

May 30, 2023

Mr. Dean Venezia  
Vintage Communities  
PO Box 7207  
Colorado Springs, CO 80933-7207

**RE: Kettle Creek North Evacuation Traffic Evaluation**

Dear Mr. Venezia:

Matrix Design Group, Inc. (Matrix) prepared an evaluation of the traffic operations and projected travel times for an evacuation from the existing North Fork at Briargate (North Fork) neighborhood both with and without additional traffic from the full development of Kettle Creek North. The evaluation will demonstrate that there is an insignificant difference in travel time to exit the North Fork neighborhood with the addition of traffic from Kettle Creek North.

*Existing Conditions*

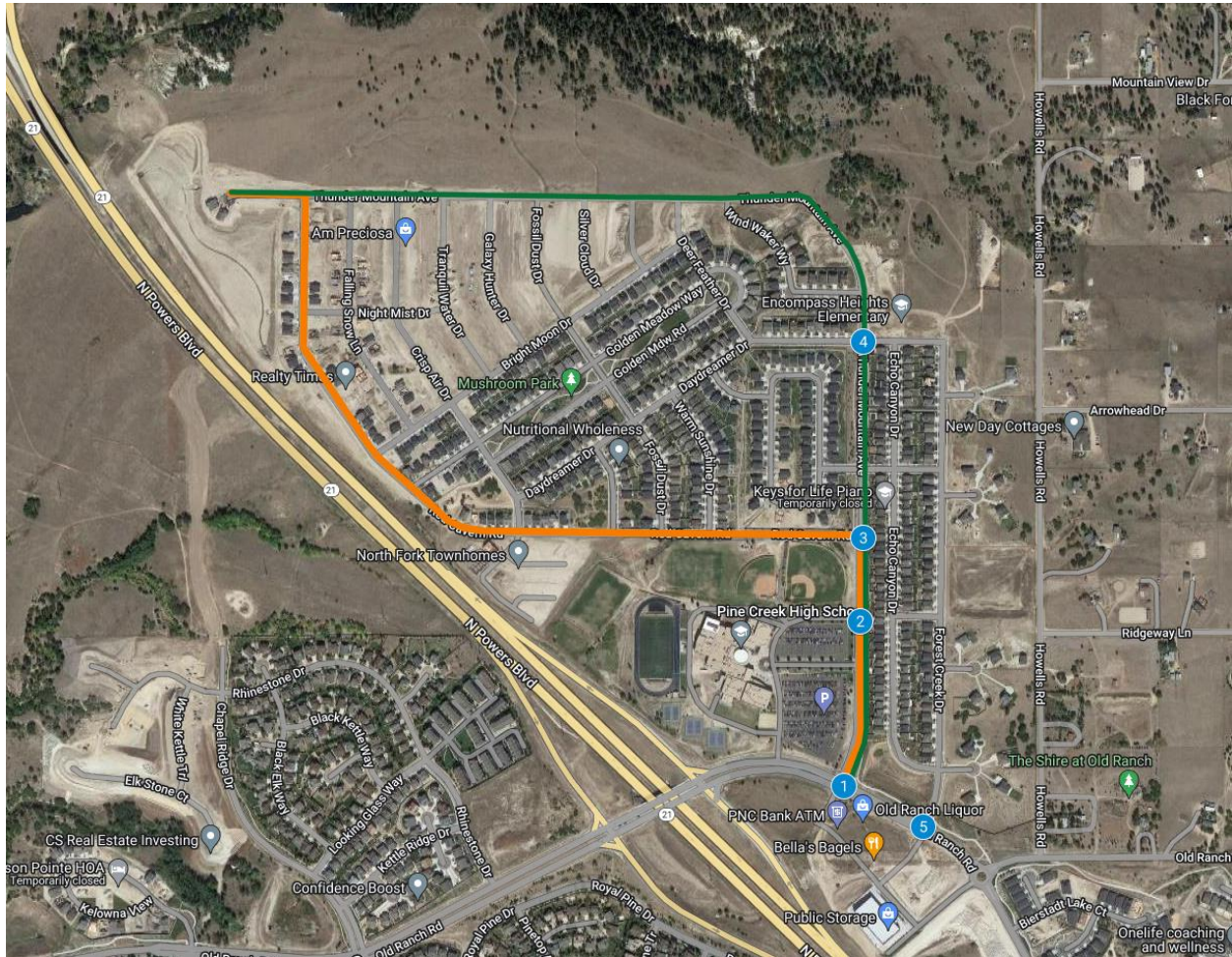
Matrix worked with our vendor, All Traffic Data Services to collect existing intersection traffic counts and record multiple travel times into and out of the North Fork neighborhood. AM peak period (7-9 AM) and PM peak period (4-6 PM) turning movement counts were recorded at the following intersections:

1. Old Ranch Road/Thunder Mountain Avenue
2. Thunder Mountain Avenue/Pine Creek High School North Entrance
3. Thunder Mountain Avenue/Red Cavern Road
4. Thunder Mountain Avenue/Daydreamer Drive
5. Old Ranch Road/Forest Creek Drive

The traffic counts were collected on Thursday May 4, 2023. Additionally, travel times were recorded from the western terminus of Thunder Mountain Avenue in the northwest corner of the North Fork neighborhood through the Old Ranch Road/Thunder Mountain Avenue intersection. Travel times were collected along two routes, one along Thunder Mountain Avenue and one along Red Cavern Road. The two routes are shown in Figure 1 below. The travel times were also measured on May 4, 2023.

Route 1, along Red Cavern Road, is shown in orange in Figure 1 and Route 2, along Thunder Mountain Avenue, is shown in green on Figure 1. Five (5) runs in each direction were traveled along both routes. The average time inbound and outbound to the neighborhood along Route 1 during the AM peak hour was 3 minutes. The average inbound and outbound travel time along Route 2 during the AM peak hour was also 3 minutes. The average inbound and outbound travel times along Route 1 and Route 2 during the PM peak hour were 3 minutes and 4 minutes, respectively.

Figure 1 - Travel Time Routes



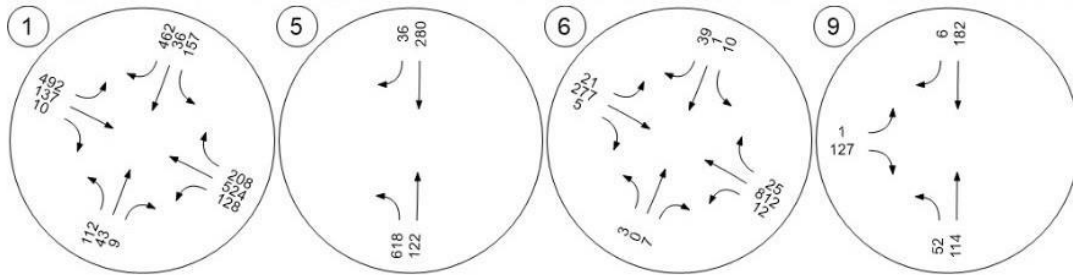
Matrix also created a traffic analysis model using PTV Vistro software. The five intersections identified previously and in Figure 1 were created to match existing lane configurations and traffic controls. The AM and PM peak hour volumes collected on May 4, 2023 were entered into the model. All intersections operate at acceptable level-of-service (LOS D or better) in both the AM and PM peak hours based on existing conditions.



Figure 2 - Existing AM Peak Hour Traffic Volumes



Old Ranch Rd/Thunder Moun Thunder Mountain Av/PCHS Old Ranch Rd/Forest Creek Thunder Mountain Av/Red C



Thunder Mountain Av/Daydre

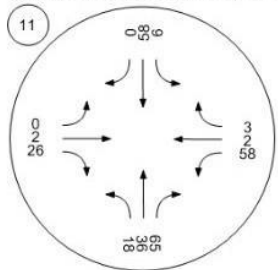
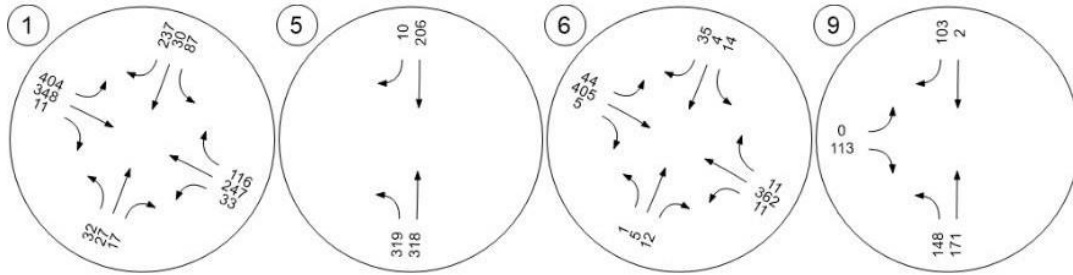


Figure 3 - Existing PM Peak Hour Traffic Volumes



Old Ranch Rd/Thunder Moun Thunder Mountain Av/PCHS Old Ranch Rd/Forest Creek Thunder Mountain Av/Red C



Thunder Mountain Av/Daydre

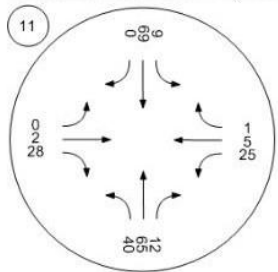
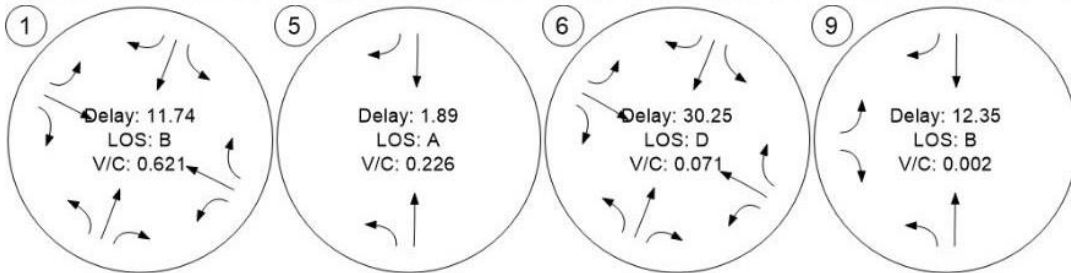


Figure 4 - Existing AM Peak Hour Traffic Operations



Old Ranch Rd/Thunder Moun Thunder Mountain Av/PCHS Old Ranch Rd/Forest Creek Thunder Mountain Av/Red C



Thunder Mountain Av/Daydre

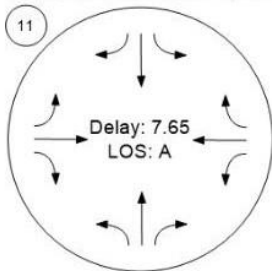
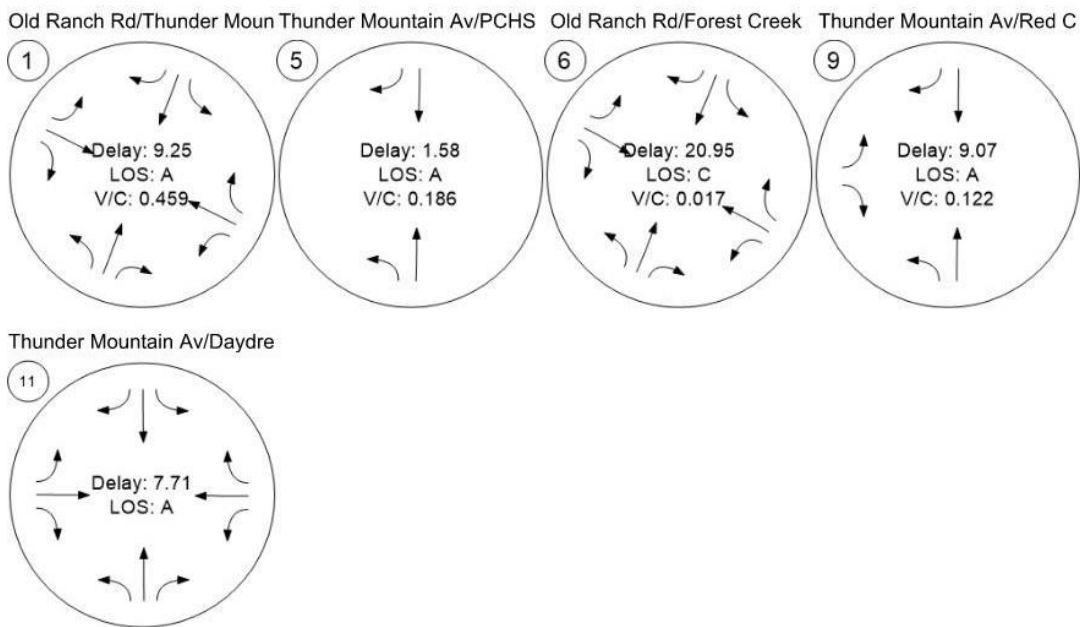




Figure 5 - Existing PM Peak Hour Traffic Operations



Matrix used a combination of the speed and length of roadway segments plus the average delay per vehicle through specific turn movements at the study area intersections to estimate the travel time along the same routes that were measured in Figure 1. Route 1 was projected to take 3.22 minutes during the AM peak hour and 3.20 minutes during the PM peak hour (specific calculations are in the appendix to this letter). This compares favorably to the measurement of 3 minutes in each direction during the AM and PM peak hours along Route 1. Route 2 was projected to take 3.34 minutes during the AM peak hour PM peak hour. This also compares favorably to the measured travel times of 3 minutes and 4 minutes in each direction during the AM and PM peak hours along Route 2. Since the traffic model is projecting similar travel times to measured travel times, the model can be used to estimate travel times with the addition of traffic from the proposed Kettle Creek North development.

### Kettle Creek North Traffic

Matrix used results from the *Kettle Creek North Update Traffic Impact Study*, dated June 9, 2022 to add Kettle Creek North traffic to the model for AM and PM peak hours. Project traffic volumes were taken from Table 3 of the above referenced report and trips were distributed to the roadway network per Figure 4 of the previous report. When these projected traffic volumes were added to and assigned to the roadway network, the resulting traffic volumes for AM and PM peak hours are shown in Figures 6 and 7, respectively.

Figure 6 - AM Peak Hour + Kettle Creek North Traffic Volumes

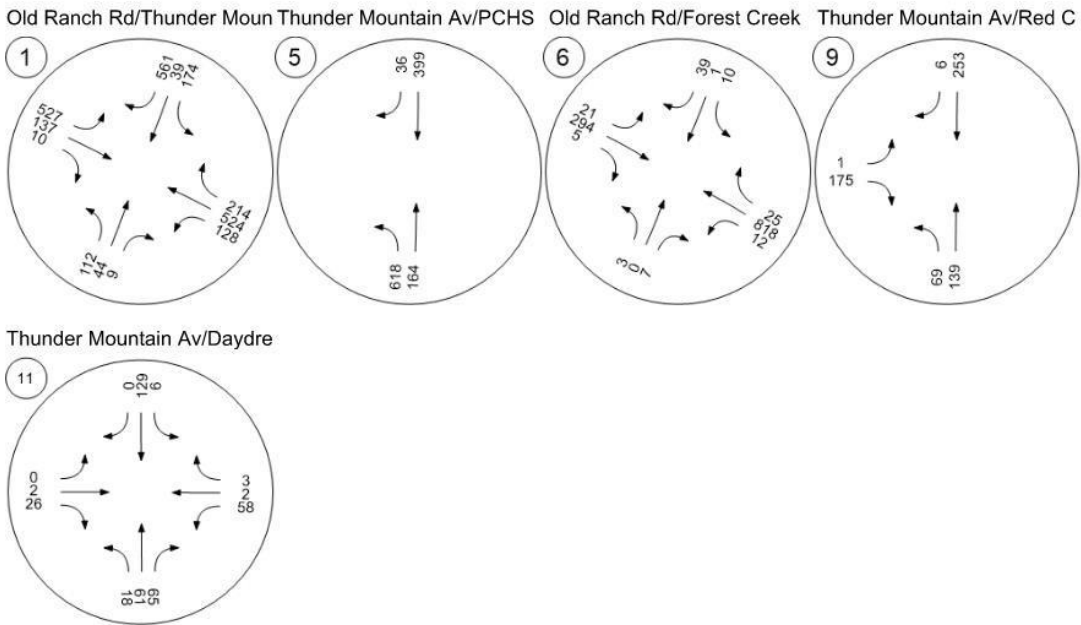
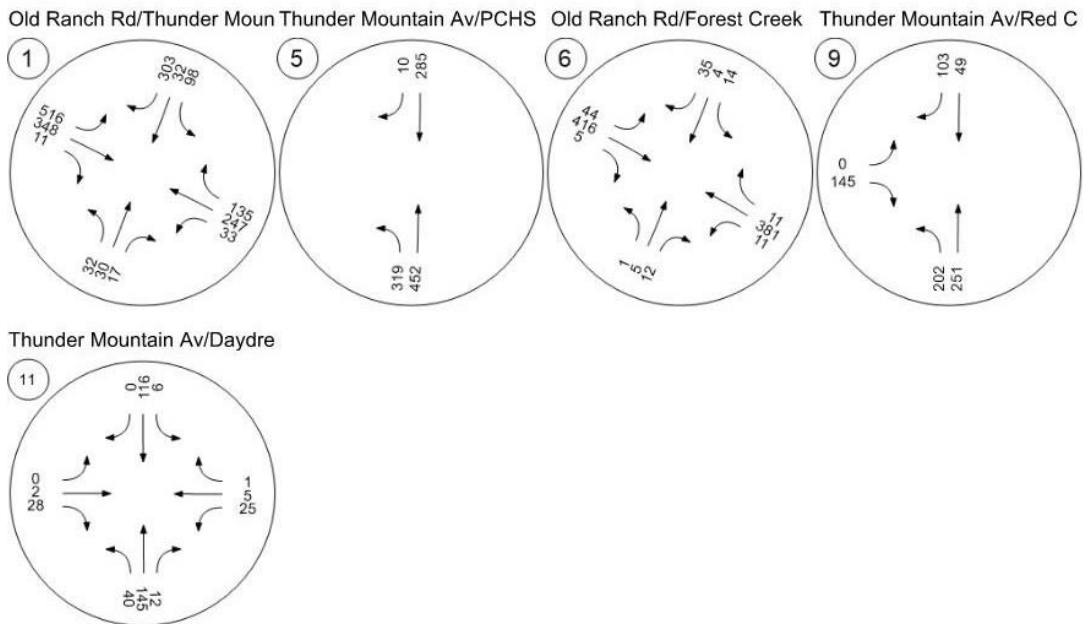


Figure 7 - PM Peak Hour + Kettle Creek North Traffic Volumes



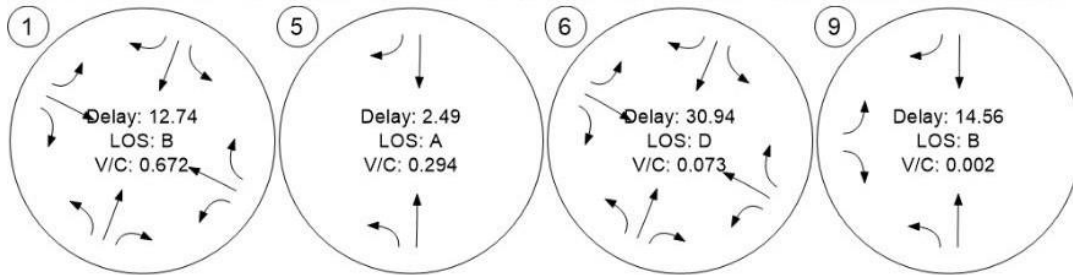
When these volumes are added to the model, all intersections continue to operate at an acceptable LOS. These results can be seen in Figures 8 and 9 for the AM peak hour and PM peak hour, respectively.



Figure 8 - AM Peak Hour + Kettle Creek North Traffic Operations



Old Ranch Rd/Thunder Moun Thunder Mountain Av/PCHS Old Ranch Rd/Forest Creek Thunder Mountain Av/Red C



Thunder Mountain Av/Daydre

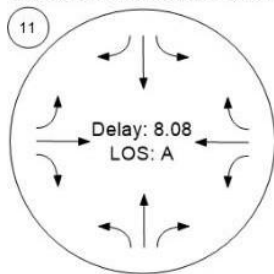
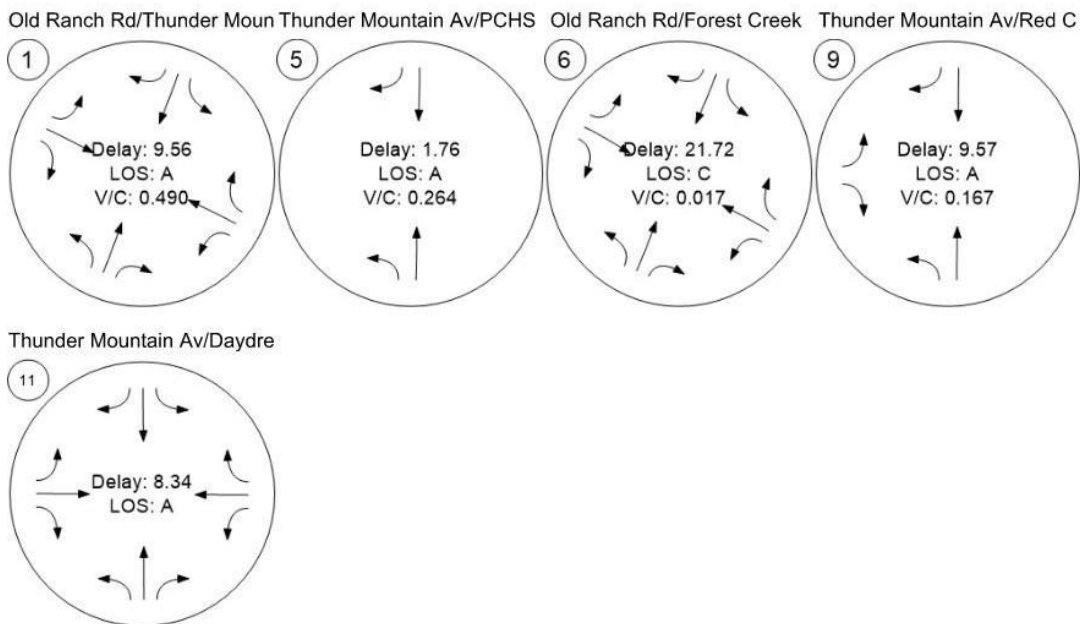


Figure 9 - PM Peak Hour + Kettle Creek North Traffic Operations



Route 1 is projected to take 3.25 minutes during the AM peak hour with the addition of Kettle Creek North traffic and 3.21 minutes during the PM peak hour with the addition of Kettle Creek North. This is a difference of 0.03 minutes (1.8 seconds) during the AM peak hour and 0.01 minutes (0.60 seconds) during the PM peak hour. Route 2 is projected to take 3.36 minutes during the AM peak hour with the addition of Kettle Creek North traffic and 3.35 minutes during the PM peak hour with the addition of Kettle Creek North traffic. This is a difference of 0.02 minutes during the AM peak hour (1.2 seconds) and 0.01 minutes (0.60 seconds) during the PM peak hour.

### *Conclusions*

Matrix is projecting that the addition of Kettle Creek North traffic to the roadway network through North Fork will have minimal impacts on travel time and, therefore, have minimal impact on evacuating both neighborhoods during an emergency. Kettle Creek North is projected to generate 173 trips during the AM peak hour or 2.88 additional vehicles per minute. Kettle Creek North is projected to generate 232 trips during the PM peak hour or 3.87 additional vehicles per minute. This volume of traffic is not enough to adversely impact the travel times or the ability to evacuate both neighborhoods in an emergency.

Please feel free to contact me at [Scott.Barnhart@matrixdesigngroup.com](mailto:Scott.Barnhart@matrixdesigngroup.com) or at (719) 575-0100 if you have any questions.

Thank you.

Scott D. Barnhart, PE, PTOE  
Executive Associate of Transportation Services

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