Kimley»Horn

April 27, 2020

Town of Parker
20120 E. Mainstreet
Parker, CO 80138

RE: ***Parker and Pine Subdivision Filing 1 – Engineering 4th Review Comments***

Dear Tyler Sandt:

Thank you for the comments on March 31st, 2020 for the above-mentioned project. In an effort to address your comments concisely and simplify your review process, we have summarized your comments and our responses below.

TRAFFIC AND ROADWAY REVIEW COMMENTS

The following comments concern traffic, access, roadway design, and construction standard issues for the subject property. They are based upon our review of the submittal documents in accordance with the criteria presented in the Town of Parker's Roadway Design and Construction Criteria Manual (RDCCM), as revised, July 2015. Additional regulatory and planning documents may have been utilized in the review, and are referenced in the comments where appropriate.

- *Response: Acknowledged, thank you.*

Road and Storm Construction Plans

1. Please add a porkchop the site's northern access to accommodate the three-quarter access restriction at this intersection.
   - *Response: Porkchop pavement striping has been added to the northern access to accommodate the three-quarter access restriction.*

2. The requested revisions to the northbound striping at the intersection of Parker and Pine will need to be completed with this project. This is part of the mitigation required for the long-term LOS deficiency.
   - *Response: As discussed with Town Staff, funds will be escrowed for long-term improvements.*

3. Staff understands the more detailed intersection grading plans will be provided on future submittals for the site's accesses on the public roads.
   - *Response: Additional grades and slopes added to Details Grading Plans (C5.1 – C5.3) regarding site's three (3) access to the adjacent public roads. The three (3) access point are existing and will remain. Proposed connection maintain existing grades.*

Traffic Study

4. It does not appear that the traffic study was amended to reflect the northern access being converted to a three-quarter movement as NB left out trips are still being shown.
   - *Response: The revised traffic study is based on the updated site plan. This includes the Pine Lane access evaluated with three-quarter movements with restriction of the exiting northbound left turn.*

5. Trip Generation: Table 3, Appendix G (Site Plan). Need to review land uses against site plan. Appears there are two restaurants with drive thru (Lots 3, 5). Prefer to identify as two uses each with associated square footage rather than a single 6000 SF use.
   - *Response: The fast-food restaurant use on site has been identified as two 3,000 square foot fast-food restaurants within the trip generation table of the revised traffic study.*

6. Trip Generation: Table 3, related to Internal Capture:
   A. Please discuss internal capture methodology with Town Staff. Appears reductions were taken for ineligible items. Example – ITE 820 Shopping Center already has internal capture accounted for in base rate. Not eligible for further reduction. (See Trip Generation Handbook, 3rd Ed, Ch. 6.)
   B. Internal Capture methodology as implemented in ITE spreadsheet limited to AM/PM peak only. Unclear how daily extrapolation was calculated as this is not in ITE methodology.
   - *Response: The original traffic study utilized ITE Trip Generation methodology for internal capture calculations. Although it is correct that the ITE Code 820 for Shopping Center equations already accounts for internal capture within its own use, the shopping center use has the ability to capture trips from other uses on site. However, as requested internal capture was not applied to the retail Shopping Center use with the other uses on site to provide a conservative analysis. Likewise, through coordination with Town of Parker staff, the Town's criteria to use a 10 percent internal capture rate was utilized for the AM and PM peak hours and daily trips. Of note, previously the National Cooperative Highway Research Program Report 684: Enhancing Internal Trip Capture Estimation for Mixed-Use Developments was utilized to determine internal capture rates for daily trips, which is believed to be an appropriate method for calculating true internal capture trips. Therefore, following this procedure will also likely result in a conservative analysis as actual external trip generation will be lower than reported in the revised traffic study.*

7. Trip Generation: Table 3, related to pass by trips. Should Non-pass-By trips equal total trips after internal capture? Unclear for example how Multi family went from 952 trips to 576 trips to 288 non-pass by.
   - *Response: The uses that do not contain pass-by trips were linked improperly in the daily trip column for non-pass trips previously. This error has been corrected in the revised study.*

8. Trip Generation: ITE 948 use code (Automated Car Wash). Trip Generation Manual has no daily use data, and no AM Peak data. Unclear where the AM and Daily data points in the study originate.
   - *Response:* ITE Trip Generation does not have data or provide daily and AM peak hour trip rates for the Automated Car Wash use. Through research and observations, car washes are typically open during the morning peak hours. As such, the PM peak hour trips rates for Automated Car Wash were applied for the AM peak hour to provide a conservative analysis. A 10 percent K-factor of the PM peak hour was utilized to estimate the daily trips for Automated Car Wash use. These methodologies for trip rate estimations have been documented in the revised traffic study.

9. Lane configuration, northern access point. Recommend analysis as separate left and right turns to minimize delay.
   - *Response:* The driveway along Pine Lane is now proposed as a three-quarter movement access with the restriction of exiting northbound left turn movements; therefore, the need for a two-lane exiting approach is no longer needed.

10. Analysis general:
    A. no contemplation of opposing ¾ turn movement to north of site (Fig 13, et al).
    B. inconsistencies between short term and long term PHF used in analysis. Please contact Town.
    C. Study appears to underestimate traffic on 20-Mile at Pine, SB approach. Contact Town for current projections with current development.

- *Response: As requested in the revised traffic study, the northern adjacent development's three-quarter movement access along Pine Lane has been discussed with respect to the vehicle queuing impacts from the eastbound approach of the Pine Lane and Parker Road signalized intersection.*

  Through coordination with Town of Parker staff, a peak hour factor of 0.92 has been utilized at all key study area intersections and accesses for the existing, short-term 2022, and long-term 2040 horizons.

  Traffic volume estimates along the southbound approach of Twenty Mile Road to the intersection with Pine Lane were developed through coordination with Town of Parker staff. These added traffic volumes were developed due to the proposal of a one-way exiting slip ramp from the eastbound E-470 off ramp which would provide access to southbound Twenty Mile Road. In addition, the Town provided Kimley-Horn with The Depot Traffic Impact Study which is a multi-family residential development located on the northwest corner of the Pine Lane and Twenty Mile Road intersection. This residential development is currently under construction; therefore, the site generated traffic volumes from this development were incorporated as background traffic in 2022 and 2040 in the revised traffic study.

11. Queue analysis/geometrics:
    A. Recommendations may need revision. Example – recommends extending EB to NB left turn to 250'. May not be possible and have any sort of entry Taper.
    B. Queue lengths may need verification of microsimulation model. Internal review suggests long term traffic for Parker at Pine EB to NB left turn may extend beyond requested Pine Lane access point.

- *Response: It is recommended that the eastbound to northbound left turn lanes at the Pine Lane and Parker Road intersection provide the maximum length possible to reduce the likelihood of vehicles queuing past the full movement driveway located along the north side of Pine Lane, west of Parker Road. It is understood that the Town reserves the right to restrict access along Pine Lane in the future if vehicle queues extend past driveways along Pine Lane. As discussed with the Town, providing additional green time for the eastbound left turn movement at the Pine Lane and Parker Road intersection may be needed in the future. It is recommended that this intersection be studied further as future roadways connections and future development resulting in higher traffic volumes occurs.*

12. Recommendations: Conversion of single to double lefts will require turning templates to verify what geometric changes may be required at each intersection in relation to stop bars, medians, and islands.

- *Response: Our civil team has provided turning templates for implementation of westbound dual left turn lanes at the Pine Lane and Twenty Mile Road intersection. A WB-67 was utilized for the outside lane and a SU-30 was utilized for the interior lane. The vehicles are able to navigate the turns without impacting the existing medians, although the WB-67's trailer does drag some into the interior lane.*

13. The traffic study checklist notes Town of Parker standard Pass-By and Internal Capture rates, however non-standard were used. Please update.
    - *Response: The revised traffic study utilized the Town's requirement of 10 percent internal capture rates and 15 percent pass-by rates for uses that contain pass-by trips. The traffic study checklist has been updated.*

Replat

14. Per previous review, please clarify the ownership intention of the private access roads. Ideally these should be in their own tract that is then dedicated to the BOA. At the very least, an access easement will need to be shown.
    - *Response: Addressed, Lot 7 has been revised to Tract A and note 9 on the plat cover sheet states that public access easements are granted over all private entrances and internal roadways in the overall development. Note 13 states the BOA is responsible for all maintenance of the internal roads/drives.*

15. It appears that the most logical path for the future multi-family lot is to show them as unbuildable tracts with this plat. If this is not acceptable, please coordinate with Town staff.
    - *Response: Addressed, Lot 7 has been revised to Tract A.*

STORMWATER REVIEW COMMENTS

The following comments concern drainage, erosion and sediment control, and non-point source pollution control issues for the subject property. They are based upon our review of the submittal documents against the criteria presented in the Town of Parker's, Storm Drainage and Environmental Criteria Manual (SDECM), as revised, February, 2014. Additional regulatory and planning documents were utilized in the review, and are referenced in the comments where appropriate.

Road and Storm Construction Plans

16. Identify the structure type and size within all storm labels in both plan and profile.
    - *Response: Addressed.*

17. **Sheet C5.6**: The provided HGLs do not appear to be correct. Some HGLs are shown dipping below the pipe flowline.
    - *Response: Addressed.*

18. **Sheet 6.4**: Provide and identify Type II bedding material underneath the forebays and trickle channel.
    - *Response: Addressed.*

19. **Sheet 6.4**: Identify steel reinforcement sizing and spacing within the forebay details.
    - *Response: Forebay steel reinforcement detail added to Sheet 6.4.*

20. Provide details for all of the proposed pond structures, including but not limited to forebays, trickle channels, outlet structure, maintenance section, and emergency overflow spillway.
    - *Response: Details added to Sheet 6.3 and 6.4.*

Drainage Report

21. Provide calculations/modeling for the pipe hydraulics.
    - *Response: Addressed, pipe hydraulic calculations and modeling have been added to appendix D.*

22. Use the latest UDFCD Detention workbook v4.07. Also, utilize the Parker Town Hall rainfall depths and not the Pinery Country Club.
    - *Response: Addressed.*

23. Correct the orifice plate design to drain the WQCV over 40-hours.
    - *Response: Addressed.*

Grading and Erosion Control Plans

INITIAL CBMP PLANS

24. Close the gap between the SF and CF at the southeastern corner of the project.
    - *Response: Addressed. Gap closed.*

25. Provide a callout at the driveway entrance off of S. Parker Road which states that no construction access shall take place at this location without a VTC.
    - *Response: Addressed. Callout added.*

INTERIM/FINAL CBMP PLANS

26. Shift/revise the DD for the street stub west of Lots 3 & 4 to capture the flows immediately after the Type R located outside the pavement.
    - *Response: Addressed.*

Please contact me with any questions or concerns (303.228.2318)

Dan Skeehan, P.E.
Project Engineer