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Memorandum

To: BrieAnna Simon, Associate Planner

Date: July 16, 2020

From: Alex Mestdagh, P.E. Engineering Services Manager
Dave Aden, P.E. Traffic Engineer
Tyler Sandt, Development Review Engineer
Michael Grabczyk, P.E. Project Engineer

Subject: Douglas 234 Filing 5 Minor Development Plat – Engineering 2nd Review

The Engineering Department has reviewed the documents submitted for the Douglas 234 Filing 5 Minor Development Plat. The submittal consisted of the following documents:

| <u>Document</u> | <u>Date Received</u> |
|------------------------|-----------------------------|
| Road and Storm Plans | May 6, 2020 |
| Drainage Report | May 6, 2020 |
| Traffic Study | June 25, 2020 |
| Utility Plans | July 13, 2020 |
| Landscape Plan | June 30, 2020 |
| Minor Development Plat | June 25, 2020 |

The site is located at the northeast corner of Chambers Road and Hess Road. Based on our review we have the following comments:

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.

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Minor Development Plat

1. Please clarify if a multi-use utility easement is being dedicated or if the applicant is planning on dedicating overlapping drainage and utility easements.
2. Label Tract A on the plat.

Road and Storm Construction Plans

3. Please provide elevations on the existing grading contours along the east side of the property.
4. On future submittals, provide a turning template for the largest tanker truck that would use the future gas station and ensure Sliceroo is adequately designed to accommodate.
5. Label the proposed crosswalk striping as 2' x 10'.
6. Please incorporate any changes warranted by the Traffic Study and the Traffic Study comments in the signing and striping plan.

Utility Plans

7. Add the following note to the Overall Utility Plan:

"The proposed utility connection will require a Town right-of-way permit prior to commencing work. The Town prefers connections to be bored to the extent possible, and any street cut allowed by the Town will be required to be patched according to the Town's construction standards and details. The limits of patching will be determined by the Town at the time of construction. The Town of Parker does not allow roadway closures for utility work."

Site Plan

8. Relocate the tree proposed within 7-feet of the storm sewer on Lot 9.

Traffic Study

9. Trip Generation: Project Description, Table 3.
 - a. Trip generation with non-standard reduction methodology performed by Ann Bowers/Fehr+Peers was submitted to the Town in May of 2020 for review. Volumes from that memo submission do not match the volumes submitted with this memo.

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- b. ADT volumes were not supplied for 2 uses. ADT needs to be calculated and updated total volumes supplied.
 - c. No volumes for AM Peak associated with Carwash were included in the table. Please update.
 - d. Trip Generation revisions – please review ITE Calculations. Utilize fitted curve equation where provided by ITE.
 - e. Note that Pharmacy WITHOUT drive-thru was proposed. This is acceptable, however this would be a first for Parker as all other prior pharmacies have included a drive thru component. Revised if needed.
10. Trip Distribution: Exhibit 5.
- f. Note that 25% of total site traffic was assigned to a RIRO serving a single lot (40% in the long-term). This is not acceptable. Only the percentages of traffic that would enter that lot from Red Sky in accordance with the larger trip distribution should be assigned.
 - g. Neighborhood traffic north of the site shows a difference between short and long term. Please provide expanded reasoning as neighborhood is built out.
 - h. Difference between short and long term in percentage bypassing RIRO on Hess. Short term assigns 5% to the right turn at Chambers/Hess, but is deleted in the long term. Please provide expanded reasoning.
11. Project Volumes: Exhibit 4, 13. Some turning movement discrepancy was noted. For example, the WB to NB right turn shows an existing volume of 368 in the PM peak, but the long term shows a drop to 345. With background traffic nearly doubling from 22K to 43K it would seem counter intuitive that this movement would decrease. Please review and comment.
12. Driveway analysis – Hess Rd RIRO to/from project site. Total approach LOS E noted long term, though is a single lane. Queue per Table 8 is 284' which may extend beyond first parcel driveways. Need discussion of LOS D criteria per approach and how E might be approved without diverting traffic into neighborhood or shifting trips to north exit.
13. AM peak analysis: general. Long range failing LOS at Chambers/Hess will require longer than 120 second cycle length. Town recommends review with 140 to 150 seconds. Also note that yellow and all red times are not consistent with standard operations – yellow of 4.5 seconds, all red of 2 seconds is standard for Chambers.
14. PM peak analysis: general. Long range failing LOS at Chambers/Hess will require longer than 120 second cycle length. Town recommends review with 150 seconds. Also note that yellow and all red times are not consistent with standard operations – should be updated to yellow of 4.5 seconds, all red of 2 seconds is standard for Chambers.

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15. Queue analysis/geometrics: Table 8.

- i. Table 8 shows southbound left queue of 492' at Chambers/Red Sky. If this is correct, value exceeds the length of the existing bay and mitigation will need to be provided. Town staff was unable to discern a queue equal to this value, and in fact operation seemed reasonable on model observation. Please double check this output.
- j. Table 8 shows only 91' of WB left turn queue at Chambers/Red Sky. Town staff unable to duplicate this value in model testing/verification, and SimTraffic model observation noted queues and operations that exceeded the capacity of a single WB to SB left turn. Town efforts to date show traffic backing into the roundabout which is unacceptable from a safety point of view. Further meeting may be necessary to understand outputs and reports provided.
- k. WB left turn queue at Chambers/Hess appears low per modeled expectations and reported LOS. Town model suggests left turn queue exceeds the turn bay length. Discussion of how vehicles will enter turn bay for WB to SB left as defined in the trip distribution should be provided.

16. Site Plan – note that internal street network curvature especially at the southern end and at the roundabout may be too tight for some vehicles such as fuel semi-trucks or South Metro Fire apparatus. Turning templates should be provided outside of traffic study to verify viability of layout.

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

1. **Sheet 18:** Revise the INL-10 and INL-11 rim elevations to match the top back of curb.
2. **Sheet 18 & 19:** Velocities downstream of inlets INL-1, INL-2, and INL-5 are particularly high. Add vertical drops (4' max) at the structures to reduce the pipe slopes and resulting velocities (normal flow) below 20 fps.

Grading and Erosion Control Plans

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INITIAL CBMP PLANS

1. Provide IPCOS for the sump inlet on Red Sky Drive.
2. Revise the IPAN for the existing area inlet adjacent to the single-family lots to graphically show on top of the existing inlet.

The submittal is not in general conformance with the Town of Parker's *Roadway Design and Construction Criteria Manual* and *Storm Drainage and Environmental Criteria Manual*. The submittal must be revised and re-submitted for review.

Link to Engineering Standards and Criteria:

<http://www.parkeronline.org/210/Standards-and-Criteria>

An attempt has been made to identify all of the items that do not meet the Town of Parker's design criteria; however, it remains the developer's responsibility to ensure that all criteria are met.

If you have any questions regarding the comments please do not hesitate to contact the Engineering Department at (303) 840-9546.