanes

Short-Term Background Lanes on Elbert Road are not needed

Long-Term Background Lanes on Elbert Road will be needed when background ADT traffic exceeds 3,000. EPC Planning expects this to occur in 10-20 years. When this happens, Elbert Road will need to be expanded from 2 lanes to 4 lanes.

## Summary of Subdivision & Special Uses Impact

The current vehicle access to Elbert Road to move and align with 1 lane “dirt” road on the north boundary of Apex Ranch Estates. This will change the intersection from a 3-way intersection to 4-way intersection. Recommend a stop sign be installed for vehicle traffic existing the property onto Elbert Road.

## Recommendations and Conclusions

The Special Uses (Event Center and B\*&B) will not contribute enough ADT and peak traffic to warrant any facility upgrades to the intersection of the private road and Elbert Road. Business Event Center's events not to exceed 50 attendees per event. When it becomes desirable to increase the people attending the events, another TIS will be submitted to consider adding a left-turn lane and/or right turn lanes on Elbert Road for vehicle traffic entering and existing Elbert Road.

See notes below

## Final Plat

No plat is needed as parcel is not to be subdivided. A site map showing the locations of the 3 existing homes (with their infrastructure), Business Event Center and Bed & Breakfast is included in this TIS

State whether the 2016 MTCP or other approved corridor study calls for the construction of improvements in the immediate area. See MTCP extract below.

## Major Transportation Corridor

No reimbursable improvements are applicable in the short-term.

No construction improvements are applicable in the short-term.

## Road Impact Fees

Not applicable.

Road Impact fees are applicable for both of the new uses on the property Reference EA meeting (EA22148) notes. <https://publicworks.elpasoco.com/road-impact-fees/> Both Motel and General Commercial will apply for each respective building and use. Calculate fee and update report. Paid at time of building permit.

## Financing Transportat

Not applicable as no Elbert Road improvements needed. Financing for the private road comes from Equity Line of Credit.

See notes below

Road Impact Fee Schedule				
Land Use	Unit	Full Fee	Upfront Fee in 5 mill PID	Upfront Fee in 10 mill PID
Single-Family	Dwelling	\$3,830	\$2,527	\$1,221
Multi-Family	Dwelling	\$2,407	\$1,934	\$1,458
Hotel/Motel	Room	\$2,806	\$2,153	\$1,498
General Commercial	1,000 sf	\$4,958	\$3,851	\$2,745
Convenience Commercial	1,000 sf	\$8,800	\$5,271	\$1,749
Office	1,000 sf	\$3,180	\$1,520	\$-
Public/Institutional	1,000 sf	\$3,372	\$1,645	\$-
Industrial	1,000 sf	\$3,651	\$2,372	\$1,093
Warehouse	1,000 sf	\$1,865	\$1,122	\$378
Mini Warehouse	1,000 sf	\$725	\$243	\$-

## References

The ITE Trip Generation Manual 11th Ed is what should be listed and used.

### High Capacity Manual, Transportation Research Board, National Research Council

### El Paso County Land Use Guidelines

### El Paso County Engineering Design Manual, Revision 6

Provide explanation of any ECM deviations required.

Provided explanation of road and entrance improvements to be completed.

Address any new required signage. Stop signs and intersection ahead signage.

Elbert Road will require restriping at the entrance area and removal of passing striping. CDs will be required for this (Signing and Striping CD sheet) and entrance construction details and layout.

**Note:**

CDs with GEC plan, PBMP Form, Drainage letter, ESQCP, and FAE will be required as part of the site development plan. These will need to be prepared by a CO licensed engineer.

For a 2-way commercial access. Access width shall be a min of 25ft for collector roadway. Given the roadway width deficiency a min of 35ft access width is recommended which aligns with a minor arterial roadway. Correct site dev plan.

Table 4: 2040 Roadway Improvement Projects

Project ID	Road Segment	Segment		PPRTA Project	Urban vs. Rural	Existing Conditions		Future Conditions		Total Cost
		Beginning	End			Lanes	Functional Class	Lanes	Functional Class	
<b>New Road Connections</b>										
N1	Roller Coaster Rd	Eliminate jog in alignment			Rural			2	Minor Arterial	\$4,118,000
N2	Black Forest Rd	Eliminate jog in alignment			Rural			2	Minor Arterial	\$2,585,000
N3	Hodgen Rd	Eastonville Rd	Elbert Rd		Rural			2	Collector	\$4,470,000