

*Vail Transportation Master Plan Update*

## IV. PROJECTED 2025 PM PEAK HOUR TRAFFIC CONDITIONS

### A. *Traffic Volume Forecasts*

Projected traffic demands along the Frontage Road system are key to assessing and mitigating future transportation conditions. As mentioned, the PM peak hour traffic is generally heavier than the AM peak hour, with a few pattern exceptions. As such, year 2025 traffic forecasts have focused on the PM peak hour time period for analysis, with exceptions being the Main Vail and West Vail Roundabout Interchanges where cursory-level AM peak hour forecasts were developed as well.

The total PM peak hour forecasts were developed with the use of a travel demand model utilizing the TRAFFIX software package. The model was developed by estimating the amount of additional PM peak hour trips for each development and redevelopment proposal, and then assigning these new trips to the street system. Forecasts then resulted from the additive nature of the new trips in combination with the existing traffic which was increased modestly (0.5% per year) to year 2025. The AM peak hour traffic was developed by applying an approximate 35 percent flat growth factor to the existing AM peak hour; the 35 percent was based on the level of growth resulting from the 2025 PM peak hour projections (as compared to existing traffic levels).

**Table 3** shows the trip generation rates that were used, and **Figure 5** shows the trip distribution assumptions that were used in this analysis. Trip rates were based on a combination of sources including the Institute of Transportation Engineers' (ITE) Trip Generation and the Lionshead Transportation Master Plan. ITE trips rates were primarily applied to development located away from the Vail base areas. Because of the heavy transit use and the fact that much of the development is mixed and close-in (lending itself to trips made via walking), the trip generation rates used in this study are less than the ITE rates because the ITE data are intended for more typical suburban settings where commuter activity is prominent. At peak times in Vail, tourist activity is prominent. The close-in trip generation rates used in this analysis are in line with ITE's Recreational/Home category. Areas where the close-in residential trip rates were applied are shown in **Figure 6**. A 20 percent reduction in trip generation rates was applied for the close-in areas.

The increased retail uses within the villages were also subject to reduced trip generation rates as compared to ITE's shopping center category data. A PM peak hour trip reduction of 65 percent was applied due to the following reasons:

- ▶ The retail and commercial activity, being located at the base of the ski area, is heavily dependent upon people who are already in the village for skiing purposes.
- ▶ There are many units located close to the new retail uses which tends to induce walking trips rather than vehicular trips.
- ▶ Many of the employees of the retail uses are typically discouraged to drive themselves to work, in part due to the parking fee at the structures.
- ▶ Provision of free transit service by the Town of Vail.

A cursory-level evaluation of existing retail trips was conducted by reviewing the level of traffic turning into the structures today. During the PM peak hour, the outbound traffic contains a significant amount of skier trips, so it is not appropriate to include these outbound traffic with respect to gauging trip generation rates. Inbound PM peak hour traffic contains trips associated with retail and some other uses, so while it is not 100 percent retail traffic, it does serve as an upper limit. At the Lionshead Parking Structure, 150 inbound PM peak hour trips exist current; the Lionshead Village contains approximately 150,000 square feet of retail-related use. At the Village Structure, 310 vehicles entered during the PM peak hour; that village contains approximately 300,000 square feet of retail/commercial. These traffic numbers represent a 45 to 50 percent reduction in ITE shopping center trip rates **if they were all retail-related**, but they are not.

Other trip types that are part of the inbound movements to the structures include:

- ▶ Library trips (which is open until 6:00 PM on weekends, later on weekdays)
- ▶ Dobson Ice Arena trips (which typically has a full schedule including hockey events, figure skating, lessons, and public skating)
- ▶ Adventure Center trips. The Adventure Center provides other recreation including tubing, ski biking, snowmobiling, snowshoeing, and a trampoline, and it remains open until 9:00 PM on weekend nights.
- ▶ Residential uses. Several residential complexes within the villages are not able to adequately park their own overnight guests, so the parking structures are used instead. At Lionshead, staff estimates that approximately 100 vehicles are parked overnight at peak times related to selected residential uses. At the Village Structure, between 200 and 300 vehicles are parked overnight related to some of the residential uses there.
- ▶ Special events. Both villages routinely host evening events such as concerts, festivals, exhibits, and other attractions.

All of these attract trips beyond the retail/commercial attraction. As such, the true retail trip rate is even less than the 45 to 50 reduction quoted above. As such, using rates that equate to a 65 to 70 percent reduction for the new retail development is not inconsistent with current trip-making trends in Vail. However, using these reductions in traffic impact studies for an individual development should be used with caution and only be done in coordination with Town staff and CDOT.

Again, **Appendix E** shows the trip estimates for each of the development areas. In total, all of the considered development could generate an additional 2,800 trips per hour during the PM peak hour. The following summarize some of the bigger trip generators (4,350 trips per hour if “pure” ITE trip generation rates were used).

- ▶ **West Vail** – the net increase in square footage and residential units could generate a total of 470 additional trips during the PM peak hour. This would be above and beyond the estimated 800 to 1000 trips per hour generated by the West Vail development today.
- ▶ **Timber Ridge** is estimated to generate an additional 180 trips per hour during the PM peak hour.
- ▶ **West Lionshead (Ever Vail)** has the potential of generating an additional 580 trips per hour during the PM peak hour.

- ▶ **Lionshead Parking Structure** redevelopment is estimated to generate 275 trips during the PM peak hour.
- ▶ **The Lionshead Village** area (excluding the Lionshead parking structure) is projected to generate an additional 490 PM peak hour trips given the collective development.

The Vail Village area redevelopment is projected to generate an additional 260 PM peak hour trips given the collective development potentials.

**Table 3. Trip Generation Rates**

Use	Trip Generation Rates (per DU for Res, per 1000 SF otherwise)					
	ITE		Vail-Remote		Vail-Close In	
	Daily	PM Peak	Daily	PM Peak	Daily	PM Peak
Residential – New	5.86	0.54	5	0.5	4	0.4
Residential – Replace	NA	NA	0.75	0.08	0.6	0.06
Commercial - Office	11.01	1.49	11	1.49	11	1.49
Commercial – Retail	42.94	3.75	42.94	3.75	15	1.3
Hospital	17.6	1.18	17.6	1.1	NA	NA

**Figure 7** shows the 2025 total PM peak hour traffic projections at the Town's roundabout intersections and many of the Frontage Road cross-streets. In general, future PM peak hour traffic flows along busiest segments of the frontage roads are projected to increase an estimated 40 to 50 percent over existing traffic flow levels at peak times. Some segments will experience as much as a 60 to 70 percent increase. The interchanges will experience a greater concentration in traffic with the additional trips. Major cross-streets will still include Vail Valley Drive, both parking structure access points, and West Vail accesses (if access modifications are not constructed). Moderately traveled cross-streets include all of the Lionshead Circles, Village Drive, and Forest Road (given Ever Vail redevelopment and if left intact).

### **B. Traffic Operations**

Similar to the existing conditions LOS analysis, the roundabout intersections were analyzed for ideal conditions as well as for snow conditions using the same factors and adjustments mentioned before. **Figure 8** shows the results of the PM peak hour analyses. Noticeable capacity deficiency highlights include:

- ▶ **Main Vail Interchange** – The north roundabout is projected to operate at a LOS F during the PM peak hour. The south roundabout is projected to function at LOS D, but several approaches are expected to operate at LOS E or LOS F.
- ▶ **West Vail Interchange** – Both roundabouts are projected to operate at LOS F during the PM peak hour.