TOWN OF MAMMOTH LAKES

Old Mammoth Place Parking Study

Final Report

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1. Background

This report summarizes the peer review of the parking supply and operations proposed for the Old Mammoth Place development in Mammoth Lakes, California. The work was done by Nelson\Nygaard Consulting Associates on behalf of the Town of Mammoth during the fall of 2009. The consultant's analysis was based on the August 20, 2009 project narrative and associated architectural drawings submitted to the Town by BSA Architects.

The Old Mammoth Place project is subject to the recently approved Clearwater Specific Plan, which calls for a mixed-use development at this site with extensive accommodation for walking, biking and transit, in addition to on-street parking. A below-grade garage is preferred with access from Sierra Nevada Road or a new internal mid-block street. The current proposed project is consistent with all of these criteria and offers public-use amenities as well. With all parking in a below-grade garage, the efficiency of the land use is maximized as desired by the Plan.

The Clearwater Specific Plan recognizes that Town-wide parking requirements for individual uses are not appropriate for a larger mixed-use development and allows for a certain amount of flexibility:

- The parking rate for hotel uses may be lowered if the project becomes part of a parking district and pays into an in-lieu program;
- A consistent rate for all commercial uses is established to maximize flexibility, with the lone exception of full-service restaurants; and
- Tandem parking of residential users is permitted as long as a valet parking system is in place.

Proposed developments under the Plan must submit a detailed shared parking, tandem parking, and valet parking plan if seeking parking quantities below Mammoth Lakes town-wide minimums, which the Old Mammoth Place proposal plans to do. This is an acknowledgement of the natural trip-making and parking demand reductions associated with a mixed use project. As documented clearly by all sources and examples in parking literature, mixed-use projects have the natural efficiency advantages of internal trip capture and staggered peaks of demand. Internal trips are those that do not need to occur by car since a hotel patron may stay on-site to dine or shop, removing the need for a second parking space. The staggered peaks of different use's peak parking demands rarely occur at the same time of day, so that when two or more uses are mixed together, the same parking space may accommodate the peak demand of one use at one time of day and that of another during another time of day. In particular, the peak for residential uses matches well with the peak for retail uses.

Based on the consulting team's review of the Old Mammoth Place parking program, the development as envisioned is designed to take advantage of these parking efficiencies. The project is expected to operate successfully without spill-over parking impacts off-site if the recommendations of this study are incorporated into its shared parking and tandem/valet parking plan.

2. Summary of Recommendations

The consulting team's recommendations are based on an assessment of the proposed project and its fit within the surrounding neighborhood and Mammoth Lakes in general. Detailed descriptions of the analysis supporting these recommendations can be found in subsequent sections of this report. A summary of the key components influencing parking demand at this project is presented below.

Factors Influencing Parking Demand

As part of this analysis, the consulting team prepared six different models of parking demand to estimate how many parking spaces would be necessary for this proposed development. These models considered a number of factors unique to Mammoth Lakes, including the remoteness of the town, the high percentage of arrivals by automobile versus other modes of transportation, and the tendency for many guests to drive to Mammoth in larger sport utility vehicles (SUVs). The team also recognized many site-specific factors that would influence parking demand, including nearby uses and parking lots, the presence of transit on Old Mammoth Road, and the condition of sidewalks and local connections. These and other factors contribute to Mammoth Lakes being a unique environment that does not adhere to typical parking demand profiles in other non-resort or more urban locations. This is reflected in a number of ways.

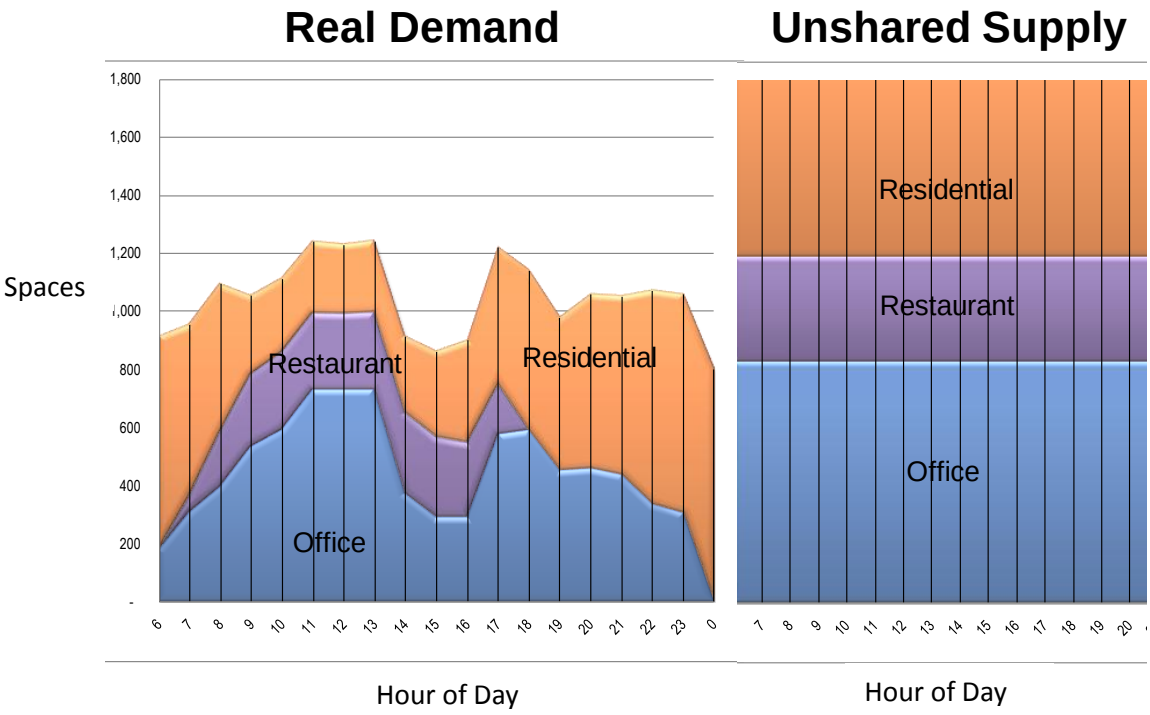
Sharing Parking

In a typical "downtown" setting of similar density to that along Old Mammoth Road within ¼ mile of the site, the total amount of parking needed would be less than if the many uses were separated by larger driving distances. Parking analysts would normally conduct a shared parking analysis to arrive at an estimate for these uses. Two key factors influence the reduced demand: 1) internal capture; and 2) staggered peaks.

Internally captured trips are made when someone walks, bikes or rides transit between uses. In a mixed use complex, walking downstairs to lunch instead of driving is an example of internal capture. A second parking space is not needed for your car, reducing the needed parking supply.

Meanwhile, each use has different peak hours of accumulation when the most cars have arrived to seek a parking space. Because the peak hours rarely overlap, the sum of the "staggered" peaks of nearby and mixed uses at any one hour of the day does not total the sum of each use's highest peak. This is illustrated in Figure 1 for a hypothetical mix of office, restaurant, and residential uses.

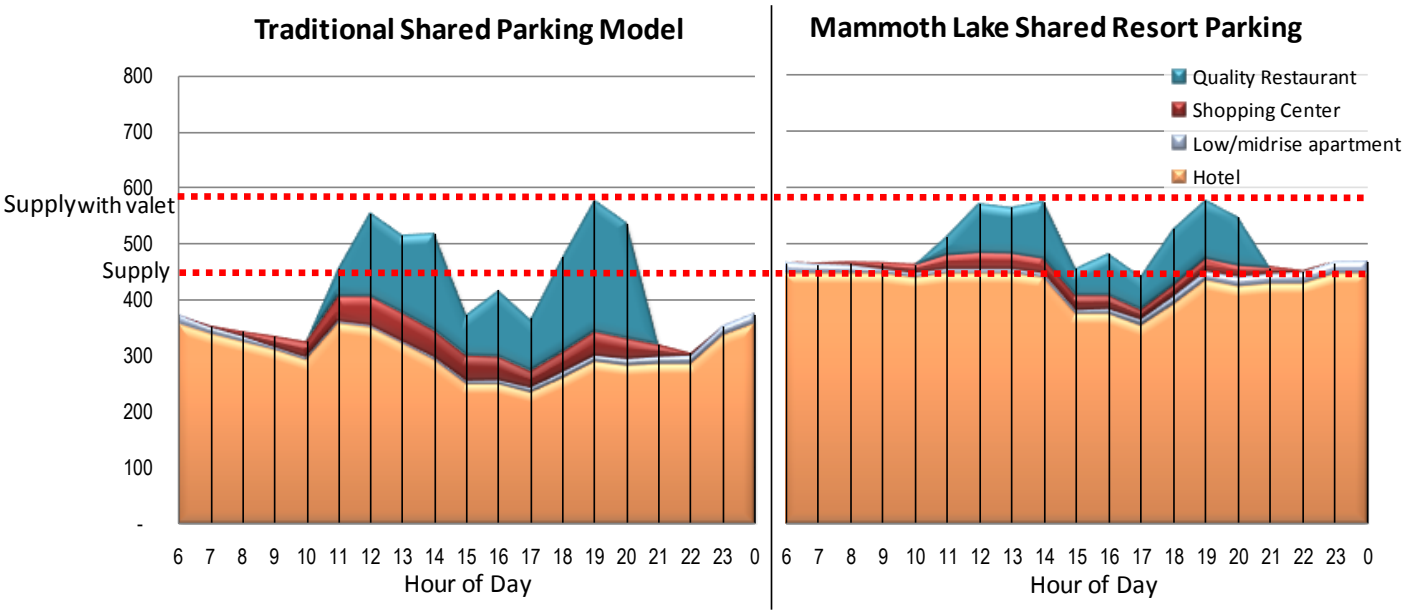
Figure 1: Advantages of Shared Parking



Mammoth Lakes does not operate exactly according to these shared parking philosophies for a number of reasons. First of all, much of the year is cold and snowy, so the likelihood that people will walk across the street to a nearby place for lunch or shopping is diminished. While this may suggest that the internal capture rate should be lower, this is not a project specific reality. The climate affects all development in Mammoth Lakes equally, which means that if someone is only willing to drive to get across the street, people at their destination are just as likely to drive across the street for other purposes. Unlike a site that is more isolated by a physical barrier (a highway, river, etc.) that forces people to drive to it more than other uses, cold weather affects all uses equally, resulting in no net change to internal capture rates in a mixed-use district like that along Old Mammoth Road – only more short-distance driving.

Secondly, Mammoth Lakes has many “park once” developments where the natural daily reduction of residents departing between nighttime peaks does not occur. This might suggest a reduced “staggered peak” effect and less benefit of shared parking. However, much like the weather, this condition is constant across most similar Mammoth Lakes developments. The “park once and leave your car for the weekend” mentality is an embraced condition for many Mammoth Lakes vacationers. Unlike individual ski homes, these developments seek to provide amenities on-site. At each development, guests’ reduced tendency to drive in the middle of the day is entirely offset by the reduced parking demand for the on-site retail and dining establishments that cater to these on-site guests. If there is any drive-in demand, it typically comes directly from other local developments, freeing up parking spaces at those developments in an even swap. Taken in aggregate, there is no net impact on the “staggered peaks” shared parking reduction, however the shape of the individual use curves may change, as suggested in Figure 2.

Figure 2: Comparing Shared Models to Sharing in Mammoth Lakes



A Park Once Community

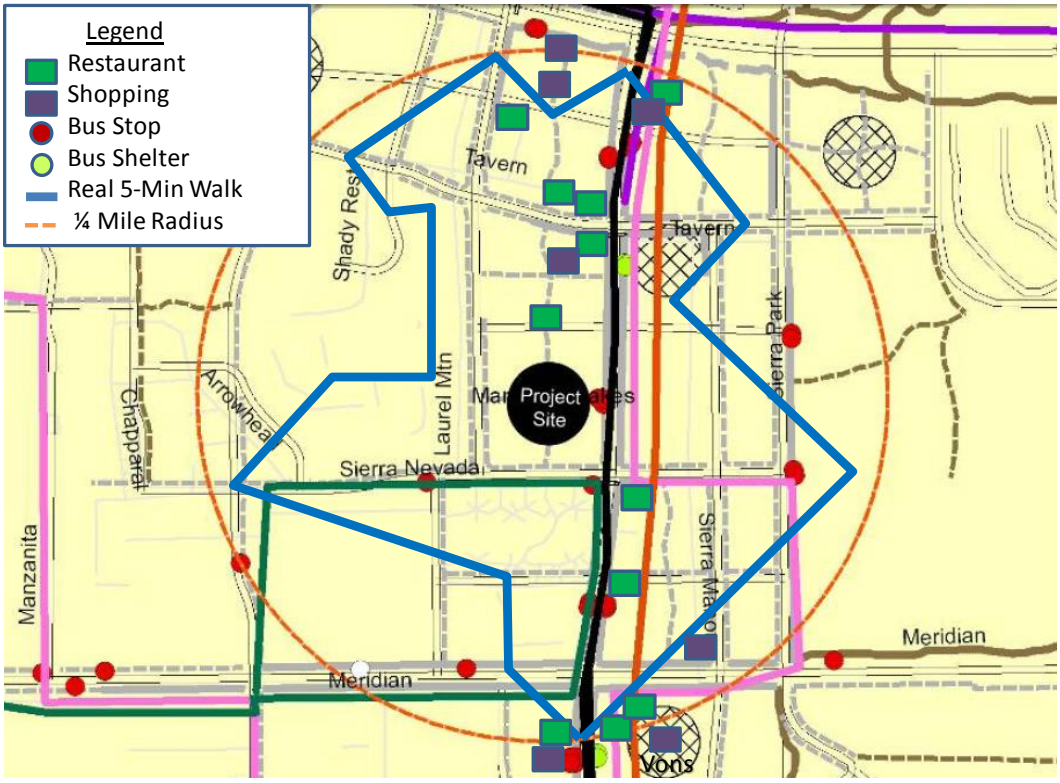
The same weather and resort-life factors that make Mammoth Lakes unique from a shared parking perspective also make it very unique from a "park once" perspective. The consulting team looked at several comparable resorts from around the country as part of the parking demand modeling effort. Each development operates less parking than Mammoth's regulations would allow or national standards would estimate: on average, 19-percent less. Much like Mammoth Lakes, each development is in a community that provides a wide array of services to guests because each resort is far from any other community with services. Guests in all developments can expect to find dining, shopping, and entertainment venues within a short walk or drive, and all seek to have guests "park once" and visit as many destinations with as little parking as possible.

However, Mammoth Lakes is unlike these and most other resort communities in a significant way – its isolation. There is no broader regional community coming into Mammoth Lakes each day for recreation, but most other resort communities are surrounded by many thousand more residences and hotel rooms in surrounding communities than exist within Mammoth Lakes. Therefore, all of these other resorts must accommodate a daily surge of skiers, shoppers, and diners seeking to use their development's establishments before returning to more remote housing (it also causes much more crowded ski slopes). This characteristic naturally requires more parking to accommodate demand fluxes. Mammoth Lakes has the advantage of largely containing all parking demand locally. While intercommunity driving trips exist in all resort towns, Mammoth is benefited by no additional "outsider" vehicles and has the ability to require even less parking than each comparable development has provided.

Once guests arrive in Mammoth Lakes, the opportunities to shop, dine, and find entertainment on foot or by transit are greater than any of the comparable developments studied. Few developments in the United States have the benefit of Mammoth's interconnected sidewalks, frequent transit service, and extensive warm-weather bicycle network. As a result of its isolation, the amount of services and destinations available along Old Mammoth Road is unusual. None

of the comparable developments have as many restaurants or a full supermarket within a four-minute walk (see Figure 3). These benefits make Mammoth Lakes "feet first" goals parlay into a huge "park once" benefit, resulting in a much higher potential for internal trip capture and shared parking than most cold-weather resort communities.

Figure 3: Resources Within 4-Minute Walking Distance[1]



Key Recommendations

Based on the consulting team's analysis, the following recommendations can be made.

1. The estimated maximum daily parking demand for this project is 570 spaces, based on an average of three of the six models used to assess the development plan[2]. This demand is easily accommodated for within the project site if valet operations are required for all hotel guests. The total garage supply with valet parking is estimated to be over 587 spaces, with an additional 29 new on-street spaces for customers along Old Mammoth Road. Under more typical valet operations, 710 spaces could be accommodated in the garage with no more than one jockey to access any car.

2. The Clearwater Specific Plan parking requirement for this site of 748 spaces is far in excess of the anticipated demand based on all available demand estimation methodologies used in

[1] Real walking distance identifies properties that can be reached within a four minute walk at an average walking pace of 5 feet per second using only public sidewalks, paths, and ways.

[2] The models used for this recommended demand are the average of comparables (622 spaces – see Column B and Section 5 below), the full ULI sharing (576 spaces – see Column C and Section 6 below), and the area-wide sharing (513 spaces – see Column E and Section 7 below) models.

this analysis. The general Town of Mammoth Lakes parking code would require 771 spaces and also should not apply to this site. The consulting team encourages the Town to re-evaluate the Town's parking requirements for other future development.

3. Twenty-four hour valet parking services are recommended for this development, particularly during seasons where hotel occupancy is expected to be highest. The proposed supply of 450 spaces cannot accommodate peak demand periods around lunchtime (12PM) and dinnertime (7PM) without additional supply. A valet service can easily expand the available supply to at least 587 spaces if not 710 spaces, exceeding the maximum projected demand of 570 spaces.[3]

4. Valet services work well at the ski resort developments studied for this report. The typical valet service time is under four minutes, which is often less than the amount of time to self-park. The valets surveyed were all free to the user (tipping was customary) and were utilized by guests, employees, visitors, and even skiers not staying at the development.

5. A parking utilization monitoring program is recommended for this and other large future developments in Mammoth Lakes. Real data is the best method for evaluating performance, and a well-structured monitoring program with hourly accumulation counts will provide necessary data for informing Town policy as well as development operations. Automated vehicle counters should be installed at the garage entry ramp(s) which can record garage accumulation for each and every hour of the day, 365 days per year.

6. A transportation demand management (TDM) program is recommended for this development. For employees, this would include guaranteed rides home, ride matching, and possibly a cash-back program for not parking. For guests, strategies include a motor coach marketing program, a parking cash-back program, car-sharing, and on-street pricing.

7. The Town's parking requirements in the Clearwater Specific Plan and in its zoning code are extremely conservative, requiring many more spaces than any modern demand projection methodology. They are more in line with a suburban community with stand-along single-use buildings without the ability to walk, bike or take transit between uses. The Town should re-evaluate parking requirements, especially given that the current policy is creating parking at the expense of housing affordability and water quality.

8. The Town may want to consider an in-lieu of parking fee for this development. Based on progressive approaches in use throughout the United States, a logical connection between economic development and trip reduction can be made for reductions in parking requirements, as suggested at the end of this report.

9. Caution is advised against over-parking this project. As compared to all comparables analyzed in this study, Old Mammoth Place has the least amount of commercial use, especially as a percentage of total use, and commercial floor area generates the most parking demand. Therefore, these comparable development parking ratios should be considered conservative by comparison. The cost of excess parking at Old Mammoth will

[3] The current Clearwater Specific Plan prohibits valet parking for commercial guests. While this prohibition will be difficult to enforce in practice, it could hypothetically work with reserve capacity in the planned garage. Even with self-parking for 246 spaces – which equals the maximum peak demand for commercial uses on-site (occurring at 7pm) – the remaining 204 spaces plus as little as 52 valet spaces can accommodate the equivalent peak hotel demand of 256 spaces.

detract from other more important walking, biking, and transit improvements that could be made.

10. Approach

The analysis of the Old Mammoth Place development is intended to be as comprehensive as possible, acknowledging the complex parking interactions that occur in real life at a destination development project. Therefore, rather than a simple application of model results to the proposed use mix, the consulting team took a number of different approaches to compare and contrast. The goal is to predict parking needs as reliably as possible in order to avoid the unintended consequences of building too much or too little parking. As part of this methodology, the consulting team sought to understand the best possible approaches to managing parking at comparable developments. Extensive research was conducted to find good comparable developments in North America that had similar transportation access constraints, including limited air service, a lengthy drive time to major cities, and similar local transit systems. Nonetheless, no two places are alike, and Mammoth Lakes has many local benefits that other places do not, including an extensive bicycle and path system, an independent transit system, a dedicated airport, and a wide variety of local dining and shopping destinations. Recognizing the need to find other standards for comparison, national model data was also analyzed by the consulting team.

A total of six different analyses were conducted to establish a rigorous comparison basis for the proposed parking program. These include:

1. **Institute of Transportation Engineers (ITE) Parking Generation Manual**. This is the most common and standard approach in the United States for estimating parking demand. Parking generation rates are provided by land use based on national study data to apply to local uses. This is considered to be the most conservative approach possible as the rates are derived from stand-alone single-use developments where parking could be easily and scientifically counted. Therefore, these standards do not incorporate the influence of a mix of uses; opportunities to use transit, walk or bike; or naturally reduced driving rates associated with denser development.

2. **Average of Comparable Developments**. Based on the consulting team's research, parking demand rates can be made based on comparable developments. This assessment drew upon six other locations in the United States.

3. **Urban Land Institute (ULI) Shared Parking Model**. Considered to be the best application of national data to mixed-use projects, the ULI model adjusts standard ITE rates to account for internal trip capture and staggered peaks.

4. **ULI Shared Parking, Minus Hotel Sharing**. Given that resort hotel users are somewhat captive and are not expected to drive away during the middle of the day when typical residential demand declines, a version of the ULI model was run that excludes the hotel parking demand from shared parking benefits. It should be noted that while this approach is valid for typical projects that have exclusive un-shared resident spaces on-site, there will be no such spaces in the valet-operated garage of the proposed project. Furthermore, the assumption that guests will not drive away in the middle of the day inherently means that they are getting around by other means, immediately negating a

second parking space. Nonetheless, this model was prepared to represent a conservative approach.

5. **District-Wide Sharing**. While the stated intent of the Clearwater Specific Plan is to have all project parking located on-site, in mixed-use districts, this is largely impossible. Many users of the project's retail are likely to walk from across the street or park at a neighboring use before visiting. These are technically included in parking standards for the project, even though the parking is accommodated off-site in another use. Similarly, hotel residents and employees are likely to cross the street to take advantage of nearby retail and restaurants. In these conditions, a more accurate modeling approach is to consider all uses within a reasonable walking radius as part of the shared pool of potential project users. Therefore, this ULI-based model for parking of the project also considered the land uses within a short walk of the site.

6. **District-Wide Sharing, Minus Hotel Sharing**. For this model, only the project's commercial uses and surrounding commercial uses were considered to be available for sharing, again assuming that residential parking is exclusively reserved for residents or guests.

11. Key Findings

Findings from the six different models used to determine parking demand for Old Mammoth Place are summarized below. The input for these models was based on land use figures found in the Old Mammoth Place use application, and includes 488 hotel rooms, 18 worker/manager apartments, and 40,000 square feet of commercial space. The commercial space allotment was refined based on input from the project proponent to comprise of two restaurants comprising 17,361 square feet, which are subject to different parking standards in the Clearwater Specific Plan zoning.

Figure 4 provides an overview of parking demand at its daily peak determined under the six different methodologies. The resulting reduction of each as compared to the base parking demand figure generated by the Institute of Transportation Engineer's (ITE) Parking Generation manual is also shown. Column A shows the parking demand according to the ITE model. Column B represents an average demand reduction observed at comparable developments, described in Section 5 of this memo. Column C represents the demand generated under a shared parking model in which all land uses are subject to reduction parameters outlined in Section 6. Column D excludes all residential uses from the sharing model, representing the parking demand generated by applying reduction figures only to the commercial uses included in the project. Column E utilizes a demand reduction factor generated from modeling the shared parking, including the surrounding land uses, discussed in further detail in Section 7. Finally, column F represents shared spaces in the area with only commercial demand reductions applied.

Figure 4: Parking Demand under Different Sharing Models

Column:	A	B	C	D	E	F
Model:	ITE	Average from Comparables	Full Sharing	Commercial Sharing Only	Area Reduction (Full Sharing)	Area Reduction (Commercial Sharing Only)
Reduction from ITE	0.0%	19.3%	25.3%	3.8%	33.0%	20.2%
Parking Demand	771	622	576	742	513	615

Available Supply

The use application indicates that a total supply of over 620 spaces will be available. This includes a 450-space garage, about 137 valet-parked spaces, and twenty-nine on-street spaces. However, Town staff recommend that the actual supply should not include the on-street spaces since those spaces will be available to any user, including off-site users. This recommendation is based on an assumption that parking demand and supply are directly tied together and very place specific, and since these surface spaces would not be under the control of the project, they could not accommodate project parking. While this assumption is not uncommon, it should be noted that all six of the models used above attempt to estimate ALL associated project *demand*, including short-term parkers who would seek on-street parking – irrespective of how the *supply* is controlled. Given the addition of new parking on Old Mammoth Road, it is very reasonable to assume that any new demand for those spaces – regardless of where the car originated – is associated with the project. Nonetheless, Town staff also point out that these spaces may be used for winter snow storage, so the consulting team has used the more conservative supply estimate of 587 spaces, which does not affect the findings.

The assumption of about 137 valet spaces warrants further consideration. This number of spaces implies that valets will be able to increase the effective garage parking supply by no more than 30-percent. However, it is standard practice to expect increases of no less than 50-percent (681 spaces) up to as much as 100-percent (908 spaces.) These efficiencies are gained by valets who do not need to worry about avoiding other traffic in the garage or preserving comfortable clearances and walking routes. Given that the average car is under 15-feet long (only 5 sport utility vehicles manufactured in the United States are longer, with none exceeding 18.6 feet), the proposed garage with 18-foot stalls and 24-foot aisles has at least 60-feet of length for every pair of spaces drawn double-loaded on the garage diagram. Instead of parking just two cars in this distance, valets can be expected to park no less than three and sometime four, adding at least 250 spaces. Alternately, two rows of parallel spaces could be added in each aisle as drawn, adding no less than 260 additional spaces for a total supply of 710 spaces. Even with single-loaded aisles and only single tandem spaces, over 140 spaces can be accommodated. Therefore, this analysis will use the applicant's most conservative number of 137 valet spaces.

All of these models, with the exception of the ITE Parking Generation model and the model using strictly on-site ULI sharing among commercial uses (Column D, "No Residential Sharing," in Figure 4), reveal that peak parking demand is significantly less than the planned number of spaces. Typically, a garage would be planned to be 10-percent larger than the anticipated demand to allow for some vacancy to make finding a parking space easier. However, with valet

parking, this is not necessary as the valets are aware of the location of all vehicles. Therefore, the ideal supply would match the demand.

Likely Parking Demand

Based on its experience with mixed use parking projects throughout the United States – including at ski resort communities – the consulting team would recommend the results derived from an average of the comparable development averages (Column B), the ULI shared parking model (Column C), and the district-wide model of full parking sharing (Column E) as representing the most realistic estimate of future parking demand. This assumes a demand of 570 spaces. If comparable and local area information was not available, the standard ULI model results (Column C) would be used, resulting in 576 spaces. However, it is inappropriate to assume that there will not be a certain amount of driving and parking reduction as a result of the close proximity of surrounding uses, as described in Section 7 below. Using other methodologies as a basis for future demand are subject to greater degrees of error:

- As discussed above, the standard ITE Parking Generation model (Column A) is not reflective of mixed-use projects in mixed-use locations. Its estimate is similar to planning for the 100-year flood of cars. This model is described in Section 6.
- Utilizing the ULI estimate for only commercial use sharing (Column D) implies that each hotel garage space is reserved for one unit alone, when the valet-parked garage will actually be parked far more efficiently with no reserved spaces (besides handicap). This model also is described in Section 6.
- Similarly, the ULI model in Section 7 of district-wide sharing of only commercial spaces (Column F) suggests that all hotel guests in the area have assigned spaces and that hotel guests somehow leave the town to shop and dine.
- A good alternative model would be to use real-world data, which was modeled in Section 5 using the comparable developments identified for this analysis (Column B). Each of these developments also shares its parking demand on a district-wide basis because other resort attractions are nearby. However, simply because this survey is not fully exhaustive, the consulting team chose to average the results of three models.

12. Comparable Resort Demand and Operations

This section reviews the Mammoth Lakes parking code and compares it to several communities which are home to ski resorts, where codes were available.

Comparable Developments

In considering possibilities for shared parking, we looked at comparable resort developments in several parts of the country. General characteristics are listed below in Figure 5. The table lists features of communities that can influence the number of people who drive there, including distance to a metropolitan area, distance to a commercial airport, and transit availability. Peers were selected from a longer list of ski resort areas, but those below were found to have the most similar characteristics to Mammoth Lakes.

Figure 5: Comparable Developments: General Characteristics

Development:	Old Mammoth Place	Snowmass Village (proposed)	Arrabelle Village	Stowe	Stratton
Location	Mammoth Lakes	Aspen, Colorado	Vail, Colorado	Vermont	Vermont
Distance and Driving Times to nearest City	Los Angeles Driving Time: 5:46 310 miles	Denver Driving Time: 3:02 159 miles	Denver Driving Time: 1:40 97 miles	Burlington Driving Time: 0:45 37 miles Montreal Driving Time: 2:37 219 miles Boston Driving Time: 3:15 205 miles	New York City Driving Time: 4:12 236 miles Montreal Driving Time: 4:51 425 miles Boston Driving Time: 3:05 155 miles
Distance and Driving Times to nearest Commercial Airport	Mammoth Yosemite Airport	Aspen/Pitkin County Airport	Eagle Co. Airport Driving Time: 0:35 34 miles Denver International Driving Time: 1:57 121 miles	Burlington International Airport Driving Time: 0:45 37 miles	Albany Airport Driving Time: 1:55 80 miles
Transit Availability	Free shuttle to development, town, outlets	Free bus to ski area	Free shuttle with real time arrival information	Free Stowe Mountain Road Shuttle (seasonal)	Free shuttle

Where data was available, we collected land uses and their square footage for each development, including parking data (Figure 6).

Figure 6: Comparable Developments: Land Uses and Parking

	Old Mammoth Place	Snowmass Village (proposed)	Arrabelle Village	Stowe	Stratton
Residential					
Hotel Rooms	488	264	62	175	
Condos/Apartments	18	349	25		2,500
Commercial					
Retail	22,639 ft² [4]	64,000 ft²	33,000 ft²	14,000 ft²	48,000 ft²
Restaurant	17,361 ft²		5,250 ft²		
Athletic Club		30,000 ft²	10,000 ft²	21,000 ft²	
Ski School/Center		25,000 ft²	7,600 ft²		
Built Parking Spaces	587	1,106	246[5]	211	3,300

Using the available figures, we ran the ITE Parking Generation model on each development with the cited land uses. The result was then compared to the number of actual spaces built, resulting in a "Parking Reduction Factor" for each development (see Figure 7). An average of the five reduction factors is 19-percent. This was applied to the proposed supply to arrive at the project demand number of 622 spaces in Column B of Figure 4.

Figure 7: Comparable Developments: Parking Reduction Factors

	Old Mammoth Place	Snowmass Village (proposed)	Arrabelle Village	Stowe	Stratton
On-Site Parking Spaces	620	1,106	246	211	3,300
ITE Model Parking Requirements - No Sharing	771	1,156	311	271	4,702
Parking Reduction Factor from No Sharing	N/A	4.3%	20.9%	22.1%	29.8%

Case Studies

While most developments contacted were difficult to obtain information from during their fall seasons, two developments were able to provide more detailed information about the operation of their parking supply.

[4] The actual proposed floor area for retail at Old Mammoth Place is 19,603. However, the original use application estimated 40,000 SF of retail and restaurant space, so the difference above the restaurant square footage was used for this analysis to be conservative.
[5] This is an estimate based on the town's parking code requirements. The Town of Vail confirmed that the Arrabelle Village project was built according to the requirements for core development, which are reduced from standard parking requirements.

Arrabelle Village

The Arrabelle in Vail Colorado offers hotel valet parking in its garage for all uses – drivers are not allowed to park their own cars.[6] This largely results in hotel guests as well as employees parking in the garage.

In addition to the required 246 spaces per the town code, an additional 100 spaces were built to create a parking club that accommodates daytime drive-in skiers. Each space is sold independently of the development's condominiums. Parking club members/owners also have access to exclusive locker rooms and changing areas to allow for an easy transition to the slopes. The parking club's first season was a great success, demonstrating that skiers – even those who are not guests of a top-notch development – are happy to use valet parking.

Stowe Mountain Lodge

Stowe Mountain Lodge in Vermont has implemented several parking demand reduction and shared parking measures.[7] The Lodge built one space per hotel room (139 total) and two per mountain cabin (36 cabins = 72 parking spaces). The town allowed the hotel to utilize existing ski area parking lots to accommodate retail customers and employees instead of building additional parking. The luxury hotel has a 139-space parking garage with valet parking that operates 24-hours per day.

The hotel includes a conference center that has drawn significant traffic for some large events. The valet staff have been able to double the capacity of the garage for these events, fully-accommodating on-site demand on-site. The Lodge offers carpool incentives to employees during these events, who must park in the base parking lot (a public lot). However, employees that arrive at least three per car are allowed to park on-site for free.

As development continues, the developer is required by the Town to submit a "Parking Affidavit" with the application for each new phase, which includes an inventory of all off-street parking in the area. A second 139-room phase is now under construction. The Lodge also helps to support a free municipal bus service that runs from the town center to the Lodge and lifts in the base area.

13. On-Site Demand Estimation

The consulting team also evaluated the proposed project according to a number of national parking estimation methodologies, as described below.

Base ITE Parking Generation Model

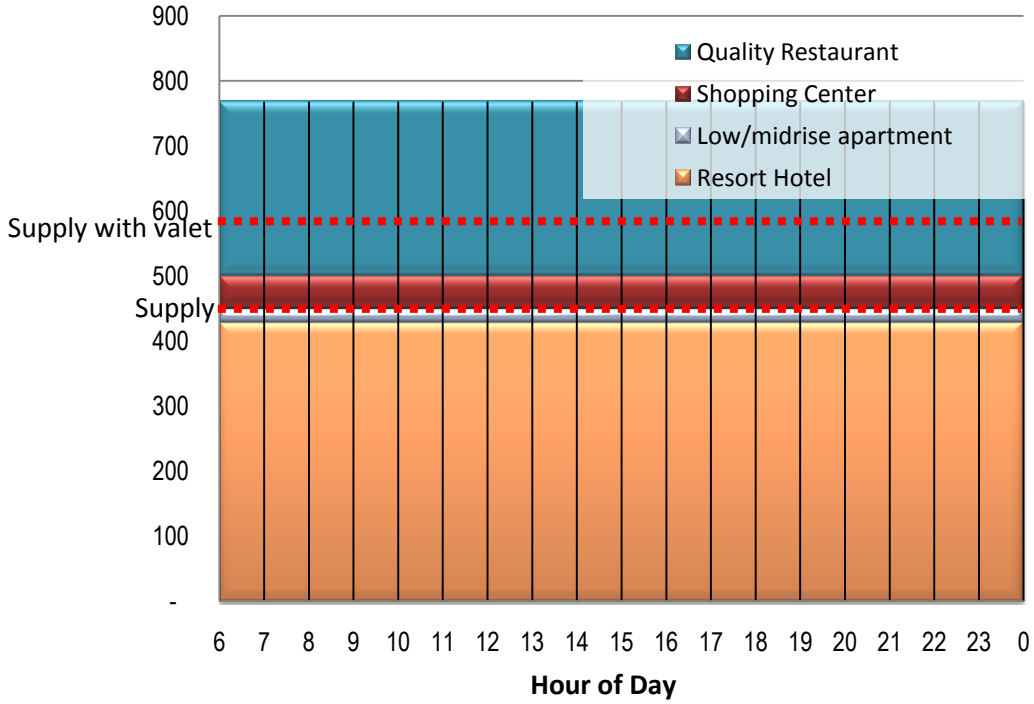
To create a model for estimating parking demand, we began with the ITE parking demand generation figures as a base for comparison (Column A in Figure 4). We then used several types of reduction factors, outlined below, each applied to certain land uses.

Using the ITE parking demand generation guidelines, the no sharing scenario results in 771 spaces needed (see Figure 8). Though demand for parking will peak at different times for

[6] Telephone interview with Town of Vail City Planner, Oct. 2009
[7] Telephone interview with Stowe Mountain Resorts Planning Director, Oct. 2009

different land uses – resulting in less than this total amount at any given moment – if there is no accommodation for sharing parking, 771 spaces must be constructed to fulfill peak demand for each use individually.

Figure 8: Adjusted Parking, No Sharing



ULI Shared Parking Model

According to guidance from the Urban Land Institute's (ULI) Shared Parking Manual, the consulting team developed a more realistic parking model for the project that accommodates this mix of uses. To approximate the reduction in demand that could result from the captive market effect (trips that stay on-site due to the availability of jobs, shopping, and housing in one spot), we used a conservative reduction of 10% for commercial land uses and 5% for residential land uses.

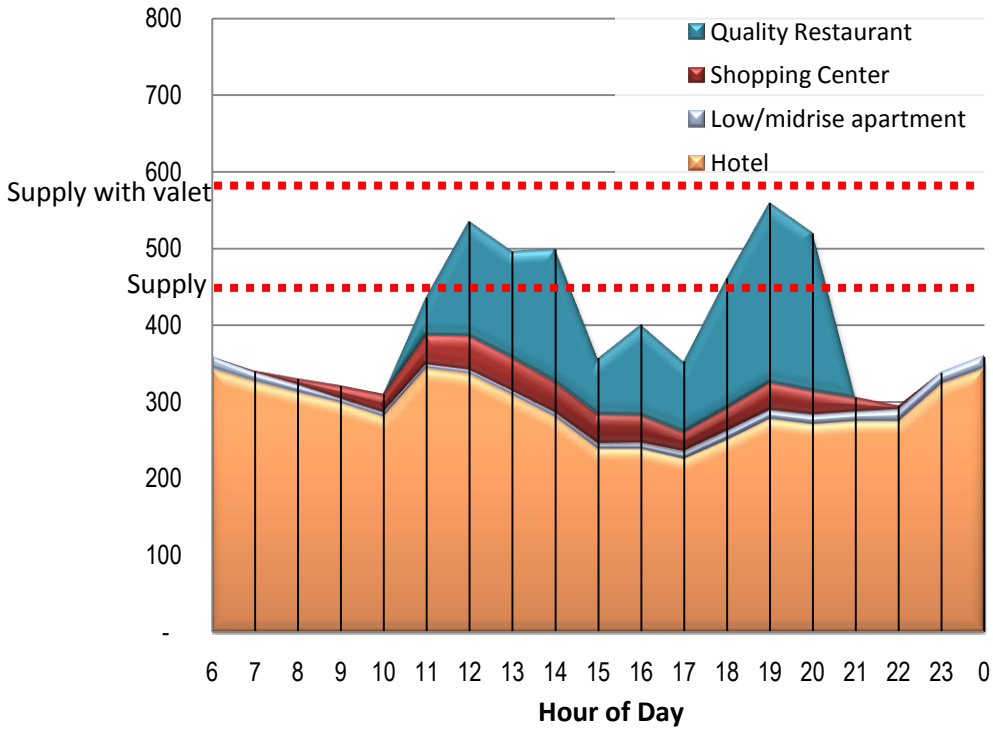
A reduction of 15% was applied to residential land uses as a result of various demand management measures that could be implemented on the site, including higher rates of carpooling due to the long drive-time from Los Angeles, cash-back incentives for not driving, and partnerships with motor coach tour organizations. Land use advantages also help reduce parking demand, including a high residential density, a mix of land uses, and local-serving retail, among others. A 15% reduction for employees was applied to 20% of the maximum retail and restaurant demand, since employees are assumed to make up 20% of that demand. Employee reductions are based on measures such as guaranteed rides home, employee lockers and showers, transit access, carpool incentives, etc. Employee trip reductions for this development are considered conservative given that a number of workers will be housed on site, requiring less overall parking.

Combined, these strategies result in an overall reduction of residential parking demand of 20% and commercial of 13%. Though some examples exist of developments being able to reduce

their residential parking demand by 90% or their commercial parking demand by over 30%, the lower figures are more useful to guide a community so distant from major metropolitan areas and with such new and limited commercial air service.

The peak parking demand in the model with all of these sharing measures in place is 576 spaces. Shown in Figure 9 by time of day, the peak demand hour is 7:00 PM, when both the retail and restaurant uses experience a spike in demand.

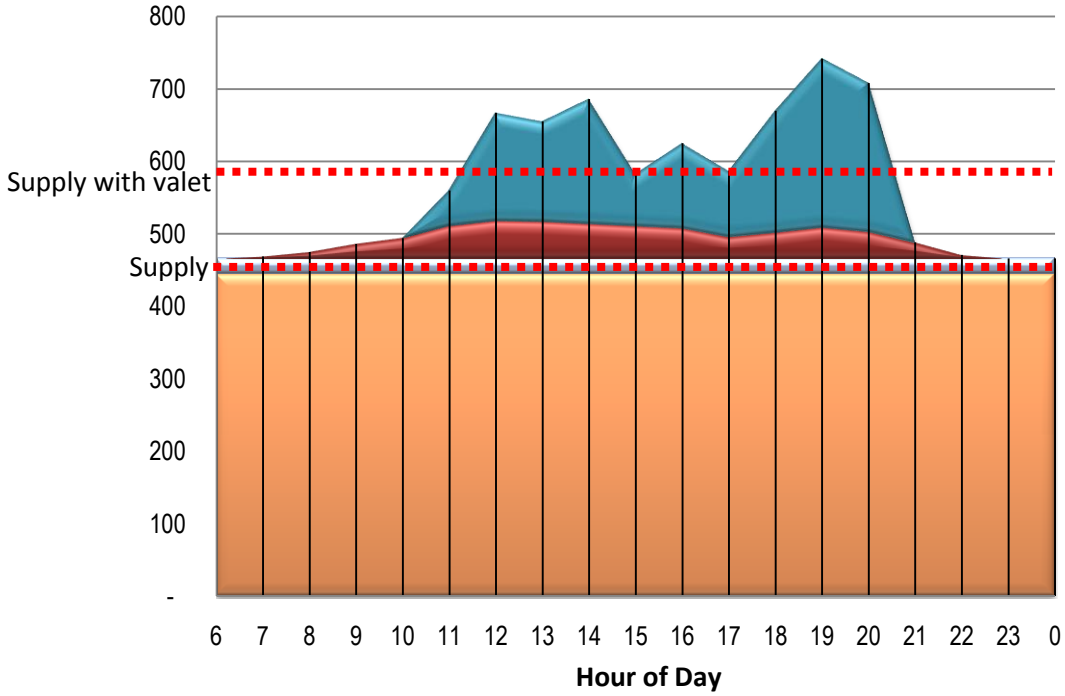
Figure 9: Adjusted Parking Demand – Full Sharing



ULI Shared Parking Model – No Residential Sharing

Figure 10 below illustrates the peak demand, eliminating all residential parking reductions described above and removing these spaces from sharing. While this model does not reflect the fact that no hotel spaces will be exclusive with all parking actually managed by valets, it provides a conservative analysis for comparison. This methodology would be more appropriate in a full-time residential location where spaces are assigned to a unit. The peak demand for this model is 742 spaces, also at 7:00 PM.

Figure 10: Parking Demand - No Residential Sharing



14. District-Wide Sharing

Another consideration when investigating parking options are the immediate blocks surrounding a development. Given the density of destinations and origins within a short walk of the site, it would be unreasonable to assume that every trip to and from neighboring uses will occur by car, especially when it is often quicker to walk across the street than walk to a parked car.

This analysis used Town geographic information system (GIS) data, supplemented by the 2005 Mammoth Lakes Parking Study conducted by LSC Transportation Consultants to fully cover the surrounding environs. The GIS data included an approximate 1,000 foot buffer around the development that approximates a 5-minute walk radius, which is considered the maximum distance that employees would walk for free parking in the winter months or that guests might walk to nearby services. The LSC data incorporated the area bound by Main Street to the north, Chateau Road to the south, Sierra Park Road to the east, and Laurel Mountain Road to the west.

Even with the limitations of the data (some missing parcels, square footage data, and unit data), these sources present a very reliable inventory of surrounding sites and uses. The total commercial and institutional building area in the analyzed environs is 499,360 square feet, with 752 residential units (see Figure 11).

Figure 11: Area Land Uses (within approximately 1,000 ft of site)

Land Uses	Units/Ft^2
Residential Units	**752**
Hotel	404
Residential	157
Condos	191
Commercial Sq Ft	**499,360**
Restaurant	60,530
Shopping Centers	286,157
Retail	85,562
Office	67,111
Institutional	**9,609**
Church	3,312
Government Office	6,297

To determine the amount of sharing possible for the area, we added the land use data from the proposed Old Mammoth Place development, resulting in 539,359 commercial and institutional square feet and 1,258 residential units (see Figure 12).

Figure 12: Area Land Uses with Project Land Uses

Land Uses	Units/Ft^2
Residential Units	**1,258**
Hotel	892
Residential	175
Condos	191
Commercial Sq Ft	**539,359**
Restaurant	77,890
Shopping Centers	308,796
Retail	85,562
Office	67,111
Institutional	**9,609**
Church	3,312
Government Office	6,297

Inputting these land uses into the ITE Parking Generation model resulted in a total peak parking demand of 3,889 for the area. With full sharing per the ULI methodology, the peak was 2,589. The difference of 1,300 spaces was a 33% reduction from the no sharing ITE model. This percentage reduction was applied to the site to arrive at a demand of 513 spaces (Column E in Figure 4).

Excluding the residential uses from sharing results in a peak demand of 3,104, a 20% reduction from the ITE model. This percentage reduction as applied to the base demand for the project results in a demand of 615 spaces (Column F in Figure 4).

15. Zoning Code Evaluation

The focus of this study is to determine the number of spaces recommended by a shared parking model. However, it also provides an opportunity to compare Mammoth Lake's municipal code requirements for development in general to determine their appropriateness in a resort environment. Figure 13 shows the Old Mammoth Place project's parking requirements according to the Clearwater Specific Plan, with no sharing reductions or other assumptions.

Where municipal codes from the case study resort communities were available, the consulting team charted the differences in the municipal parking requirements. Two comparison charts of residential and commercial uses are represented in Figure 14 and Figure 15, and a full matrix of codes is available in Figure 16. Since codes are all written slightly differently, with some requiring spaces by the unit, others by the number of bedrooms, etc, Figure 14 and Figure 15 are a simplification of these differences. Figure 16 lists the actual wording of the municipal codes.

Figure 13: Required Parking under the Clearwater Specific Plan

Old Mammoth Place Land Uses		Mammoth Lakes Code Requirements		Total spaces
Residential	**Units**	**Use**	**Requirement**	
Hotel	488	Hotels	1 space per guest room	488
	N/A	Hotels	Guest parking: 1 space per 20 rooms	25
	1	Hotels	Management paring: 2 spaces	2
Workforce housing	18	Multi-family housing	1 space per studio or 1 BR unit	18
	N/A	Multi-family housing	2 spaces per 2-3 bedroom unit; .5 guest spaces per unit, 1st 12 units; .25 guest spaces per unit, 13th-48th units	8
Retail	22,639 ft^2	Retail	1 space per 250 sq ft	91
Restaurant	17,361 ft^2	Restaurant	1 space per 150 sq ft	116
Total				**748**

Source: Clearwater Specific Plan (Section 5.2.8)

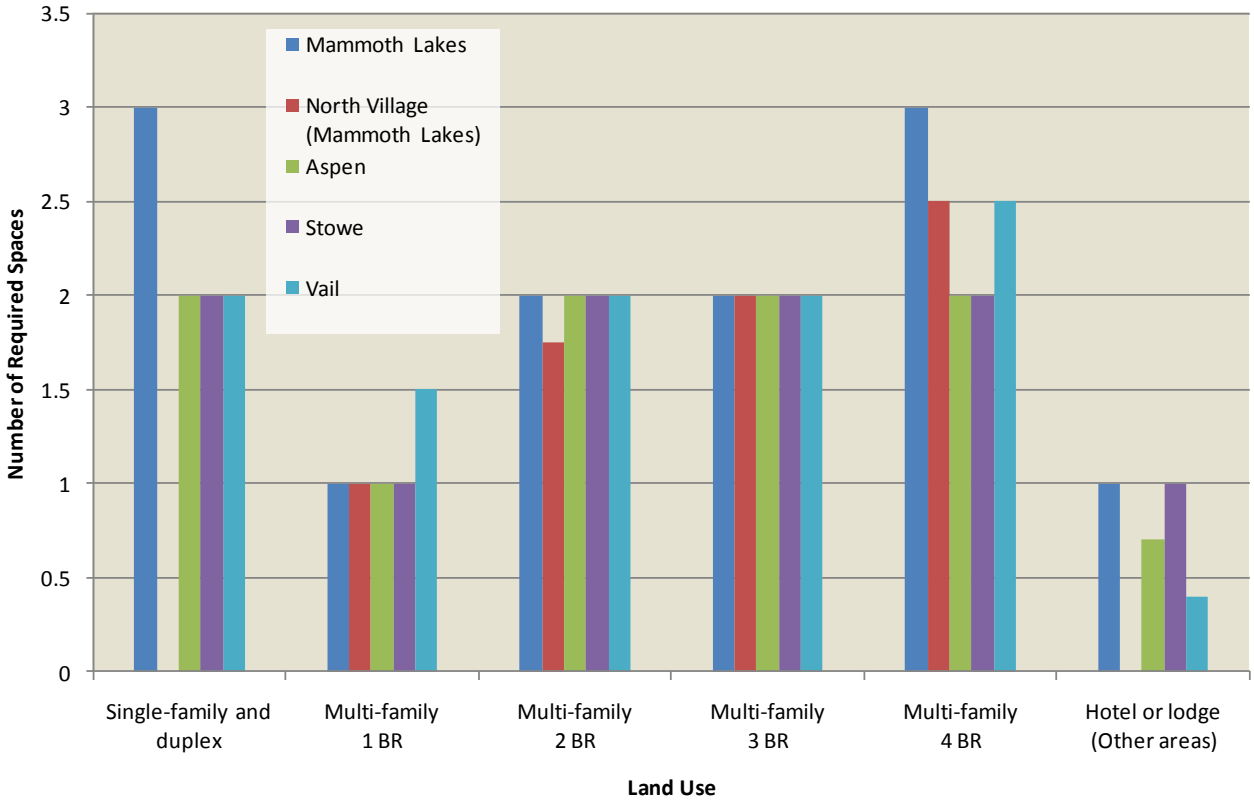
Currently, the development plan proposes 591 off-street parking spaces, a 21% reduction from the Town's code requirements. The number produced by the district-wide shared parking model (513 spaces), however, represents an overall 31% reduction in the required number of spaces. Using the parking demand figures developed by the ITE and reflecting no sharing or TDM reductions, the project land uses will result in a demand for 771 spaces, which is only 3-percent above the Town's requirements. This relationship to ITE standards is not owing to any similarities in calculation, as Mammoth Lake's code produces very different results than ITE for individual uses. However, this result does suggest that the Clearwater Specific Plan's parking code is very oriented towards suburban stand-alone single-use projects, which is not the

character of Mammoth Lakes today, nor is it reflective of the "feet first" vision for the community. The zoning code is essentially building for the "100-year flood" of parking.[8]

Parking Codes from Comparable Communities

Comparing Mammoth Lakes' parking requirements with the comparable communities looked at in Section 5, we found that Mammoth Lakes often requires more parking than its peers. Meanwhile, Aspen, Vail, and in some instances Stowe, employ measures for "core" areas of their towns – the downtowns or centers of activity – designated as such in the zoning code. These areas have even fewer spaces required per unit or per square foot. These were not included for comparison here since the Clearwater Specific Plan does not have similarly reduced requirements.

Figure 14: Required Parking – Residential Comparison



[8] It is worth noting that applying the general Mammoth parking code (Municipal Code 17-16-150) would result in 773 spaces.

Figure 15: Required Parking – Commercial Comparison

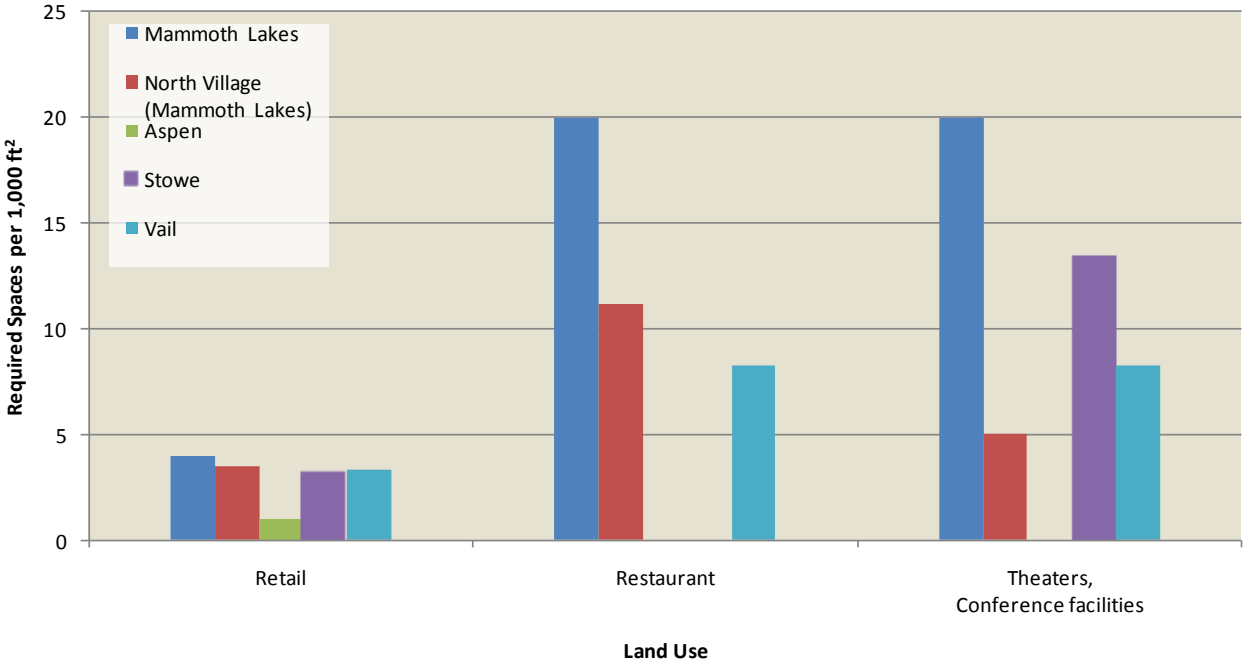


Figure 16: Code Requirements in Comparable Communities

Municipality	Mammoth Lakes (municipal code)	Aspen	Stowe	Vail
Land Use				
Residential				
Single-family and duplex	3 per residence 1 additional if > 3,000 ft^2	Lesser of 1 per BR or 2 per unit	1 per unit (< 400 ft^2) 2 per unit (> 400 ft^2)	2 per unit (<2,000 ft^2) 3 per unit (2,000-4,000 ft^2) 4 per unit (4,000-5,500 ft^2) 5 per unit (>5,500 ft^2)
Multi-family	1 per studio 2 per 2-3 BR units 3 per 4 BR unit 2 guest per 4 units (4-12 units) 1 guest per 4 units (12-48 units) 1 guest per 6 units (48+ units)	Lesser of 1 per BR or 2 per unit (in single-use development) 1 per unit or fewer by special review (in mixed-use development)	2 per unit (> 400 ft^2) 1 per unit (< 400 ft^2)	1.5 per unit (<500 ft^2) 2 per unit (>500 ft^2) 2.5 per unit (>2,000 ft^2)
Hotel or lodge	1 per room 2 per resident manager 1 for 20 rooms (except first 20)	0.7 per unit Fewer by special review	1 per room	0.4 per unit 0.1 per 100 ft^2 Max of 1 per unit
Boarding house, B&B			2 per unit 1 per guest room	
Commercial				
Retail	1 per 250 ft^2	1 per 1,000 ft^2	1 per 300 ft^2 Minimum of 3	1 per 300 ft^2
Restaurant	1 per 3 seats or 1 per 50 ft^2			1 per 120 ft^2
Theaters, Conference facilities	1 per 50 ft^2		1 per 3 seats 1 per peak-time employee	1 per 120 ft^2

Zoning Summary

Clearly the Clearwater Specific Plan calls for more parking than its peers, particularly with regard to commercial uses where it is more than twice all of the comparables studied here for restaurant uses. Mammoth Lakes is also generally higher for hotel uses and retail uses. The implications of this on the built environment and trip reduction are significant. Given that one parking space of 325 square feet is equivalent to two normal bedrooms or hotel rooms, any excess parking requirements directly impact the price of housing in Mammoth Lakes. Furthermore, the market price for so much excess parking is virtually zero, providing little incentive to residents, employees, and guests to use alternative modes that may be less convenient than hopping in a car. Finally, excess parking has a directly negative impact on the environment as impervious paved area is increased, increasing polluted run-off, decreasing groundwater recharge, and increasing heat-island effects.

When compared to all parking demand models used for this study, the Clearwater Specific Plan and Mammoth's zoning code both exceed all current estimation practices as well as observed utilization rates. While the Clearwater Specific Plan accommodates reduced parking requirements with a shared parking plan, it does not specifically address this discrepancy in Mammoth's code. The Town should begin an honest evaluation of its parking requirements as compared to actual utilization rates observed in Mammoth Lakes.

In-Lieu Recommendation

While ideally the Town's parking code would be more reflective of actual parking utilization, it is very difficult to set a specific minimum number of parking spaces that works for each and every project, even within the same use category. Economics, location, marketing, site design, employee preferences, and dozens of other variables affect parking utilization from one hotel to the next. Therefore, many communities in the United States have resorted to in-lieu fees to make a rational nexus between reduced parking requirements and the factors that produce lower parking demand.

A logical connection to reducing parking requirements is increasing the measures that reduce parking demand. Therefore, any reduced parking supply should be accompanied by measures that encourage carpooling, walking, biking, and transit. Many communities have required developments to install amenities or enact programs that increase travel by these modes in return for less on-site parking. These communities have also sought to estimate the value of these community benefits to make a fair linkage to the reduced development cost of not building parking. Unfortunately, parking cost varies a lot based on the size of the development and the type of parking. Surface parking may cost under $5,000 per space to build; above grade garage spaces cost over $20,000 each; and underground garage spaces cost from $40,000 to $100,000 and more, depending on the construction method. Typically, the highest per space costs are for mid-sized garages where development is forced to go below-grade but the efficiency of scale is not there.

As the Town evaluates the Old Mammoth Place development, it is clear that the proponent is contributing significantly to measures that reduce parking demand, as outlined in Section 9 below. The development is also seeking to reduce its supply from the code requirement of 748 spaces to 710 or fewer, depending on how valet spaces are treated. It cannot be known how much savings this means to the developer, but if 748 below-grade spaces were to be constructed, the cost would likely exceed $3M at $40,000 per space. The current garage at the

same base cost may cost as little as $1.8M. Yet the cost of wider sidewalks, pedestrian plazas, transit stops, and other community amenities may far exceed this apparent cost savings.

Given this unclear connection, some communities seek to value parking in-lieu fees in terms of a progressive scale[9]. If the cost to provide parking for a small use that seeks to redevelop existing space could be low, the in-lieu fee should be lower. Similar if the cost to provide lots of structured parking is higher, the in-lieu fee to avoid this should be higher. Based on this approach, a sample approach would include a base fee for each parking space waived from the requirement with an increment for each additional space (see Figure 17).

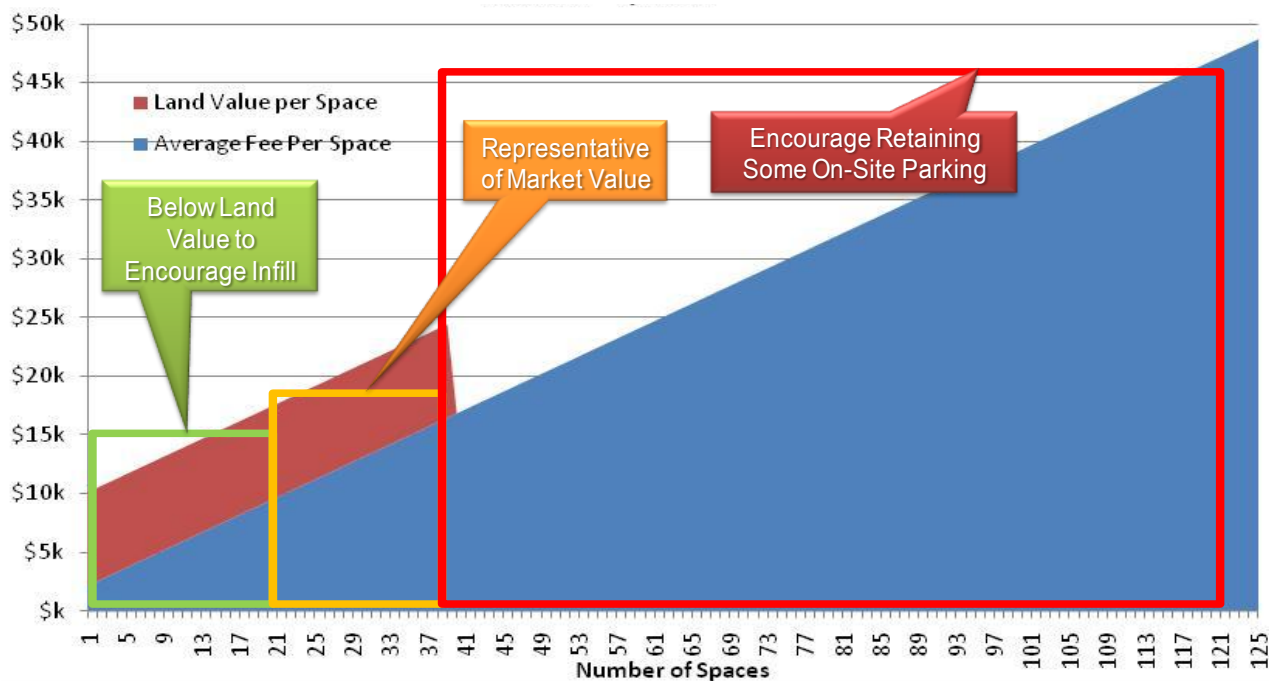
Figure 17: Sample In-Lieu Fee Schedule

A	B	C	D	E
Number of Spaces	**Per Space Fee Basis**	**Increment**	**Total Fee**	**Average Fee Per Space**
	(previous B plus C)		(sum of all B values)	(= D/A)
	$ 2,000	**$ 750**		
1	$ 2,750	$ 750	$ 2,750	$ 2,750
2	$ 3,500	$ 750	$ 6,250	$ 3,125
3	$ 4,250	$ 750	$ 10,500	$ 3,500
4	$ 5,000	$ 750	$ 15,500	$ 3,875
5	$ 5,750	$ 750	$ 21,250	$ 4,250
6	$ 6,500	$ 750	$ 27,750	$ 4,625
7	$ 7,250	$ 750	$ 35,000	$ 5,000
8	$ 8,000	$ 750	$ 43,000	$ 5,375
9	$ 8,750	$ 750	$ 51,750	$ 5,750
10	$ 9,500	$ 750	$ 61,250	$ 6,125

If the rates in Figure 17 are adjusted according to a community's goals, the overall effect can be very helpful to developers as well as economic development in a community. Figure 18 shows how this might translate for a community seeking smaller in-fill development that cannot afford to build new parking while seeking to prevent large developments from wanting to waive all of their parking requirements.

[9] California communities with varying community benefit cost estimations include Walnut Creek, Beverly Hills, and San Luis Obispo.

Figure 18: Sample In-Lieu Fee Escalation Versus Community Goals



Monitoring

Regardless of how the Town implements a shared and valet parking reduction for the Old Mammoth Place development, a simple travel monitoring program should be implemented no more than one-year after initial occupancy with annual driveway counts and travel surveys and automated parking utilization counts. By being able to determine the actual trip and parking generation of the development, the proponent and Town can make adjustments to TDM programs, alternative transportation infrastructure, and parking management practices. The results will be able to inform future changes to the Mammoth Lakes zoning code.

16. Travel Demand Management Programs

Certain reductions in the ULI-based parking models used in this analysis assume the project will have basic demand management strategies in place. Several of these have been proposed by the project proponents and are expected under the Clearwater Specific Plan, including:

- A local transit stop
- Contribution to the Mammoth shuttle system
- Accommodating pedestrian connections to adjacent uses
- Sheltered and secure bicycle parking on-site

Other transportation demand management programs are recommended to help ensure low driving and parking rates, which will not only serve to keep demand below the estimates provided in this analysis, but which will help the Town achieve the community's broader "feet first" goals. These include:

For employees only:

- **Guaranteed Ride Home Program**. The hotel and restaurant should offer a guaranteed ride home program. One of the key reasons why employees are reluctant to try new ways of getting to work is the worry that they may have an unforeseen circumstance that derail their alternative transportation plans, e.g. they have to stay at work beyond transit service hours or their carpool partner has to leave early for an emergency. Guaranteed Ride Home (GRH) programs address these oft-stated fears by offering emergency taxi rides home to employees when they are unable to return home using their standard arrangement. It provides a level of certainty that allows people to comfortably try alternative ways of getting to and from work. GRH programs are an essential component of all successful vehicle trip reduction programs.
- **Ride-Matching Service**. Drive-alone trips will be greatly reduced by organizing a ride-matching service to help employees identify potential driving companions. Many online subscription ride-matching services already exist that the development can easily utilize, allowing potential users to enter information about their trips – including origin and destination, time of day, which days of the week, etc – and the system can pair them up with others with similar requirements. Aspen Colorado employs a city-wide rideshare matching program that results in about 16,000 carpool permits being issued each year.

For guests and employees:

- **Motor Coach Tour Incentives**. Given the long-distance road trip that many Mammoth visitors make from Los Angeles, this market segment is ripe for increased utilization of motor coach tours where 40 guests can arrive at a time without a single car. With Mammoth's excellent transit system plus a number of restaurants and retail destinations within a short walk of Old Mammoth Place, the project should establish direct marketing relationships with tour operators booking motor coaches from Los Angeles and other population centers.

Other strategies for guests and employees:

- **Parking Cash-Back**. The project should implement a parking cash-out program by offering guests a "cash-back" discount for not bringing a car to the development. Guests may continue to park for free as part of their room rate, but upon booking, they can be offered a room discount if they only bring one car, with more if they do not bring any cars. Employees may also park for free or be offered a cash-back in their paycheck if they do not park. Such programs have found great success in California ,where cash-out is now State law for larger employers. Parking demand reductions between 20 and 30-percent are normal. To enforce the program, all guests and employees seeking to park at the development would simply have to register their license plate upon check-in to get garage access.
- **On-Street Parking Pricing**. The retail frontage of the Old Mammoth site should provide priced on-street short-term parking for patrons with all revenues beyond operations and maintenance going to streetscape improvements. Rates should be increased as necessary to avoid all-day parking if it is observed, but time-limits should not be implemented. Turnover should be encouraged through pricing, and pricing should increase until sufficient turnover is observed. Parking pricing measures also have been observed to reduce parking demand between 8 and 21 percent nationally.

- **Car-Sharing**. The hotel & retailers should provide a shared-car service for guests and employees. This strategy has proven successful in reducing driving rates by encouraging visitors to arrive by tour bus or plane; and in reducing the percentage of employees who drive to work alone who may also benefit from having a car for errands during the workday. While no clear data documents the ability of car-sharing to reduce overall parking demand, the average shared vehicle is assumed to replace between 9 and 20 private vehicles, depending on the context.