

MEMORANDUM

Date: March 15, 2022

To: Mike Keegan, Rafter J Homeowner's Association Board of Directors

From: Christopher Bender, PE, Fehr & Peers
Seishi Yamagata, PE, Fehr & Peers
Preston Stinger, PTP, LEED GA, Fehr & Peers

Subject: Rafter J Planned Unit Development TIS Peer Review

UT22-2350

INTRODUCTION

This technical memorandum summarizes Fehr & Peers' review of Y2 Consultants' Traffic Impact Study (TIS), dated February 1st, 2022, for the proposed 57-Unit apartment conversion at 3000 W Big Trail Drive in Jackson, Wyoming. The review examines the TIS to assess compliance with WYDOT TIS requirements and industry standard practice.

It should be noted that the recommendations are based on the data presented in the documents delivered to Fehr & Peers. Fehr & Peers did not collect any new data for this review.

PEER REVIEW OF THE FEBRUARY 2022 TIS FROM Y2 CONSULTANTS:

- **Description:** The TIS outlines that the proposed project consists of a property at 3000 W Big Trail Drive, that is looking to convert the existing elderly care facility to workforce housing apartments. The existing elderly care facility provides 63 beds, and the proposed apartment complex would include 57 dwelling units, as shown in a table in the Executive Summary.
- **Location:** The TIS describes the proposed development to be located at 3000 W Big Trail Drive. The TIS includes a project location map, along with two context maps to show where the development is located within Jackson, Wyoming.
- **Site plan:** The TIS does not include a site plan. A parking review was attached to the planning commission report that showed the existing site and project access, so the existing access is assumed to be maintained for use by the workforce housing development. No other accesses are mentioned in the TIS.
 - Fehr & Peers recommends including a site plan to provide context to the proposed development and to meet WYDOT's Traffic Impact Study requirements.
- **Internal circulation & construction phasing:** No internal circulation of the proposed site was analyzed. This analysis assumed that all construction would be performed in a single phase.

- **Project sponsor & contact:** The memo is addressed to Mr. Sadek Darwiche and includes his contact information. We assume that this person is the project sponsor & contact.
- **Existing conditions:** The TIS describes that the proposed development is “served by a 32’ wide public street, connecting to a five-lane highway (US-26). A ten-foot off-street shared-use path crosses the site and leads to the Town of Jackson, and this will promote alternative modes of travel.” Based on counts collected in December 2021 that were increased by a growth factor to reflect September traffic volumes, the TIS indicated that the intersection of US-26/89/191 & Big Trail Drive operates at LOS F in existing conditions. No analysis was performed to describe the operations of the existing site access.
 - Fehr & Peers recommends that the site access should be analyzed to understand how the proposed redevelopment will affect operations at the project’s driveway.
- **Segment & turning movement volumes:** The TIS reports that it collected through traffic counts along US-26/89/191 and intersection turning movement counts at US-26/89/191 & Big Trail Drive. The intersection turning movement counts, as well as adjusted counts are reported in a table on Page 8 of the TIS. The through traffic volumes do not appear to be included in the report. The functional classification of US-26/89/191 and Big Trail Drive is also not discussed in the report.
 - Fehr & Peers recommends including the collected average daily traffic (ADT) counts to meet WYDOT Traffic Impact Study requirements. The functional classification of the roads in the study area should also be provided.
- **Existing traffic control:** The TIS mentions that US-26/89/191 & Big Trail Drive is stop-controlled. No control is mentioned for the access driveway, though it appears to also be stop-controlled in the aerial maps shown in the report figures.
- **Changes in adjacent land uses and traffic generated by approved developments in the area:** No other developments in the area were mentioned in the study, though growth rates were based on historical ADT growth in the area, which is a commonly accepted method to account for potential developments when performing horizon-year analyses.
- **Level of Service (LOS):** The TIS shows that the intersection at US-26/89/191 & Big Trail Drive is already operating at LOS F due to high delays for eastbound left turns from Big Trail Drive to US-26/89/191. It’s also worth noting that the same intersection is anticipated to experience unacceptable LOS for the eastbound right turn movements in the 2042 horizon analyses, regardless of whether the development is converted to workforce housing or not.
 - As mentioned previously, Fehr & Peers also recommends that LOS should be evaluated at the site access driveway.
- **Project trip generation, distribution, and assignment:** Project trip generation, distribution, and assignment are summarized in the TIS and are based on *ITE Trip Generation, 9th Edition*. The existing land use was estimated to generate 173 daily trips, while the proposed land use is estimated to generate 379 daily trips. The report shows that this means the proposed conversion would increase

daily traffic volumes by 206 trips. Trip distribution is outlined in Appendix A: Turn Movement Forecasts.

- It should be noted, however, that Fehr & Peers recommends using *ITE Trip Generation 11th Edition*, which was recently released last year. Using the up-to-date trip rates, the existing land use is estimated to generate 164 daily trips, while the proposed land use is estimated to generate 441 daily trips; this results in a trip difference of 277 daily trips.
 - However, since the volume difference is relatively minor, Fehr & Peers does not anticipate that this difference in results would significantly impact the results of the analysis.
- **Total traffic volumes (including build-out):** Total traffic volumes analyzed for each scenario are included in Appendix A of the report and appear to be in line with the traffic data collected and reported on Page 8.
- **95th percentile queue lengths:** Queue lengths don't appear to be included in the report.
 - Fehr & Peers recommends analyzing the 95th percentile queue length to understand potential impacts to queueing in the study area and to meet WYDOT's Traffic Impact Study requirements. The analysis shows significant delays at the US-26/Big Trail Drive intersection, which would likely produce significant queues that potentially affect other intersections including the site access driveway.
- **Impact analysis, recommendations, cost estimates:** The TIS outlines that the study intersection at US-26/89/191 & Big Trail Drive is already operating at unacceptable LOS and will continue to do so without mitigation. Seven potential mitigations are proposed in the study, but the TIS does not include any mitigated scenario analyses. No cost estimates for any of the mitigations were reported in the TIS.
 - While not specifically required by WYDOT's Traffic Impact Study requirements, Fehr & Peers recommends evaluating the various mitigations to estimate which ones will be viable to incorporate at the study intersection and what their benefits to the network would be.
 - Cost estimates should also be provided for the various mitigations to meet WYDOT's Traffic Impact Study requirements.
- **Methodology & Assumptions:** Traffic operations analyses were performed based on the HCM 2010 methodology using HCS 2010 software at the intersection of US-26/89/191 at Big Trail Drive. The analysis was performed for existing (2021), opening year (2022) and 20-year horizon (2042) scenarios. Only the intersection at US-26/89/191 & Big Trail Drive was included in this analysis.
 - While HCS is a commonly used and accepted software for analyzing intersections, the 2010 version is out of date. HCS has since been updated twice, once in 2017 to reflect the HCM 2016 standards, and once in 2022 to reflect HCM 2021 standards.
- **Worksheets used in analysis:** Appendix A includes turning movement forecast for each of the analyzed scenarios and Appendix B includes intersection capacity reports from HCM 2010.

CONCLUSION

Fehr & Peers reviewed the TIS performed by Y2 Consultants for the proposed 57-Unit Apartment Conversion at 3000 W Big Trail Drive in Jackson, Wyoming. Fehr & Peers found that the analysis was not performed in keeping with industry standard practice and that the TIS does not meet the guidelines in the WYDOT Traffic Impact Study Requirements.

It should be noted that the WYDOT may require the following updates to the TIS:

1. A site plan to provide context to the proposed development,
2. Analysis of the project's site access to understand how the proposed redevelopment will affect operations at the project's driveway,
3. Average daily traffic (ADT) counts and discussion of the functional classification of the roads in the study area,
4. An updated analysis that uses trip generation rates from *ITE Trip Generation 11th Edition* and that uses the most up-to-date version of HCS, or another analysis software that follows the recommended methodology outlined in HCM 2021,
5. The 95th percentile queue lengths of all approaches for each study intersection in each analysis scenario,
6. Additional analysis to evaluate the recommended mitigations,
7. And cost estimates for the various mitigations included in the "Recommendations / Alternatives for Evaluation" section.