

# Exhibit N

## REPLINGER & ASSOCIATES LLC TRANSPORTATION ENGINEERING

October 14, 2021

Ms. Emily Meharg  
City of Sandy  
39250 Pioneer Blvd.  
Sandy, OR 97055

**SUBJECT: REVIEW OF TRANSPORTATION IMPACT STUDY – SANDY WOODS 2  
SUBDIVISION**

Dear Emily:

In response to your request, I have reviewed materials submitted in support of the Sandy Woods 2 Subdivision in the northwest part of Sandy. The Transportation Impact Study (TIS), dated March 3, 2021, was prepared under the direction of David Kelly, PE of Kelly Engineering. A tentative plan set, dated 7/29/2021, was also provided.

The site is located south of SE Kelso Road and west of SE Jewelberry Avenue. Sandy Woods Phase 1 is located to the south. The two phases are separated by a powerline corridor; there will be no street connection between them. The proposal involves development of a 43-lot residential subdivision.

### **Overall**

I find the TIS addresses the city's requirements and provides an adequate basis to evaluate impacts of the proposed development.

### **Comments**

**1. Study Area.** The study addresses the appropriate intersections. It includes analyses of:

- SE Kelso Road and SE Orient Drive;
- SE Kelso Road and SE Bluff Road; and
- SE Kelso Road and proposed site access.

Because the subdivision does not propose connections to any existing local streets, the TIA does not evaluate the impact on local streets.

- 2. *Traffic Counts.*** The engineer used counts conducted for the Sandy Bluff Annex 6 Subdivision from October 2107 as the basis for his analysis. The engineer correctly points out that reductions in travel have occurred due to the COVID-19 pandemic. He used the 2017 AM and PM peak hour traffic counts as the base and adjusted them upward by 2.5 percent per year to account for regional traffic growth and to offset the effect of the pandemic. The adjusted counts appear reasonable.
- 3. *Trip Generation.*** The TIS uses trip generation for single-family dwellings (land use code 210) from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*. The engineer calculates that the subdivision would produce 32 total AM peak hour trips; 43 total PM peak hour trips; and 406 total daily trips. The calculation of trips generated by the development appears reasonable.
- 4. *Trip Distribution.*** The TIS provided information about trip distribution from the site. The engineer assumed 55 percent of site trips would travel to and from the west on Kelso Road while 45 percent would travel to and from the east on Kelso Road toward Bluff Road. The trip distribution seems reasonable.
- 5. *Traffic Growth.*** The TIS uses a 2.5 percent annual growth rate for two years to account for regional growth. In addition, the TIS accounts for background traffic growth by including traffic from the nearby Jewelberry Meadows Subdivision. These assumptions account for future traffic and appear reasonable.
- 6. *Analysis.*** Traffic volumes were calculated for the intersections cited in #1, above. Intersection level-of-service (LOS) was calculated for all intersections. The intersection of Kelso Road and Orient Drive is all-way stop-controlled; the other two intersections are stop-controlled with stop signs on the minor street approaches. The analyses were conducted for existing 2021 conditions, 2023 background conditions, and 2023 with the development.

The engineer calculates that the intersection of Kelso Road with Orient Drive and the intersection of Kelso Road and Bluff Road operate at LOS B under existing conditions and will operate at LOS B under 2023 conditions with or without the development. The new proposed access and Kelso Road is calculated to operate at LOS B under 2023 conditions with the subdivision. All three intersections are calculated to meet the city's LOS D operational standard with the development of the subdivision.

**7. Crash Information.** The TIA provides information from ODOT on crashes for the five-year period from 2014 through 2018. There were three reported crashes at the intersection of Kelso Road and Bluff Road. The crash rate is low with no evident patterns.

The intersection of Kelso Road and Orient Drive has a high historical crash rate with 25 reported crashes in the five-year period. The engineer notes that the intersection has recently been changed to all-way stop-control. He predicts a reduction in the crash rate. He does not recommend any other mitigation for safety issues.

**8. Site Plan and Access.** The site plan provides for one new access on Kelso Road and a stub street to the adjacent property to the west. No vehicular connection to the earlier phase of the subdivision to the south is proposed. The locations proposed for access appear appropriate.

**9. Sight Distance.** The engineer analyzed sight distance at the proposed access to Kelso Road. Based on the posted speed of 45 mph, sight distance of 500 feet is required. The engineer states that sight distance in both directions exceeds 500 feet and that sight distance is adequate.

**10. Left-Turn Lane and Signal Warrants.** The engineer also evaluated the need for turn lanes and addressed traffic signal warrants.

The engineer's analysis indicates turn lane warrants and traffic signal warrants are not met for the subject intersections.

**11. Conclusions and Recommendations.** The engineer concludes that the study area intersections are projected to operate acceptably per City of Sandy standards through 2023 either with or without the addition of site trips from the proposed development.

He notes that the intersection of Kelso Road and Orient Drive has a high crash rate but that it has recently been converted to all-way stop-control. He concludes that sight distance is adequate for the new access to Kelso Road. He recommends no mitigation but cautions that obstructions such as signs and landscaping should not be permitted to interfere with adequate sight distance.

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## **Conclusion and Recommendations**

Based on the information provided by the applicant, I find the TIS meets City requirements. The engineer uses appropriate data and methods in his analysis and makes reasonable conclusions and recommendations.

The TIS indicates that the study area intersections will meet applicable city operational standards. No safety mitigation is proposed. Sight distance is adequate.

If you have any questions or need any further information concerning this review, please contact me at [replinger-associates@comcast.net](mailto:replinger-associates@comcast.net).

Sincerely,



John Replinger, PE  
Principal

SandyWoods2TIS101421