

Traffic Impact Study:  
A Level 1 Traffic Assessment

# West Canyon Subdivision

December 1, 2023

Prepared for:

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Job No. 0208-029

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## **I. Project Description**

This report includes an assessment of estimated traffic conditions associated with the proposed subdivision located at the corner of Pine Street and K Road in Fruita, CO (Parcel 2697-162-21-001). The site will be subdivided into 50 lots with two access points. This Level 1 Study includes trip generation numbers as per the Institute of Transportation Engineers ITETripGen, 11<sup>th</sup> Edition. This Level 1 Study also includes a cursory overview of access and trip generation for proposed subdivision. This assessment assumes the project will be constructed in two phases, starting in 2024 and ending in 2025.

### **A. Project Description**

The proposed project is a subdivision constructed on a single 9.1 acre parcel of land (Parcel 2943-181-16-001). The project will create 50 single family residential units.

The site is located at south-west corner of Pine Street and K Road in Fruita, Colorado. Please refer to the General Location Map.

### **B. Project Access Points and Site Design**

The proposed project includes two full movement access points, one at K road and the other at Pine Street. See attached sheet C-5 for the proposed site plan.

### **C. Trip Generation**

Trip generation for this project was estimated using the Institute of Transportation Engineers (ITE) Trip Generation tool on the ITE website (ITETripGen web-based app). The land use code for residential single family is 210. Using this land use code, weekday, peak AM and peak PM total trips were estimated. The results of peak hour and average daily traffic (ADT) are located in Appendix A and summarized in Table 1 below.

*Table 1*

	Trip Generation			
	In	Out	Total	ADT
AM	26%	74%	100%	472
AM	10	28	38	
PM	64%	36%	100%	
PM	<b>32</b>	<b>18</b>	50	

#### D. Trip Distribution

Trip distribution from the project onto Pine Street and K Road were estimated by RCC based on the project location, the location of schools, work locations, amenities in relation to the project, stop conditions at the Pine and K Road intersection that creates gaps for turns. These ratios also align with existing traffic data obtained from the Mesa County GIS.

*Table 2*

Estimated Trip Distribution		
	AM	PM
K Road Right In	10%	15%
K Road Left In	35%	25%
Pine Right In	20%	40%
Pine Left In	35%	20%
K Road Right Out	30%	15%
K Road Left Out	20%	35%
Pine Right Out	30%	35%
Pine Left Out	20%	15%

#### E. Existing Conditions

K Road and Pine Street have collector section right-of-ways with streets accommodating three lanes of travel. K Road has two west bound lanes and one east bound lane, while Pine Street is collector section with a east/west center turn lane. This existing infrastructure appears to minimize conflicts and adequately influences traffic flow to and from the site.

## II. Proposed Conditions

### A. Average Daily Traffic (ADT)

Available traffic data on existing affected streets immediately adjacent to the project including K Road and Pine Street was obtained from the City of Fruita GIS. The projected ADT increase from development of all three pad sites adjusted at a 1.4% growth factor is shown in the following Table 3.

*Table 3 - ADT Comparison*

Surrounding Road Information						
Road	Classification	ADT (GIS Data )	Growth Adjusted	Project Weekday Trip Ends	Project % Increase	Count Location & Date
Pine Street	Collector	4,109	4,855	259	5.3%	2011 Fruita GIS
K Road	Collector	3,291	4,796	212	4.4%	2011 Fruita GIS

Table 3 demonstrates the project will result in small increases of traffic, when all 3 pad sites are developed, compared to the most recent available data.

### B. Peak Hour/Design Hourly Volume (DHV)

Peak hour distribution was also estimated by applying trip distribution estimated percentages in Table 2 to the PM ITE trip generation estimates in Table 1. The results are presented in Table 4, below.

*Table 4 - Peak Hour Volumes*

Peak Hourly Volumes		
	AM	PM
K Road Right In	1	5
K Road Left In	3	8
Pine Right In	2	13
Pine Left In	3	6
K Road Right Out	8	3
K Road Left Out	6	6
Pine Right Out	8	6
Pine Left Out	6	3

Peak hour trip generation volumes for each movement do not warrant additional infrastructure.

### **III. Pedestrian Movement and Access**

Pedestrian movement to and around the site will be facilitated by internal and external sidewalk. There is existing attached sidewalk on Pine Street and detached sidewalk on K Road. Sidewalk will be constructed internally on all public streets. In addition, there is a trail that bisects the center of the property in full buildout to provide internal pedestrian access to external pedestrian facilities. The new sidewalk will be designed and constructed in accordance with the City of Fruita details and specifications.

The conceptual site plan shows cross walks on internal roads where pedestrian crossings have been designed. The proposed crossing locations have adequate site distance for pedestrians and motorists given the low speeds associated with the internal movements.

### **IV. Conclusions and Recommendations**

The proposed project will generate approximately 32 peak hour trips and increase ADT on Pine Street by 5.2% at full buildout. Existing adjacent streets have the capacity for this trip generation.

## V. References

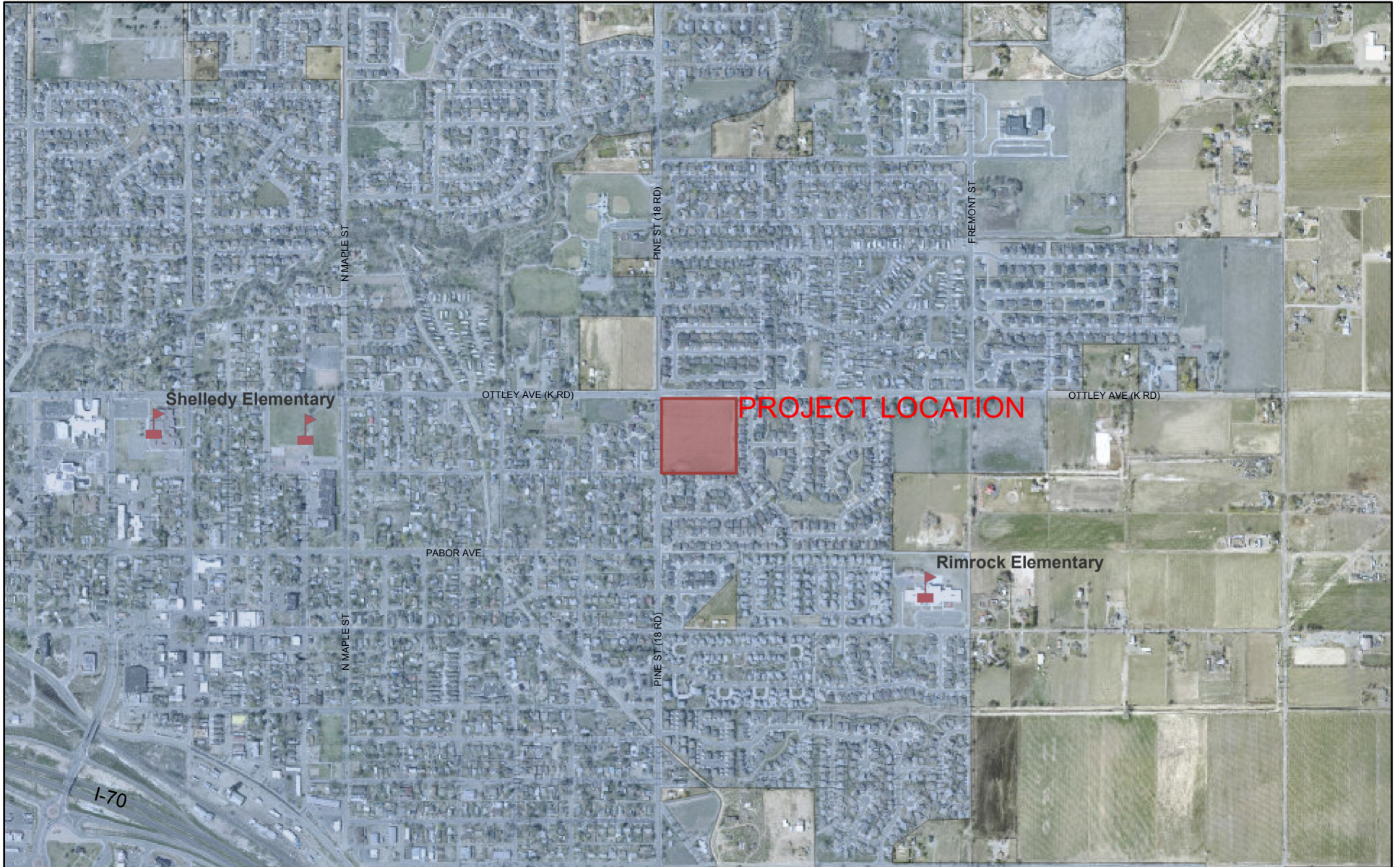
1. Institute of Transportation Engineers, 11<sup>th</sup> edition
2. City of Fruita GIS Website
3. A Policy on Geometric Design of Highways and Streets 6<sup>th</sup> Edition, AASHTO, 2011. (aka AASHTO Green Book)

# **FIGURES**

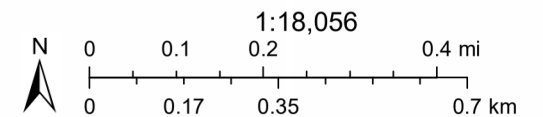
- 1. General Location Map**
- 2. Vicinity Map**
- 3. Site Plan**



# General Location Map



11/30/2023, 2:16:43 PM

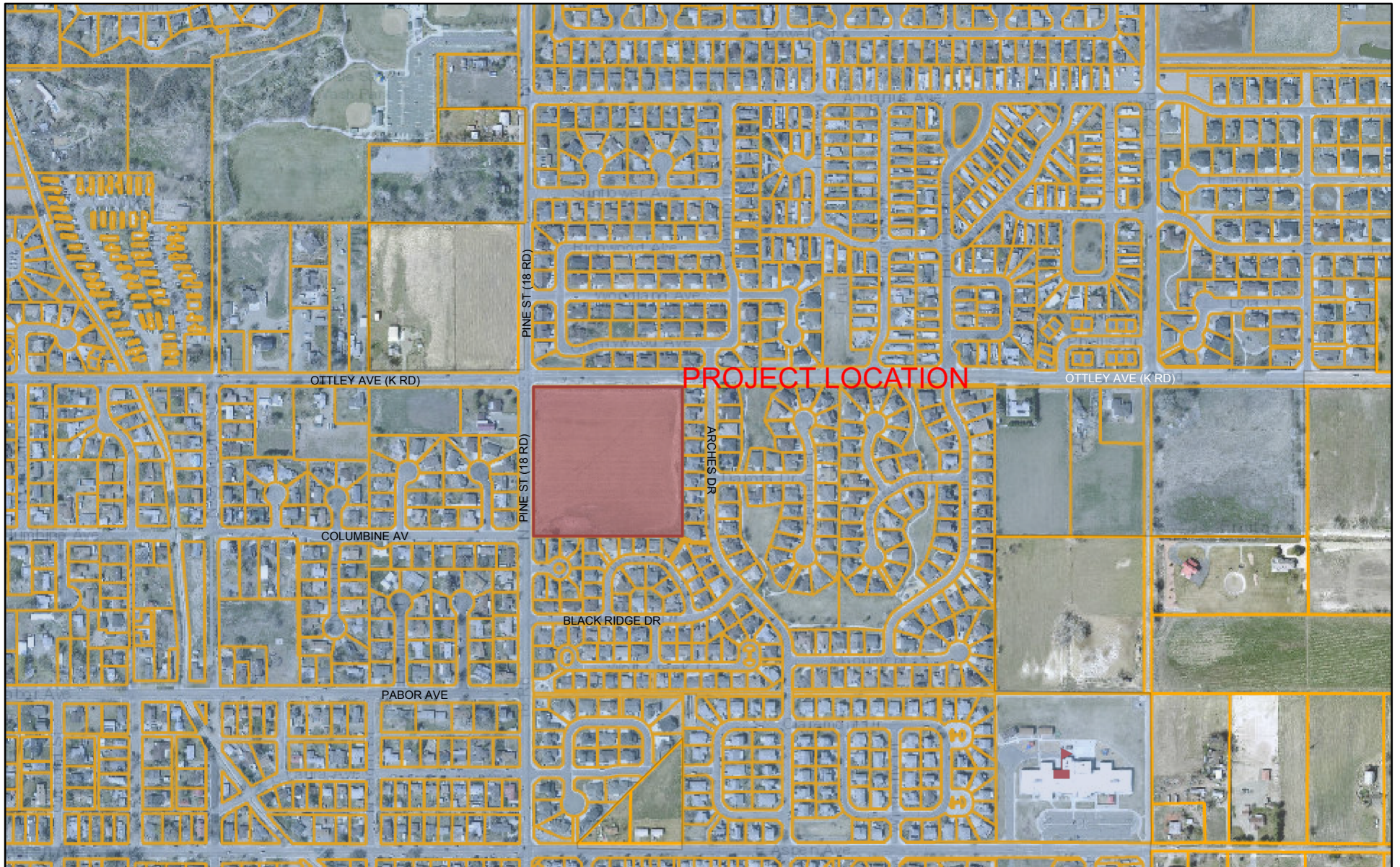


County of Mesa, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

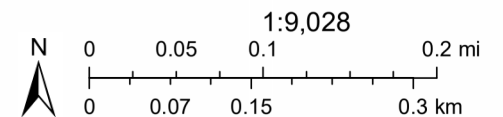
Web AppBuilder for ArcGIS

County of Mesa, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA | CAK, MMH | GVDD |

# Vicinity Map



11/30/2023, 2:27:19 PM



County of Mesa, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA

Web AppBuilder for ArcGIS

County of Mesa, Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, Intermap, USGS, METI/NASA, EPA, USDA | CAK, MMH | GVDD |

**ZONING SUMMARY**

Zoning: CR  
 Min Lot Size: 3,500 SF  
 Min Lot Width: 40 FT  
 Min Lot Frontage: 20 FT  
 Min Setbacks  
 Front: 20 FT \*  
 Rear: 15 FT  
 Side: 5 FT  
 Max Height (Building): 35 FT  
 Max Height (Accessory): 16 FT  
 Max Lot Coverage: 60%  
 Max Building Size: N/A

\* 25 feet for all facades with a garage opening facing the street and 20 feet for elevations other than a garage opening.

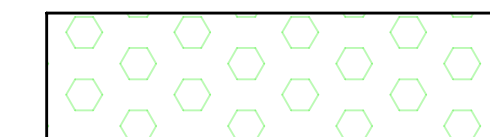
**UTILITY PROVIDERS**

Water	Ute Water
Sewer	City of Fruita
Electric	Xcel Energy
Gas	Xcel Energy
Telephone	CenturyLink
Cable	Charter Spectrum
Irrigation	Grand Valley Irrigation Co
Drainage	Grand Valley Drainage Dist. (North)
	City of Fruita (West)
Fire	Lower Valley Fire District

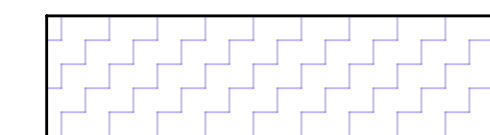
**LOT BREAKDOWN**

Phase One	27 Lots
Phase Two	23 Lots
<b>Total</b>	<b>50 Lots</b>

**Phase One**



**Phase Two**



**Site Breakdown**

Lots	(50)	6.17 ac	67.73 %
Tract A	(Landscape)	0.03 ac	0.33 %
Tract B	(Landscape)	0.07 ac	0.77 %
Tract C	(Drainage & Irrigation)	0.38 ac	4.17 %
Tract D	(Landscape)	0.02 ac	0.22 %
Tract E	(Pedestrian)	0.03 ac	0.33 %
Tract F	(Pedestrian)	0.05 ac	0.55 %
Tract G	(Pedestrian)	0.05 ac	0.55 %
Right of Way	(Overall)	2.31 ac	25.35 %
<b>Total</b>	<b>(Overall)</b>	<b>9.11 ac</b>	<b>100.00 %</b>

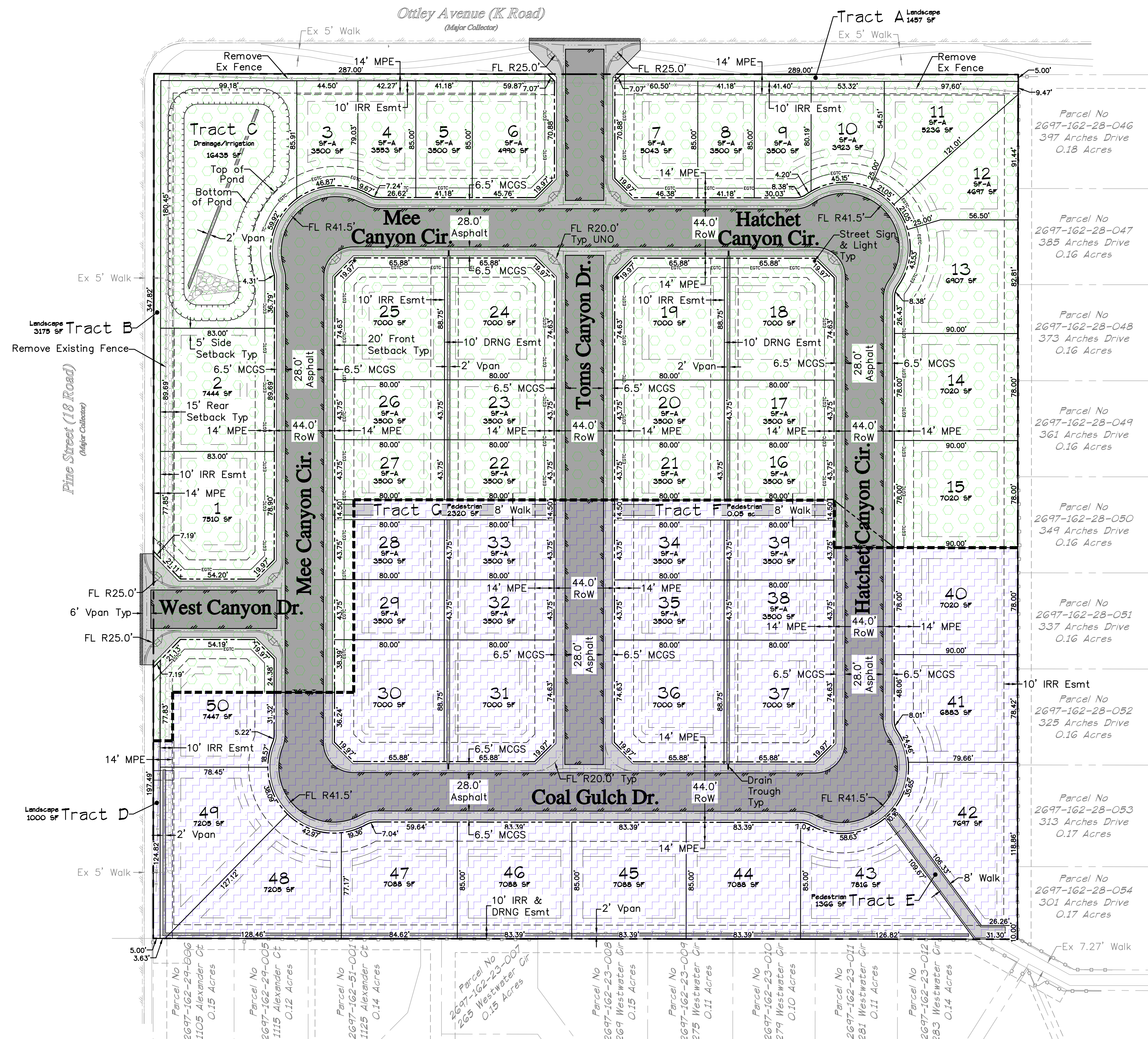
**NOTES:**

- Adjacent parcel lines are taken from the Mesa County GIS Website and are shown for reference only.
- This project is not affected by any previously mapped floodplain as shown on FEMA FIRM Map 08077C0436F & 08077C0437F

**ACCEPTANCE BLOCK**

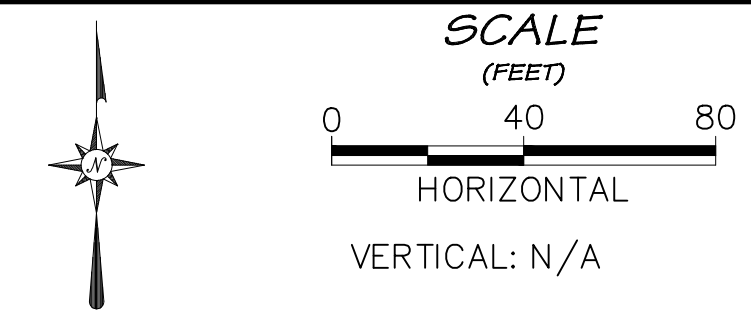
The City of Fruita reviews general compliance with the City's Development Standards, subject to these plans being sealed, signed, and dated by the Professional of Record. Review by the City does not constitute approval of the plan design. The City neither accepts nor assumes any liability for errors or omissions. Errors in the design or calculations remain the responsibility of the Professional of Record. Construction must commence within one year from the date of plan signature.

City Development Engineer \_\_\_\_\_ Date \_\_\_\_\_



**811**  
 UNCC  
 Know what's below. Call before you dig.  
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 www.uncc.org  
 CALL 2 BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES.

**Project Benchmark**  
 MCSM 19-1 3.25" Aluminum Cap  
 Intersection of 18 Rd. & K Rd.  
 NE Corner, Sec.17 T.1N R.2W Ute Meridian  
 NORTHING: 71186.17  
 EASTING: 47251.63  
 ELEVATION: 4531.79  
 DATUM SOURCE: MCLCS Zone "GVA" (NAVD 88)



PROJECT PHASE: Preliminary/Review DATE ISSUED: 01.DEC.2023

NO.	DATE	REVISION	BY

**RIVER CITY CONSULTANTS**  
 215 Pitkin Avenue, Unit 201 Phone: 970.241.4722  
 Grand Junction, CO 81501 Fax: 970.241.8841  
 www.rcwest.com  
 DRAWN BY: jg PROJECT: 0208-029  
 CHECKED BY: idg  
 ORIGINAL SHEET SIZE: 22 x 34

**WEST CANYON FRUITA, LLC**  
 West Canyon  
 Preliminary Plans  
 Site Plan  
 C5

# **APPENDIX A**

## **ITE Trip Generation Sheets**

# Single-Family Detached Housing (210)

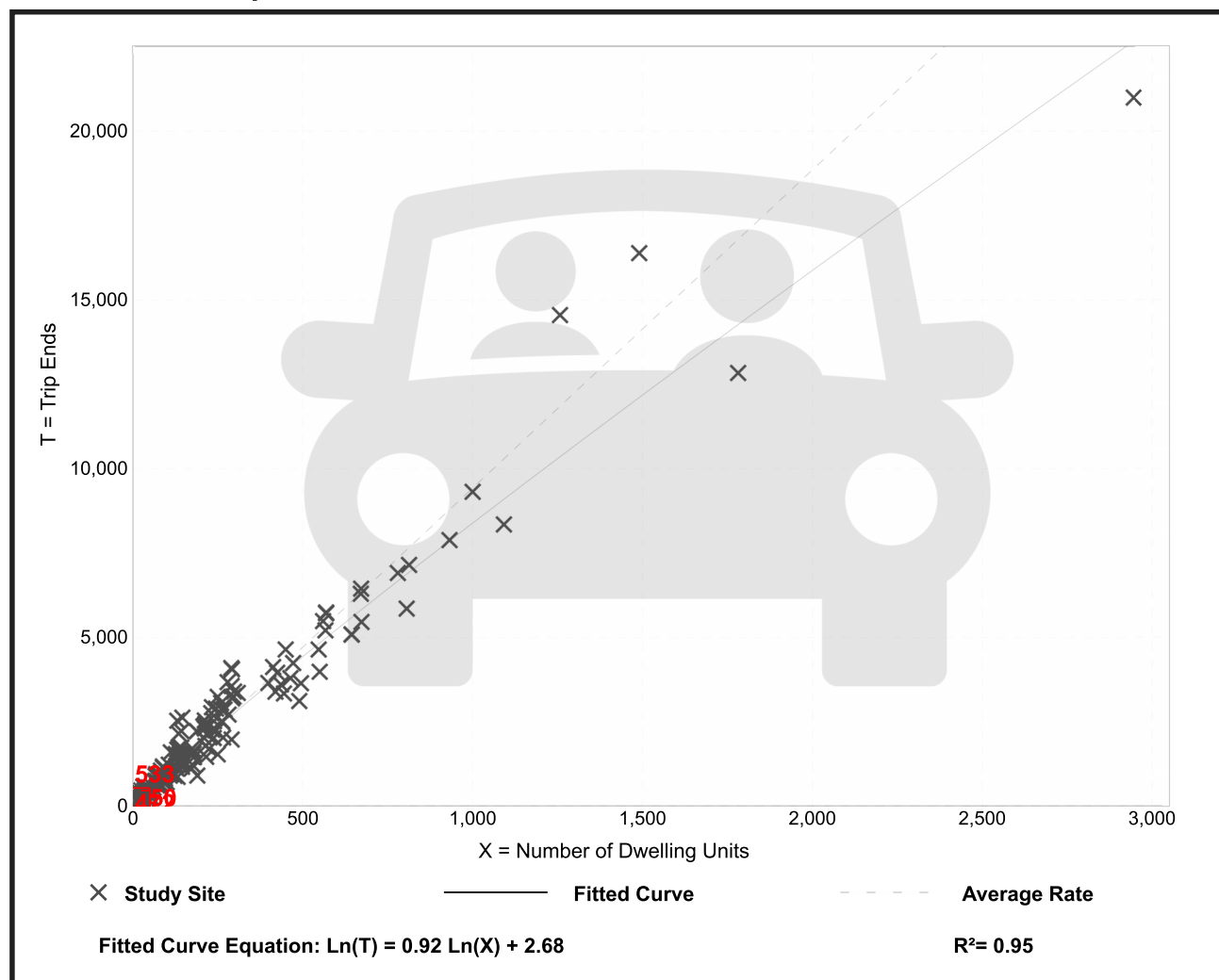
Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday

Setting/Location: General Urban/Suburban  
Number of Studies: 174  
Avg. Num. of Dwelling Units: 246  
Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

## Data Plot and Equation



# Single-Family Detached Housing (210)

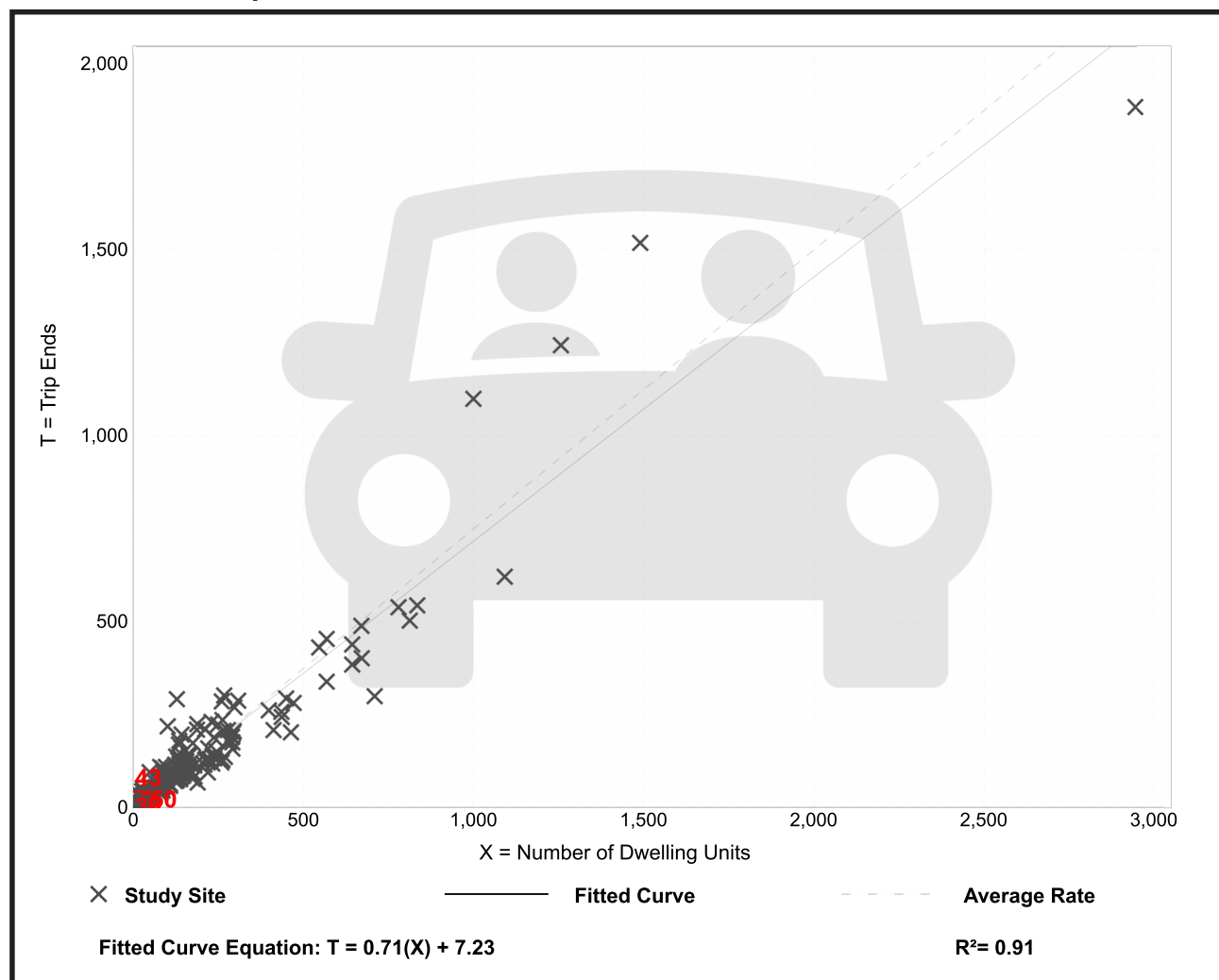
Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday,  
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban  
Number of Studies: 169  
Avg. Num. of Dwelling Units: 217  
Directional Distribution: 26% entering, 74% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.75	0.34 - 2.27	0.25

## Data Plot and Equation



# Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units  
On a: Weekday,  
PM Peak Hour of Generator

Setting/Location: General Urban/Suburban  
Number of Studies: 178  
Avg. Num. of Dwelling Units: 203  
Directional Distribution: 64% entering, 36% exiting

## Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.99	0.49 - 2.98	0.28

## Data Plot and Equation

