

# TAHOE DONNER PHASE 1 & 2 INVENTORY AND TECHNICAL ASSESSMENT

Prepared for:

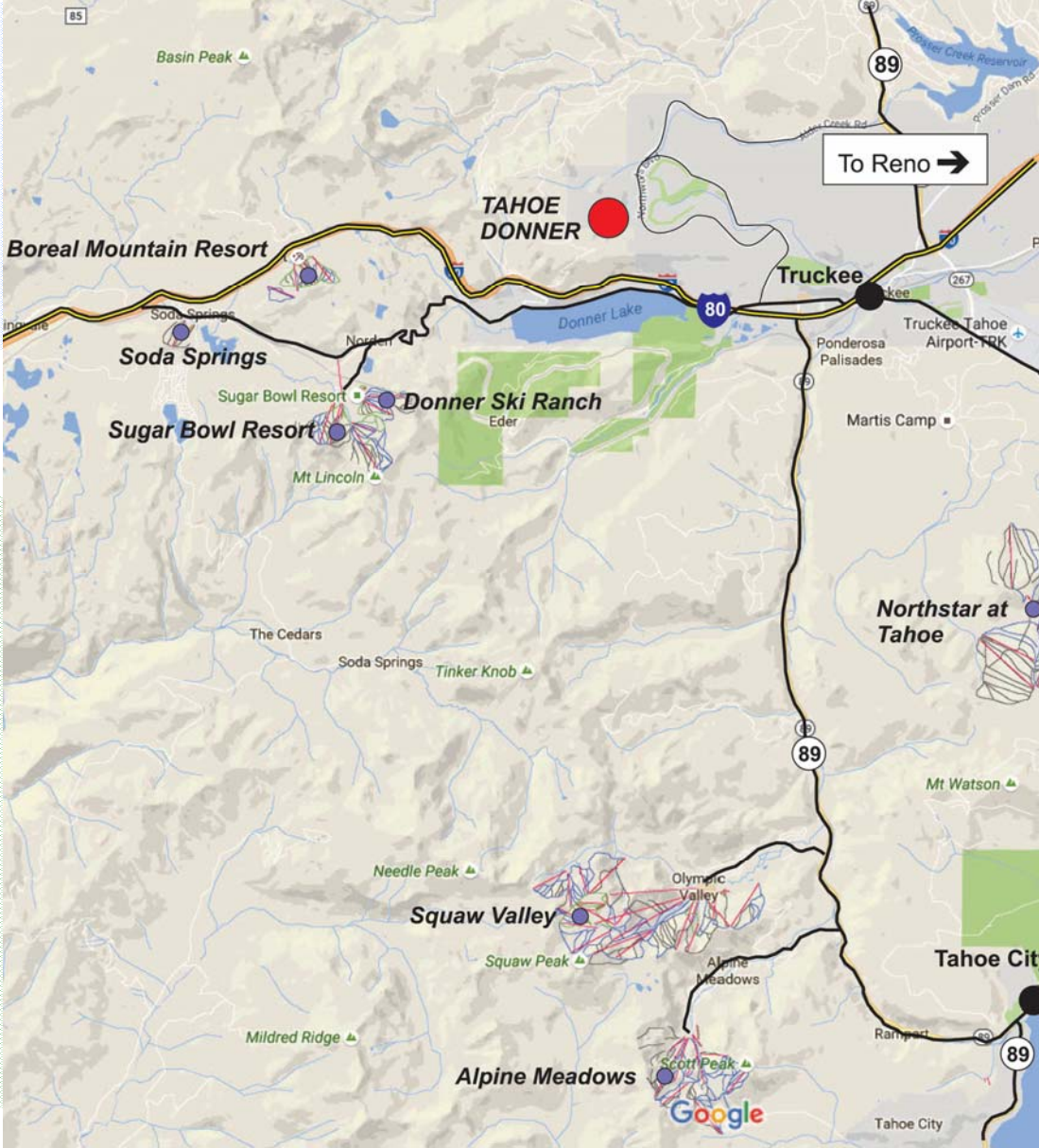


August 4<sup>th</sup>, 2017

**Presented by: Eric Callender – Ecosign VP  
Adam Schroyen – Resort Planner**

**ECOSIGN RESORT PLANNERS (2016) LTD.  
Whistler, British Columbia, Canada**

# STUDY AREA





## KEY PLANNING TERMS



### 1. MOUNTAIN CAPACITY

- Ability to provide a comfortable skier experience at peak times, measured in skier's at one time which considers those skiing, waiting in lift lines, and attending to their service needs.

### 2. SKIER SERVICE CAPACITY

- Ability to adequately service the requirements of skiers (rentals, ski school, food service)
- Provide suitable space for Mountain Ops

### 3. STAGING CAPACITY

- Ability to get Visitors & Skiers to the Mountain (Parking and Drop-off etc.)



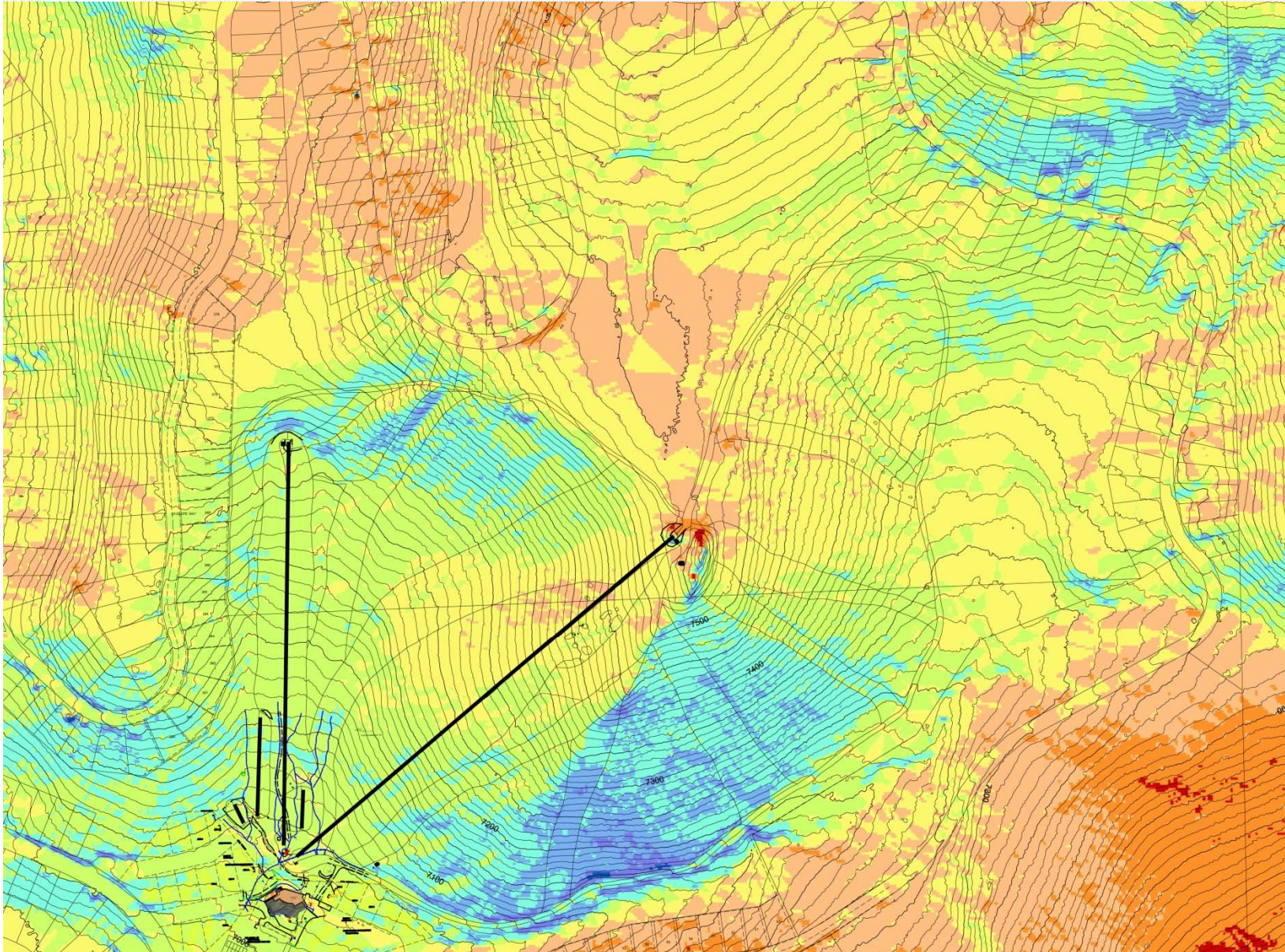


# STUDY AREA





# SOLAR RADIATION – WINTER SEASON Composite - December – March



Contours: 10ft Date: 08/2017  
 0ft 200 400 600 800

**NOTES:**

**PERIOD OF CALCULATION:**  
 Daily  
 Dec 1, 2016 to Mar 31, 2017

**DAILY EXTENTS OF CALCULATION:**  
 03:00 hrs - 22:00 hrs

**INTERVAL OF CALCULATION:**  
 15 minutes

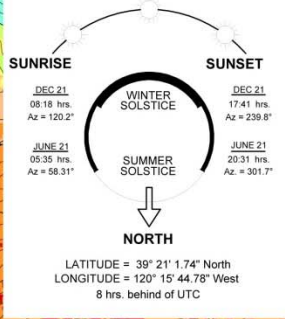
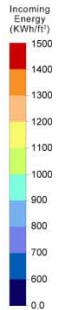
**NUMBER OF DAYS ANALYZED:**  
 121 days

**AVERAGE NUMBER OF DAYLIGHT HRS:**  
 10.09 hours/day

**MINIMUM INCOMING ENERGY:**  
 214.2 KWh/ft2

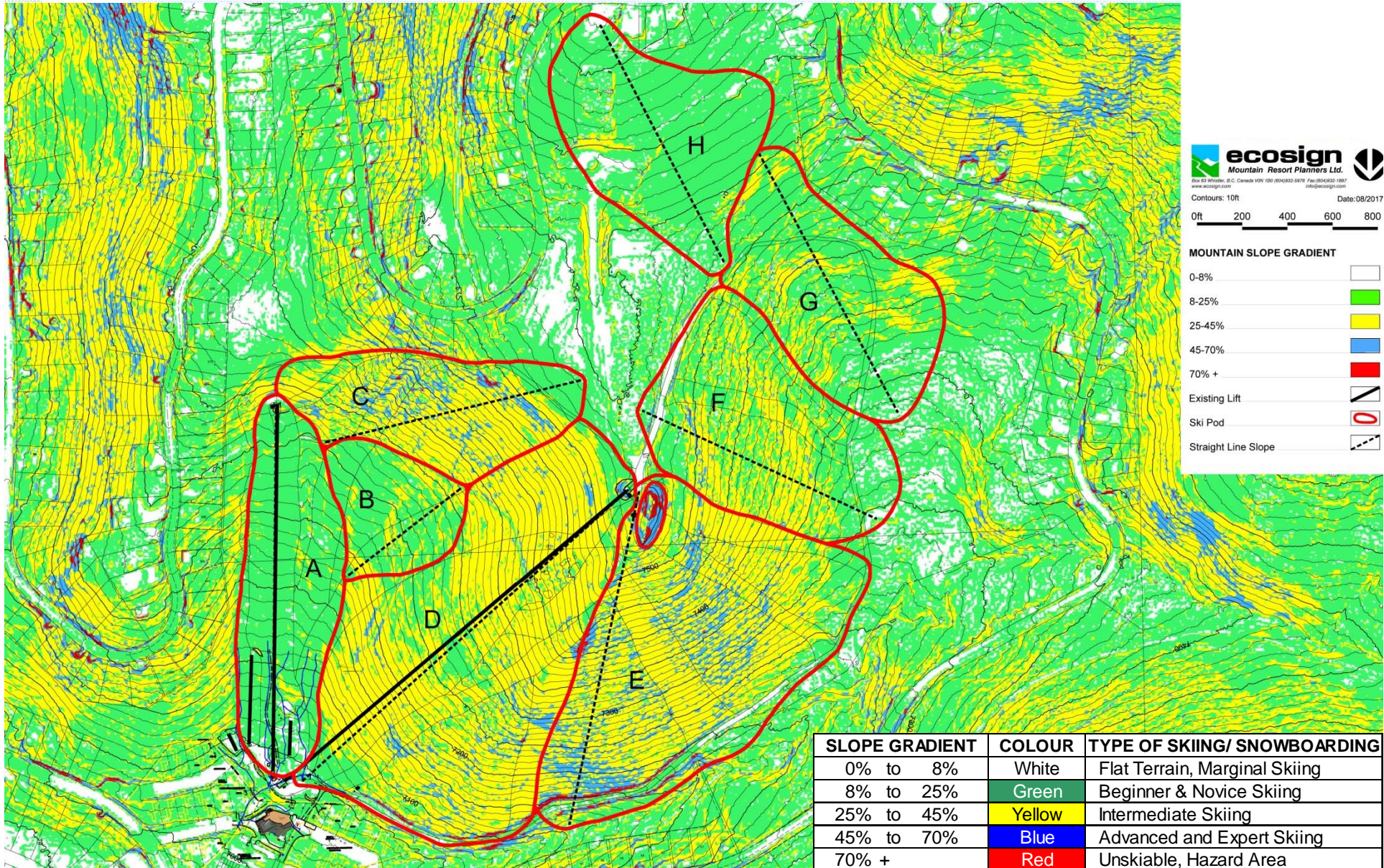
**MAXIMUM INCOMING ENERGY:**  
 1592.2 KWh/ft2

**AVERAGE INCOMING ENERGY:**  
 1057.2 KWh/ft2





# MOUNTAIN SLOPE & TERRAIN CAPACITY ANALYSIS

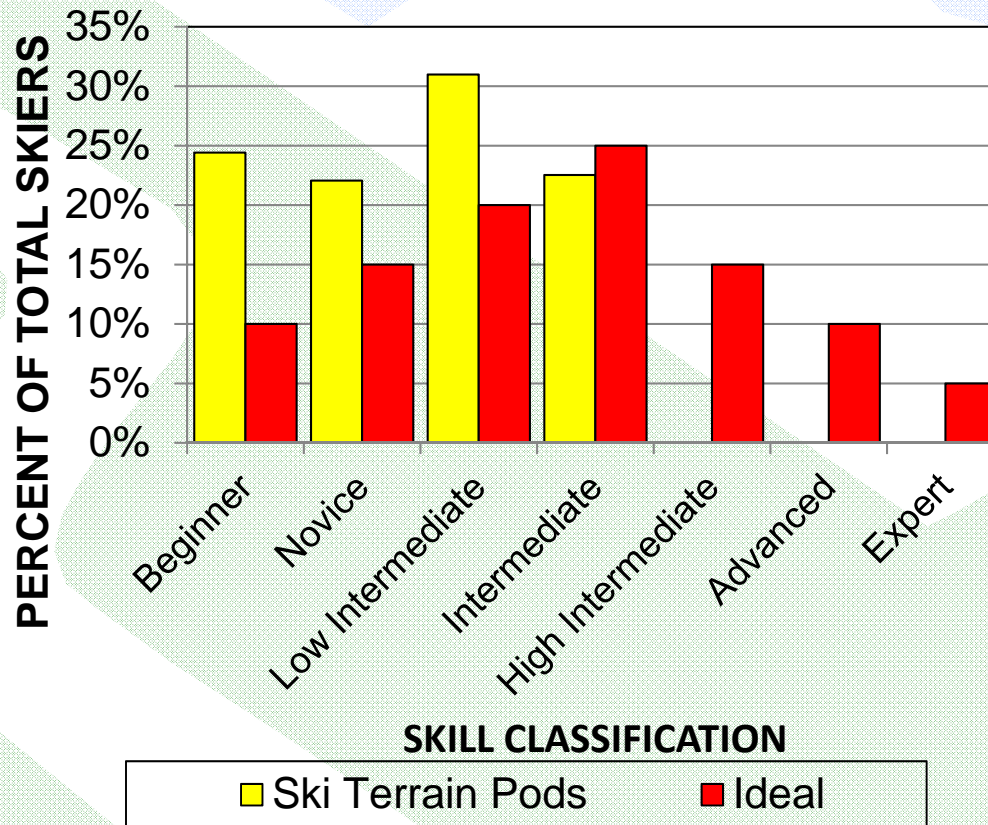




# MOUNTAIN TERRAIN CAPACITY ANALYSIS

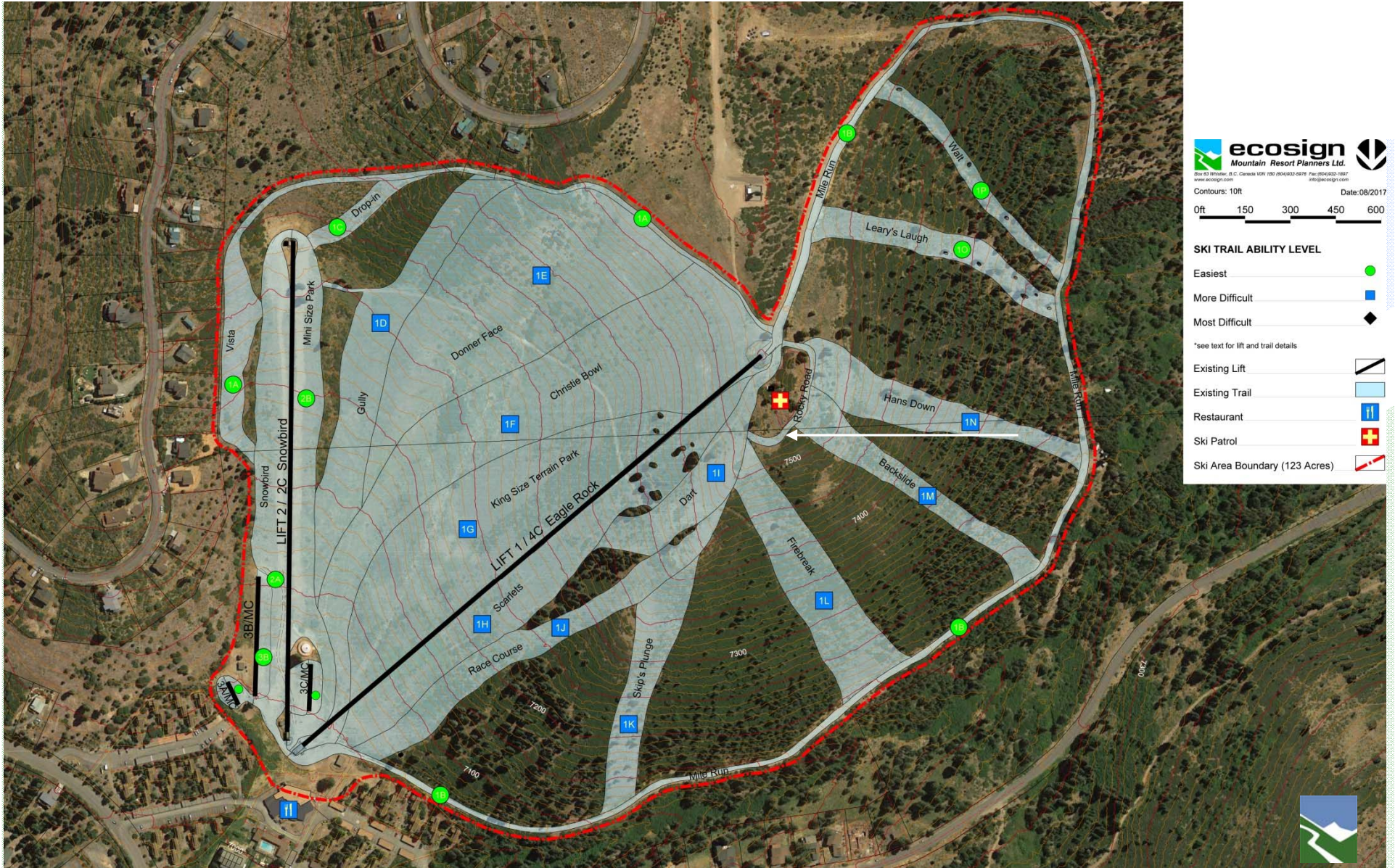


Terrain Pod	A	B	C	D	E	F	G	H	TOTAL
Skill Class	1	2	4	3	4	2	2	1	
Total Area Ac.	13.9	6.4	12.3	36.8	30.0	17.7	15.5	15.2	147.8
% Ski Terrain Developable	90%	90%	90%	75%	30%	30%	30%	30%	
Available Ski Terrain	12.5	5.8	11.1	27.6	8.8	5.3	4.7	4.6	80.4
<b>Total Skiers</b>	<b>380</b>	<b>170</b>	<b>270</b>	<b>660</b>	<b>210</b>	<b>160</b>	<b>140</b>	<b>140</b>	<b>2,130</b>





# EXISTING MOUNTAIN FACILITIES



**ecosign**  
Mountain Resort Planners Ltd.

200 63 Avenue, S.E. Cochrane, Alberta T0C 1S0 Canada Tel: 403-622-8879 Fax: 403-622-1887  
www.ecosign.com info@ecosign.com

Contours: 10ft Date: 08/2017

0ft 150 300 450 600

**SKI TRAIL ABILITY LEVEL**

Easiest ●

More Difficult ■

Most Difficult ◆

\*see text for lift and trail details

Existing Lift

Existing Trail

Restaurant

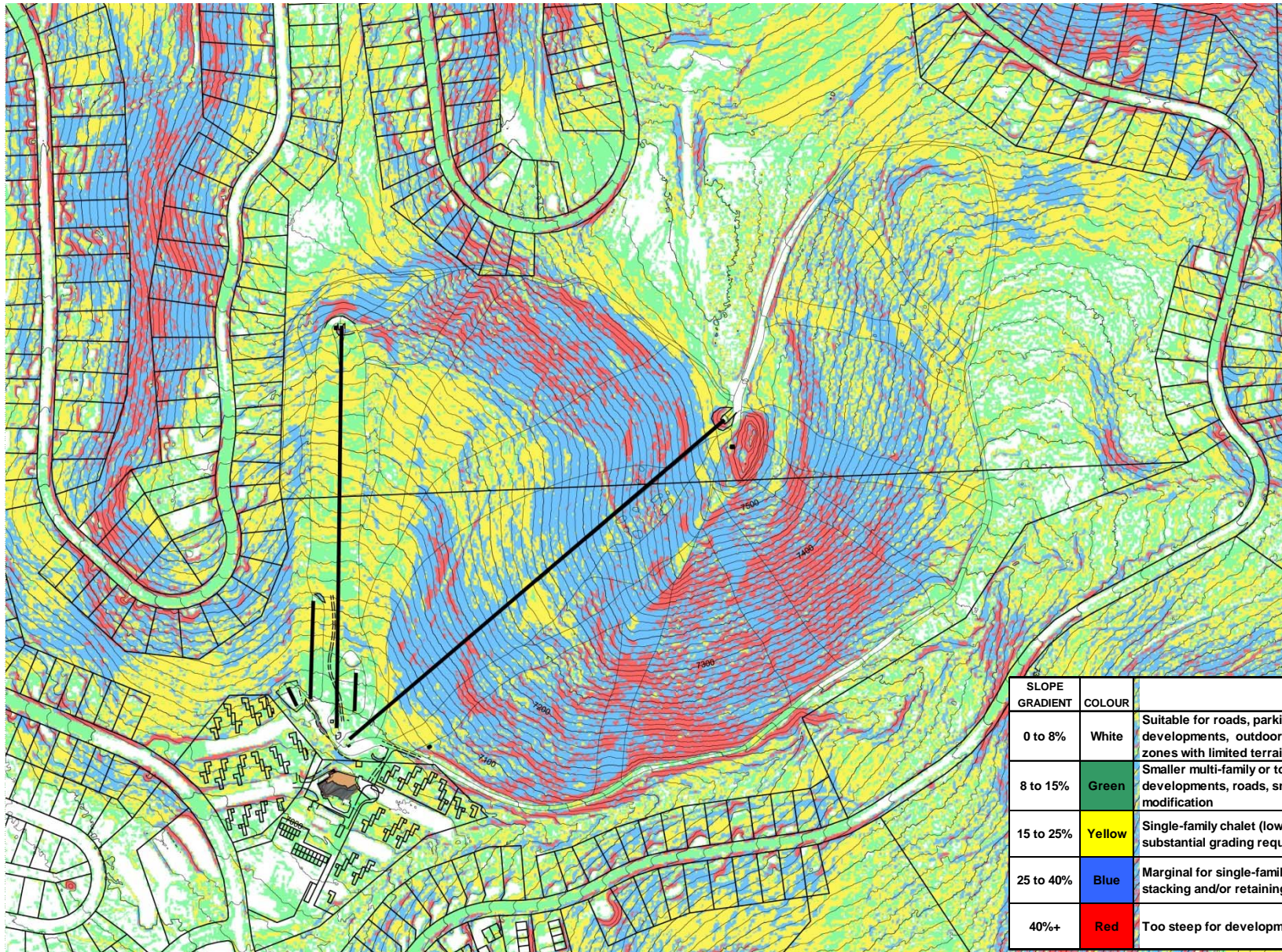
Ski Patrol

Ski Area Boundary (123 Acres)





# RESORT BASE AREA SLOPE AND DESIGN ANALYSIS



Contours: 10ft Date: 08/2017  
 0ft 200 400 600 800

## BASE SLOPE GRADIENT

0-8%	
8-15%	
15-25%	
25-40%	
40% +	
Existing Lift	

SLOPE GRADIENT	COLOUR	DEVELOPMENT SUITABILITY
0 to 8%	White	Suitable for roads, parking, high density village style developments, outdoor and indoor recreation and snow play zones with limited terrain modification
8 to 15%	Green	Smaller multi-family or townhouse (medium density) developments, roads, snow play and parking with some terrain modification
15 to 25%	Yellow	Single-family chalet (low density) developments with substantial grading required to provide vehicle access.
25 to 40%	Blue	Marginal for single-family development. Will require rock stacking and/or retaining walls to provide vehicle access.
40%+	Red	Too steep for development

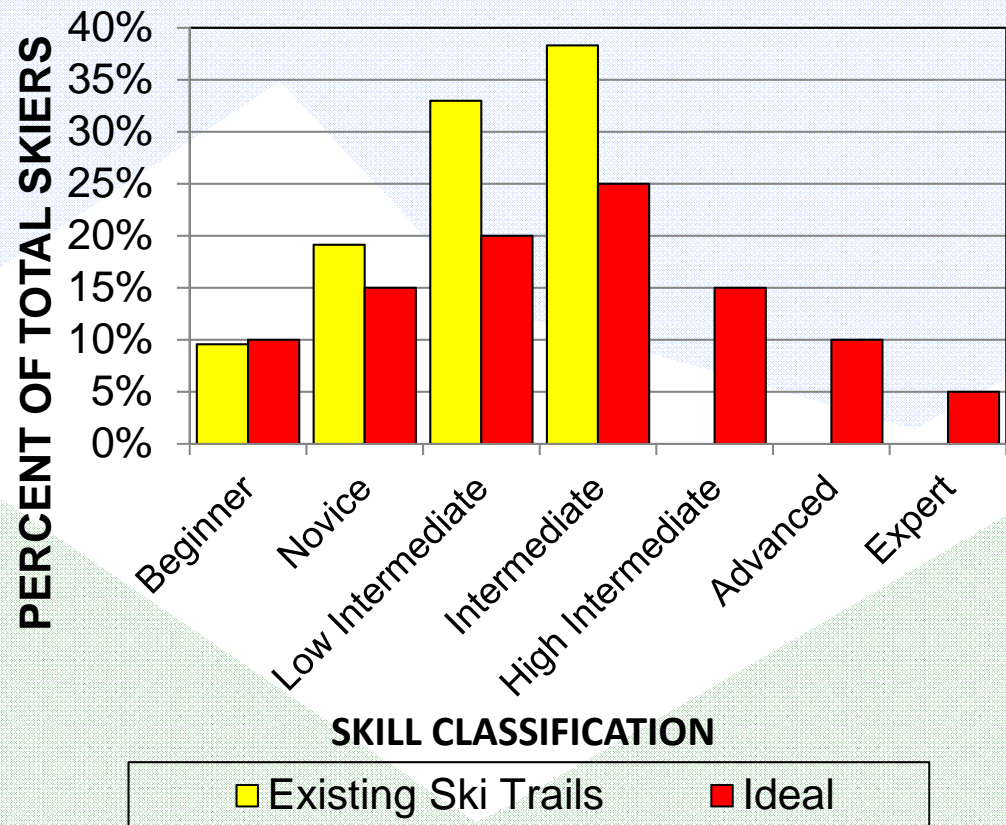


# EXISTING MOUNTAIN FACILITIES



## Ski Terrain

- ❖ Ski Terrain- 123 acre ski area boundary, 24 ski runs, 5.7 miles long, 72 acres of groomable terrain which comfortably supports **1,880** skiers at one time.
- ❖ Skier skill class weighted to lower ability levels- no high intermediate, advanced, or expert ski terrain.
- ❖ Ample Novice terrain, however access from existing base area is poor as guests must ski out and around “Mile One” for each lap





# MOUNTAIN ANALYSIS CONCLUSIONS

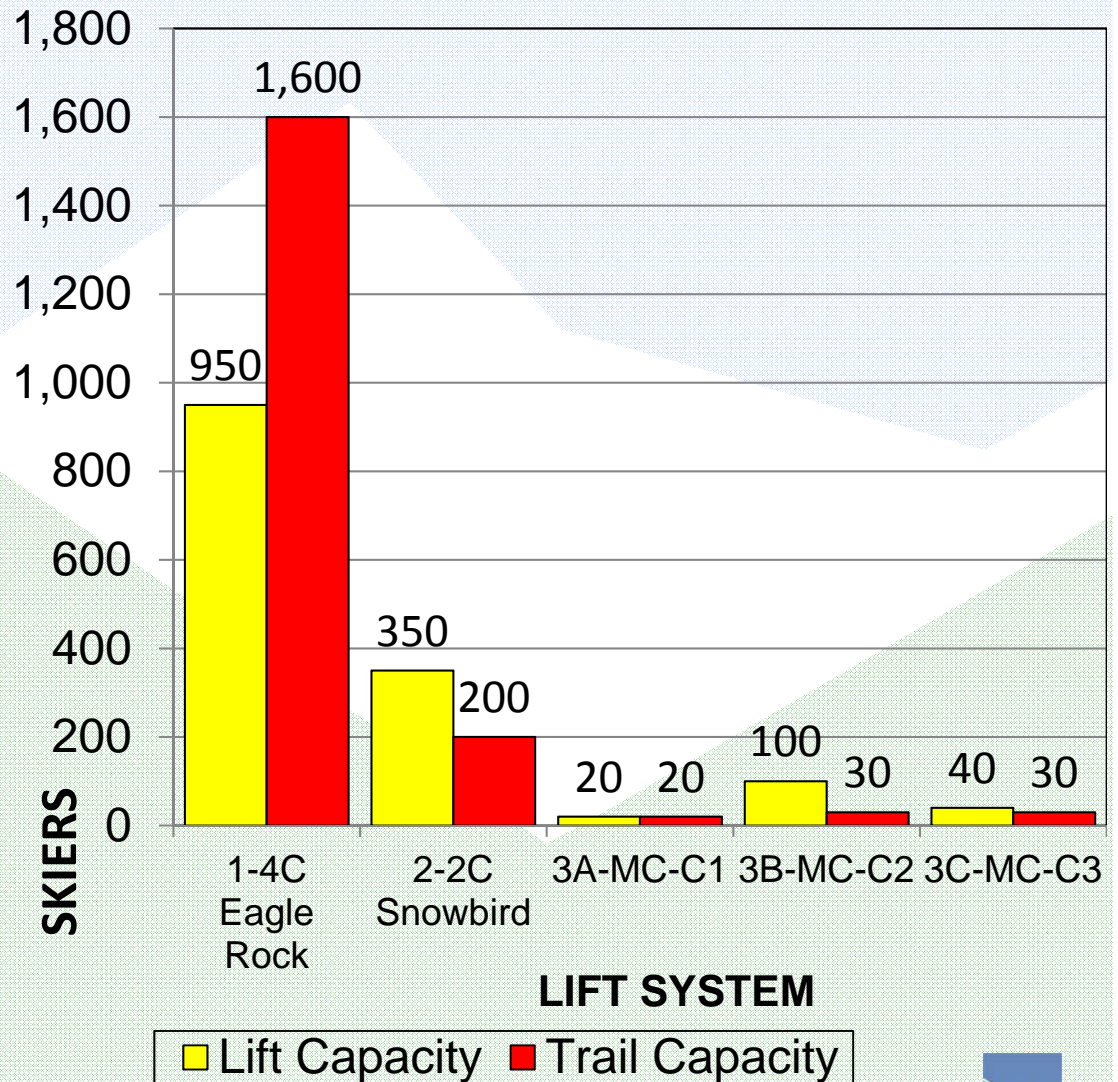


## Existing Facilities

- ❖ 2 chairlifts, 3 moving carpets-  
Snowbird Chairlift 46 years old
- ❖ Combined Lift Capacity  
calculated at **1,460** skiers at one  
time

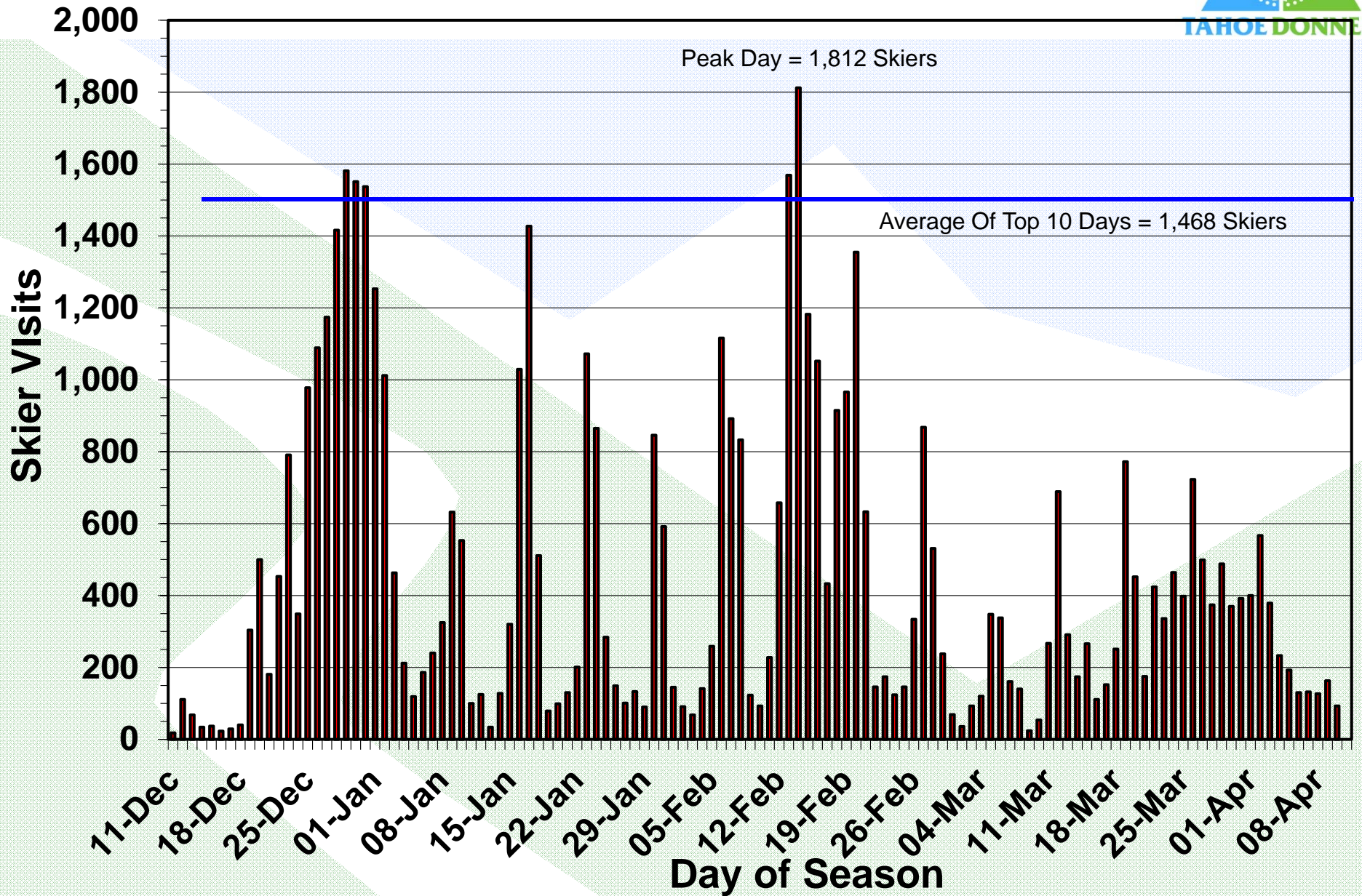
## Lift / ski trail capacity balance

- ❖ Eaglerock - 950 skiers on lifts  
vs 1,600 skiers per day on  
terrain
- ❖ Snowbird - 350 skiers on lifts vs  
200 skiers per day on terrain



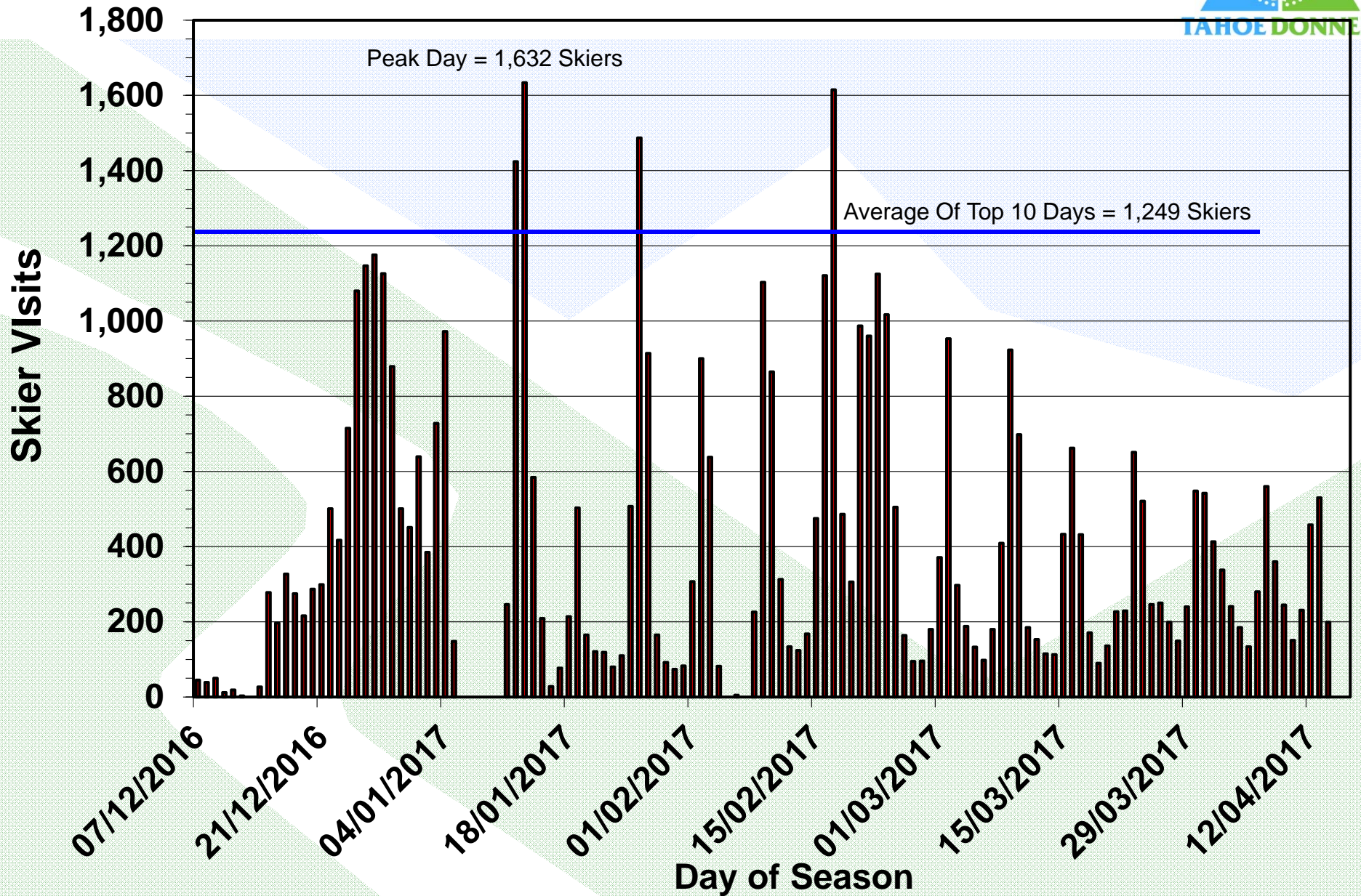


# 2015/16 SKIER VISITS





# 2016/17 SKIER VISITS





## VISITS AND ASSUMPTIONS FOR CALCULATIONS



- ❖ 2016/17 Average Top 10 days = 1,249      Peak day = 1,632
- ❖ 2015/16 Average Top 10 Days = 1,468      Peak day = 1,812
- ❖ 2014/15 Average Top 10 Days = <1,000
- ❖ 2013/14 Average Top 10 Days = <500
- ❖ 2012/13 Average Top 10 Days = 1,567

### PLANNING ASSUMPTIONS FOR EXISTING SKIER SERVICE ANALYSIS

- ❖ **Top peak day = 1,700**
- ❖ **For purposes of estimating Space Use for Skier Services we have used the average top 10 day of 1,300 skiers (representing approximately 75% of Peak Day)**





## PROCESS



- ❖ INVENTORY - Understand and document all spaces used as “Skier Service” space
- ❖ ANALYSIS – Create new TD Planning Standard (derived from Regional, Local Competition, USFS Standards)
- ❖ ANALYSIS - Comparative Analysis between existing situation and new TD Planning Standard to discover Excess/Deficit in Skier Service Space
- ❖ SCENARIO’s – Comparative Analysis between Existing Skier Service Space and different Skier Demand Periods (Cost Impact)





# EXISTING SKIER SERVICE INVENTORY



Guest Service Function	Existing Skier Service Floorspace (Main Daylodge) (ft <sup>2</sup> )	Existing Skier Service Floorspace (Yurt) (ft <sup>2</sup> )	Total Existing Skier Service Space (ft <sup>2</sup> )
<b>Staging Facilities</b>			
Ticket Sales	304		<b>304</b>
Public Lockers	200		<b>200</b>
Equipment Rental & Repair	2,065		<b>2,065</b>
Guest Services / Ski School/ Adaptive	260	170	<b>430</b>
Children's Programs/Day Care	585	170	<b>755</b>
<b>Staging Subtotal</b>	<b>3,414</b>	<b>340</b>	<b>3,754</b>
<b>Commercial Facilities</b>			
Food & Beverage Seating	2,180	350	<b>2,530</b>
Kitchen & Scramble, Bar	800		<b>800</b>
Bar/Lounge	-		<b>-</b>
Restrooms	930		<b>930</b>
Accessory Retail	160		<b>160</b>
<b>Commercial Subtotal</b>	<b>4,070</b>	<b>350</b>	<b>4,420</b>
<b>Operational Facilities</b>			
Administration	917		<b>917</b>
Employee Facilities	1,046		<b>1,046</b>
First Aid & Mountain Patrol	486		<b>486</b>
<b>Operational Subtotal</b>	<b>2,449</b>	<b>-</b>	<b>2,449</b>
<b>TOTAL FUNCTIONAL SPACE</b>	<b>9,933</b>	<b>690</b>	<b>10,623</b>
Storage	2,915		<b>2,915</b>
Mechanical, Circulation/Walls/Waste*	2,280	20	<b>2,300</b>
<b>GROSS BUILDING AREA</b>	<b>15,128</b>	<b>710</b>	<b>15,838</b>





# SKIER SPACE USE PLANNING STANDARDS FOR TAHOE DONNER



Guest Service Function	Day Ski Area ft <sup>2</sup> /skier	Average ft <sup>2</sup> /skier	Resort Area ft <sup>2</sup> /skier	Ecosign Recomm. area / Skier for Tahoe Donner (DRAFT) ft <sup>2</sup> /skier	NOTES
<b>Staging Facilities</b>	-	-	-	-	
Ticket Sales	0.10	0.13	0.15	0.13	Use average ticket sales
Public Lockers	0.70	0.95	1.20	1.20	Used higher end due to beginners renting. Do you want extra for Homeowners?
Equipment Rental & Repair	0.80	0.90	1.00	2.70	3 X the average standard based on regional analysis and competition
Guest Services / Ski School/ Adaptive	0.25	0.38	0.50	0.70	2 X the average standard based on ski school utilization / regional analysis and competition
Children's Programs/Day Care	0.35	0.43	0.50	0.43	Use average space
<b>Staging Subtotal</b>	<b>2.20</b>	<b>2.78</b>	<b>3.35</b>	<b>5.16</b>	
<b>Commercial Facilities</b>	-	-	-	-	
Food & Beverage Seating	3.25	3.50	4.00	3.50	Use average as slight increase due to watchers using seating
Kitchen & Scramble, Bar	1.75	2.50	3.00	1.75	Use kitchen as half seating space
Bar/Lounge	0.30	0.40	0.50	0.30	Use Day Ski Area standard
Restrooms	0.75	0.88	1.00	0.88	Use average standard
Accessory Retail	0.40	0.57	0.75	0.40	Use Day Ski Area standard
<b>Commercial Subtotal</b>	<b>6.45</b>	<b>7.85</b>	<b>9.25</b>	<b>6.83</b>	
<b>Operational Facilities</b>	-	-	-	-	
Administration	0.60	0.80	1.00	0.60	Use Day Ski Area standard
Employee Facilities	0.30	0.40	0.50	0.80	2 X the average standard based on ski school utilization / regional analysis and competition
First Aid & Mountain Patrol	0.25	0.30	0.35	0.25	Use Day Ski Area standard
<b>Operational Subtotal</b>	<b>1.15</b>	<b>1.50</b>	<b>1.85</b>	<b>1.65</b>	
<b>TOTAL FUNCTIONAL SPACE</b>	<b>9.80</b>	<b>12.13</b>	<b>14.45</b>	<b>13.64</b>	
Storage	0.98	1.21	1.45	1.36	Calculated as 10% of Total Functional Space
Mechanical, Circulation/Walls/Waste*	2.45	3.03	3.61	3.41	Calculated as 25% of Total Functional Space
<b>GROSS FLOOR AREA</b>	<b>13.23</b>	<b>16.37</b>	<b>19.51</b>	<b>18.40</b>	
<b>Food Service Seating</b>	-	-	-	-	
Turns/Indoor Seat (Cafeteria)	4.00	3.50	3.00	3.00	use low turnover (indicated guests stay longer in seating area)
Turns/Indoor Seat (Table Service)	3.00	2.50	2.00	2.50	use average (indicated guests stay longer in seating area)
Indoor Seats/ Skier	0.25	0.29	0.33	0.25	use average
Outdoor Seats/Skier	0.13	0.15	0.17	0.15	use average
Square Feet/ Indoor Food Service Seat	12.00	12.00	12.00	12.00	use standard



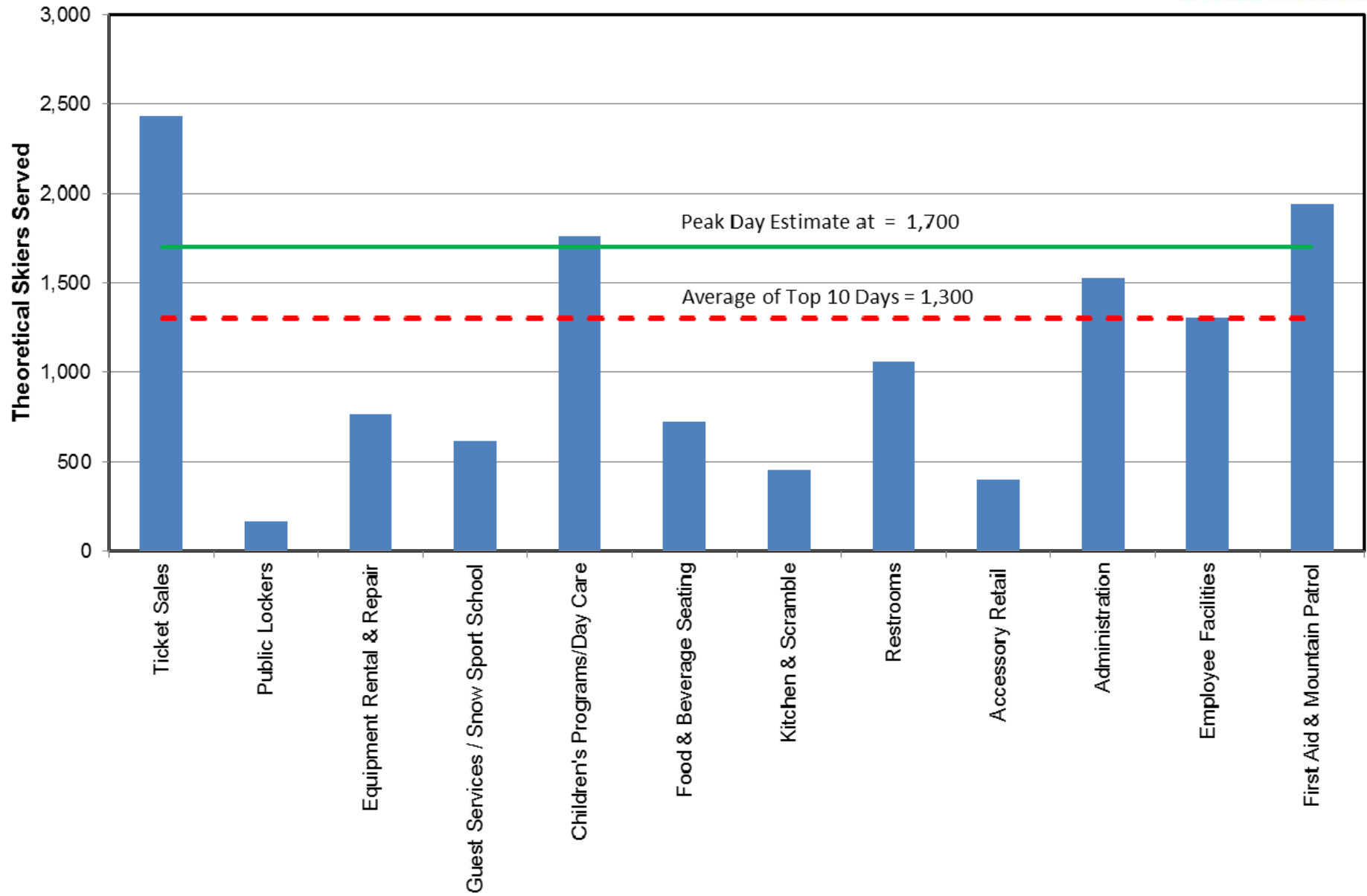
# TAHOE DONNER SPACE USE ANALYSIS BASED ON AVERAGE TOP 10 DAYS = 1,300



Guest Service Function	Total Existing Skier Service Space (ft <sup>2</sup> )	Existing Skier Service Space per Skier ft <sup>2</sup> /skier	Ecosign Recomm. area / Skier for Tahoe Donner (DRAFT) ft <sup>2</sup> /skier	Recomm. Floorspace (ft <sup>2</sup> )	Percent of Recomm. Floorspace	Theoretical Skiers Served
<b>Staging Facilities</b>						
Ticket Sales	304	0.23	0.13	163	187%	2,432
Public Lockers	200	0.15	1.20	1,560	13%	167
Equipment Rental & Repair	2,065	1.59	2.70	3,510	59%	765
Guest Services / Ski School/ Adaptive	430	0.33	0.70	910	47%	614
Children's Programs/Day Care	755	0.58	0.43	559	135%	1,756
<b>Staging Subtotal</b>	<b>3,754</b>	<b>2.89</b>	<b>5.16</b>	<b>6,702</b>	<b>56%</b>	<b>728</b>
<b>Commercial Facilities</b>						
Food & Beverage Seating	2,530	1.95	3.50	4,550	56%	723
Kitchen & Scramble, Bar	800	0.62	1.75	2,275	35%	457
Bar/Lounge	-	-	0.30	390	0%	-
Restrooms	930	0.72	0.88	1,144	81%	1,057
Accessory Retail	160	0.12	0.40	520	31%	400
<b>Commercial Subtotal</b>	<b>4,420</b>	<b>3.40</b>	<b>6.83</b>	<b>8,879</b>	<b>50%</b>	<b>647</b>
<b>Operational Facilities</b>						
Administration	917	0.71	0.60	780	118%	1,528
Employee Facilities	1,046	0.80	0.80	1,040	101%	1,308
First Aid & Mountain Patrol	486	0.37	0.25	325	150%	1,944
<b>Operational Subtotal</b>	<b>2,449</b>	<b>1.88</b>	<b>1.65</b>	<b>2,145</b>	<b>114%</b>	<b>1,484</b>
<b>TOTAL FUNCTIONAL SPACE</b>	<b>10,623</b>	<b>8.17</b>	<b>13.64</b>	<b>17,726</b>	<b>60%</b>	<b>779</b>
Storage	2,915	2.24	1.36	1,768	165%	2,143
Mechanical, Circulation/Walls/Waste*	2,300	1.77	3.41	4,431	52%	675
<b>GROSS FLOOR AREA</b>	<b>15,838</b>	<b>12.18</b>	<b>18.40</b>	<b>23,925</b>	<b>66%</b>	<b>861</b>



# EXISTING SKIER SERVICE - SPACE USE ANALYSIS





## FOOD SERVICE SEATING

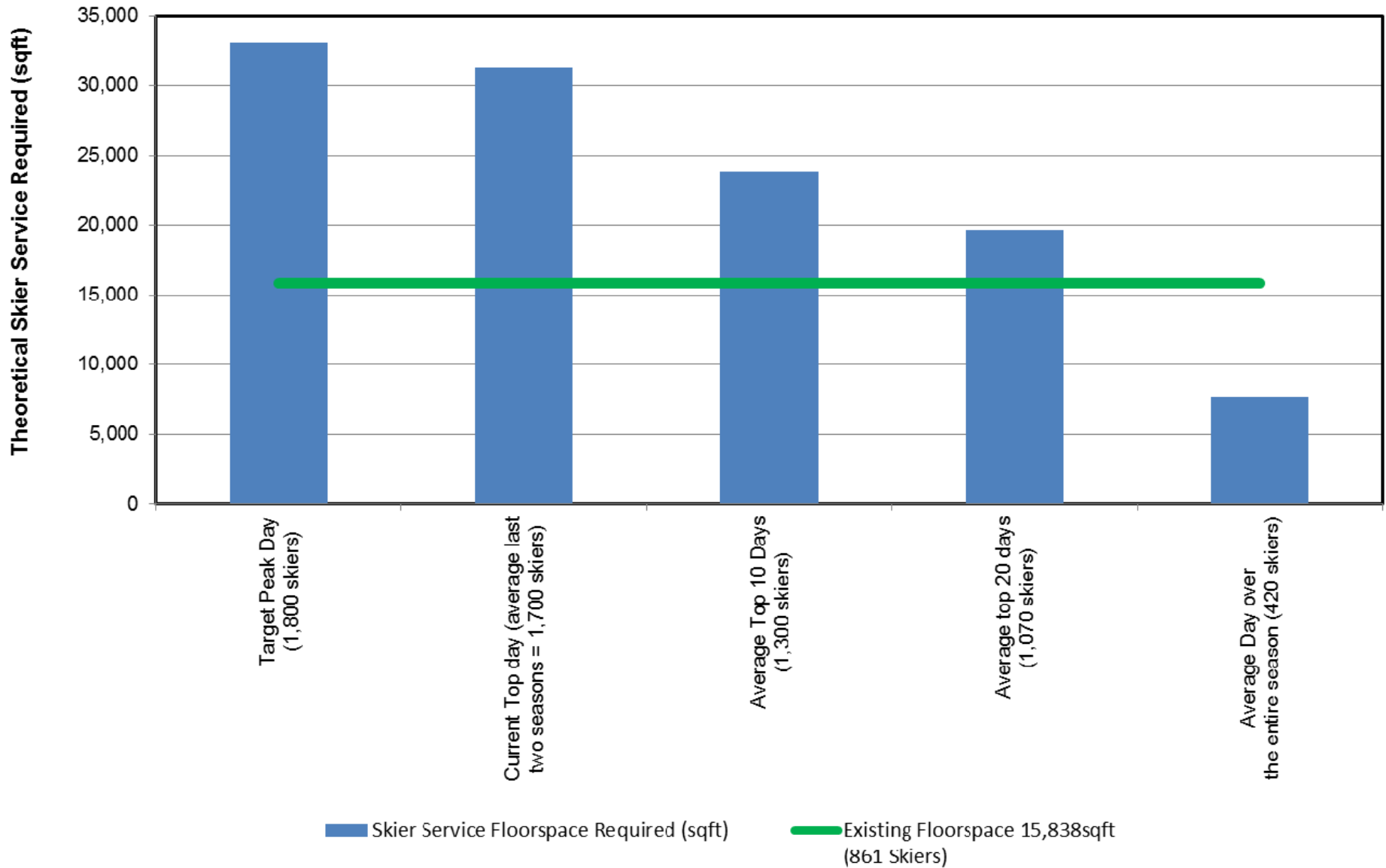


Building/Restaurant	Indoor Seats			Outdoor Seats			Total Seats	
	Number of Seats	Turns per Seat	Guests Served	Number of Seats	Turns per Seat	Guests Served	Number of Seats	Guests Served
Daylodge	150	3.0	450	220	3.0	660	370	1,110
Children's Yurt Buidling	29	3.0	87	30	3.0	90	59	177
<b>TOTAL</b>	<b>179</b>	<b>6.0</b>	<b>537</b>	<b>250</b>	<b>6.0</b>	<b>750</b>	<b>429</b>	<b>1,287</b>

- ❖ Existing seating has inefficient layout of space, current number of indoor seats at 179. (incl. Daylodge and Yurt *estimated.*)
- ❖ On good weather there should be enough seating to satisfy 1,287 guests (with 3.0 turns per seat)
- ❖ Turns is based on a 40 minute lunch



# POTENTIAL SKIER TARGET VS SKIER SERVICE SPACE





## PRELIMINARY COST ESTIMATE



<b>Guest Service Function</b>	<b>Skier Service Floorspace Required (sqft)</b>	<b>Estimated Cost (incl. Hard &amp; Soft) @\$600USD/sqft</b>
Target Peak Day (1,800 skiers)	33,100	\$ 19,860,000
Current Top day (average last two seasons = 1,700 skiers)	31,300	\$ 18,780,000
Average Top 10 Days (1,300 skiers)	23,900	\$ 14,340,000
Average top 20 days (1,070 skiers)	19,700	\$ 11,820,000
Average Day over the entire season (420 skiers)	7,700	\$ 4,620,000

- ❖ Based on \$600USD / sq ft. (as directed by client)
- ❖ Not including underground parking (if required, potential for 20+ stalls)
- ❖ GFA based on 18.40 sq ft./skier as per assumptions



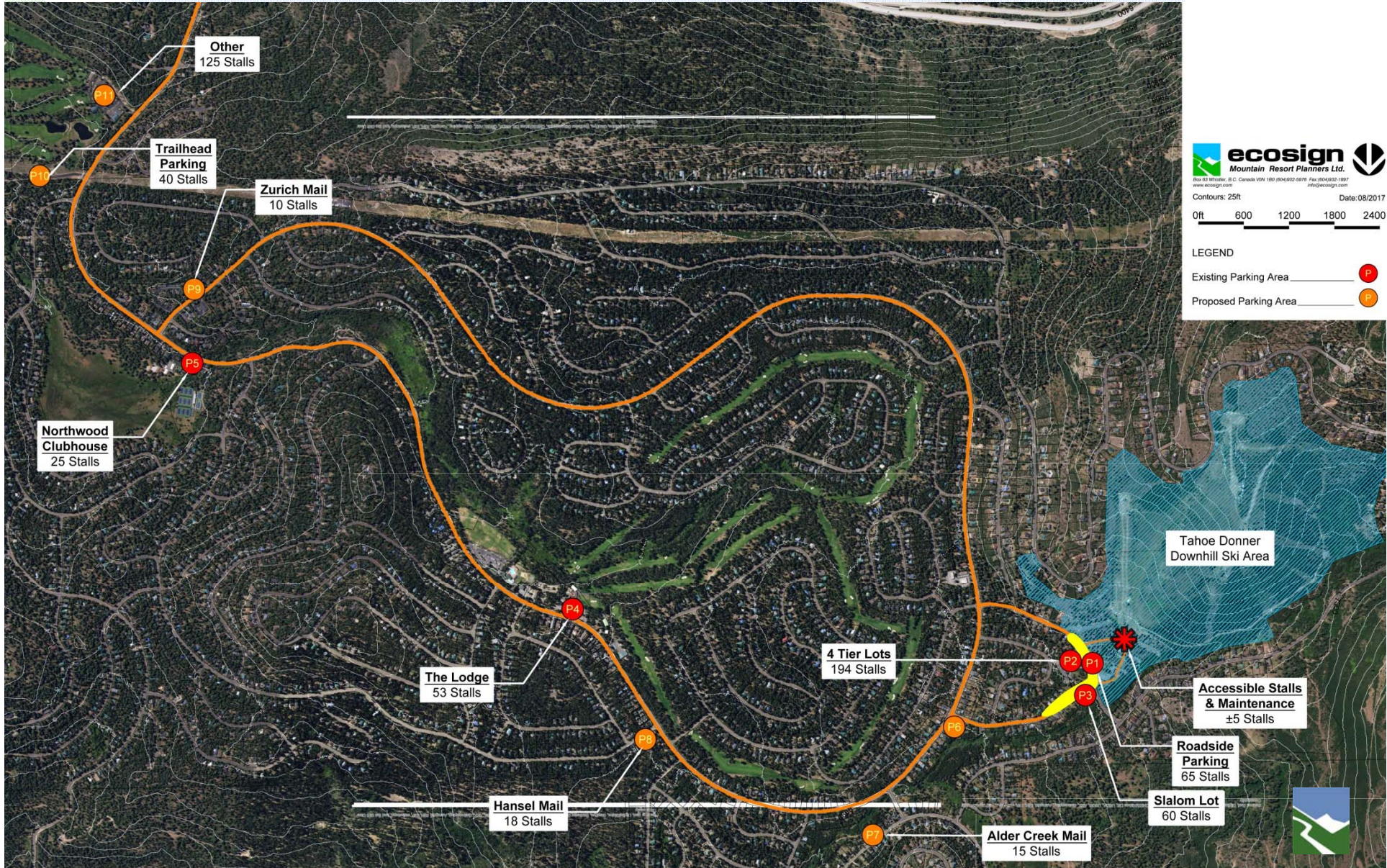
# BASE AREA SITE PLAN



Contours: 2ft  
Date: 08/2017  
0ft 25 50 75 100



# EXISTING & PROPOSED PARKING CONCEPT





## EXISTING PARKING



Lot Number	Lot Name	Number of Cars	% Total Within/ Outside SWD	AVERAGE Number of Visitors 2.6 pp/car	PEAK Number of Visitors 3.0 pp/car	PEAK Number of Skiers at 80% Participation
<b>Tahoe Donner</b>						
Within SWD						
P1	Roadside - Snowpeak Way & Slalom Way	65		169	195	156
P2	4 tier lots (60% take shuttle / 40% walk)	194		504	582	466
P3	Slalom lot	60		156	180	144
<b>Subtotal Within SWD</b>		<b>319</b>	<b>80%</b>	<b>829</b>	<b>957</b>	<b>766</b>
Outside SWD						
P4	The Lodge (Golf Course Parking, half used for XC)	53		137	158	126
P5	Northwoods Clubhouse Parking	25		65	75	60
<b>Subtotal Outside SWD</b>		<b>78</b>	<b>20%</b>	<b>202</b>	<b>233</b>	<b>186</b>
<b>Total Tahoe Donner</b>		<b>397</b>	<b>100%</b>	<b>1,031</b>	<b>1,190</b>	<b>952</b>

- ❖ Currently allowance for employee parking is tentative in condo development, may be removed. How many employee stalls required?



# EXISTING STAGING ANALYSIS



	During Peak Times (1,700 skiers)	
	Number of Visitors	Number of Skiers
<b>Tahoe Donner Within SWD</b>		
From Pillows (Walking)	50	40
From Parking (Walking)	957	766
Charter Bus, Private Drop Off from surrounding homes (8%)	77	61
<b>Subtotal Within SWD</b>	<b>1,084</b>	<b>867</b>
<b>Outside SWD</b>		
From Parking (Arrive by Shuttle)	233	186
<b>Total Tahoe Donner</b>	<b>1,317</b>	<b>1,053</b>





## EXISTING / PROPOSED PARKING



Lot Number	Lot Name	Number of Cars	% Total Within/ Outside SWD	AVERAGE Number of Visitors 2.6 pp/car	PEAK Number of Visitors 3.0 pp/car	PEAK Number of Skiers at 80% Participation
<b>Tahoe Donner</b>						
Within SWD						
P1	Roadside - Snowpeak Way & Slalom Way	65		169	195	156
P2	4 tier lots (60% take shuttle / 40% walk)	194		504	582	466
P3	Slalom lot	60		156	180	144
<b>Subtotal Within SWD</b>		<b>319</b>	<b>49%</b>	<b>829</b>	<b>957</b>	<b>766</b>
Outside SWD						
P4	The Lodge (Golf Course Parking, half used for XC)	53		137	158	126
P5	Northwoods Clubhouse Parking	25		65	75	60
P6	Corner Lot	45		117	135	108
P7	Alder Creek Mail*	15		39	45	36
P8	Hansel Mail*	18		47	54	43
P9	Zurich Mail*	10		26	30	24
P10	Tahoe Donner Trailhead Parking incl. roadside parallel**	40		104	120	96
P11	Potential Lot***	125		325	375	300
<b>Subtotal Outside SWD</b>		<b>331</b>	<b>51%</b>	<b>860</b>	<b>992</b>	<b>793</b>
<b>Total Tahoe Donner</b>		<b>650</b>	<b>100%</b>	<b>1,689</b>	<b>1,949</b>	<b>1,559</b>

\*Ecosign estimate based on 140 cars per acre

\*\*Consider this area for staff parking

\*\*\*Potential lot near Coyote Moon



# PROPOSED STAGING ANALYSIS



	Number of Visitors	Number of Skiers
<b>Tahoe Donner Within SWD</b>		
From Pillows (Walking)	50	40
From Parking (Walking)	957	766
Charter Bus, Private Drop Off from surrounding homes (8%)	77	61
<b>Subtotal Within SWD</b>	<b>1,084</b>	<b>867</b>
<b>Outside SWD</b>		
From Parking (Arrive by Shuttle)	992	793
<b>Total Tahoe Donner</b>	<b>2,076</b>	<b>1,660</b>

❖ Refer to Parking Plan







### 1. MOUNTAIN CAPACITY

- Ability to provide a comfortable skier experience at peak times

**1,880 skiers on Ski Terrain, 1,460 skiers on lifts**

**(2,130 future ski terrain potential)**

### 2. SKIER SERVICE CAPACITY

- Ability to adequately service the requirements of skiers (rentals, ski school, food service etc.) built for 75% of Peak (1,300 skiers)
- Provide suitable space for Mountain Ops

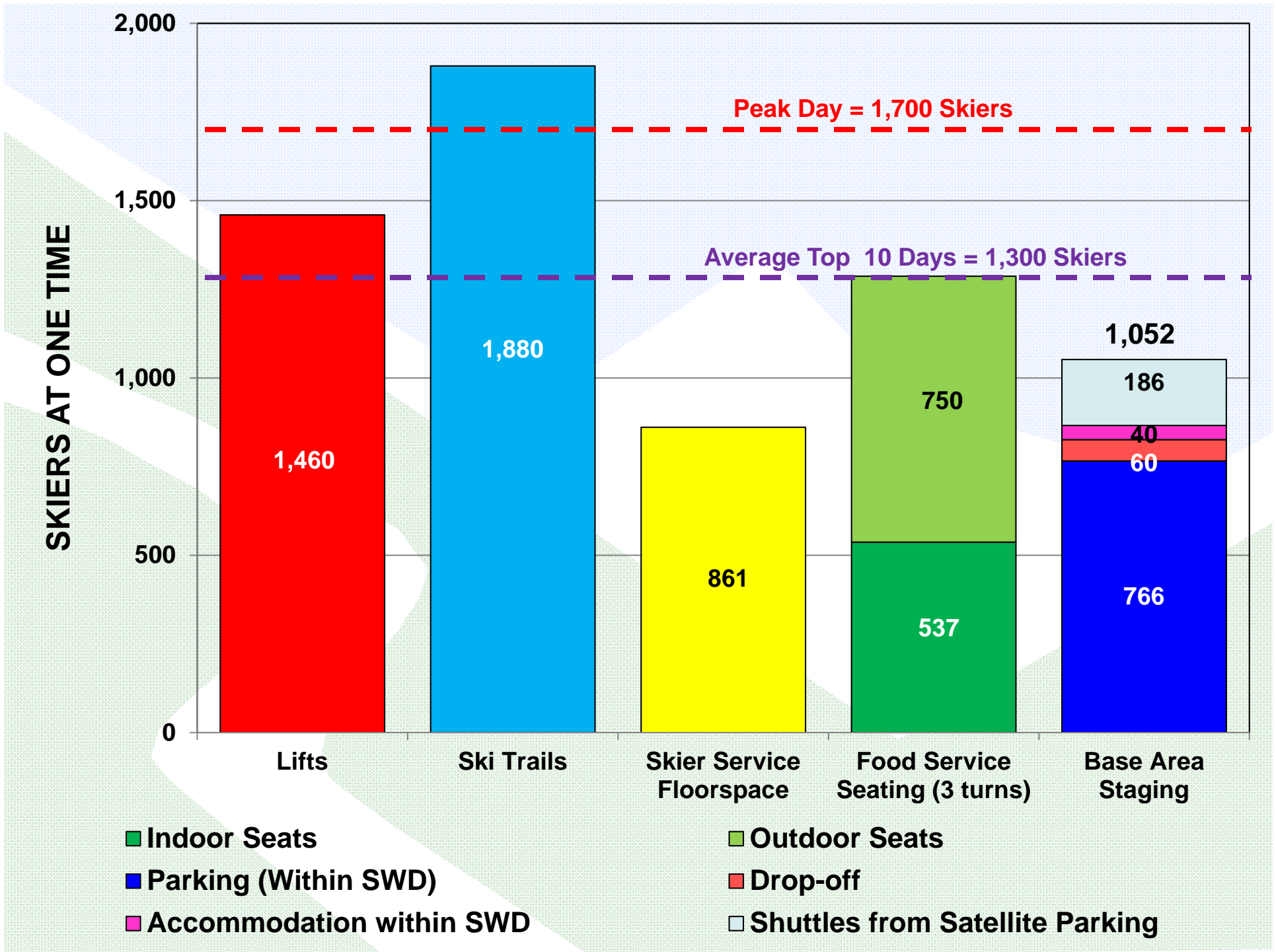
**Current Skier Service Capacity for 861 skiers**

### 3. STAGING CAPACITY

- Ability to get Visitors & Skiers to the Mountain (Parking and Drop-off etc.)

**Current Staging Capacity for 1,053 skiers**







## NEXT STEPS / REMAINING QUESTIONS



- ❖ Estimate of future business levels – target skier peak day (increase/target average of 2016/2017 business levels) – Appears that ~2100 SCC is future maximum.
- ❖ Consideration of alternative Staging / Skier Service facility location- two potential sites demonstrate superior natural physical qualities if access / development is possible.
- ❖ Review Parking counts and locations. Any other options for additional parking?
- ❖ Snowmaking- work with staff to identify desired expansion
- ❖ Ski School-would like to discuss ski terrain usage, confirm moving carpet area capacities (existing).
- ❖ Direction on Mountain Master Plan- improvements at Existing Base Area, Snowbird Replacement, New Future Lift alignment and ski trails, improvements to novice ski routes back to existing Base Area.



## NEXT STEPS / REMAINING QUESTIONS – SKIER SERVICE



- ❖ Careful review square foot-per-skier assumptions (18.40 sqft/skier). This drives the final required Size & Price. Need confirmation on this before proceeding to concept stage.
- ❖ Include Bar / Lounge?
- ❖ Used higher Locker Space assumption. Do you want additional space for club lockers?
- ❖ Ratio of indoor to outdoor seats going forward? Usually Design Day (75%) of Target Peak Day, with remaining skiers allowed for outside (note: bad weather may impact skier visits and lower inside seat demand)
- ❖ Additional Notes: Will consider phasing and implementation to minimize business impact during construction. Total Skier Service space required can be split into multiple buildings.
- ❖ Underground Parking? Potential for +/- 20 underground stalls





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