

APPENDIX D  
TRAFFIC ANALYSIS

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May 17, 2017

Mr. Merv Lapin  
Red Mountain Ranch  
232 W. Drive  
Vail, CO 81657

Re: Red Mountain Ranch  
Traffic Memorandum  
Eagle, CO  
LSC #170540

Dear Mr. Lapin:

In response to your request, LSC Transportation Consultants, Inc. has prepared this traffic memorandum for the proposed Parcel 1 and The Farm portions of the Red Mountain Ranch development. As shown on Figure 1, the site is located south of US Highway 6 and east of Eby Creek Road in Eagle, Colorado.

## **REPORT CONTENTS**

The report contains the following: the typical weekday site-generated traffic volume projections for the site; the assignment of the projected traffic volumes to the area roadways; and the estimated auxiliary turn lane requirements for various future posted speed limits based on the requirements of the *State Highway Access Code*.

## **ROADWAY AND TRAFFIC CONDITIONS**

### **Area Roadways**

The major roadways in the site's vicinity are shown on Figure 1 and are described below.

- **US Highway 6 (US 6)** is an east-west, two-lane state highway roadway adjacent to the site. It is classified as R-A (Regional Highway) by CDOT. The posted speed limit transitions from 45 mph to 55 mph adjacent to the site.
- **Nogal Road** is an east-west, two-lane local access roadway north of the site. The intersection with US 6 is stop-sign controlled with auxiliary turn lanes. The proposed western site access will align with Nogal Road.

**LAND USE AND ACCESS**

The site is proposed to include about nine single-family residential detached dwelling units, about 98 condo and/or townhome attached dwelling units, and a 3,200 square-foot restaurant. Full movement access is proposed to US 6 aligning with Nogal Road (posted speed limit is 45 mph) and to the east at the boundary between Parcel 1 and The Farm (posted speed limit is 55 mph). Conceptual plans for Parcel 1 and The Farm are attached for reference.

**TRIP GENERATION**

Table 1 shows the estimated average weekday, morning peak-hour, and afternoon peak-hour trip generation for the proposed site based on the rates from *Trip Generation, 9<sup>th</sup> Edition, 2012* by the Institute of Transportation Engineers (ITE).

The proposed land use is projected to generate about 1,062 one-way vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 29 vehicles would enter and about 57 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour between 4:00 and 6:00 p.m., about 59 vehicles would enter and about 33 vehicles would exit.

**TRIP DISTRIBUTION**

Figure 2 shows the estimated distribution of site-generated traffic.

**TRIP ASSIGNMENT**

Figure 3 shows the assignment of site-generated traffic.

**AUXILIARY TURN LANE LENGTHS VS. POSTED SPEED LIMIT**

US 6 is classified as a regional highway (RA) by CDOT. A right-turn deceleration lane is required on US 6 for any access with a right-turning volume of greater than 25 vehicles per hour. The turning volume at each access point is projected to exceed 25 vehicles per hour. The deceleration lanes should be 12 feet wide with a four-foot wide paved shoulder. An appropriate length for various posted speed limits is as follows:

35 mph	190-foot lane	120-foot transition taper (10:1)
40 mph	225-foot lane	145-foot transition taper (12:1)
45 mph	275-foot lane	160-foot transition taper (13.5:1)
50 mph	320-foot lane	180-foot transition taper (15:1)
55 mph	380-foot lane	220-foot transition taper (18.5:1)

**CONCLUSIONS AND RECOMMENDATIONS**

**Trip Generation**

1. The proposed land use is projected to generate about 1,062 one-way vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period.

During the morning peak-hour, about 29 vehicles would enter and about 57 vehicles would exit the site. During the afternoon peak-hour, about 59 vehicles would enter and about 33 vehicles would exit.

**Auxiliary Turn Lanes**

- 2. An eastbound right-turn deceleration lane will likely be required at both proposed access points. The length will be based on the posted speed limit at the time the lane is constructed.

**Next Steps**

- 3. As the project advances, state highway access permits will be required by CDOT along with a traffic impact analysis based on the final unit count and type.

\* \* \* \* \*

We trust our findings will provide relevant information pertinent to the Town of Eagle review of the Red Mountain Ranch PUD Zoning Plan. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS

By   
Christopher S. McGranahan, PE, PTOE  
Principal



5-17-17

CSM/wc

Enclosures: Table 1  
Figures 1 - 3  
Conceptual Site Plans for Parcel 1 and The Farm

**Table 1**  
**ESTIMATED TRAFFIC GENERATION**  
**Red Mountain Ranch**  
**Eagle, CO**  
**LSC #170540; May, 2017**

Trip Generating Category	Quantity	Trip Generation Rates <sup>(1)</sup>					Vehicle - Trips Generated				
		Average	AM Peak Hour		PM Peak Hour		Average	AM Peak Hour		PM Peak - Hour	
		Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
<b>Parcel 1</b>											
Single-Family Residential <sup>(2)</sup>	9 DU <sup>(3)</sup>	9.52	0.188	0.563	0.630	0.370	86	2	5	6	3
Condo/Townhomes <sup>(4)</sup>	88 DU	5.81	0.075	0.365	0.348	0.172	511	7	32	31	15
<b>Parcel 1 Total =</b>							<b>597</b>	<b>9</b>	<b>37</b>	<b>37</b>	<b>18</b>
<b>The Farm</b>											
High-Turnover Sit-Down Restaurant <sup>(5)</sup>	3.2 KSF	127.15	5.946	4.865	5.910	3.940	407	19	16	19	13
Condo/Townhomes <sup>(4)</sup>	10 DU	5.81	0.075	0.365	0.348	0.172	58	1	4	3	2
<b>The Farm Total =</b>							<b>465</b>	<b>20</b>	<b>20</b>	<b>22</b>	<b>15</b>
<b>TOTAL =</b>							<b>1,062</b>	<b>29</b>	<b>57</b>	<b>59</b>	<b>33</b>

Notes:

(1) Source: *Trip Generation*, Institute of Transportation Engineers, 9th Edition, 2012

(2) ITE Land Use No. 210 - Single-Family Detached Housing

(3) DU = Dwelling Units

(4) ITE Land Use No. 230 - Residential Condominium/Townhouse

(5) ITE Land Use No. 932 - High-Turnover Sit-Down Restaurant

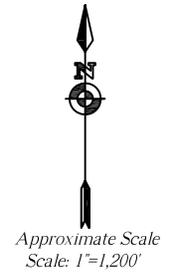


North Arrow  
Approximate Scale  
Scale: 1"=1,200'

Figure 1

# Vicinity Map

Red Mountain Ranch (LSC #170540)



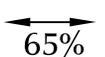
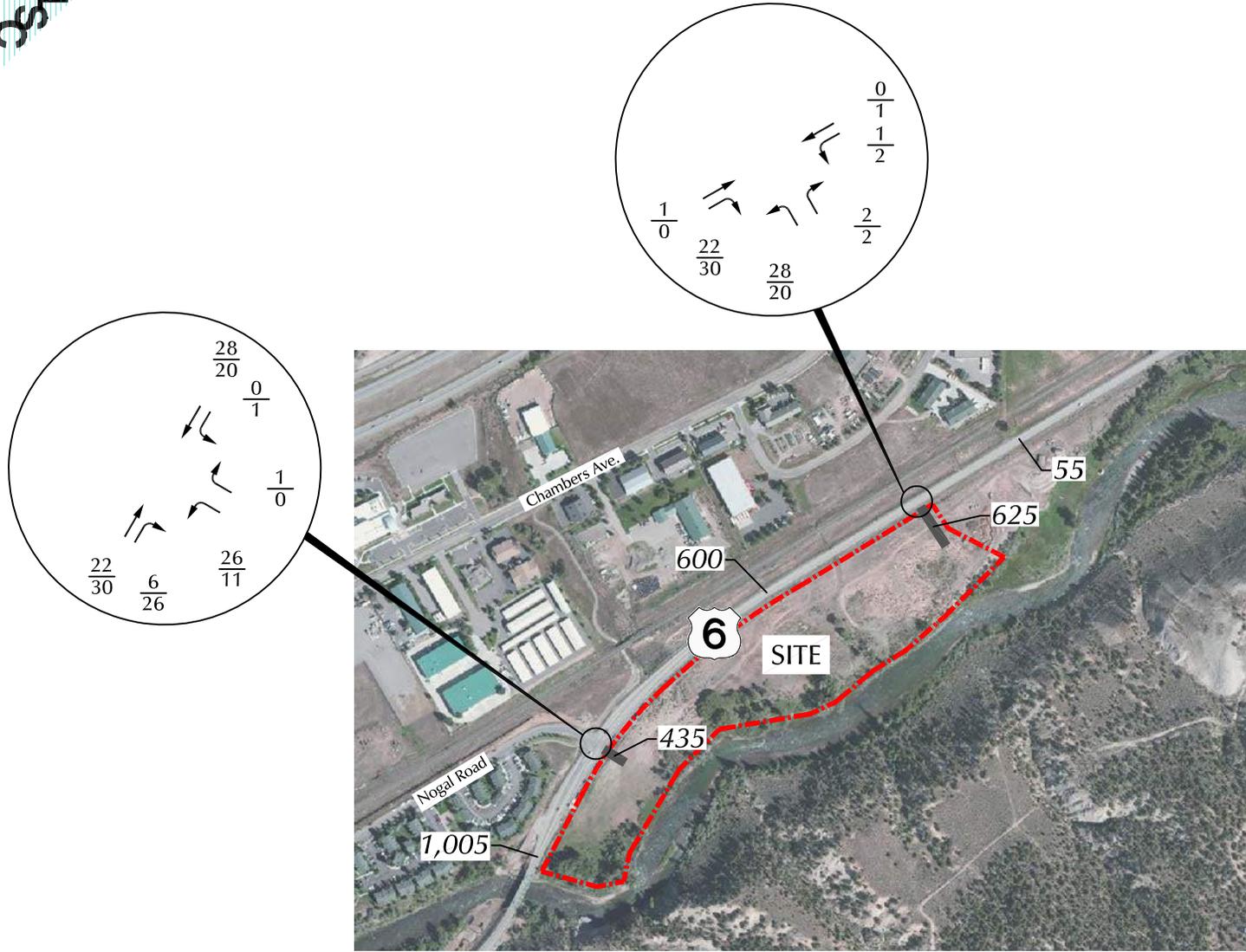
LEGEND:  
 = Percent Directional Distribution

Figure 2  
*Directional Distribution  
of Site-Generated Traffic*

Red Mountain Ranch (LSC #170540)



LEGEND:

- $\frac{26}{35}$  = AM Peak Hour Traffic  
PM Peak Hour Traffic
- 2,500 = Average Daily Traffic

Figure 3  
**Assignment of  
Site-Generated Traffic**  
Red Mountain Ranch (LSC #170540)

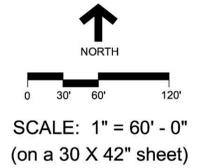
# SUMMARY

	DWELLING UNITS	PARKING SPACES	PARKING PER UNIT	PARCEL ACRES	DWELLING UNITS PER ACRE	
1-A	CONDOMINIUMS 2 STORY BUILDINGS 1 & 2 BEDROOM UNITS	48	96	2	3.5	13.7
1-B	4 and 6 PLEX 2 STORY BUILDINGS 2 BEDROOM UNITS	22	48	2.2	2.6	8.4
1-C	TOWNHOMES 2 STORY BUILDINGS 2 BEDROOM UNITS	10	46	4.6	1.6	6.2
1-D	DUPLEX 2 STORY BUILDING 2 & 3 BEDROOM UNITS	8	32	4	2.5	3.2
1-E	SINGLE FAMILY 1 STORY BUILDINGS 2 & 3 BEDROOM UNITS	9	36	4	2.3	3.9
OS	OPEN SPACE				22.1	
<b>TOTALS</b>		<b>97</b>	<b>250</b>	<b>2.5</b>	<b>34.6</b>	<b>2.9</b>



## CONCEPT PLAN PARCEL 1 RED MOUNTAIN RANCH

EAGLE, COLORADO



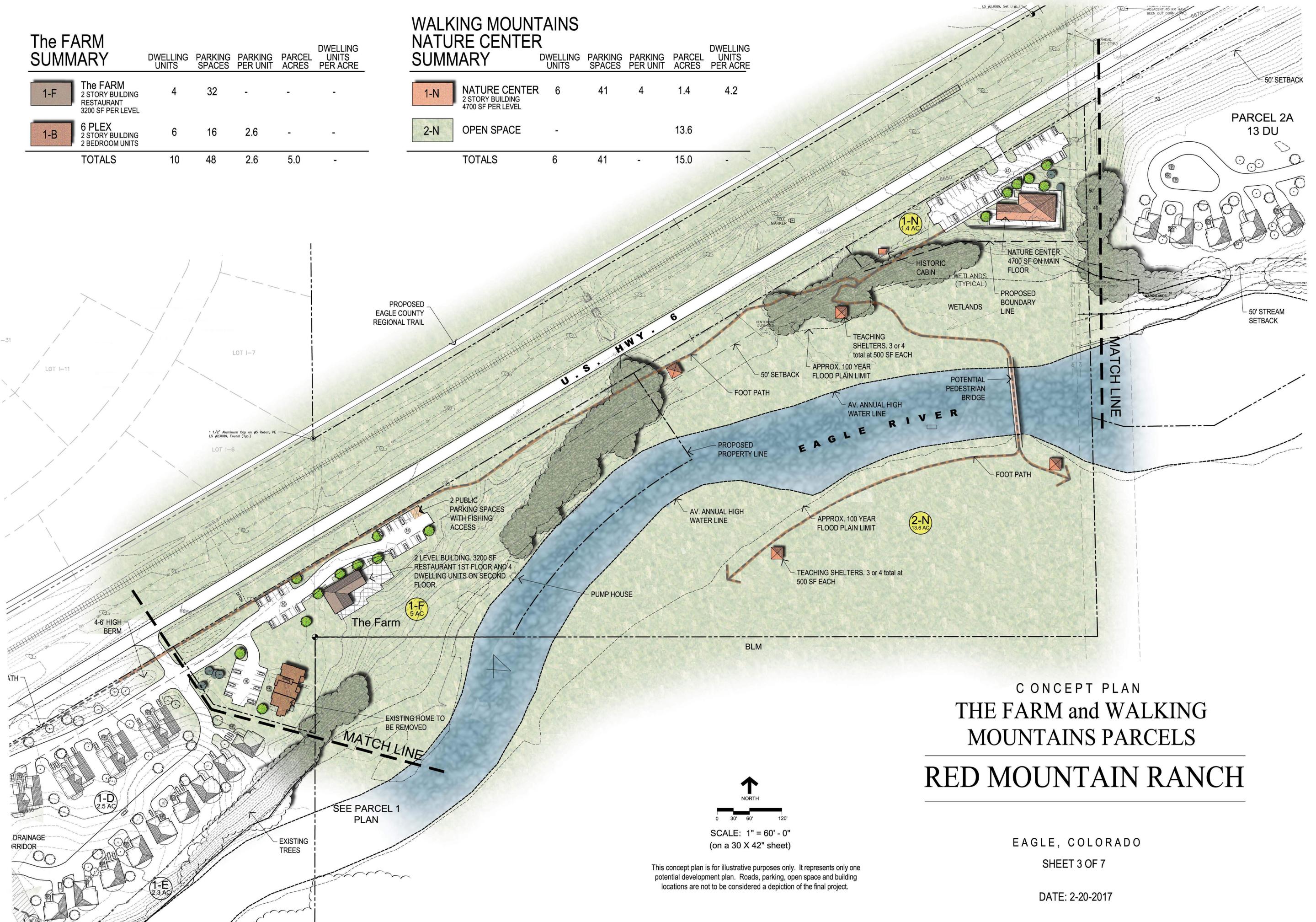
This concept plan is for illustrative purposes only. It represents only one potential development plan. Roads, parking, open space and building locations are not to be considered a depiction of the final project.

# The FARM SUMMARY

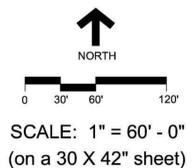
	DWELLING UNITS	PARKING SPACES	PARKING PER UNIT	PARCEL ACRES	DWELLING UNITS PER ACRE
<b>1-F</b>	The FARM 2 STORY BUILDING RESTAURANT 3200 SF PER LEVEL	4	32	-	-
<b>1-B</b>	6 PLEX 2 STORY BUILDING 2 BEDROOM UNITS	6	16	2.6	-
<b>TOTALS</b>		10	48	2.6	5.0

# WALKING MOUNTAINS NATURE CENTER SUMMARY

	DWELLING UNITS	PARKING SPACES	PARKING PER UNIT	PARCEL ACRES	DWELLING UNITS PER ACRE
<b>1-N</b>	NATURE CENTER 2 STORY BUILDING 4700 SF PER LEVEL	6	41	4	1.4
<b>2-N</b>	OPEN SPACE	-	-	13.6	-
<b>TOTALS</b>		6	41	15.0	-



## CONCEPT PLAN THE FARM and WALKING MOUNTAINS PARCELS RED MOUNTAIN RANCH



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EAGLE, COLORADO  
SHEET 3 OF 7  
DATE: 2-20-2017