



MEMORANDUM

To: Bryan Golden, DSD

Date: August 18, 2016

Project: Austin Oaks

CC: Scott A. James, PE/DSD

From: Austin Transportation Department

Re: TIA Comments

The Traffic Engineering and Arterial Management Divisions have reviewed the April 21, 2016 (revised July 26, 2016) traffic report regarding the *"Traffic Impact Analysis, Austin Oaks, Austin, Texas"*, prepared by Kimley-Horn. The proposal calls for constructing 672,995 SF of General Office, 250 Apartment units, a 100 Room Hotel, 169,000 SF of Medical Office and 46,700 SF of High Turnover (Sit Down) Restaurant and. The development would be constructed at the Southwest corner of the Spicewood Springs/Mopac intersection and will be constructed in 4 phases. The following comments summarize our review findings:

1. The TIA reduces the area trips by removing the existing office development traffic. However, the traffic is estimated using ITE LUC 710 (General Office Building) rather than actual traffic counts of the existing facility. We recommend that the trip reduction be based on actual count data versus ITE Trip Generation.

The Applicant has indicated that for consistency ITE trip generation was used for the existing trips rather than actual counts. While we feel this is a less accurate method, it is considered as acceptable and the comment is addressed.

2. Existing Traffic Volumes: Traffic counts were taken in March 2014 and are greater than 2 years old. We recommend that new traffic counts be obtained as opposed to applying a growth factor to old data.

The Applicant has provided information related to how the counts were compared. While we feel using counts of this age is in general undesirable, we acknowledge that this project was started when the counts would be less than 2 years old and the calculations provided support their continued use. Therefore, the comment is considered as addressed.

3. Existing Traffic Volumes: Traffic volumes are reported for the Loop 1 on and off ramps. However no count data was provided in the Appendix. We recommend that the count data be included in the Appendix or an explanation of how the volumes were determined be provided.

Comment Addressed



4. Existing Traffic Volumes: It appears that the volumes shown in Exhibit 4 do not always agree with the peak hour counts included in Appendix E. It is unclear if the volumes presented are to use a uniform peak hour or are from balancing. We recommend that the Applicant clarify this discrepancy.

Comment Addressed

5. Existing Traffic Volumes: It appears that there may be an issue with intersection balancing between Executive Center Drive and Greystone Drive at their intersections with the Loop 1 southbound frontage road. The volume of traffic leaving the Executive Center Drive/ Loop 1 southbound frontage road intersection is 2,681 vehicles in the AM Peak Hour and 2,034 vehicles in the PM Peak Hour. However the number of vehicles arriving at the Greystone Drive/Loop 1 southbound frontage road intersection is 3,277 vehicles in the AM Peak Hour and 1,908 vehicles in the PM Peak Hour. This is a difference of a 596 vehicle increase in the AM Peak Hour and a 126 vehicle decrease in the PM Peak Hour. We recommend that the Applicant clarify this discrepancy.

Comment Addressed

6. Existing / 2016 Traffic Volumes: It appears that there may be an issue with traffic counts at the intersections of Mopac Service Road (NB and SB) and Spicewood Springs. Specifically during the PM peak hour, there appears to be a difference of 483 vehicles in the westbound direction and a difference of 254 vehicles in the eastbound direction along Spicewood Springs bridge between NB and SB Mopac (there is no access in between). All the analyses for 2016, 2018, and so forth were based on this count. We recommend that the Applicant review the balancing of intersections and clarify this discrepancy.

Comment Addressed

7. Existing / 2016 Traffic Volumes: Similar concerns exist in the traffic counts along Spicewood Springs between SB Mopac and Wood Hollow. During the PM peak hour, there is a difference of 271 vehicles in the eastbound direction between Wood Hollow and SB Mopac (there is no access in between). On the westbound direction, despite a Ri/Ro access between SB Mopac and Wood Hollow, it is concerning that there is a deficit of 729 vehicles in the westbound direction, from SB Mopac to Wood Hollow. It is not conceivable that 729 vehicles could make right-in and no vehicles made right-out from at the Ri/Ro access in the PM peak hour. We recommend that the Applicant review the balancing of intersections and clarify this discrepancy.

Comment Addressed

8. Background Growth: The TIA indicates that a 2% background growth rate was used as identified in the scoping document. The TIA indicates that this rate was reviewed



based on count data from TXDOT. However, the TIA does not appear to contain information or supporting calculations showing this review. We recommend that the Applicant provide this information and supporting calculations as an Appendix to the TIA.

Comment Addressed

9. Trip Distribution: Site trips were assigned to the various site driveways as part of the analysis. However, no explanation or discussion of how the trips were assigned to each driveway is provided in the TIA. We recommend that the Applicant provide this information in the TIA.

While an adequate explanation is included with the response and is included in the TIA report, the figures showing the site trip distribution at the site driveways indicate that 0% of the trips in the AM peak four exit the site. This appears to be a typographical error since there are volumes shown for these movements in the AM peak hour in subsequent figures. We recommend that the Applicant provide replacement figures to address these issues.

10. Trip Distribution: From the information provided in Exhibit 6, it appears that 8% of the exiting site trips are anticipated to turn right onto the Loop 1 SB frontage road and then make 2 left turns at Far West Blvd. to take Loop 1 north and then exit Loop 1 and make a right onto Anderson Lane rather than using Spicewood Springs Road from either Hart Lane or Wood Hollow Drive. We recommend that the Applicant provide justification why such a significant number of trips will use the proposed indirect route, as opposed to eastbound Spicewood Springs which is more of a direct route (noted that 10% exiting trips were assigned to this route).

Comment Addressed

11. Trip Distribution: Site trips were assigned to the various site driveways as part of the analysis. However, no explanation or discussion of how the trips were assigned to each driveway is provided in the TIA. We recommend that the Applicant provide this information in the TIA.

See comment 9 above.

12. 2018 Traffic Volumes: The traffic volumes shown on Exhibit 12 at the site driveway differ from those shown on Exhibit 10. The TIA does not include an explanation of why these volumes are different and provides no supporting documentation for the difference. This discrepancy was noted on all other analysis periods as well. We recommend that the Applicant clarify this discrepancy with an explanation as well as documentation and calculations supporting the explanation provided.

The Applicant has provided information related to the site driveway



distribution. This issue remains very difficult to follow since the site driveway volumes contain both existing and proposed site trips, but there are no figures showing each which would have greatly assisted with the review. From the information provided, we consider this comment as addressed.

13. 2020 Global Trip Assignment: The traffic volumes shown on Exhibit 16 appear to have some calculation discrepancies between the distribution percentage and the volumes reported. For example at the Loop 1 SB on ramp, the reported volumes are 30 AM peak hour and 43 PM peak hour trips. However, when the distribution percentages shown on Exhibit 6 are applied, the volumes for the Loop 1 SB on ramp calculate to be, 50 AM peak hour and 71 PM peak hour trips. These types of discrepancies were noted in other analysis periods as well. We recommend that the Applicant clarify these discrepancies and verify all trip calculations.

See comment 9 above.

14. 2020 Local Trip Distribution: From the information provided in Exhibit 17, the percentage of site trips entering the phase 1 portion of the site is lower than it was with the 2018 Local Trip Distribution. We recommend that the Applicant provide an explanation for this difference.

See comment 12 above.

15. Advisory Comment on Intersection Capacity Analysis: The TIA Scope (included in Appendix A) asked for

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- existing conditions (am + pm on one sheet),
 - six (6) future conditions:
 - o (am background, am background + site, am background + site + mitigation)
 - o (pm background, pm background + site, pm background + site + mitigation)

The scope specifically asked for future conditions am/pm background, am/pm background + site, then am/pm background + site + **MITIGATION**. It was asked to compare Build and No-Build scenarios without mitigation, and then with mitigation. Introducing mitigation on existing condition and assuming them in the No-Build scenario on the opening day, made it very difficult to compare Build and No-Build scenarios, and assess the impact(s) from the proposed development. It is recommended that the mitigation analysis focus on the Build and Phasing years, rather than existing conditions as per the approved scope.

Comment Addressed



16. The TIA scope asked for v/c, LOS, delay and 95% queue length by movements, the TIA report provided the parameters by approaches. Please update the analysis tables so they agree with what was identified in the approved scope.

Comment Addressed

17. LOS Analysis: The LOS analysis presented uses an overall intersection Peak Hour Factor (PHF) rather than the PHFs by approach. We recommend that the analysis be prepared using the PHF by approach

Comment Addressed with for this project. Future projects should use PHF by approach.

18. 2016 Improvements at Spicewood Springs Road & Hart Lane: About 27% of inbound trips and 17% outbound trips were shown to use this intersection to access the site (Exhibit 6). However, there was no discussion about this impacted intersection under 2018 Build Analysis Results section. Please include discussion(s) on the impact of the site traffic on this intersection and propose appropriate recommendation(s) accordingly. The northbound taper length shown appears to be substandard. We recommend that the Applicant review this length.

In addition, , the intersection at Spicewood Springs / Hart Lane is at a steep downhill east to west in combination with a tight horizontal curve. There are significant safety concerns associated with eastbound vehicles driving on a downhill with very limited sight distance, if a traffic signal is constructed. We recommend that a more conventional intersection configuration be considered which eliminates the existing center triangle island on the westbound roadway.

Due to the safety concern associated with the eastbound vehicles (in case of a traffic signal), it is recommended to install an advance warning flasher west of the intersection synchronized with the traffic signal to address this potential safety issue.

In the response to comments, the Applicant indicates that they recommend installing an advance flasher west of the Spicewood Springs Road / Hart Lane intersection. However, this improvement is not listed in Appendix R. We recommend that the Applicant include this recommendation in the improvements identified.

19. Spicewood Springs / Wood Hollow Drive: It appears that westbound left-turn bay extension and right-turn overlap phase were recommended at the intersection of Spicewood Springs / Wood Hollow Drive; however, the Applicants contribution to these improvements was not included in the TIA report. From the data presented in the TIA it appears that about 15% of the inbound trips and 15% of the outbound trips were shown to use these left-turn and right-turn lanes to access the site (Exhibit 6). No discussions were included about these impacted movements under 2018 Build



Analysis Results section and how any proposed improvements would address these impacts. Please include discussions on the impact of the site traffic on these movements and propose appropriate recommendation(s) accordingly

In addition, The TIA report recommended adjustment of signal timing at the intersection of Spicewood Springs / Wood Hollow Drive. However, no specific signal timing plan(s) were proposed or included in the TIA report. We recommend that these be included in the TIA for review.

Comment Addressed

20. Executive Center / Wood Hollow Drive: A multi-lane roundabout was recommended at the intersection of Executive Center / Wood Hollow Drive. Reviewing the analysis results at this intersection, it appears that the recommended multi-lane roundabout would be warranted at the opening day (2018). No analysis results were included supporting that an all-way stop would work in the interim. Reviewing the traffic volume during the peak hour, it appears that an all-way Stop may not work in the interim. Therefore, we recommend that the roundabout be constructed opening day to accommodate the proposed 2018 build traffic.

Comment Addressed

21. Mopac Southbound Frontage Road from Spicewood Springs Road to Far West Boulevard: The TIA report recommended improvements at Mopac Southbound Frontage Road / Spicewood Springs Eastbound to Southbound Right-turn, at the Mopac Southbound Frontage Road / Executive Center Drive intersection, and Mopac Southbound Frontage Road / Greystone Drive intersection, back and forth between 2016 and 2018 (Exhibit C). However, the exhibits provided didn't show how the improvements interact with each other, i.e. how the weaving, merging, diverging would occur along Mopac Southbound Frontage Road from Spicewood Springs to Greystone Drive. Please present / provide all these improvements in one conceptual figure / drawing, with existing and proposed right of way (ROW), dimension and scale (including the tapers; the tapers appeared to be deficient from cursory review) from Spicewood Springs to Greystone Drive.

Based on the cursory review of the proposed improvement concepts of southbound Mopac Service Road, from Spicewood Springs Road to Far West Boulevard, it appeared that there may be significant safety concerns with weaving, merging, diverging. It is recommended that a continuous additional lane be considered along Mopac Service Road from Spicewood Springs Road to Far West Boulevard.



Additionally, at the intersection of Executive Center Drive @ /Mopac Loop 1 SB Frontage Road: the 2016 improvements show 4 SB thru lanes approaching this intersection while only 3 receiving lanes currently exist.

The taper shown for the end of the acceleration lane at the Executive Center Drive/Mopac Loop 1 SB Frontage Road intersection appears to be substandard. We recommend that the Applicant review the design with TXDOT for their approval.

22. Intersection of Southbound Mopac / Spicewood Springs Road: The intersection of Southbound Mopac / Spicewood Springs Road was reported to fail under 2018 build scenario (e.g. PM peak: EBT v/c 1.49, LOS F, queue length 1095 feet etc. and continue to deteriorate in the following phases). However, no discussion was included in the TIA report on the failing movements, and how the proposed development impacts these movements during the peak hour(s). No mitigation measures were recommended to address these failing movements and no discussion / justification was not provided. We recommend that Applicant review operations at this intersection and include a discussion of needed mitigation to address the failing conditions.

Also, in Table 11, at the intersection of Spicewood Springs / SB Mopac, it shows that during the AM peak hour, the EB approach improves from v/c of 1.52 & delay of 253 sec/veh under No-build Condition to v/c 1.27 & delay of 121 sec/veh under Build Condition (without mitigation). Please provide discussion / justification how additional site traffic would/could improve traffic operation (v/c, delay etc.) without any mitigation(s).

Additionally, the proposed improvements at Spicewood Springs Road/ Mopac /Loop 1 Service Road show 2-11' receiving lanes as part of the improvements at the intersection. We recommend that these receiving lanes be a minimum of 12'.

Comment Addressed

23. Intersection of Northbound Mopac / Spicewood Springs Road: The intersection of Northbound Mopac / Spicewood Springs Road was reported to fail under 2018 build scenario (e.g. AM peak: NBL v/c 1.43, LOS F, queue length 609 feet etc. and continue to deteriorate in the following phases). However, no discussion was included in the TIA report on the failing movements, and how the proposed development impacts these movements during the peak hour(s). No mitigation measures were recommended to address these failing movements and no discussion / justification was not provided. We recommend that Applicant review operations at this intersection and include a discussion of needed mitigation to address the failing conditions.

Comment Addressed



24. Intersection of Greystone Drive / Southbound Mopac: The TIA report under the 2018 build condition identifies that the right-out movement fails at the intersection of Greystone Drive / Southbound Mopac due to lack of acceptable and safe gap in the southbound Mopac traffic stream (as reported in Section B 2018 Build Analysis Results). However, the TIA report didn't identify how to address / mitigate this safety and operational concern with the right-out movement at Greystone Drive. Please provide recommendations to address these concerns.

Comment Addressed

25. Intersection of Hart Lane and Greystone Drive: The proposed improvement(s) / re-configuration at the intersection of Hart Lane / Greystone Drive as presented in Exhibit C 2024 Improvements, call(s) for removal of the bi-cycle lane from Hart Lane north of Greystone Drive. What alternative bicycle facility is being proposed to facilitate Bicycle movements on Hart Lane, north of Greystone Drive? Also, please provide dimensions on Greystone Drive at the intersection approaches, so that the reviewers can complete geometric review.

The response to comments indicates that the bicycles will share a lane north of the intersection for approximately 250'. This is unacceptable for bicycle mobility and safety. We recommend that the roadway be widened for this 250' so that the bicycle lane will be continuous.

26. Intersection of Hart Lane and Executive Center Drive: The proposed improvement(s) / re-configuration at the intersection of Hart Lane / Executive Center Drive is presented in Exhibit A 2024 Improvements. However, the figure was not dimensioned on Hart Lane at the intersection approach. Based on the cursory review, it appears that the intersection approaches on Hart Lane may not work geometrically. The Northbound lane on Hart Lane was aligned with the opposing left-turn lane, leaving a full lane off-set with the northbound through receiving lane. Also, the northbound receiving lane appeared to have conflict between northbound vehicles and bicycles. Please provide revised recommendation(s)/figure(s) with proper intersection geometry.

Comment Addressed

27. Intersection of Far West Boulevard and Hart Lane: The reviewer acknowledges recommended improvement(s)/reconfiguration at the intersection of Far West Boulevard / Hart Lane. However, the reviewer was unable to compare no-build and build scenario to assess the impact from additional traffic from the proposed development (as per the scope), as improvements were already assumed in the existing condition (2016). See previous comments regarding this. Exhibit (Exhibit F) was included in the Appendix; however, necessary dimensions (lane widths) were not provided to assess the feasibility, geometry, and need for additional ROW.



Proposed sidewalk at the northbound approach was proposed as 4 feet, which is deficient. Please include minimum standard sidewalk on the northbound approach.

Comment Addressed

28. Intersection of Northbound Mopac Service Road / Far West Boulevard: The intersection of Northbound Mopac / Far West Boulevard was reported to fail under 2018 build scenario (e.g. PM peak: EBL v/c over 1, LOS F, queue length 879 feet etc. and continue to deteriorate in the following phases). However, no discussion was included in the TIA report on the failing movement, and how the proposed development impacts this movement during the peak hour(s). No mitigation measures were recommended to address this failing movement and no discussion / justification was provided. We recommend that Applicant review operations at this intersection and include a discussion of needed mitigation to address the failing conditions.

Comment Addressed

29. There may be additional comments based on the review of any additional addendum / analysis / revision submitted.

See new comments below.

30. TXDOT Review: The Applicant should be aware that TXDOT also needs to approve and review all proposed improvements along their roadways.

We request that copies of correspondence between the Applicant and TXDOT be provided to the City of Austin.

31. **Mitigation: The mitigation identified in the response to comments (Appendix U) does not agree with what is proposed in the TIA (Appendix R). For example, at the Executive Center / Wood Hollow Drive intersection the response to comments letter indicates that a multilane roundabout will be proposed in 2024 and the TIA indicates that this intersection will be signalized if it meets warrants in 2024. We recommend that the Applicant clarify this discrepancy.**