

August 28, 2023

Mr. Graham Coddington, PE
Vice President
Saunders Construction Inc.
86 Inverness Place North
Englewood, CO 80112

**RE: Fulenwider PA-9 Traffic Conformance
FHU Project No. 123728-01**

Dear Mr. Coddington:

Felsburg Holt & Ullevig (FHU) prepared a traffic impact study for the Fulenwider Box Elder TIS in April 2022 and a Harvest Road ISP analysis in February 2022 that recognized the newly proposed alignment of Aerotropolis Parkway and explored access to Harvest Road more thoroughly. Those reports used the Institute of Transportation Engineers' (ITE) publication *Trip Generation Manual, 10th Edition* (2017) to forecast vehicle-trips based on the land use types and sizes. Within that report PA-9 was assessed as the area between Second Creek and the future Harvest Road alignment south of 64th Avenue and north of the future 60th Avenue alignment. The current proposal for PA 9 is for 287,040 SF of industrial space along the west side of Harvest Road with a 3.2-acre commercial parcel on the southwest corner of the intersection of 64th Avenue with Harvest Road that will provide approximately 35,000 SF of retail at an assume FAR of 0.25 and is detailed on the attached **Figure 1**. The TIS for Fulenwider Box Elder assumed 120,000 SF of office space, a 375-room hotel, and 30,000 SF of retail.

Trip Generation

The *Trip Generation Manual, 11th Edition* (2020) is used to forecast vehicle-trips for the currently proposed site, an update on the version utilized for the master TIS for the development. Error! Reference source not found. shows the trip generation rates and equations for each land use code for the current site.

Table 2 shows the estimated trip generation for the current proposed site and a comparison projected in the Fulenwider Box Elder TIS.

comments provided on
8/20/23 seg

1. access onto 60th was previously analyzed as a RIRO - changing to full movement requires traffic operational analysis of the intersection, including queuing evaluation, traffic volume and intersection laneage figures and auxiliary lane needs and associated storage length requirements

2. see additional comments below



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acknowledged and fixed

Table 1. ITE Trip Generation Rates and Equations


| Land Use | ITE Code | Unit | Daily | Peak | Equations & Rates | Distributions | |
|-----------------------------|----------|------|---------------------------|------|-------------------|---------------|-----|
| | | | | | | In | Out |
| Industrial Park | 130 | KSF | $\ln(T)=0.52*\ln(X)+4.45$ | AM | $T=0.34*X$ | 81% | 19% |
| | | | | PM | $T=0.34*X$ | 22% | 78% |
| Strip Retail Plaza (<40KSF) | 822 | KSF | $T=42.2*X+229.68$ | AM | $T=2.36*X$ | 60% | 40% |
| | | | | PM | $T=6.59*X$ | 50% | 50% |

Table 2. Fulenwider PA-9 Trip Generation

| Land Use (Trip Generation Category) | Quantity | Daily Vehicle Trips | AM Peak Hour Trips | | | PM Peak Hour Trips | | |
|---|-----------|---------------------------|--------------------|------|---------|--------------------|------|--------|
| | | | In | Out | Total | In | Out | Total |
| Current Fulenwider Proposal | | | | | | | | |
| Industrial Park (#130) | 287 KSF | 1,624 | 79 | 19 | 98 | 21 | 77 | 98 |
| Strip Retail Plaza (#822) | 35 KSF | 1,707 | 39 | 27 | 66 | 95 | 94 | 189 |
| Subtotal | | 3,331 | 118 | 46 | 164 | 116 | 171 | 287 |
| 2021 Fulenwider Master TIS | | | | | | | | |
| General Office (#720) | 120 KSF | 1,169 | 120 | 19 | 139 | 22 | 116 | 138 |
| Hotel (#310) | 375 Rooms | 3,135 | 104 | 72 | 176 | 115 | 110 | 225 |
| Shopping Center (#820) | 30 KSF | 2,651 | 103 | 63 | 166 | 107 | 116 | 223 |
| Subtotal | | 6,955 | 327 | 154 | 481 | 244 | 342 | 586 |
| Change from Previous Plan | | -3,624 | -209 | -108 | -317 | -128 | -171 | -299 |
| Percent Change | | -52.1% | -- | -- | -65.9 % | -- | -- | -51.0% |

The comparison of trip generation indicates a decrease of 317 and 299 trips in the AM and PM peak hours, respectively. These correspond to percentage decrease of 66 and 51 percent in those peak hours.

Site Access on Harvest Road


The current site plan assumes one additional access onto Harvest Road as compared to what was previously analyzed for the February 2022 Harvest Road ISP. In that prior analysis the two driveways are assumed to be $\frac{3}{4}$ access which both had projected 95th percentile queuing for northbound lefts of less than one vehicle and  not require southbound right turn auxiliary lanes. Given the reduction in trip generation and the addition of a third driveway it is anticipated that all driveways will remaining operating at LOS B or better for all yield and stop-controlled movements as was previously analyzed. The newly proposed right-in/right-out (RIRO) driveway approximately 400' south of 64th Avenue along Harvest Road is not anticipated to require any auxiliary turn lanes given that they were not anticipated for the previous analysis which contemplated fewer access points and higher trip generation.

Pedestrian Connectivity


The roadway network around the Fulenwider PA-9 will provide sidewalk adjacent to the site on 64th Avenue, Harvest Road, 60th Avenue, and a private north/south drive on the western edge of the site. Crosswalks are provided across all five site access driveways. Crosswalks are also provided across driveways between the frontage of each of the three industrial buildings along with across the three driveway accesses to the north/south private drive on the western edge of the site to provide connectivity across the site.

Conclusions

The study resulted in the following conclusions:

- The newly proposed industrial development with retail pad site generates significantly less traffic than previously assessed in the Fulenwider Box Elder TIS.
- The current site plan assumes one additional access onto Harvest Road as compared to what was previously analyzed for the February 2022 Harvest Road ISP. The newly proposed RIRO driveway along Harvest Road is not anticipated to require any auxiliary turn lanes.
- Access points onto 60th and 64th Avenue are anticipated to be full movement with the site drive access onto 64th Avenue being signalized as identified in the Fulenwider Box Elder TIS.
- The eastbound queuing for the intersection of Harvest Road and 60th Avenue is anticipated to be 100' according to the Harvest Road IS  and should not interfere with the proposed full movement driveway onto 60th Avenue in the southwest corner of the PA-9 site.
- We find the current site plan to be in conformance with the Fulenwider Box Elder TIS and will not require any additional off-site improvements beyond those recommended in the previous analysis.
- Appropriate pedestrian connectivity is provided around the site and for the adjacent roadway network.

Please let me know if you have any questions about this letter or need any additional information.

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Language adjusted to acknowledge that the current proposal is for one $\frac{3}{4}$ and two RIRO

Carl Harline indicated during a meeting with the project team on 11/2/23 that evaluation of this intersection was not necessary. Queuing analysis presented in the Harvest ISP indicates that EB queuing at 60th/Harvest is minimal and would not impact the placement of this driveway. Carl suggested EBL and WBR

