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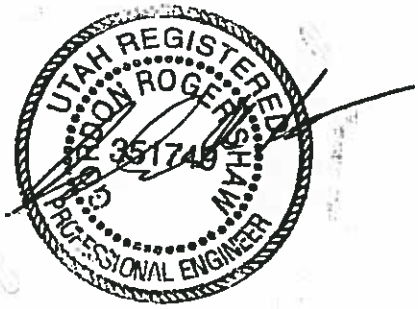
MEMORANDUM

To: Alfred Knotts, Park City Transportation Planning Manager

From: Gordon Shaw, PE, AICP, LSC Transportation Consultants, Inc.

Date: June 27, 2017

RE: Review of Treasure Hill Development TIA



This memo presents a review of the *Treasure Hill Traffic Study Draft Addendum #7* (Triton Engineering, May 4 2017). My review is based on long experience in transportation studies Park City, including work for the 2002 Olympics transportation planning, Park City Mountain Resort base area development planning, Park City Transportation Demand Management Study, a Deer Valley Drive intersection improvement study, and peer review of traffic studies for the Montage project and many transit studies. In addition, I have directed many traffic studies for proposals similar to Treasure Hill in other resort communities, including lodging/residential/commercial projects in Aspen, Snowmass Village, Mammoth Lakes, Northstar, South Lake Tahoe and Squaw Valley.

Specific comments on individual portions of the document are presented below.

Page 10, Final Paragraph

This discussion regarding future background traffic growth compares the growth resulting from a simple application of population growth rates with growth associated with the PCMR base area and Bamberger development. It concludes that since the population growth methodology results in a greater growth in traffic at the Park Avenue/Deer Valley intersection (800 in the PM peak-hour) than does the trip generation of PCMR/Bamberger development (462), simply using the forecasts based on population growth is appropriate. However, this does not consider that traffic growth at the Park Avenue/Deer Valley intersection will be generated by other growth in the community beyond these two projects. In addition, the population-based growth at other intersections nearer the PCMR/Bamberger development areas is substantially lower (such as 149 additional PM peak-hour trips at Lowell Avenue/Manor Way. At these locations, the traffic growth from PCMR/Bamberger development may well

exceed the population-growth traffic increase, depending on specific land uses and access patterns for the two developments. In turn, LOS may well be worse than reported in the Treasure Hill study at these nearby intersections[1]. Whether this additional future traffic growth would cause LOS standards to be exceeded would require more detailed analysis (though the relatively good LOS A and B conditions identified in the current study indicates that there is some additional capacity before LOS would be exceeded).

Page 12, Final Bullet

The trip generation for the commercial land uses (not considered to be supporting the hotel) is calculated with a simple assumption that half of the 17,470 square feet of commercial is retail (using the Specialty Retail rate) and the other half is restaurant (using the Quality Restaurant rate). However, the attachments to the report including Partial Plan P-2, which shows specific land uses for the individual components of this 17,470 square feet. The following table shows the results of applying the appropriate ITE rates to the specific land uses.

Treasure Hill Commercial Trip Generation

Excluding Support Commercial

			Total PM Peak-Hour Trip Generation	
Land Use	ITE Code	Floor Area	Rate	Trips
Bar	925	5,278	15.49	82
Clothing	826	2,215	5.02	11
Coffee	936	780	25.81	20
Sporting Goods	826	4,054	5.02	20
Restaurant (1)	931	3,746	9.02	34
Convenience Store	852	1,397	36.22	51
Total		17,470		218

Note 1: Assumed to be Quality Restaurant

Comparing the total of 218 peak-hour trips for the specific land uses with the 109 trips identified in Table 4 of the traffic study, the study underestimates the commercial trip generation by 50%, or 109 trips.

Page 13, 1st Paragraph

The traffic study adjusts the hotel trip generation to assume a 65 percent occupancy rate, justifying this figure by citing the Park City Chamber's data indicating 65 percent occupancy during the highest-occupancy month of the year (February). However, it is

[1] Given the limitations on other development potential in the Park City area, LSC agrees that the population growth-based traffic forecasts are conservatively appropriate at the Park Avenue/Deer Valley Drive intersection.

important to note that this figure represents the average occupancy over all days of the month, rather than some peak or relatively busy day of the month. It is important to note, therefore, that the traffic study reflects conditions on the average day in February (including some off-peak days).

This issue reflects the question of what the Municipal Corporation's desired "design day" should be. There is a long-standing engineering principle to design facilities for a busy but not 100% peak condition. For instance, the American Association of State Highway and Transportation Officials recommends designing roadway elements for the 30th-highest peak hour of the year. The question for mountain resort communities is how to translate this to an appropriate level of ski/lodging activity, given the large variation in activity levels over the course of the season and the year. In general, the mountain resort jurisdictions that LSC works in typically require that traffic studies consider the 5th or 10th busiest day of the winter season, which is undoubtedly higher than the average day in February[2]. I would expect that the Treasure Hill *pro forma* assumes at least 10 days of 100 percent occupancy, which would indicate that the traffic study should reflect 100 percent hotel occupancy. The requirement that 100 percent occupancy be assumed is the consistent requirement of the other mountain resort jurisdictions in which LSC has conducted hotel traffic studies.

In addition, the traffic counts used as a basis for the study should be reviewed and adjusted as appropriate to reflect the "design day".

Page 13, 2nd Paragraph

The current version of the ITE *Trip Generation Handbook* (August 2014) provides a much more robust analysis procedure for internal trips within a mixed use development than is presented in the 7th addendum. This procedure is based on the *National Cooperative Highway Research Program Report 684: Enhancing Internal Trip Capture Estimation for Mixed-Use Development* (TRB, 2011). This methodology has the benefit of including internal trip capture rates for hotel uses, as well as being based on a broader and more up-to-date dataset. LSC applied this methodology for the PM peak-hour, as shown in the attached sheets. Note that this assumes the revised trip generation for retail and restaurant land uses shown in the table presented above, but does not adjust for changes in the hotel rates. We also did not adjust for reductions associated with the ski area access or cabriolet. As shown, this methodology estimates that the base total PM peak-hour one-way vehicle-trips of 461 would be reduced to 309 due to mixed use reductions – a reduction of 33.0 percent.[3] As this is a reasonable overall figure given the mix of land uses, it is recommended that this methodology be used to identify appropriate mixed use internal reduction rates.

Page 13, Bottom Paragraph

The 10 percent reduction applied to the hotel and residential trip generation that is a result of the direct ski area access is appropriate given the site's location, expected

[2] Particularly as the occupancy rates in January and March are just below those in February.
[3] Note that a different reduction factor would apply to the AM peak-hour.

distribution of trips by trip purpose, and the assumption that guests and residents of the market rate units with an interest in skiing at PCMR will tend to choose this development. However, the rate should not be applied to the employee housing units, as many employees will not be accessing the mountain during the peak hours.

Page 14, 1st Full Paragraph

The traffic study assumes the cabriolet providing access between Treasure Hill and Main Street will reduce the trip generation for all land uses by 30 percent, with little justification for this figure other than the fact that the capacity would be well in excess of that needed, and that Main Street is a hub for shopping and restaurants. While both of these facts are true, there are other factors that should be considered:

- Transit planners typically consider a quarter-mile walk distance to be the limit to how far most people are willing to walk. A quarter mile walk from the cabriolet base station near Park Avenue/Osborne Street only encompasses the portion of Main Street north of 5th Street. As a trip to the upper portion of Main Street (such as to the Egyptian Theater) would require either a long walk or waiting for a Par City Transit vehicle, some guests/residents may choose to drive, even given the disincentive of the paid parking program.

- The dining and shopping opportunities in the Old Town area are geared towards visitors, with little "local serving" businesses (such as grocery stores).

- The available data regarding gondola/cabriolet use in similar existing settings is very limited. Some of the other systems that connect commercial and lodging settings also serve as skier access (such as the Telluride – Mountain Village Gondola) and thus are not a useful source of data. The only source of detailed applicable data that we are aware of comes from a study conducted by LSC for the Ritz-Carlton Resort Hotel in Northstar, California during the 2012/13 ski season. Similar to the proposed Treasure Hill development, this high-end lodging property has an aerial system that connects the Ritz-Carton with the Village at Northstar 3,200 feet away, as well as ski-in/ski-out access. Surveys of persons using the gondola were conducted over two winter Saturdays (relatively late in the ski season), as well as 24-hour vehicle counts and person-counts over a 9-hour period. The survey of gondola riders yields the following information useful to the Treasure Hill evaluation:

    - 39 percent of gondola ridership were either hotel guests or residents of the adjacent Residence Club, while 14 percent were employees, 10 percent were visiting the hotel (such as to shop, dine or visit the spa at the hotel), and 36 percent were "other".

    - This high proportion of "other" trips is generated by skiers/boarders who used the gondola in order to walk through the Ritz and access the ski terrain.[4] This is also corroborated by the fact that the uphill ridership is

[4] Since this study has been completed, boarding this gondola with ski/boarding gear is now prohibited.

higher than the downhill ridership, and that the morning ridership exceeds the afternoon ridership.

- Interestingly, when asked "If not for the gondola how would you have made this trip?", only 7 percent said they would have driven, while 39 percent indicated they would have used the shuttle van and fully 22 percent "would not have made the trip". This indicates that the availability of the gondola "induces" trips (by providing a free and scenic ride, and by increasing the convenience of accessing the other end of the service).

- The traffic counts were compared with estimates using ITE rates, adjusted for the reported hotel occupancy rates. Daily traffic generation was lower than would be indicated by ITE rates on one day, and equal on the other. AM peak-hour volumes were lower than ITE rate estimates on one day but higher on the other, while both PM peak-hour counts were higher than ITE rates would have indicated. However, the study reports that the fact that the calculated rate per occupied room was higher on the day of lower occupancy is reasonable in that the employee trips vary less than the variation in occupancy (many employees are still reporting to work on lower occupancy days), which indicates that 100 percent occupancy days would generate a lower trip generation per occupied room.

It is difficult to directly use this data to identify a specific trip generation reduction applicable to Treasure Hill. If the 36 percent of gondola passengers that used the gondola for ski area access are eliminated (and the hotel/residential guests that ski-in/ski-out are set aside), the person-trip counts indicate that fully 54 percent of the person-trips to and from the Ritz Carlton traveling by gondola or vehicle were traveling by gondola. While only 7 percent of gondola passengers would have driven if the gondola were not available, the fact that 31 percent said they would have used the free shuttle van indicates that at Treasure Hill (if a shuttle van were not available) a substantially higher proportion would have driven. Finally, the fact that overall observed trip generation was found to not be significantly lower than would be indicated by ITE rates argues for a relatively low impact of the gondola (or a relatively high overall person-trip generation rate per room). On balance, however, this data indicates that the 30 percent reduction assumed in the Treasure Hill study is not unreasonable.

- A similar previous study for a mixed use development in a mountain resort setting connected to another major commercial center is a 2008 study conducted by LSC for the Snowmass Center Redevelopment Project in Snowmass Village, Colorado. The Snowmass Center was proposed to provide 178 condo/hotel units, 41 residential units and substantial commercial and retail space. The gondola would have connected the Center to the Base Village area and onward to the main Snowmass Village commercial center.

  The evaluation of non-auto travel (both by gondola and by rubber-tired transit) considered regional travel data to disaggregate total travel by work versus non-work trips, as well as by trips within Snowmass Village as well as trips external.

The analysis concluded that 14 percent of all travel would occur via the gondola, while another 36 percent would occur via transit (with a small percent by walking). The setting, however, differs from that of Treasure Hill, in that the Snowmass Center site is directly served by an extensive regional transit program (Roaring Fork Transportation Authority), while the extensive regional transit program serving Park City would not directly serve Treasure Hill but instead would serve the bottom cabriolet terminal. Accordingly, it is appropriate to assign a substantial portion of the "transit" mode split found in Snowmass to the cabriolet serving Treasure Hill, as rubber-tired transit passengers (such as commuters and persons traveling to other ski areas) will use the cabriolet to access the bus service. On the other hand, the Treasure Hill trips associated with accessing the PCMR slopes (which are a simple walk out the back door) are part of the gondola trips at Snowmass Center. Overall, however, the 30 percent factor assumed for Treasure Hill is in line with the analysis results of the Snowmass Center study.

Page 16, Table 5

The trip reductions discussed in the document appear to be incorrectly applied. For instance, the appropriate equation for Hotel PM peak-hour trips (using the values presented) is:

Net Volume = Base Volume of 142 X (65% occupancy/83% occupancy)
X (1-16% internal hotel-commercial reduction)
X (1-10% ski area access reduction)
X (1-30% cabriolet reduction)

= 58.85, rounded to 59

However, Table 5 reports a result of 55.

Discussion of Local Roadway Capacity

The traffic analysis needs to include an evaluation of roadway congestion along Lowell Avenue and Empire Avenue between the site and Manor Way, reflecting real-world winter traffic conditions. The project would (using the figures in the report) result in roughly a ¼ to 1/3 increase in traffic volumes on these streets. Snow (both on the roadway and piled), grades and the high density of residential driveways all combine to reduce the capacity of these roadways. It should be noted that the most recent version of the ITE *Highway Capacity Manual* includes a methodology for adjusting roadway capacity to reflect snow conditions. If sections of one-way operation result from the presence of on-street parking coupled with snow piles (and if the City believes that this is an appropriate design period), this impact on capacity (not reflected in the HCM methodology) can be modeled using a simulation software package.

It should also be noted that the concept of "capacity" on a local residential street can have different meanings to different people. For the traffic engineer, capacity is a measure of the total number of vehicles that can be accommodated within a specified

period. However, the capacity for residents along a local street is more a matter of the appropriate maximum level of traffic noise and safety concerns. This is typically the definition used by jurisdictions to define the appropriate roadway capacity. For local streets in the Old Town area, the *Park City Traffic and Transportation Master Plan* identifies a threshold of 2,500 vehicles per day. While the *Addendum #7* does not include any discussion of daily traffic volumes, it appears from the peak-hour volumes that this figure is already exceeded on Lowell Avenue. At a minimum, the applicant should provide a comparison of existing daily traffic volumes, future no-project daily volumes and project generated traffic volumes to help inform the discussion about relative impacts in comparison with this standard.

Discussion of Potential Mitigation Measures

Based upon our professional experience, the findings of the Park City Travel Demand Management study, and the expected impacts of the proposed development, we recommend the following key mitigation measures be considered.

- The proposed cabriolet is a key strategy to reduce trips and parking impacts in the Old Town area. To be an effective mitigation for peak-hour trips, the cabriolet must be operated well beyond the peak periods of the day. For instance, few lodging guests will use the cabriolet to access Main Street dining and evening entertainment if the cabriolet stops service at 8 PM. For those hours over an extended period of the day (such as 5 AM to 2 AM) when the cabriolet is not operating, a shuttle van service should be provided to connect the two cabriolet stations and the Old Town Transit Center.

- It is not enough to encourage employees to use transit services, rather employee auto access to the site should be prohibited during peak seasons. Exceptions should be made for hardship cases (such as for employees whose shifts start or end in the early morning hours), but the substantial majority of employees should be required to use non-auto modes or to park in a remote lot and shuttle to and from work. If necessary, this could include providing a private van service directly between a remote lot and Treasure Hill to serve peak times.

- Employee residence parking should be "unbundled" from housing costs (requiring employee residents to pay a significant monthly fee for the convenience of on-site parking) and free parking should be provided by the developer at an off-site, secure location.

- Free passes should be provided to employees commuting on UTA service connecting Salt Lake City with Kimball Junction.

- The lodging operator should offer a substantial credit to guests arriving without a car, such as those showing proof that they used a private shuttle service to and from the Salt Lake City International Airport. Given the high frequency of existing services, subsidizing existing services makes better sense (and puts fewer vehicles on the roads) than does operating a separate service solely for Treasure Hill guests/residents.

- Provide and maintain a fleet of bicycles (including electric assist bicycles) for guests and residents.

- Designate a Transportation Demand Management Coordinator for the development as a whole.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Treasure Hill Addendum 7 Review	**Organization:**	LSC
Project Location:	Park City, UT	**Performed By:**	WRS
Scenario Description:	With LSC Retail/Rest., Add#7 Hotel	**Date:**	6/26/2017
Analysis Year:	Buildout	**Checked By:**	GRS
Analysis Period:	PM Street Peak Hour	**Date:**	6/26/2017

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				82	42	40
Restaurant				136	86	50
Cinema/Entertainment				0		
Residential				101	63	38
Hotel				142	81	61
All Other Land Uses[2]				0		
Total				461	272	189

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		12	0	10	2
Restaurant	0	21		0	9	4
Cinema/Entertainment	0	0	0		0	0
Residential	0	4	8	0		1
Hotel	0	1	4	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	461	272	189
Internal Capture Percentage	33%	28%	40%
External Vehicle-Trips[3]	309	196	113
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	62%	60%
Restaurant	28%	68%
Cinema/Entertainment	N/A	N/A
Residential	30%	34%
Hotel	9%	8%

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Treasure Hill Addendum 7 Review
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	42	42	1.00	40	40
Restaurant	1.00	86	86	1.00	50	50
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	63	63	1.00	38	38
Hotel	1.00	81	81	1.00	61	61

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	1		12	2	10	2
Restaurant	2	21		4	9	4
Cinema/Entertainment	0	0	0		0	0
Residential	2	16	8	0		1
Hotel	0	10	41	0	1	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	2	0	3	0
Retail	0		25	0	29	14
Restaurant	0	21		0	10	58
Cinema/Entertainment	0	2	3		3	1
Residential	0	4	12	0		10
Hotel	0	1	4	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	26	16	42	16	0	0
Restaurant	24	62	86	62	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	19	44	63	44	0	0
Hotel	7	74	81	74	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	24	16	40	16	0	0
Restaurant	34	16	50	16	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	13	25	38	25	0	0
Hotel	5	56	61	56	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

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MEMORANDUM

Date: May 15, 2013

TO: Kurt Krieg, East West Partners

FROM: Gordon Shaw, PE, AICP and Jason Briedis, EIT, LSC

RE: Northstar Ritz Travel Mode Surveys

This memorandum presents the findings of the Northstar Ritz Travel Mode Surveys and Counts conducted at the Ritz Carlton Lake Tahoe (and adjacent Residence Club). The purpose of these surveys was to determine trip generation and travel mode information across the many transportation options to the facility. The travel modes included in this survey are private auto, shuttle, skis/snowboards, and the gondola between Northstar Village and the Ritz Carlton. This data can be used as input to analysis of transportation impacts associated with future developments in the Northstar area.

Survey Methodology

The analysis presented in this memorandum is based on surveys and counts of persons traveling to and from the Ritz Carlton at the following locations:

- Ritz Gondola
- Ritz "Ski Beach" (ski in/ski out access to Northstar California slops
- Ritz Valet Station
- Ritz Residence Club Valet Station

The survey and person counts were conducted on two consecutive Saturdays during the winter of 2013: March 30th and April 6th. The surveys and counts were conducted from 8:00 AM until 5:00 PM on both dates, for a total of 9 hours of data for each survey date. Additionally, vehicle counts were conducted along Ritz Carlton Highlands Court for 24 hours on the same days as the surveys. Separate vehicle counts were collected at both the entrance to Ritz Carlton Highlands Court and at a point along the roadway past the entrance to employee parking lot.

The gondola passenger survey was conducted at Northstar Village on April 6th. Survey personnel noted the time of trip, direction of travel, number of persons in party, and whether the group was carrying ski gear. The surveyors also asked gondola riders to identify whether they were a hotel guest, residence club guest, employee, or visitor, their trip purpose (e.g. skiing,

shopping, dining, work, etc.), and how the trip would have been made (or not) without the gondola.

The "ski beach" counts noted the number of persons in party and number of employees arriving at and departing from "ski beach" and the time of these trips. The valet counts recorded the time of each arrival/departure, number of persons per vehicle, and the type of vehicle (i.e. car, taxi, and shuttle).

Summary of Survey Findings

Tables A and B present the person counts conducted on March 30th and April 6th, respectively. The tables are divided to show the person counts at each location for each count day. Please note that no counts were conducted at the Residence Club Valet on April 6th. Data for this category are estimated by factoring the 15-minute counts from the March 30th count by the total of the other count locations. As shown, a total of 2,512 persons were counted during the count period on March 30th, and 1,137 persons were counted on April 6th. Table C presents a summary of both days of person counts. The right-hand column of Table C provides the mode share of all person trips to the Ritz Carlton during the survey times. The average group size for each mode is also provided for each day and as an aggregate of both days.

Table D provides the directional 24-hour vehicle counts collected on Ritz Carlton Highlands Court. Counts were collected at two separate locations concurrently. One location, referred to as "All Traffic" on Table D, counts every vehicle entering or exiting Ritz Carlton Highlands Court. The second count station, referred to as "Upper" on Table D, was located past the driveway for the employee parking lot and as such excludes employee vehicle trips external to the Ritz Carlton. Subtracting the "upper" count from the "all traffic" count yields the number of employee trips to the employee parking lot. Negative numbers in this column reflect vehicle trips from the employee parking lot to the Ritz. Table D also highlights the vehicles counted during the survey periods of 8:00 AM to 5:00 PM in dashed lines.

The following lists highlights key finding from the person counts and surveys:

- Approximately 25 percent of persons surveyed arrived to the Ritz Carlton by vehicle at either the main valet area or the Residence Club valet area.
- Approximately 44 percent of persons surveyed arrived at the Ritz Carlton by the Gondola from Northstar Village.
- Approximately 30 percent of persons surveyed arrived at the Ritz Carlton through "Ski Beach."

Table E presents a summary of the gondola passenger survey. The following lists some key findings:

- During the survey period, 43 percent of the gondola riders were headed toward Northstar Village and 57 percent were headed toward the Ritz Carlton.

- Approximately 21 percent of survey respondents indicated that they were guests at the Ritz Carlton, followed by 18 percent that were Residence Club guest, 14 percent that were employees, and 10 percent that were visiting the hotel. Of the 49 responses indicting "other", 36 reported that the purpose of their gondola trip was to ski/snowboard.

- The survey indicated that skiing was the most common trip purpose (41 percent), followed by "visiting the hotel (not employee) with 19 percent and shopping at Northstar Village with 12 percent.

- A majority of survey respondents (54 percent) would take a shuttle between Northstar Village and the Ritz Carlton if the gondola was not present. Thirty-one percent would not make the trip and only 10 percent would drive.

- Across both count days, the average group size for gondola riders was 2.93.

Table F presents the gondola ridership by time of day, as observed by the surveyors. As shown, there was a strong uphill pattern in the morning (prior to 11 AM), with a lower uphill flow after lunch. Downhill use was higher in the late morning, and after 2:30 PM. The higher number of persons using the gondola in the uphill direction (a net of 85 over the survey period) probably reflects persons skiing back down the slopes.

Finally, Table G presents a comparison of the observed traffic counts with the trip generation estimates based upon standard trip generation rates, as published in the Institute of Transportation Engineers' *Trip Generation Manual* (2012). The occupancy rates for the hotel were obtained from The Ritz-Carlton Lake Tahoe. At 65 percent for 3/30/13 and 32 percent for 4/6/13, neither of the count days represent full occupancy. Trip generation rates were applied for ITE Land Use Code 310 Hotel (on a per-occupied room basis) for the hotel, and for ITE Land Use Code 230 Condominium (on a per unit basis) for the Residence Club. As shown, on a daily basis, the ITE trip rates indicate a trip generation of 1,300 vehicle-trips for 3/30/13, and 701 trips on 4/6/13. In comparison, the observed counts were 1,051 on 3/30/13 and 700 on 4/6/13. This indicates that actual counts were 19 percent below standard ITE rate estimates on 3/30/13 (the higher occupancy of the two days), and equal to standard ITE rate estimates on 4/6/13. Similarly, during the AM peak hour the counts were 19 percent below ITE estimates on 3/30/13 and 7 percent above ITE estimates on 4/6/13, while during the PM peak hour the counts were 6 percent above ITE estimates on 3/30/13 and 31 percent above ITE estimates on 4/6/30.

The fact that the ratio of observed counts to ITE estimates was substantially lower on the day of 65 percent occupancy than on the day of 32 percent occupancy is, at least in large part, reflective of the fact that hotel employee levels vary less than the variance in occupancy (as reflected in the traffic counts). This indicates that counts conducted on a true 100 percent occupancy day would indicate a lower ratio of observed counts to ITE estimates, and thus a lower actual trip generation rate than that observed in the two late-season count days.

TABLE A: Ritz Carlton Person Count - March 30, 2013

	Persons									
	Gondola		Ski Beach		Valet		Res Club		Total	
3/30/2013	In	Out	In	Out	In	Out	In	Out	In	Out
8:00 AM	9	5	0	0	0	0	0	0	9	5
8:15 AM	24	7	0	1	0	3	3	0	27	11
8:30 AM	8	8	0	11	0	3	0	0	8	22
8:45 AM	13	0	0	18	1	4	2	5	16	27
9:00 AM	7	2	0	30	2	0	0	0	9	32
9:15 AM	14	0	0	29	3	14	0	4	17	47
9:30 AM	20	9	0	24	11	1	0	0	31	34
9:45 AM	24	3	0	44	24	10	0	0	48	57
10:00 AM	8	1	0	11	9	3	0	0	17	15
10:15 AM	17	9	8	17	9	2	2	0	36	28
10:30 AM	18	1	7	19	5	12	0	0	30	32
10:45 AM	12	0	0	7	9	0	0	0	21	7
11:00 AM	23	13	6	18	7	11	0	0	36	42
11:15 AM	11	24	15	5	0	7	0	0	26	36
11:30 AM	47	26	21	12	1	7	3	0	72	45
11:45 AM	26	17	40	12	1	17	0	0	67	46
12:00 PM	10	24	36	7	9	4	0	0	55	35
12:15 PM	11	3	18	11	18	4	2	3	49	21
12:30 PM	29	24	9	11	3	7	0	0	41	42
12:45 PM	12	12	10	17	9	2	6	0	37	31
1:00 PM	11	3	8	25	3	10	0	0	22	38
1:15 PM	12	25	13	37	8	22	0	0	33	84
1:30 PM	4	5	14	6	16	13	2	0	36	24
1:45 PM	9	20	8	17	8	2	0	4	25	43
2:00 PM	7	19	16	2	12	10	0	0	35	31
2:15 PM	20	12	11	0	8	9	3	0	42	21
2:30 PM	21	50	7	6	1	11	0	5	29	72
2:45 PM	14	29	30	0	6	14	0	0	50	43
3:00 PM	11	15	19	6	15	24	2	0	47	45
3:15 PM	6	13	43	4	15	3	3	0	67	20
3:30 PM	5	28	11	11	11	13	0	0	27	52
3:45 PM	9	35	20	1	14	3	4	0	47	39
4:00 PM	15	31	22	0	11	8	3	0	51	39
4:15 PM	26	15	1	0	9	8	4	0	40	23
4:30 PM	13	18	5	0	0	15	7	0	25	33
4:45 PM	22	18	6	0	7	3	6	0	41	21
Total	548	524	404	419	265	279	52	21	*1,269*	*1,243*
Percent of Total	43.2%	42.2%	31.8%	33.7%	20.9%	22.4%	4.1%	1.7%	100.0%	100.0%
Entering Percent	51.1%		49.1%		48.7%		71.2%		50.5%	
Total Two-Way	1,072		823		544		73		2,512	
Percent of Total	42.7%		32.8%		21.7%		2.9%		100.0%	

Source: LSC Transportation Consultants, Inc.

NorthstarLodgingGuestSurveyResults.xlsx

TABLE B: Ritz Carlton Person Count - April 6, 2013

	Persons									
	Gondola		Ski Beach		Valet		*Res Club* [1]		Total	
4/6/2013	In	Out	In	Out	In	Out	*In*	*Out*	In	Out
8:00 AM	1	0	1	0	0	0	*0*	*0*	2	0
8:15 AM	8	0	1	0	1	1	*1*	*0*	11	1
8:30 AM	10	0	0	7	3	0	*0*	*0*	13	7
8:45 AM	4	3	0	4	1	5	*1*	*2*	6	14
9:00 AM	19	8	0	6	3	3	*0*	*0*	22	17
9:15 AM	10	0	0	9	9	7	*0*	*2*	19	18
9:30 AM	0	4	0	11	1	2	*0*	*0*	1	17
9:45 AM	2	3	0	16	0	7	*0*	*0*	2	26
10:00 AM	4	2	2	11	3	0	*0*	*0*	9	13
10:15 AM	14	6	2	3	4	18	*1*	*0*	21	27
10:30 AM	22	2	0	2	4	2	*0*	*0*	26	6
10:45 AM	28	0	2	11	0	0	*0*	*0*	30	11
11:00 AM	1	3	0	0	7	9	*0*	*0*	8	12
11:15 AM	2	18	0	4	3	3	*0*	*0*	5	25
11:30 AM	7	3	3	6	0	12	*1*	*0*	11	21
11:45 AM	2	16	15	0	0	0	*0*	*0*	17	16
12:00 PM	1	9	2	0	5	4	*0*	*0*	8	13
12:15 PM	9	3	12	3	11	4	*1*	*1*	33	11
12:30 PM	17	11	6	0	8	2	*0*	*0*	31	13
12:45 PM	14	7	6	3	7	0	*3*	*0*	30	10
1:00 PM	10	6	0	2	0	1	*0*	*0*	10	9
1:15 PM	13	1	3	9	8	9	*0*	*0*	24	19
1:30 PM	1	2	0	0	5	6	*1*	*0*	7	8
1:45 PM	2	4	9	2	0	10	*0*	*2*	11	18
2:00 PM	22	1	9	4	0	7	*0*	*0*	31	12
2:15 PM	2	6	8	2	0	3	*1*	*0*	11	11
2:30 PM	10	26	11	0	2	7	*0*	*2*	23	35
2:45 PM	15	3	4	0	3	3	*0*	*0*	22	6
3:00 PM	11	20	6	0	3	8	*1*	*0*	21	28
3:15 PM	5	13	4	0	2	4	*1*	*0*	12	17
3:30 PM	8	3	11	0	0	9	*0*	*0*	19	12
3:45 PM	15	9	12	0	0	0	*2*	*0*	29	9
4:00 PM	16	28	9	0	2	5	*1*	*0*	28	33
4:15 PM	0	3	13	0	11	2	*2*	*0*	26	5
4:30 PM	5	5	10	0	4	6	*3*	*0*	22	11
4:45 PM	7	4	0	0	6	5	*3*	*0*	16	9
Total	317	232	161	115	116	164	*23*	*9*	***617***	***520***
Percent of Total	51.4%	44.6%	26.1%	22.1%	18.8%	31.5%	*3.7%*	*1.7%*	100.0%	100.0%
Entering Percent	57.7%		58.3%		41.4%		*71.9%*		54.3%	
Total Two-Way	549		276		280		*32*		1,137	
Percent of Total	48.3%		24.3%		24.6%		*2.8%*		100.0%	

Note 1: Residence Club counts were not conducted on April 6th. Data are estimated based on March 30th counts.

Source: LSC Transportation Consultants, Inc.

NorthstarLodgingGuestSurveyResults.xlsx

TABLE C: Summary of Ritz Northstar Surveys and Person Counts

All Data Represents Total of 9-Hour Period: 8:00 AM to 5:00 PM

Survey/Count Location	Persons In	Persons Out	Persons Total	Average Group Size	Mode Share Percentage
March 30, 2013					
Main Valet Parking	265	279	544	2.60	21.7%
Residence Club Valet Parking	52	21	73	3.48	2.9%
Gondola	548	524	1,072	2.99	42.7%
Ski Beach	404	419	823	3.47	32.8%
Total Persons	1,269	1,243	2,512	3.08	100.0%
April 6, 2013					
Main Valet Parking	116	164	280	2.98	24.6%
Residence Club Valet Parking [1]	*23*	*9*	*32*	--	*2.8%*
Gondola	317	232	549	2.81	48.3%
Ski Beach	161	115	276	2.38	24.3%
Total Persons	617	520	1,137	2.67	100.0%
Total of Both Saturdays					
Main Valet Parking	381	443	824	2.73	22.6%
Residence Club Valet Parking [2]	*75*	*30*	*105*	*3.48*	*2.9%*
Gondola	865	756	1,621	2.93	44.4%
Ski Beach	565	534	1,099	3.20	30.1%
Total Persons	1,886	1,763	3,649	2.98	100.0%

Note 1: Residence Club trips were not counted on April 6th. April 6th data is estimated based on March 30th.

Note 2: Data related to the Residence Club based on counts conducted on March 30th only.

Source: LSC Transportation Consultants, Inc. *NorthstarLodgingGuestSurveyResults.xlsx*

TABLE D: Northstar Ritz Traffic Counts

	3/30/2013						4/6/2013					
	All Traffic		Upper Drive		Employee Lot [1,2]		All Traffic		Upper Drive		Employee Lot [1,2]	
Hour	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
12:00 AM	1	5	1	1	0	4	0	3	0	0	0	3
1:00 AM	1	1	1	1	0	0	1	1	1	1	0	0
2:00 AM	1	0	1	0	0	0	0	0	0	0	0	0
3:00 AM	2	1	2	1	0	0	1	1	1	1	0	0
4:00 AM	3	5	1	4	2	1	3	0	1	0	2	0
5:00 AM	13	4	0	3	13	1	12	4	3	4	9	0
6:00 AM	34	10	20	11	14	-1	**33**	**9**	17	10	**16**	**-1**
7:00 AM	33	9	19	8	**14**	1	26	9	14	9	12	0
8:00 AM	32	10	27	11	5	-1	20	6	18	5	2	1
9:00 AM	**46**	**18**	**37**	**18**	9	0	24	11	22	12	2	-1
10:00 AM	35	21	31	20	4	1	20	21	**18**	**20**	2	1
11:00 AM	33	23	29	22	4	1	20	16	16	13	4	3
12:00 PM	31	20	29	20	2	0	19	15	18	9	1	6
1:00 PM	34	26	27	23	7	3	25	25	23	24	2	1
2:00 PM	48	40	37	27	**11**	**13**	26	23	19	18	7	5
3:00 PM	**43**	**52**	**36**	**40**	7	12	**28**	**40**	**19**	**28**	**9**	**12**
4:00 PM	33	41	28	31	5	10	20	39	19	27	1	12
5:00 PM	25	63	25	54	0	9	18	24	19	21	-1	3
6:00 PM	12	45	13	36	-1	9	6	24	6	20	0	4
7:00 PM	17	42	21	35	-4	7	5	12	5	10	0	2
8:00 PM	9	19	8	15	1	4	9	14	10	13	-1	1
9:00 PM	14	25	16	20	-2	5	10	15	11	11	-1	4
10:00 PM	16	26	14	16	2	10	10	20	11	14	-1	6
11:00 PM	4	25	4	10	0	15	4	28	4	15	0	13
Total 24-Hours	**520**	**531**	**427**	**427**	**93**	**104**	**340**	**360**	**275**	**285**	**65**	**75**
Two-Way	**1,051**		**854**		**197**		**700**		**560**		**140**	
Survey Period	335	251	281	212	54	39	202	196	172	156	30	40
Two-Way	586		493		93		398		328		70	

Bold numbers indicate two-way AM and PM peak hours for each count category.

Dashed Lines indicate person count and survey times.

Note 1: Vehicle entering and exiting the Employee lot are estimated by computing the difference of the Upper Ritz Road from All Traffic.

Note 2: Negative numbers indicate traffic accessing the employee lot to/from Upper Ritz Road.

Source: LSC Transportation Consultants, Inc.

NorthstarLodgingGuestSurveyResults.xlsx

TABLE E: Gondola Rider Survey Results

	# of Responses	Percent of Total	Percent of Responses
1. Would you like to take a quick survey on your trip today?			
1 yes	155	76.7%	78.3%
2 refuse	0	0.0%	0.0%
3 taken	43	21.3%	21.7%
No Response	4	2.0%	
Total	202		198
1A. Direction?			
1 To Northstar	85	42.1%	43.4%
2 To Ritz	111	55.0%	56.6%
No Response	6	3.0%	
Total	202		196
2. Are you a			
1 Hotel Guest	28	13.9%	20.7%
2 Residence Club Guest	25	12.4%	18.5%
3 Employee	19	9.4%	14.1%
4 Visiting the hotel (not guest or employee)	14	6.9%	10.4%
5 Other	49	24.3%	36.3%
No Response	67	33.2%	
Total	202		135
3. What is the purpose of your trip?			
1 Skiing	59	29.2%	41.0%
2 Dining at Village	2	1.0%	1.4%
3 Shopping at Village	18	8.9%	12.5%
4 Movie	0	0.0%	0.0%
5 Ice Skating	1	0.5%	0.7%
6 Dining at the Ritz / Manzanita	8	4.0%	5.6%
7 Visit Spa	1	0.5%	0.7%
8 Visiting the Ritz for other reason (not employee)	28	13.9%	19.4%
9 Going to/from work (employee only)	3	1.5%	2.1%
10 Making work-related trip (employee only)	6	3.0%	4.2%
11 Other	1	0.5%	0.7%
Multiple	17	8.4%	11.8%
No Response	58	28.7%	
Total	202		144
4. If not for the Gondola how would you have made this trip?			
1 Driven	15	7.4%	10.3%
2 Would not make trip	45	22.3%	30.8%
3 Would have used shuttle	79	39.1%	54.1%
4 Other	7	3.5%	4.8%
No Response	56	27.7%	
Total	202		146
Carrying ski/snowboard gear? (by observation)			
1 Yes	69	34.2%	36.3%
2 No	121	59.9%	63.7%
No Response	12	5.9%	
Total	202		190
Number of people in travel group (by observation)			
1 One	40	19.8%	568
2 Two	67	33.2%	
3 Three	37	18.3%	
4 Four	26	12.9%	
5 Five	22	10.9%	
6 Six	3	1.5%	
7 Seven	5	2.5%	
8 Eight	2	1.0%	
9 Nine	0	0.0%	
>9 More than Nine	0	0.0%	
No Response	0		
Total	202		
Average Group Size	2.81		

Multiple Responses	
1's	7
1,10	2
1,2,3,5	1
6,10	1
3,10	1
1,8	2
3,7,10	1
1,4,10	1
8,10	1
2,3	2
6,7	2
1,3	1
3,8	2
	17
"work"	7

TABLE F: Gondola Travel by Time of Day

	Groups			Total Persons	
Survey Time	Total	To Ritz	To NS Village	To Ritz	To NS Village
8:00	1	1	0	1	0
8:15	4	4	0	8	0
8:30	4	4	0	10	0
8:45	3	2	1	4	3
9:00	8	6	2	19	8
9:15	2	2	0	10	0
9:30	1	0	1	0	4
9:45	2	1	1	2	3
10:00	3	2	1	4	2
10:15	9	6	3	14	6
10:30	7	6	1	22	2
10:45	8	8	0	28	0
11:00	2	1	1	1	3
11:15	5	1	4	2	18
11:30	3	1	2	7	3
11:45	6	1	5	2	16
12:00	6	1	5	1	9
12:15	5	4	1	9	3
12:30	6	4	2	17	11
12:45	9	4	4	14	7
13:00	7	5	2	10	6
13:15	7	6	1	13	1
13:30	4	1	1	1	2
13:45	3	1	2	2	4
14:00	8	7	1	22	1
14:15	5	1	3	2	6
14:30	10	2	8	10	26
14:45	8	5	2	15	3
15:00	12	5	7	11	20
15:15	7	1	6	5	13
15:30	5	2	2	8	3
15:45	8	4	4	15	9
16:00	14	7	7	16	28
16:15	2	0	2	0	3
16:30	3	2	1	5	5
16:45	5	3	2	7	4
17:00	0	0	0	0	0
No Response	0		6		
Total	202	111	85	317	232

TABLE G: Comparison of Traffic Counts with Standard Trip Generation Rates

	Total Daily	AM Peak Hour Hr. Beginning	AM Peak Hour Total	AM Peak Hour In	AM Peak Hour Out	PM Peak Hour Hr. Beginning	PM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out
Counts									
Date									
03/30/13	1051	9:15	66	46	20	14:45	100	48	52
04/06/13	700	6:15	48	36	12	15:00	68	28	40
Land Use									
Occupied Hotel Rooms									
03/30/13	111	65 percent occupancy							
04/06/13	54	32 percent occupancy							
Residence Club Condo Units	23								
Estimated Trip Generation at Standard ITE Trip Generation Rates									
Rates									
Hotel (LU 310)	10.5		0.64	0.35	0.29		0.74	0.42	0.32
Condo (LU 230)	5.81		0.44	0.08	0.36		0.52	0.33	0.19
Trip Generation Estimates at Standard ITE Rates									
03/30/13									
Hotel	1166		71	39	32		82	47	36
Condo	134		10	2	8		12	8	4
Total	1300		81	41	40		94	55	40
04/06/13									
Hotel	567		35	19	16		40	23	17
Condo	134		10	2	8		12	8	4
Total	701		45	21	24		52	31	21
Ratio of Observed to Standard ITE Rates									
03/30/13	81%		81%	112%	50%		106%	87%	130%
04/06/13	100%		107%	171%	50%		131%	90%	190%

Source: Institute of Transportation Engineers *Trip Generation Manual: 9th Edition*, 2012.