

MEMORANDUM

Date: October 2, 2014

To: Weber County

From: Kordel Braley, PE, PTOE
Jeremy Searle, PE

Subject: Powder Mountain Resort TIS 2nd Submission Review

UT14-635

Purpose

Hales Engineering was asked to review the second submission of the Powder Mountain Resort Traffic Impact Analysis, prepared by Project Engineering Consultants (PEC), dated September 26, 2014. Hales Engineering reviewed the initial submission, dated June 6, 2014. Comments from the original submission are included below with updated comments resulting from the second submission shown in italics.

Summary

The original review included 28 comments. After reviewing the updated TIS, Hales Engineering feels that there are 4 comments that have not been fully addressed. These include comment #2, 10, 14 and 16. There are also several items that Hales Engineering recommends that the County follow up on with the Developer. Follow-up items include comments #11, 24, 27, and 28.

General

1. Is there a concept or site plan available for the Powder Mountain Area? This would help us to understand the traffic impacts better.

Site plan was provided with the second submission.

2. The report mentions numerous times that the proposed development will provide “food, drink, lodging, sports, entertainment, recreational activities, and shopping” for their guests. However, only the lodging and recreational activities are identified. Will there be restaurants, commercial areas, entertainment venues, etc? If so, it seems likely that these would generate some amount of traffic from the valley (although most would likely be internal trips).

The study now details the proposed development in Table 9, which includes a total of 119,000 square feet of commercial development and a 10,000 square foot conference center. However, the trip generation tables (Table 12 & 13), only have 50,000 square feet of retail, and 25,000 square feet of restaurant for a total of 75,000 square feet. Including the office space (19,000 sq. ft.) there is only 94,000 square feet. Please clarify why trip generation was not included for all of the commercial space. The 10,000 square foot conference center is also likely to generate trips and should be included as well.

3. Most people will not know what Route 3460 refers to. It should be clarified that this is Highway 162.

This was clarified.

Executive Summary

4. The executive summary states that background traffic is anticipated to grow approximately one percent. This should be clarified to say one percent per year (or updated if the background growth assumptions change).

The background growth assumption was increased to 2% per year. Although this still does not align with the 5 – 6% growth assumed in the Ogden Valley Transportation Master Plan, it is more reasonable than the previous assumption of 1%.

Existing Conditions

5. Hales Engineering agrees with the existing conditions analysis.

Data Collection

6. Hales Engineering agrees with the data collection locations and time of year.
7. Identify the weekday and Saturday peak hour in the text. Move the traffic counts section before the level of service (LOS) for the study intersections is outlined. This helps to explain how the LOS was calculated.

This was clarified.

Traffic Projections

8. An assumption that 100% of the resort guests and skiers that come as part of the new development will stay approximately one week seems unreasonable. Although the development is meant to accommodate people for longer stays, it seems likely that many people will come up for one or two nights or even a day trip.

This assumption was updated to assume that 40% of the resort guests and skiers will stay 3 – 4 days and 75% of those will include the weekend as part of their stay.

9. Hales Engineering doesn't have a way to confirm the assumed occupancy rates in the report. Does the county agree with these? The occupancy rates also contradict the

assumption of a weeklong stay because the weekday rates are so much lower than the weekend.

The weeklong assumption was updated to match the occupancy rates.

10. The report states that Powder Mountain will provide transportation for all of their employees to/from the ski resort. How are they going to enforce this? Where will the shuttle go to/from? If it's from the Eden area, then employee vehicles will still go through the study intersections. If it is the lot on Valley Drive, the number of trips at that intersection still need to be accounted for.

The updated study did not address this comment.

11. Powder Mountain has committed to reducing the number of skier single vehicle trips by 50% by teaming with UTA. How is this going to be done? It is recommended that the county get commitments from the resort on how this will be accomplished.

The study offers several strategies that could be used to encourage transit ridership including discounted lift tickets, discounted concessions, subsidized transit fares, paid parking at the resort, etc. It is recommended that the county follow up on these options and ask for a detailed plan. The report does state that "Beginning two years after DRR1 approval, the Developer shall provide a biennial report to the Planning Division Staff that outlines data or provides details on the strategies implemented. The report shall include, but not be limited to, the strategies used, the data collected and the reduction of single vehicle trips." This biennial report will be useful to the county, however, a detailed plan should be obtained before approval.

Trip Generation

12. As mentioned above, many of the assumptions used to calculate the trip generation should be reexamined. The table should be updated to include all of the reductions taken so that it is easy to follow the trip generation calculations.

The trip generation table was updated to include the rates and reductions, and is easier to follow.

13. The internal capture methodology does not appear to be calculated correctly. The percentages identified in the report should be used in a worksheet shown in the ITE Trip Generation Handbook using the methodology outlined there. This will also require having more detail on the retail components of the project. It is expected that the number of trips reduced by internal capture will be lower than what is shown in the report.

The internal capture rates were re-calculated using the methodology outlined by ITE. The rates were calculated to be 11% for 2019 and 6% for 2025 (much lower than originally calculated).

14. The trip generation for the Recreational Homes appears incorrect. Table 8 shows 105 homes. Assuming a weekday occupancy of 25%, this would be 26.25. According to ITE the daily rate is 3.16 trips / home so $26.25 * 3.16 = 83$ trips (not 38 as shown in Table 8). Sat, am and pm trip gen also appear to be incorrect. In addition, the Recreational Homes land use in the ITE Trip Generation Manual already accounts for a lower occupancy. Taking an occupancy reduction on top of the ITE rate is double-counting that reduction.

The trip generation appears to be calculated correctly in the updated table, however, the occupancy reduction is still being double counted. The recreational homes land use in the ITE Trip Generation Manual already accounts for a lower occupancy. The recreational homes rate is approximately 33% of the single family home daily rate. This roughly equates to a 33% occupancy rate, which the study then takes an additional 25% or 50% occupancy rate on top of that. The study is essentially assuming that only 8.25% of the homes are occupied during the week and 16.5% of the homes are occupied on weekends.

15. The trip generation for the Resort Hotel appears incorrect. Table 8 shows 258 rooms. Assuming a weekday occupancy of 50%, this would be 129 rooms. According to ITE, the trip gen rate for the am peak hour is 0.37. So this would be $129 * 0.37 = 48$ trips. Table 8 shows 28. PM is also incorrect. $129 * 0.49 = 63$ trips (not 34). It is unclear how the daily rates were calculated.

The trip generation calculations for the Resort Hotel have been updated and appear to be correct.

16. The Snow Ski Area calculation appears incorrect. The report states that a trip generation rate of 67 trips / ski lift on a weekday and 112 trips / lift on a Saturday. Table 8 shows 6 lifts so the weekday trip generation should be $6 * 67 = 402$ trips, and the Saturday should be $6 * 112 = 672$ trips. If the report meant to say that there were 67 tickets sold per lift on a weekday (as opposed to trips generated) then the occupancy rate of 2.7 skiers / vehicle could be used, which drops the daily trip generation to 149 trips, which is much higher than the 55 trips shown in Table 8 (same applies to Saturday trips). It is also unclear how peak hour trip generation numbers were calculated, since the report only identified a daily rate. The calculated 91 Saturday Daily trips doesn't make sense when considering the 72 Saturday peak hour trips.

The ski area trip generation rate should still be clarified. I believe the report is trying to say that 67 tickets were sold per lift on a weekday (as opposed to trips generated). If not, then the calculation should not be dividing by a 2.7 vehicle occupancy rate. Additionally, the rate assumes a 50% transit reduction and a 50% internal capture reduction. All of these combined makes for a very low trip generation rate. Additionally, it is still unclear how the average daily rates for the ski lifts were calculated for State 2.

Instead of 67 / lift on weekdays and 112 / lift on weekends (as shown in Stage 1), the trip generation used is 9.36 and 15.63 respectively. Please clarify how these were calculated.

17. Similar problems exist with Table 9. The entirety of Table 8 and 9 should be recalculated and checked to make sure that it is correct.

The trip generation tables were clarified, except as noted above.

Trip Distribution

18. Hales Engineering agrees that the trip distribution used in the study is reasonable.
19. Figure 2, study intersection A shows 100% on the northeast leg – this should be 10%.

Figure 2 (now Figure 11) was updated correctly.

Plus Project Traffic Impacts

20. The Ogden Valley Transportation Master Plan assumes a 5% to 6% background growth per year (without the development at Powder Mountain). This is much higher than the 1% assumed in the report. (To their credit, PEC did not have that information available to them at the time the report was completed). The county could consider having PEC revise their report using a higher background growth. It would also be interesting to look at intermediate AADT values (~2005) to see if the low traffic volumes in 2012 were a result of the recession.

The background growth assumption was increased to 2% per year. Although this still does not align with the 5 – 6% growth assumed in the Ogden Valley Transportation Master Plan, it is more reasonable than the previous assumption of 1%.

Mitigation Measures

21. What is the projected LOS at SR-39 / Valley Drive with the addition of a left-turn acceleration lane (un-signalized high-T)?

The mitigation measures were updated to recommend signals at all study intersections.

22. Hales Engineering agrees with the proposed mitigation measures. However, if some of the trip generation assumptions change, the mitigation measures will need to be reevaluated.

The mitigation measures were updated to recommend signals at all study intersections.

Parking

23. The number of available stalls shown in Table 16 does not match those shown in Figure 7.

This was corrected.

24. The report makes the assumption that the Rainbow Gardens Park-n-Ride lot will be expanded by 8.5 acres. It is recommended that the County follow up with the resort on this commitment.

The county should follow up with the resort on the expansion of the Rainbow Gardens Park-n-ride lot.

25. What about additional parking at the resort? Are there any plans to expand parking there with the additional lift expansion?

There is no mention of expanding the existing parking at the resort. It is assumed that the developer is not planning on this.

Travel Demand Management

26. It is unclear how the reduction in trips from the Shuttle was calculated.

This was clarified.

Sustainability

27. Are all of the methods identified in this section going to be utilized by the resort? If so, it is recommended that the county get commitments from the developer on these items.

It is recommended that the county get commitments from the developer on the methods outlined in the report.

Safety

28. Hales Engineering agrees with the safety analysis methods used in the report. However, it would be good to provide additional detail. The SR-39 section states that there were 9 severe crashes that occurred on this route, 3 of which were at a study intersection. However the study does not identify the crash type of any of the severe crashes or note if there were less severe crashes that were similar. The other routes (SR-158, 3460, & 3464) safety explanation also lacks detail.

Additional detail was provided in the safety analysis. The safety analysis recommends further study to identify safety mitigation measures along the study corridors. Possible mitigation measures for the SR-39 corridor include additional warning signs, reducing the speed limit, and no parking roadway shoulders. Possible mitigation measures for SR-158 include the construction of an emergency escape ramp.

If you have any questions, feel free to contact us.