



DATE: March 7, 2023  
REQUEST: Norwood Apartments Transportation Review  
TASK NO: Tualatin On-Call Task 5 (P#21208-009)  
REVIEWER: Amanda Deering, PE, DKS Associates

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DKS Associates has reviewed the transportation impact study (TIS) for the proposed Norwood Apartments residential development<sup>1</sup>. The proposed project is located south of Norwood Road and east of Boones Ferry Road in Tualatin, Oregon. The general comments are based on a review of the TIS analysis.

## TIS REVIEW

Key comments and issues related to the proposed project include:

- Overall, all required topics are covered in the TIS and look technically sufficient.
- This proposed development proposes to have its primary access on Norwood Road. The access location would meet the Washington County access spacing standard according to the site plan provided.
- Existing volumes were based on counts collected in 2022. No adjustments were made to these volumes since it is assumed volumes have returned to a consistent level post the impacts of the COVID-19 pandemic.
- The development is proposing to build 276 multifamily units. The apartment building is designed to have four floors which would qualify for the mid-rise multifamily rate in ITE, however to be more conservative and assume more trips would be added the low-rise multifamily rate was used (LUC 220).
- There are two existing single-family homes on part of the development parcel that will be demolished. Accounting for those trip credits, the development will generate 107 AM peak hour trips, 137 PM peak hour trips, and 1,826 daily trips.
  - Trip generation provided in the TIS cites the ITE Trip Generation Manual 10<sup>th</sup> edition. The most current edition is the 11<sup>th</sup> edition (September 2021). However, a comparison of rates shows the same trip generation for LUC 220.

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<sup>1</sup> Norwood Apartments Transportation Impact Analysis, Lancaster Mobley, February 2023.

- Trip distribution provided in the TIS is based on patterns used for the adjacent approved developments (Autumn Sunrise and Plambeck Gardens).
  - The TIS shows 45% to the south, 15% to the east and 40% to the north
- Note that future build volumes include two scenarios: one with the completion of the Basalt Creek Parkway (BCP) extension project and one without. It is assumed that 13 percent of project trips will be shifted from the north and south to use the extension when it is complete. This analysis of the extension shows some intersections will have slightly less delay and some will have slightly more delay, depending on how travelers reroute.
- A review of the most recent five years of ODOT collision data (2016-2020) was performed for the study intersections. The Boones Ferry Road/Norwood Road intersection has an observed crash rate at the 90<sup>th</sup> percentile rate for the state. While it doesn't exceed the rate, it does have the potential to become a safety issue. The predominant crash type at this intersection was turning.
- Highway capacity manual (HCM) operations were performed using the 6<sup>th</sup> edition methodology. The build year analyzed was 2026. All study intersections operate within mobility standards except for Boones Ferry Road/Norwood Road under the 2026 buildout with BCP scenario. Implementing a traffic signal would mitigate this issue.
  - Additionally queuing analysis was performed for the build year scenarios. The westbound 95<sup>th</sup> percentile queue at Boones Ferry Road/Norwood Road would extend to 325 feet under the 2026 buildout PM peak hour scenario. This queue length could be mitigated with a signal so no nearby driveways are blocked.
- Traffic signal warrants (both preliminary and MUTCD peak hour) show that a traffic signal at Boones Ferry Road/Norwood Road would be met. In this case the preferred configuration of the signal is to have separate left and right turn lanes in the westbound direction. Under this assumption the detailed 8-hour, 4-hour, and peak hour warrants would be met under the 2026 build conditions with or without the BCP extension.
  - Norwood Road is classified as a collector per Washington County which has a 2 or 3 lane cross-section as needed. Note right-of-way may need to be acquired for the left turn lane at the intersection.
- The site plan shows appropriate frontage improvements and on-site pedestrian connectivity via sidewalks and crossings.
- The total number of parking spaces provided on site is not noted. This will have to be reviewed with application review. In the future, it is recommended to address parking standards and whether the number provided meets standard in the TIS.
- The proposed mitigation of a signal at Boones Ferry Road/Norwood Road should include a separate striped westbound left turn lane for safety reasons, consistent with the functional classification. It is recommended the westbound left turn run on a separate phase to protect the pedestrians on the south crosswalk, which is directly adjacent to a transit stop. A leading pedestrian interval could also be used and a northbound right turn overlap could be implemented to shorten the right turn queue length.
  - The turn pocket storage at the intersection should be based on the 2040 build scenario Synchro analysis. For the westbound left turn pocket this would be approximately 150 feet

and for the northbound right turn pocket this would extend the existing turn lane storage to 200 feet assuming no right turn overlap.<sup>2</sup>

## TPR REVIEW

This section reviews the Transportation Planning Rule (TPR) analysis.

- The development is proposed on two parcels with the existing zoning medium low density residential (RML) and institutional (IN). Since the development proposes to change the land use to high density/high rise residential (RH-HR), a reasonable worst-case analysis must be performed to show no significant impact of the zone change per the Transportation Planning Rule.
- The trip generation comparison for the zone change shows the reasonable worst case build out of the two subject parcels under both the existing and proposed zoning.
  - For the existing zone this includes 25 dwelling units of single-family housing (attached, LUC 215). Per the City, this is a higher assumption than could be built here. The applicant should change this to 15 single family attached dwelling units. The institutional zone assumes building a K-8 private school<sup>3</sup>. This would complement the adjacent use of private high school in the parcel to the east. This seems reasonable. It is unlikely that a higher use such as a community college would be built on this small parcel.
  - For the proposed zoning, multi-family housing low rise is used, as discussed in the TIS.
  - Overall the trip generation comparison shows a decrease of 157 trips in the AM peak hour due to less contributing school traffic and an increase of 60 trips in the PM peak hour. There is an increase of 636 daily trips which is over the 450 trip threshold set by ODOT which requires operational analysis to determine if there are significant impacts from this zone change.
- Operations analysis was performed for the existing and proposed zoning scenarios under year 2040 conditions. The study intersections generally performed slightly better in the AM peak hour and the same or slightly worse in the PM peak hour under the proposed zoning. Under both zoning scenarios the intersection of Boones Ferry Road/Norwood Road would fail without signalization. This triggers OAR 660-012-0060 section (1)(c)(C). With signalization the intersection performs at LOS B and v/c ratio 0.73 under the proposed zoning. Thus, with the proposed mitigation of signalization, the analysis concludes the significant effect due to the proposed zoning change is mitigated per OAR 660-012-0660(2)(d).
- The benefit to the public of this zone change is that it will require the development to build a new signal as mitigation which would decrease existing delays at the intersection and increase safety at an intersection with existing crash risks. It will create a safer, protected crossing for pedestrians to access the nearby transit stop and the future park to the west. Additionally, it will allow for more housing to be built to address some of the housing needs in Tualatin.

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<sup>2</sup> Note that this analysis assumes a shared westbound left and right turn lane. The City may request the applicant to update this analysis to reflect the separated westbound left turn lane and to reflect year 2040. This is from the year 2031 reports in the appendix.

<sup>3</sup> Note this land use (LUC 530) has a small sample size and should be used with caution. However it does yield a more conservative trip rate than public elementary school.