



October 3, 2022

Michelle Meteer  
Town Manager  
Town of Minturn  
301 Boulder Street, #309  
Minturn, CO 81645

Re: **Minturn North PUD – Trip Generation Letter**  
**Minturn, Colorado**

Dear Michelle:

## **INTRODUCTION**

The Minturn North PUD project has modified its site plan to reduce the number of residential dwelling units and address neighbor comments and concerns. A traffic study was completed for the previous site plan, which proposed up to 193 dwelling units in a mix of single-family and multi-family residential buildings. The current proposal is for 39 single-family dwelling units. Local and regional access to the development is unchanged from the previous plan, which will utilize Minturn Road / County Road north and south of the site to access US 24. This traffic letter has been completed to update the trip generation estimates for the development and provide supplemental information for amendments to the previously completed access permits at US 24 & County Road and US 24 & Main Street.

This document includes a description of the proposed project, trip generation characteristics and trip distribution.

## **PROJECT DESCRIPTION**

Minturn Crossing, LLC is proposing a residential development within the Town of Minturn, Colorado. The site is currently vacant aside from six mobile homes, which will be removed as a part of the project. It is located between Taylor Street and Minturn Avenue in the vicinity of Game Creek and will accommodate 39 single family residential lots, a 30' Game Creek buffer zone, a children's park and snow storage area for the Town of Minturn. Six of the single-family homes will be deed-restricted for local housing. Property north of Game Creek is not included in the Minturn North PUD. The residential lots will primarily be accessed from an internal roadway that connects to Fourth Street. Fourth Street provides a connection to Taylor Street and Minturn Road. No access to Taylor Street is planned. Therefore, no improvements to Taylor Street are proposed as a part of this project.

The site is bordered on the south and east by existing residences, a non-operating Union Pacific Railroad line to the west and vacant land to the north. The primary population and

business of Minturn lies to the south. Eagle River runs north-south through the area, which forms a natural barrier between the site and US 24, the primary regional highway for the Town.

Regional access to the area is accommodated primarily by US 24 and I-70. I-70 is an interstate freeway located approximately 2 miles to the north and is accessed from US 24. There are two points of access to US 24 from the proposed development, Main Street (south of the site) and County Road (north of site).

A vicinity map is included as **Exhibit 1** and the current site plan is included as **Exhibit 2** at the end of this document. An aerial of the immediate vicinity is included as **Exhibit 3**.

## TRIP GENERATION

The proposed project will include up to 39 single-family residential dwelling units. The *Trip Generation Manual, 11<sup>th</sup> Edition* published by the Institute of Transportation Engineers (ITE) was used to determine the number of trips generated by the proposed land use. The purpose of the Trip Generation Manual (TGM) is to compile and quantify empirical trip generation rates for specific land uses within the US, UK and Canada. Generally, the Trip Generation Manual is the industry standard accepted reference for estimating trip generation. The proposed single-family housing falls within the TGM land use category 210, "Single-Family Detached Housing." The trip generation estimate for the site based on this land use category is shown in the table below.

**Table 1 - Project Trip Generation (unadjusted)**

Land Use	ITE Code	Size	Units	Daily Trips	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Single-Family Detached Housing	210	39	DU	424	8	24	32	26	15	41

DU = Dwelling Units

As shown in the table above, the project is anticipated to generate 32 AM peak hour trips, 41 PM peak hour trips and 424 average daily trips. It should be noted that the site historically has operated with several mobile homes. The net change in trips for this site due to the historic uses is likely slightly less than what is shown in the table above.

### ***Trip Types***

Nearly all developments are made up of the following six trip types: new (destination) trips, pass-by trips, diverted trips, shared (internal) trips, multi-modal (non-vehicular) trips, and transit-oriented trips. To better understand the trip types available for land access and how they relate to this project, a description of each specific type follows.

**New (Destination) Trips** – These types of trips occur to access a specific land use such as a new retail development or a new residential subdivision. These types of trips will travel to and from the new site and a single other destination such as home or work. This is the only trip type that will result in a net increase in the total amount of traffic within the study area. The reason primarily is that these trips represent planned trips to a specific destination that never took trips to that part of the city prior to the development being constructed and occupied. This project will develop new trips.

**Pass-by Trips** – These trips represent vehicles which currently use adjacent roadways providing primary access to new land uses or projects. These trips, however, have an ultimate destination other than the project in question. They should be viewed as drop-in customers who stop in on their way home from work. A good example is a quick stop at the grocery store to pick up an ingredient for dinner on the way home from work or at a latte stand to grab a coffee on the way to work. This can make this trip pre-determined, but the stop is still on the way by. Another example would be on payday, where an individual generally drives by their bank every day without stopping, except on payday. On that day, this driver would drive into the bank, perform the prerequisite banking and then continue home. In this example, the trip started from work with a destination of home, however on the way, the driver stopped at the grocery store/latte stand and/or bank directly adjacent to their path. Pass-by trips are most always associated with commercial/retail types of developments. Therefore, no pass-by trips are anticipated for this project.

**Diverted (Linked) Trips** - Diverted trips are like pass-by trips, but diverted trips occur from roadways that do not provide direct access to the site. Instead, one or more streets must be utilized to get to and from the site. For this project, diverted trips could occur from Interstate 70, US 24 or any other street that does not provide direct access for the site. Due to the type of use, diverted trips were not accounted for within this analysis.

**Shared (Internal) Trips** - Internal trips are the portion of trips generated by a mixed-use development that both begin and end within the development. When estimating trip generation for a development with several uses, each use will generate its own trips. If those trips occur between two of the onsite uses without using the external roadway system, it is considered a shared or internal trip. This trip type reduces the number of new trips generated on the public road system and is most commonly used for commercial or mix-use developments. Determining these trip types is more difficult to quantify and without specific guidance are usually determined by engineering judgment on a project-by-project basis. For this project, the residences are the only use on site and no shared trips will occur.

**Multi-Modal (Non-Vehicular) Trips** - These are non-vehicular trips to and from the site, mostly comprised of pedestrian and bicycle trips. Generally, they are local trips from the surrounding neighborhood or adjacent businesses. If a development is in an area with a high amount of bicycle and pedestrian activity, such as a downtown setting or college campus, a reduction of vehicular trips would be anticipated. During traffic counts and field observations, very little bicycles or pedestrians were seen in the vicinity of the site. Around downtown Minturn there was significant pedestrian activity. The proximity of the site would allow for residents to walk between the downtown area and their home. Therefore, a small amount of pedestrian and bicycle activity for the site is anticipated, but no reduction of vehicular trips was applied. It should be noted that a portion of the Eco-trail will be incorporated into the site frontage along Minturn Road.

**Transit Trip** – Minturn and the Vail Valley are served by ECO Transit with a public bus connection from downtown Minturn. Although transit is available and would likely see some use from this development, no transit reduction was applied.

## TRIP DISTRIBUTION

The traffic associated with the project is expected to be made up of commuter trips

primarily during the peak hours with most of the trips oriented towards the Eagle-Vail Valley and the I-70 corridor. The directional distribution for how site-generated trips would access the development were based on existing traffic counts. A significant portion of the Minturn Road / County Road is currently unpaved. It is unknown when paving will occur on the portion of County Road north of the site, which provides a connection to US 24. If this roadway becomes paved in the future, a higher percentage of site generated trips are anticipated to use this roadway north of the site.

#### County Road paved

- US Highway 24 via County Road north of the site – 65%
- US Highway 24 via Main Street north of the site – 15%
- Main Street (US 24) south of the site – 20%

#### County Road unpaved

- US Highway 24 via County Road north of the site – 50%
- US Highway 24 via Main Street north of the site – 30%
- Main Street (US 24) south of the site – 20%

### **AUXILIARY LANE EVALUATION**

In the previous traffic impact study, the need for auxiliary turn lanes were evaluated using the CDOT State Highway Access Code (SHAC) for the intersections of US 24 & Main Street and US 24 & County Road based on traffic counts collected in February 2020. US 24 is designated as R-A (rural arterial) at the County Road intersection and NR-B (non-rural arterial) at the Main Street intersection. The need for a turn lane is based on roadway classification, design or posted speed, and design hour turning volume.

At US 24 & County Road, the threshold for requiring a left turn lane is 10 vehicles per hour, which is exceeded during the PM peak hour in the current conditions without the proposed project. At US 24 & Main Street, the threshold for requiring a left turn lane is 25 vehicles per hour, which is also exceeded during the PM peak hour in the current conditions. Any additional trips to these left turn movements would add to the need for a left turn lane and the proposed project is anticipated to add trips to these movements. Therefore, per the SHAC, left turn lanes should be installed at these intersections. Right turn volume is not anticipated to exceed the threshold for requiring a right turn deceleration lane at either intersection with the proposed project trips.

As discussed in the previous traffic impact study for this site, installing a left turn lane at US 24 & Main Street would require enormous effort due to the location of existing structures along both sides of US 24 around the intersection. Therefore, a variance was requested to not build this left turn lane and is continued to be requested with the new proposed site plan.

### **CONCLUSIONS/RECOMMENDATIONS**

It is anticipated that this project will generate 32 AM peak hour trips, 41 PM peak hour trips and 424 daily trips. The site historically has operated with six mobile home residences.

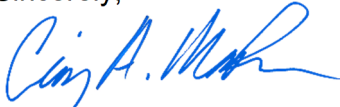
Therefore, the net change in trips to the surrounding transportation system may be slightly less than the values shown above. CDOT has a trip generation threshold of 100 peak hour trips by developments for requiring a traffic impact study. The estimated trips for the site are less than this threshold and are likely even less of a net impact when considering the historic use. Therefore, no additional traffic analysis should be required.

A previous traffic impact study was completed for the site in 2021 and the previous site plan included significantly more development and associated trips. This traffic study analyzed several intersections and found all of the study area intersections to operate at level of service (LOS) C or better for all conditions analyzed. The reduced number of residential dwelling units associated with the current plan is anticipated to generate significantly fewer trips. Therefore, the previous study area intersections are anticipated to operate at acceptable levels with the revised site plan.

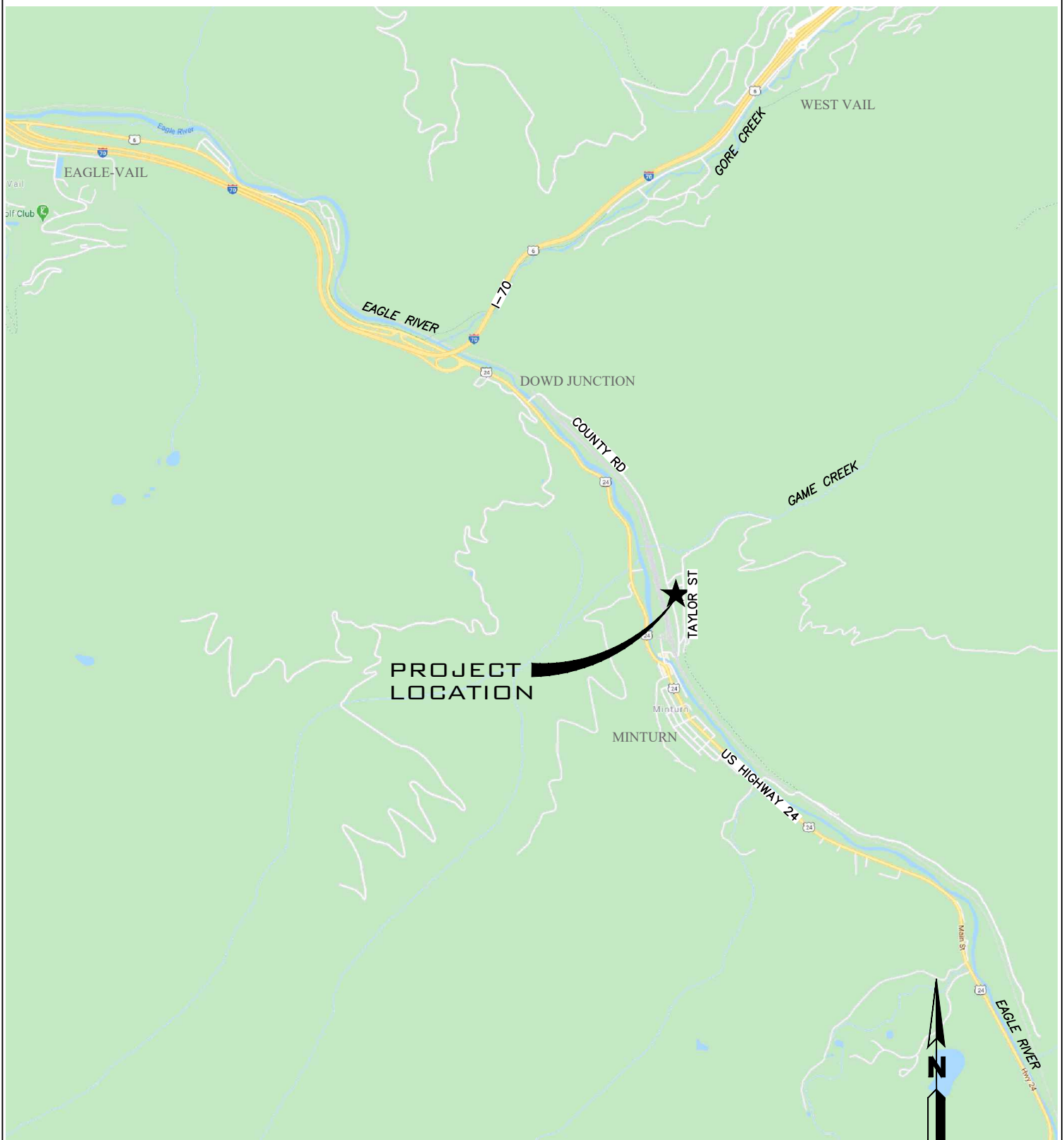
An auxiliary lane evaluation was conducted utilizing CDOT access code criteria. A southbound left turn lane is currently required for the intersection of US Highway 24 & County Road based on existing traffic volumes. The proposed project is anticipated to add trips to this left turn movement.

Should you have any questions regarding this document or the information contained herein, please do not hesitate to contact me on my cell at 509-991-2803 or via email at [craig@civtrans.com](mailto:craig@civtrans.com).

Sincerely,

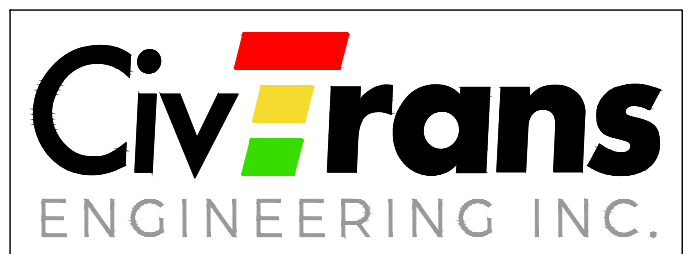
A handwritten signature in blue ink, appearing to read "Craig A. MacPhee".

Craig A. MacPhee, PE, PTOE



NOT TO SCALE  
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**EXHIBIT 1**  
VICINITY MAP





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**EXHIBIT 2**  
**CURRENT SITE PLAN**





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**EXHIBIT 3**  
EXISTING AERIAL