MEMORANDUM

To: Kim Meyer, Planning & Development Director,
Town of Johnstown

From: Steve Tuttle, PE, PTOE

Date: October 7, 2020

Project: Stroh Farm Residential

Subject: Trip Generation and Auxiliary Lane Analysis

The Fox Tuttle Transportation Group has completed a trip generation and auxiliary lane analysis for the proposed Stroh Farm residential project in the Town of Johnstown. The project is proposing to develop 11 single-family residential lots located along Weld County Road (WCR) 42 just west of WCR 17. This memorandum addresses potential trip generation associated with the site and assesses the need for any auxiliary lane improvements that may be needed at the site access intersection.

The project proposes to develop 11 single-family residential lots on a currently vacant ±11-acre parcel at the northwest corner of the WCR 17 and WCR 42 intersection The project is bordered by the existing Pioneer Ridge residential development to the north and west. Access is proposed via a full-movement intersection on WCR 42 located approximately 430' (measured by centerline) west of WCR 17. A conceptual site plan is shown on **Figure 1**.

In order to estimate the potential trips associated with this project, trip data contained in the Institute of Transportation Engineers (ITE) Trip Generation[1] manual was applied for the Single-Family Detached Residential land use category (ITE #210). The resulting daily, AM peak hour and PM peak hour trip estimates are summarized on **Table 1**.

[1] Trip Generation, 10th Edition. Institute of Transportation Engineers. 2016.

Figure 1 – Conceptual Site Plan

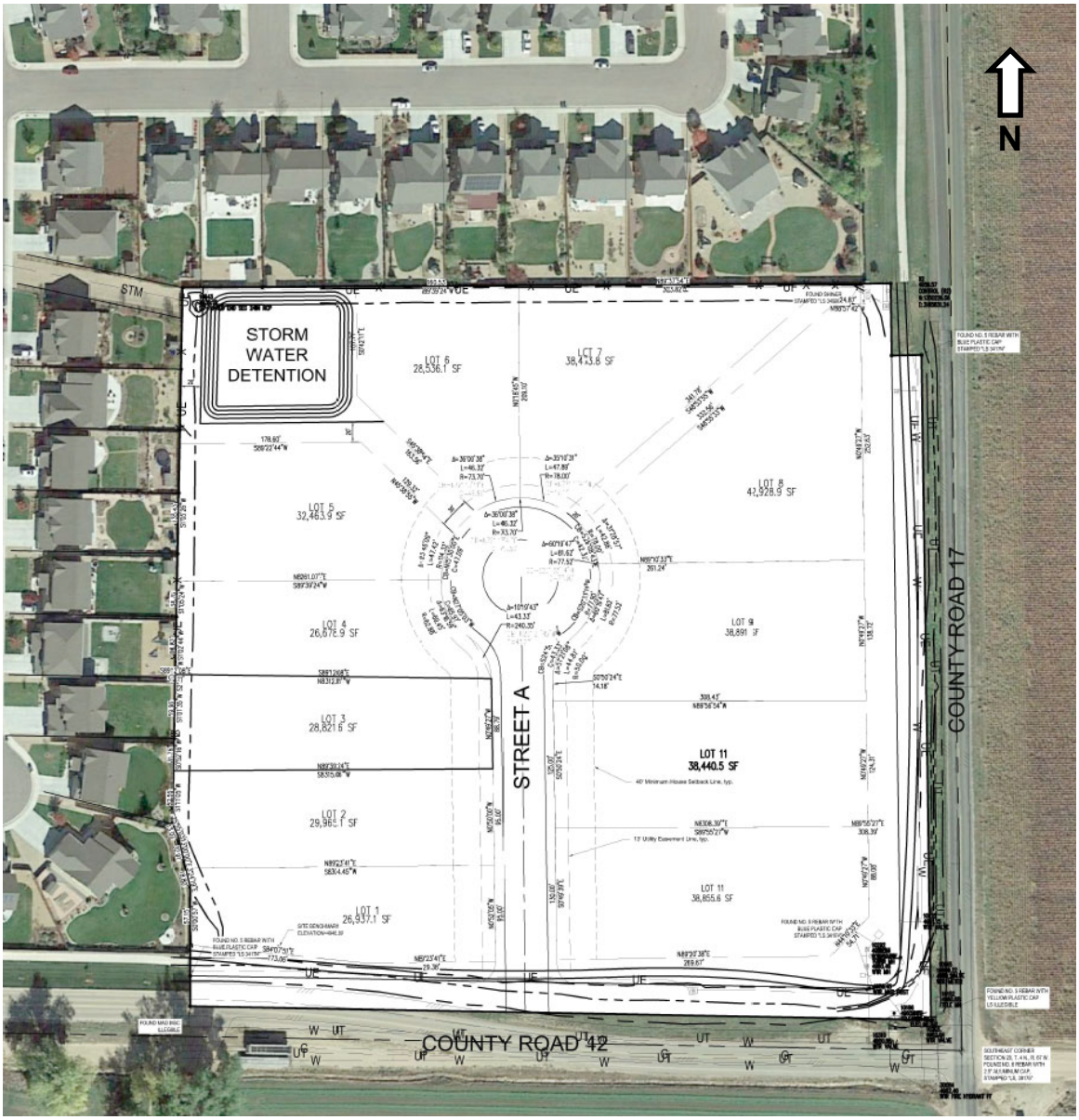

Table 1 – Trip Generation Estimate

Land Use	Size	Unit	Average Daily Trips				AM Peak Hour Trips				PM Peak Hour Trips			
			Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Single-Family Detached Housing (ITE 210)	11	D.U.	9.44	104	52	52	0.74	8	2	6	0.99	11	7	4
Site Totals:				**104**	**52**	**52**		**8**	**2**	**6**		**11**	**7**	**4**

Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition (2016).

As shown on **Table 1**, the project is anticipated to generate approximately 104 daily, 8 AM peak hour, and 11 PM peak hour trips at full buildout.

Distribution of these trips onto the existing roadway network was estimated based on the relative location of local and regional destinations and land uses, with consideration of the existing and future transportation network and the most convenient routes to major regional roadways (I-25, US 85, etc.). Based on this analysis, the following trip distributions are anticipated at the site driveway intersection and at the WCR 17 & WCR 42 intersection:

- **30% to/from the west** on WCR 42 (most direct route to I-25 to/from the north via SH 56/WCR 44 interchange)
- **70% to/from the east** on WCR 42
    - 35% to/from the north on WCR 17 (to/from Johnstown)
    - 35% to/from the south on WCR 17 (most direct route to I-25 to/from the south via the WCR 34 interchange)

Assigning the project site trips to the project access intersection along WCR 17, the following peak hour trips are anticipated:

- Eastbound left-turn from WCR 42 into the site = 1 AM, 2 PM
- Westbound right-turn from WCR 42 into the site = 1 AM, 5 PM
- Southbound left-turn onto WCR 42 from the site = 2 AM, 1 PM
- Southbound right-turn onto WCR 42 from the site = 4 AM, 3 PM

Auxiliary Lane Assessment

The need for auxiliary lanes at the site access was assessed based on application of the State Highway Access Code. Based on a posted speed of greater than 40 miles per hour (mph), a left-turn deceleration lane is prescribed for a left-turn movement of 10 vehicles per hour (vph) or greater. A right-turn deceleration lane is prescribed at 25 vph or greater. As summarized above, there are no projected turning movement volumes at the site access along WCR 17 that are approaching these thresholds. The project is also anticipated to result in 2 or less vehicles per hour at any turning movement at the WCR 17 & WCR 42 intersection during the AM and PM peak hour at full buildout. Based on this assessment, no auxiliary turn lanes are warranted with this project.

This section of WCR 42 is classified as a future major arterial and is planned as an ultimate 4-lanes w/18’ median and 120’ of right-of-way. The Pioneer Ridge project to the west built the north half of that ultimate cross-section and the conceptual site plan shown on **Figure 1** shows that the project is accommodating this ultimate roadway section in the right-of-way and sidewalk locations shown.

Per the Town Transportation Plan, the intersection of WCR 17 & WCR 42 is a future regional arterial vs. major arterial intersection but is projected to remain as an unsignalized intersection

with side-street stop control on the WCR 42 approach. Both roadways are projected to service approximately 4,400 vehicles per day in the Year 2035 planning horizon.

Based on the relatively low trip generation for this project, the project is not anticipated to result in any operational impacts at the site access along WCR 42 or at any off-site intersection. No mitigation measures have been identified as necessary to support this project.

Please let me know if you have any questions or comments on our analysis and findings.

/sgt