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TRANSPORTATION ENGINEERING

October 20, 2017

TO: City Commission, Oregon City
FROM: John Replinger, PE
SUBJECT: Transportation Analysis for Wheeler Farms Subdivision TP17-03 and ZC17-03

As the city's contract transportation engineering consultant, I reviewed the transportation materials submitted by the applicant in support of the proposed land use actions for the Wheeler Farms Subdivision, TP17-03 and ZC17-03. I prepared a letter, dated September 5, 2017, to document my findings with regard to the applicant's transportation analysis, which was included as part of the staff report to the Planning Commission.

Specifically, I reviewed the applicant's project narrative, site plan and the Transportation Impact Study (TIS). The TIS is dated June 15, 2017 and was prepared under the direction of Todd E. Mobley, PE, a transportation engineer with Lancaster Engineering.

In my September 5, 2017 comment letter, I provided a fifteen-point summary of the applicant's analysis and showed how the TIS addressed the city's *Guidelines for Transportation Impact Analyses*, a regulatory document used by the city since 2005 to define the applicant's responsibilities for determining the transportation impacts of land use actions.

Intersections and Study Area

In the TIS, the engineer analyzed traffic at five intersections:

- S Central Point Road at Blanchet Drive
- S Central Point Road at Skellenger Way
- S Central Point Road at Hazeldell Avenue
- S Central Point Road at Warner Parrott Road
- Warner Milne Road at Linn Avenue/Leland Road

The first three serve as access points for the subdivision since these are local streets that intersect with Central Point Road, a collector street designated in the Transportation System Plan (TSP). The fourth and fifth intersections are intersections of collector-collector or higher classification roadways that meet or exceed the traffic volume threshold specified in the *Guidelines for Transportation Impact Analyses* (where site traffic will exceed 20 vehicles during a peak hour).

During the Planning Commission meeting, there was testimony by opponents and discussion among Planning Commissioners about other intersections, beyond the five that were studied, that some felt would be impacted by the proposed development, particularly “pinch-points” in coming off the hill that they believe are suffering from significant congestion. As stated above, the *Guidelines for Transportation Impact Analyses* limits the intersections that must be analyzed. As specified in my comment letter, the engineer analyzed the appropriate intersections.

Analysis Years

The analysis was undertaken for the AM and PM peak hours and included year 2017 existing conditions, 2019 background conditions without the proposed zone change and subdivision, 2019 total traffic conditions with build out of the proposed subdivision, 2035 background conditions, and 2035 conditions with the proposed zone change and subdivision. The choice of these analysis years comes from the applicant’s schedule and the *Guidelines for Transportation Impact Analyses*. The *Guidelines* requires analysis for the year in which a project, such as a subdivision or other permitted use, is planned to be built out. In addition, the *Guidelines* requires a planning horizon year analysis for master plans, zone changes and conditional uses.

For both 2019 and 2035, the background traffic volumes were calculated by increasing recent intersection traffic volumes by two percent annually to account for regional growth. The two percent annual growth rate is consistent with the planned growth associated with the TSP.

The difference between the 2019 background conditions and the 2019 total traffic conditions was the addition of traffic from the 77 single-family residences associated with the proposed subdivision as presented to preliminary site plan. The difference between 2035 background conditions and the 2035 conditions with the zone change was the addition of traffic directly associated with the proposed zone change. The *Guidelines for Transportation Impact Analyses* and Oregon’s Transportation Planning Rule (OAR 660-12-0060) require that the traffic analysis conducted for a zone change address the difference between a reasonable worst case development under the proposed zoning and the current zoning. As stated in the TIA, the engineer calculated that under R-10 zoning a reasonable worst case development scenario would result in construction of 73 houses; under R-8 zoning, a worst case development was calculated to allow construction of approximately 84 houses. Thus, the engineer calculated the effect of rezoning by adding the traffic generated by 11 houses (the maximum increase possible under the change of zoning) to the 2035 background conditions. Note that the applicant’s proposal provides for 77 houses rather than 84 houses that theoretically could be built under a worst-case development scenario using R-8 zoning.

Results of Traffic Operations Analysis

As I stated in my comment letter, the level of service (LOS) and delay calculations and the volume-to-capacity (v/c) ratios were provided to assess traffic operations relative to the city's operational standards.

The city's performance standards are specified in OCMC 12.04.205 – Mobility Standards. There are differences between intersections inside and outside the Regional Center; differences between streets that are or are not on the major street network; and differences for signalized and unsignalized intersections. Relevant standards applicable to the intersections analyzed in this TIS are summarized below.

- The intersection of Warner Parrott/Warner Milne Road with Leland Road/Linn Avenue is on the regional street network. According to OCMC 12.04.205 - Mobility Standards, that makes the performance standard applicable to this intersection a v/c of 0.99 for the intersection as a whole.
- For the other four intersections in this TIS, all of which are unsignalized, the applicable performance standard is a v/c of 0.99 for the major road; there is no performance standard for the minor street approach.

As presented in the TIS and summarized in my comment letter, all five study area intersections currently operate within the city's operational standards (OCMC 12.04.205 - Mobility Standards) and are predicted to continue to meet these standards with or without the proposed subdivision in 2019, the year in which the applicant expects to complete the proposed subdivision.

What was of particular concern for the Planning Commission was a portion of my comment letter where I wrote:

“[t]he intersection of Warner Parrott/Warner Milne Road with Leland Road/Linn Avenue is expected to meet operational standards in 2019 with or without the development. By 2035, however, the intersection is predicted to exceed capacity either with or without the development. The impact of the development is very small. As noted in the TIS, the city's adopted Transportation System Plan includes a roundabout as a solution to address capacity issues at this location.”

The Planning Commission concluded that because this intersection was projected to fail, it could not approve this zone change and concluded that the facilities were inadequate. This is worth closer examination. According to the TIS, the intersection of Warner Parrott/Warner Milne Road with Leland Road/Linn Avenue is currently calculated to operate at a volume-to-capacity ratio (v/c) of 0.71 during the AM peak hour and 0.82 during the PM peak hour. Year 2019 background traffic conditions are

calculated to produce a v/c of 0.82 during both the AM and PM peak hours. Year 2019, with the development, the intersection is calculated to produce a v/c of 0.83 during both the AM and PM peak hours. In year 2035, the TSP horizon year, the calculated v/c is 1.01 during both the AM and PM peak hours either with or without the rezoning. The lack of any meaningful change in the v/c ratio at the intersection in 2035 with the proposed zone change is due to the fact that only 11 additional houses calculated to be possible under the proposed zone change, although only 4 additional houses are proposed in the applicant's preliminary site plan. As shown in the TIS, these 11 additional houses are calculated to increase traffic volumes at the intersection of Warner Parrott/Warner Milne Road with Leland Road/Linn Avenue by 9 vehicles during the AM peak hour and 8 vehicles during the PM peak hour. Given that the rezoning will have no measurable effect on the traffic operations using this intersection in 2035,¹ I concluded that the impact of the development is very small and will have no measurable impact on the v/c ratio over the planning horizon.

Physical changes to the transportation street network, such as the proposed roundabout (Project D34 in the TSP) could be used to increase capacity of the intersection, thus allowing the predicted year 2035 to meet operational standards. The proposed roundabout is listed in the TSP as a Long-Term Phase 4 project.

Conclusion

In my comment letter, I stated "[t]he engineer concludes that traffic operations would be adequate at all analyzed intersections. He concludes no mitigation is needed for traffic operations. He concludes no safety mitigation is necessary. I concur with the conclusions of the applicant's engineer."

Since the applicant has demonstrated that the study area intersections meet the city's adopted performance standards in 2019 and the effect of the rezoning in 2035 is insignificant, I am content with my conclusion that transportation system is adequate to support the proposed development.

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¹ OAR 660-012-0060 (1) states: "A plan or land use regulation amendment significantly affects a transportation facility if it would: ... (c) (C) Degrade the performance of an existing or planned transportation facility that is otherwise projected to not meet the performance standards identified in the TSP or comprehensive plan" I interpret the absence of a change in the calculated v/c ratio (which is calculated to three significant digits) between the background and "with rezoning" scenarios, to be an indication that the performance of the intersection is not degraded and that the effect of the proposed rezoning is insignificant.