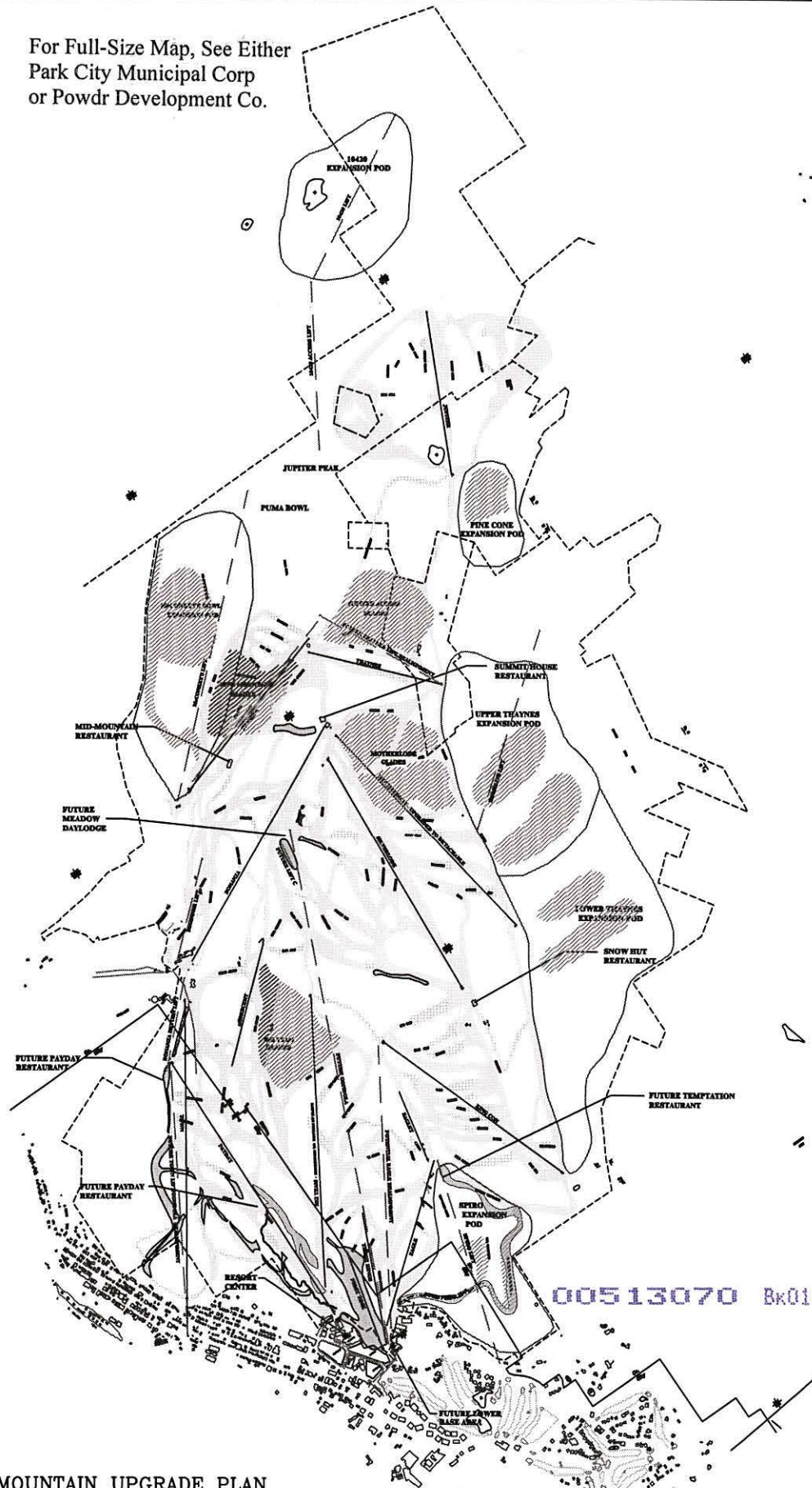


For Full-Size Map, See Either  
Park City Municipal Corp  
or Powdr Development Co.



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MOUNTAIN UPGRADE PLAN



- LEGEND**
- Proposed Ski Run
  - Existing Ski Run
  - Expansion Pod
  - Planned Future Lift
  - City-County Line
  - Existing Gladed Areas
  - Future Gladed Areas
  - Tree Line
  - 10 Foot Contour
  - 50 Foot Contour
  - Existing Building
  - Existing Ski Lift
  - Existing Road
  - Lease Line



# Park City Ski Area

## Mountain Upgrade Plan

Exhibit L

00513070 Bx01166 Pg00609

August 1996

sno.engineering



## Mountain Upgrade Plan

August 1996

Prepared for:  
Park City Ski Area  
Post Office Box 39  
Park City, Utah

Prepared by:  
Sno-engineering, Inc.  
Littleton, New Hampshire  
Frisco, Colorado

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**PROPRIETARY AND CONFIDENTIAL**  
**PLEASE RETURN TO PARK CITY SKI AREA - DO NOT DUPLICATE**



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**APPENDIX A**

**PARK CITY SKI AREA PARKING  
AND CAPACITY ANALYSIS ..... 49**

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# I. INTRODUCTION

## A. Background

Sno.engineering, Inc. has been retained by Powdr Corporation to develop a mountain upgrade plan for the Park City Ski Area (PCSA). The primary goal in undertaking this project is to develop a long-range plan for upgrading the ski area facilities. Specific objectives of the upgrading plan include:

- ◆ to identify opportunities to improve the quality of the ski product by upgrading facilities within the current ski area boundary;
- ◆ to utilize innovative ski area planning and design techniques, as well as recent technological advances, to modernize the ski area facilities;
- ◆ to reconfigure the out-of-base lifts to accommodate a new base area staging portal in the Three Kings/First Time area;
- ◆ to develop a greater variety of ski terrain tailored to the skier market ability distribution (to the extent possible) with an emphasis on enhancing opportunities for beginner, novice, intermediate, and advanced intermediate skiers;
- ◆ to improve out-of-base lift capacity, end-of-day egress trail capacity, and overall skier circulation;
- ◆ to balance the uphill capacity of the lift systems with the downhill capacity of the ski trails;
- ◆ to identify areas of potential future expansion terrain; and
- ◆ to establish the skier support facility requirements (day lodge square footage, food service seating, and parking/shuttle/overnight accommodations) to maintain a balance with the upgraded lift and trail system.

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## **B. Study Methodology**

In order to develop a mountain upgrade plan for PCSA that is responsive to the planning goals and objectives outlined above, an evaluative process has been undertaken that includes three interrelated tasks. These components are summarized below:

### **Existing Conditions**

An evaluation of the existing conditions at PCSA was completed, which involved a review of the ski area's physical resources and an assessment of the existing ski area operation. On site investigations of the ski facilities were conducted under bare ground conditions, and during winter operations, including a site visit to observe the facility during "America's World Cup Opener". The inventory of site resources helps to guide the planning and location of new facilities, whereas the assessment of the existing ski operation identifies deficiencies within the ski area which must be brought into balance to improve the recreational experience. The evaluation of existing conditions is set forth in Section III of this document.

### **Alternative Development Concepts**

The initial inventory and analysis of the existing ski area operation lead to the production of a number of alternative development concepts for upgrading the ski facilities. The alternative concepts were presented to the PCSA planning team in Park City for review and comments. Based upon input from the PCSA planning team, a "preferred concept" was selected.

### **Mountain Upgrade Plan**

The "preferred concept" guided the production of the Park City Ski Area Mountain Upgrade Plan, which sets forth the improvement program for PCSA. Addressing both ski facilities and visitor services, the Mountain Upgrade Plan is outlined in Section IV of this document.

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## II. DESIGN CRITERIA

The upgrading and expansion of a ski area is influenced by a variety of ski facility design criteria that help to create a quality ski experience. This section will briefly discuss these factors as they apply to PCSA.

### A. Trail Design

#### 1. Fall-Line

This analysis looks at the natural flow of skiers and skier routes that will service various skier ability levels from the top of the mountain to the base area on a consistent basis. Consistency of fall-line provides for the best recreational skiing experience and demonstrates the resort's potential to develop an expanded ski trail system with minimal topographic disturbance.

#### 2. Slope Gradients and Terrain Breakdown

The following gradients were used to determine the skier ability level of the mountain terrain.

Table II-1  
ACCEPTABLE TERRAIN GRADIENTS

Skier Ability	Slope Gradient
Beginner	8 to 12%
Novice	to 25% (short pitches to 30%)
Low Intermediate	to 30% (short pitches to 35%)
Intermediate	to 40% (short pitches to 45%)
Advanced Intermediate	to 50% (short pitches to 55%)
Expert	over 50% (maximum of 80%)

Source: Sno.engineering, Inc.

The resultant terrain breakdown is then compared with the market demand for each ability level. The available ski terrain should be capable of accommodating the full range of ability levels consistent with market demand. The ideal breakdown of terrain for PCSA's skier market is shown in table II-2. This table illustrates that intermediate skiers comprise the bulk of PCSA's skier market.

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**Table II-2  
PCSA'S SKIER ABILITY BREAKDOWN**

Skier Ability	Percent of Skier Market
Beginner	5 percent
Novice	12 percent
Low Intermediate	18 percent
Intermediate	35 percent
Advanced Intermediate	20 percent
Expert	10 percent

Source: Sno.engineering, Inc.

### 3. Trail Density

The calculation of capacity for a ski area is based in part on the acceptable number of skiers that can be accommodated on each acre of ski terrain at any one given time. The widely accepted density criteria for ski areas in western North America are listed in Table II-3.

**Table II-3  
SKIERS DENSITY PER ACRE**

Skier Ability	Trail Density
Beginner/Novice	50 skiers/acre
Low Intermediate/Intermediate	30 skiers/acre
Advanced Intermediate/Expert	15 skiers/acre

Source: Sno.engineering, Inc.

These density figures are based on the assumption that on an average day, approximately 33 percent of the total number of skiers in the area will be on the trails at any one time. The remainder of the skiers are either in lift lines, riding the lifts, or utilizing skier support services. The densities listed above have been used in the analysis of PCSA's trail densities.

### 4. Trail System

Each trail must have generally consistent grades to provide an interesting and challenging ski experience for the ability level for which the trail is designed. Optimum trail widths should vary depending upon topographic conditions and the caliber of the skier being served. The trail network must minimize cross-traffic and should provide

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the full range of ability levels consistent with market demand. The trails must be designed and constructed to minimize off fall-line conditions and to avoid bottlenecks and convergence zones, which might produce skier congestion.

In summary, a broad range of skiing terrain must be provided in order to satisfy skiers from beginner through expert ability levels within the natural, topographic characteristics of the site.

## **B. Lift Design**

Ski lifts should be placed to serve the available ski terrain in the most efficient manner, while considering a myriad of factors such as wind conditions, round-trip skiing and access needs, interconnectability between other lifts and trails, and the need for circulatory space at the lower and upper terminal sites. Additionally, it should be understood that the vertical rise and length of ski lifts for a particular mountain are the primary measures of overall attractiveness and marketability of a ski area.

## **C. Capacity Analysis and Design**

Comfortable Carrying Capacity (CCC) is defined as the optimal level of utilization for the ski area (the number of visitors that can be accommodated at any given time) which guarantees a pleasant recreational experience, while at the same time preserving the quality of the environment. The accurate estimation of the CCC of a ski area is a complex issue and is the single most important planning criterion for the resort. Given proper identification of the mountain's true capacity, all other related skier service facilities can be planned, such as base lodge seating, mountain restaurant requirements, sanitary facilities, parking, and other skier services. The CCC figure is based on a combination of the uphill hourly capacity of the lift system, the downhill capacity of the trail system, and the total amount of time spent in the lift waiting line, on the lift itself, and in the downhill descent.

Sno. engineering employs a planning parameter which recommends that the total ski area CCC should be able to flow through the entry portal or out of the base area lifts in 90 to 120 minutes. Accordingly, total out-of-base skier capacity is computed using the hourly



uphill capacity of the access lifts multiplied by the minimum 90 to 120 minute cycle time. This planning parameter must also address return ski trail capacity over a 90-minute egress period.

#### **D. Base Area Design**

Particular consideration should be given to the relationship of the base area to the mountain facilities. Skiers should gravitate naturally into the base area and mid-mountain hubs allowing convenient access to any of the lift systems originating in these staging areas. Upon arrival at the ski area, skiers should be able to move directly from parking/shuttle drop-off areas, through ticketing or rentals, to the base of the lifts. Walking distance and vertical differential between the base area facilities and lifts should be minimized in an effort to move skiers directly onto the mountain. Vehicle, pedestrian, and skier circulation should be coordinated to create a safe and pleasant base area environment.

#### **E. Balance of Facilities**

The mountain master planning process emphasizes the importance of balancing recreational facility development. The size of the skier service functions must be matched to the CCC of the mountain. The future development of a ski area should be designed and coordinated to maintain a balance between skier demand, ski area capacity (lifts and trails), and the supporting equipment and facilities (e.g. grooming machines, day lodge services and facilities, overnight lodging, utility infrastructure, access, and parking).

Based upon the suitability of site resources, complementary year-round facilities and recreational opportunities should also be integrated into a comprehensive plan. In addition to alpine skiing, activities such as nordic skiing, snowshoeing, ice skating, summer chairlift rides, hiking, bike riding, golf, tennis, wildlife viewing, and environmental interpretation programs can help enhance the overall attractiveness of a resort's environs.

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### III. EXISTING SKI RESORT FACILITIES

The following section contains an examination and analysis of PCSA's existing ski facilities. As the first step in the evaluation process, the resort inventory involves the collection of data pertaining to PCSA's existing facilities, including data regarding: ski lifts, ski trails, base area structures, skier services, and day-use parking/shuttle services. The analysis of the inventory data involves the application of ski industry standards to PCSA's existing conditions. This process enables Sno. engineering to compare PCSA's existing ski facilities to those facilities commonly found at other North American ski resorts of similar size and composition.

The overall balance of the existing ski area is evaluated by calculating the skier capacities of PCSA's various facility components, and, in turn, comparing these capacities to the ski area's CCC (PCSA's existing CCC is detailed in Section III.A.3). This examination of capacities helps to identify the ski resort's strengths and weaknesses (i.e. surpluses and deficiencies). With an understanding of the ski area's strengths and weaknesses, the next step is to identify improvements that will: (1) help bring the existing ski area into better equilibrium, and (2) help the resort meet the ever-changing needs of their skier marketplace. Accomplishing both of these objectives will ultimately enhance PCSA's financial performance.

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**MOUNTAIN UPGRADE PLAN**

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PREPARED BY:  
  
 800.849.0022

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**Figure III-1  
 Existing Ski Area**

DATE: AUGUST 1996  
 CONTOUR INTERVAL = 10ft



## A. Skiing Facilities

### 1. Ski Lifts

The skiable terrain at PCSA is currently served by two detachable quads, four fixed-grip doubles, six fixed-grip triples, one fixed-grip quad, and one four-passenger gondola. Table III-1 provides specifications for PCSA's fourteen existing lifts.

**Table III-1  
EXISTING LIFT SPECIFICATIONS**

Map Ref.	Lift Name	Lift Type	Top Elev. (ft.)	Bot. Elev. (ft.)	Vert. Rise (ft.)	Horiz. Length (ft.)	Slope Length (ft.)	Avg. Grade (%)	Hourly Capacity (skiers/hr.)	Rope Speed (fpm)
1	Prospector	Det. Quad	9,250	7,980	1,270	5,130	5,285	25	2,800	1,000
2	Thaynes	Double	9,385	8,505	880	2,630	2,773	33	1,200	500
3	Three Kings	Double	7,360	6,895	465	2,570	2,612	18	900	400
4	Pay Day	Triple	8,250	6,980	1,270	5,790	5,928	22	1,800	500
5	Crescent	Quad	8,735	7,875	860	2,440	2,587	35	1,800	450
6	First Time	Triple	7,170	6,900	270	1,900	1,919	14	900	350
7	King Con	Det. Quad	8,480	7,280	1,200	4,320	4,484	28	2,800	1000
8	Jupiter	Double	9,960	8,935	1,025	3,200	3,360	32	1,200	500
9	Ski Team	Double	8,630	7,020	1,610	5,600	5,827	29	1,200	500
10	Motherload	Triple	9,230	7,975	1,255	5,110	5,262	25	1,800	500
11	Pioneer	Triple	9,400	8,400	1,000	4,070	4,191	25	1,800	500
12	Town	Triple	8,175	6,985	1,190	6,430	6,539	19	1,800	500
13	Eagle	Triple	8,050	6,915	1,135	3,300	3,490	34	1,200	500
14a	Gondola (lower)	4-Pass.	8,180	6,990	1,190	6,950	7,051	17	600	500
14b	Gondola (upper)	4-Pass.	9,230	8,180	1,050	5,650	5,747	19	600	500

Source: PCSA Resort Management

PCSA's existing lifts service the terrain efficiently, however many of the lifts have low hourly capacities (the exceptions being the Prospector and King Con detachable quads). While many of PCSA's lifts feature older technology, these lifts are generally well-maintained. Pay Day, Ski Team, Motherlode, Town, and the Gondola all have long slope lengths and relatively slow rope speeds, causing these lifts to be underutilized due to their long ride time. The base terminals of Ski Team and Eagle chairlifts are inconveniently located for access from parking areas and skier services in the base area.

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## 2. Ski Terrain

The existing ski area has approximately 700 acres of skiable acreage (not including natural, non-maintained tree skiing and chutes). The sanctioned ski trail network accommodates the entire range of skier ability levels, from beginner to expert. Table III-2 outlines the terrain which constitutes PCSA's formal ski trail network.

**Table III-2  
EXISTING SKI TERRAIN SPECIFICATIONS**

Map Ref.	Trail Name	Vert. Drop (ft.)	Horiz. Length (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Area (acres)	Avg. Grade (%)	Max. Grade (%)	Ability Level
1	Upper Claim Jump.	488	3,416	3,459	145	11.51	14	27	Low Int.
2	Claim Jumper	598	3,039	3,103	195	13.89	20	31	Low Int.
3	Lower Claim Jump.	202	1,496	1,518	150	5.23	14	25	Low Int.
4	Assessment	733	3,443	3,539	150	12.19	21	36	Inter.
5	Powder Keg	435	1,259	1,335	175	5.36	35	35	Inter.
6	Hidden Splendor	920	3,704	3,740	150	12.88	25	45	Inter.
7	Mel's Alley	450	2,150	2,197	75	3.78	21	26	Low Int.
8	Newport	445	989	1,088	150	3.75	45	57	Expert
9	Lost Prospector	360	850	923	100	2.12	42	62	Expert
10	Dynamite	332	892	956	150	3.29	37	52	Adv. Int.
11	Up. Lost Prospector	300	1,500	1,530	150	5.27	20	29	Low Int.
12	Prospector	783	2,638	2,768	200	12.71	30	51	Adv. Int.
13	Lower Parley's	365	1,450	1,495	200	6.87	25	44	Inter.
14	Parley's Park	310	794	880	200	4.04	39	43	Inter.
15	Upper Prospector	469	2,936	2,981	100	6.84	16	28	Low Int.
16	Single Jack	595	2,400	2,473	75	4.26	25	29	Low Int.
17	Double Jack	675	1,743	1,879	200	8.63	39	56	Expert
18	Summit Road	145	1,386	1,405	50	1.61	10	10	Low Int.
19	Thaynes	817	2,177	2,345	200	10.77	38	68	Expert
20	Hoist	739	2,133	2,290	100	5.26	35	70	Expert
21	Keystone	827	4,417	4,538	75	7.81	19	45	Inter.
22	King's Crown	174	783	803	75	1.38	22	28	Low Int.
23	Three Kings	191	780	780	100	1.79	25	37	Inter.
24	Quick Silver	186	721	747	100	1.71	26	31	Low Int.
25	Pick 'n Shovel	461	2,495	2,544	150	8.76	18	25	Novice
26	Silver Hollow	393	2,711	2,755	100	6.32	14	25	Novice
27	Pay Day	1,140	5,292	5,435	100	12.48	22	40	Inter.
28	Nastar	663	3,025	3,106	120	8.56	22	36	Inter.
29	Drift	361	3,265	3,302	30	2.27	11	34	Low Int.
30	Lower Blanche	354	1,735	1,773	150	6.10	20	25	Low Int.
31	Nail Driver	565	1,346	1,469	175	5.90	42	69	Expert
32	Widowmaker	438	979	1,077	300	7.42	45	62	Expert

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Map Ref.	Trail Name	Vert. Drop (ft.)	Horiz. Length (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Area (acres)	Avg. Grade (%)	Max. Grade (%)	Ability Level
33	Dividend	271	769	817	175	3.28	35	43	Inter.
34	Treasure Hollow	703	2,973	3,073	200	14.11	24	44	Inter.
35	Silver Queen	567	1,530	1,643	125	4.72	37	58	Expert
35A	Upper Silver Queen	116	1,076	1,085	125	3.11	11	19	Expert
36	Crescent	841	2,201	2,373	150	8.17	38	58	Expert
37	Silver Skis	671	1,414	1,573	125	4.51	47	66	Expert
38	Shaft	886	1,682	1,906	50	2.19	53	62	Expert
39	Water Fall	490	1,910	1,972	100	4.53	26	62	Expert
40	First Time	269	2,032	2,057	125	5.90	13	22	Novice
41	Bunny Hollow	239	1,612	1,638	100	3.76	15	22	Novice
42	Teaching Area	65	1,070	1,072	125	3.08	6	8	Beginner
43	Road to Hollow	70	1,600	1,602	30	1.10	6	10	Beginner
44	Hot Spot	265	1,213	1,249	150	4.30	22	38	Inter.
45	Combustion	302	1,132	1,192	150	4.10	27	57	Expert
46	Gotcha Ridge	357	1,951	1,984	150	6.83	18	23	Low Int.
47	Temptation	735	3,650	3,723	120	10.26	20	35	Low Int.
48	Seldom Seen	623	1,955	2,062	175	8.28	32	55	Adv. Int.
49	Climax	559	1,683	1,780	150	6.13	33	49	Adv. Int.
50	Monitor	523	1,525	1,619	125	4.65	34	53	Adv. Int.
51	Eureka	483	1,328	1,416	125	4.06	36	51	Adv. Int.
52	Liberty	504	1,309	1,407	175	5.65	39	54	Adv. Int.
53	Shamus	508	1,418	1,511	175	6.07	36	50	Adv. Int.
54	Sitka	641	2,027	2,143	175	8.61	32	58	Expert
55	Courchevel	568	1,603	1,708	150	5.88	35	52	Adv. Int.
56	High Card	672	2,032	2,150	150	7.40	33	55	Expert
56A	Chance	356	942	1,011	150	3.48	38	50	Adv. Int.
57	King Con	584	1,890	1,981	150	6.82	31	40	Inter.
58	Broadway	435	3,820	3,845	100	8.83	11	18	Low Int.
59	Shadow Ridge	990	3,110	3,264	100	7.49	32	56	Expert
60	Scotts Bowl	885	4,800	4,881	150	16.81	18	77	Expert
61	Fortune Teller	950	2,780	2,938	200	13.49	34	83	Expert
62	Silver Cliff	715	1,780	1,918	100	4.40	40	75	Expert
63	Indicator	780	2,100	2,240	100	5.14	37	95	Expert
64	Portuguese Gap	680	2,020	2,131	100	4.89	34	73	Expert
65	Six Bells	570	1,050	1,195	100	2.74	54	95	Expert
66	West Face	1,905	5,870	6,171	200	28.34	32	67	Expert
67	Jupiter Road	743	7,386	7,457	25	4.28	10	35	Low Int.
68	Silver King	904	1,966	2,184	200	10.03	46	76	Expert
69	Willy's Run	1,245	3,829	4,060	150	13.98	33	62	Expert
70	Men's GS	1,610	3,550	3,898	150	13.42	45	65	Expert
71	Men's SL	550	965	1,250	150	4.30	57	62	Expert
72	Ladies SL	397	991	1,073	200	4.93	40	59	Expert
73	Thaynes Canyon	1,150	9,450	9,520	50	10.93	12	19	Low Int.

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Map Ref.	Trail Name	Vert. Drop (ft.)	Horiz. Length (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Area (acres)	Avg. Grade (%)	Max. Grade (%)	Ability Level
74	Lower Single Jack	450	880	988	200	4.54	51	71	Expert
75	Ford Country	716	1,627	1,791	200	8.22	44	64	Expert
76	Glory Hole	720	1,817	1,964	200	9.02	40	55	Adv. Int.
77	Sunny Side	686	1,926	2,059	175	8.27	36	53	Adv. Int.
78	Carbide Cut	310	970	1,018	150	3.51	32	42	Inter.
79	Sampson	470	1,557	1,653	100	3.80	30	55	Adv. Int.
80	Comstock	439	1,181	1,277	100	2.93	37	55	Adv. Int.
81	Red Fox	406	1,137	1,213	125	3.48	36	50	Adv. Int.
82	Hawk Eye	379	1,212	1,281	125	3.68	31	47	Adv. Int.
83	Woodside	713	3,271	3,371	100	7.74	22	42	Adv. Int.
84	Blue Slip Bowl	554	1,614	1,734	200	7.96	34	71	Expert
85	Webster	496	3,515	3,568	150	12.29	14	29	Low Int.
86	Lucky Boy	345	1,900	1,931	75	3.32	18	50	Adv. Int.
87	Creole	576	2,092	2,190	150	7.54	28	49	Adv. Int.
88	Quit 'n Time	551	2,724	2,811	100	6.45	20	52	Adv. Int.
89	Gotcha Cutoff	605	5,180	5,215	30	3.59	12	36	Inter.
90	C.B.'s Run	801	1,918	2,091	150	7.20	42	62	Expert
91	Upper Clementine	340	950	1,009	150	3.47	36	63	Expert
92	Commitment	500	1,150	1,254	150	4.32	43	83	Expert
93	Clementine	315	1,600	1,631	200	7.49	20	31	Low Int.
94	Bonanza	400	3,150	3,175	200	14.58	13	29	Low Int.
95	Bonanza Cutoff	178	1,947	1,929	30	1.33	09	21	Low Int.
96	Bonanza Road	156	1,362	1,378	30	0.95	11	24	Low Int.
97	Belmont	465	1,745	1,821	150	6.27	27	59	Expert
98	Side Winder	1,003	5,864	6,002	200	27.56	17	35	Low Int.
99	King Con Access	197	3,457	3,474	30	2.39	06	21	Low Int.
100	Quarter Load	85	381	391	200	1.80	22	30	Low Int.
101	Half Load	141	427	450	200	2.06	33	38	Inter.
	Total:					691.53			

Source: PCSA Resort Management

### Existing Ski Terrain Classification Distribution

The ski trails described in Table III-2 have been categorized according to skier ability level. The six skier ability levels used to classify the slopes and trails at PCSA have been compared with the national trail standards (refer to Table III-3).

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**Table III-3  
ABILITY LEVELS AND NATIONAL TRAIL STANDARDS**

Skier Ability Level	Trail Designation	Map Symbol
Beginner and Novice	Easier	Green Circle ●
Low Intermediate and Intermediate	More Difficult	Blue Square ■
Advanced Intermediate and Expert	Most Difficult	Black Diamond ◆

Source: Sno.engineering, Inc.

Table III-4 sets forth a distribution of PCSA's existing ski terrain by skier ability level. The figures in the skier capacity column indicate the total number of skiers the ski terrain in each ability level category can support. The last column in this table represents the skill level distribution of PCSA's skier market.

**Table III-4  
EXISTING SKI TERRAIN DISTRIBUTION BY ABILITY LEVEL**

Skier Ability Level	Skiable Area (acres)	Skier Capacity (skiers)	Skier Distribution (%)	Skier Market (%)
Beginner	4.2	167	1	5
Novice	24.7	742	6	12
Low Intermediate	173.4	4,334	37	18
Intermediate	109.6	2,193	19	35
Adv. Intermediate	116.4	1,747	15	20
Expert	263.1	2,631	22	10
Total:	691.5	11,815	100	100

Source: PCSA Resort Management, Sno.engineering, Inc.

The results of the ski terrain classification distribution indicate that there is a surplus of low intermediate and expert terrain, with a commensurate deficit of beginner, novice, intermediate, and advanced intermediate terrain. As a result, PCSA's upgrading plan should focus on improving the distribution of terrain by enhancing the skiing opportunities for beginner, novice, intermediate, and advanced intermediate skiers.

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### 3. Analysis of Comfortable Carrying Capacity

The CCC is a measure of the number of visitors that can be effectively served by the mountain facilities while maintaining a comfortable skiing atmosphere. Of the total CCC, 70 to 85 percent (depending primarily on weather and snow conditions) will be actively skiing, while the balance of the visitors will be using skier support facilities. At a well-balanced ski facility, the active skiers will be evenly distributed throughout the mountain facilities -- on ski trails, waiting in lift lines, or riding ski lifts.

As was stated earlier, the accurate estimation of a ski area's CCC is a complex issue and is the single most important planning criterion for the ski area. Based on the proper identification of the mountain's capacity, all other related skier service facilities can be planned (e.g. base lodge seating, mountain restaurant requirements, sanitary facilities, parking, and other skier services).

The estimated CCC for the existing ski facilities at PCSA is calculated in Table III-5.

**Table III-5  
EXISTING COMFORTABLE CARRYING CAPACITY**

Lift Name	Lift Type	Slope Length (ft.)	Vert. Rise (ft.)	Hourly Capacity (skiers/hr.)	Oper. Hours (hrs.)	Load Eff. (%)	Adjust. Hrly. Cap. (skiers/hr.)	VTF/Hr (000)	Vertical Demand (ft./day)	CCC (skiers)
Prospector	Det. Quad	5,285	1,270	2,800	6.75	95	2,660	3,556	11,769	1,940
Thaynes	Double	2,773	880	1,200	6.50	95	1,140	1,056	16,706	390
Three Kings	Double	2,612	465	900	7.00	90	810	419	6,156	430
Pay Day	Triple	5,928	1,270	1,800	7.00	80	1,440	2,286	11,254	1,140
Crescent	Quad	2,587	860	1,800	6.75	50	900	1,548	18,011	290
First Time	Triple	1,919	270	900	7.00	90	810	243	3,588	430
King Con	Det. Quad	4,484	1,200	2,800	6.75	95	2,660	3,360	12,061	1,790
Jupiter	Double	3,360	1,025	1,200	6.00	95	1,140	1,230	20,271	350
Ski Team	Double	5,827	1,610	1,200	7.00	80	960	1,932	21,258	510
Motherload	Triple	5,262	1,255	1,800	6.50	90	1,620	2,259	15,659	840
Pioneer	Triple	4,191	1,000	1,800	6.50	90	1,620	1,800	13,045	810
Town	Triple	6,539	1,190	1,800	7.00	25	450	2,142	13,820	270
Eagle	Triple	3,490	1,135	1,200	7.00	50	600	1,362	18,789	250
Gondola (lower)	4-Pass.	7,051	1,190	600	7.00	25	150	714	9,622	130
Gondola (upper)	4-Pass.	5,747	1,050	600	7.00	75	450	630	9,815	340
<b>Total:</b>		67,054		22,400			17,410	24,537		9,910

Source: PCSA Resort Management, Sno.engineering, Inc.

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As described earlier, the CCC is defined as the number of active and inactive skiers that can be accommodated at a ski area at any given time while guaranteeing a pleasant recreational experience and, at the same time, preserving the quality of the environment. As Table III-5 illustrates, PCSA's existing CCC is 9,910 skiers.

It is not uncommon for ski areas to experience peak days, throughout the ski season, during which skier visitation exceeds the CCC by as much as 25 percent. However, it is not recommended that resorts consistently exceed their CCC due to the resulting decrease in the quality of the recreational experience (and thus the resort's repeat business). Historical skier-visit performance records at PCSA indicate that the resort experiences peak days which are approximately 10 percent greater than the CCC, or approximately 11,000 skiers.

### Terrain Capacity and Skier Density

The CCC figures specified above are based on uphill lift capacity. In order to measure the balance between uphill lift capacity and downhill slope capacity, the CCC of the lifts must be compared with the resort's terrain capacity. To calculate terrain capacity, the total area of the ski trails is multiplied by an average trail density that reflects the ability distribution of the ski terrain. As the difficulty of the terrain increases, the acceptable slope density decreases. The following table outlines the industry standards for acceptable slope densities at ski areas in the western United States.

**Table III-6**  
**SKIER DENSITY PER ACRE INDUSTRY STANDARDS**

Skier Ability	Acceptable Slope Density	Ski Area Design Density
Beginner	10-20/acre	40-60/acre
Novice	8-17/acre	30-50/acre
Low Intermediate	6-13/acre	25-40/acre
Intermediate	5-10/acre	20-30/acre
Advanced Intermediate	3-5/acre	10-20/acre
Expert	1-4/acre	5-15/acre

Source: Sno.engineering, Inc.

In Table III-6, the "acceptable slope density" figure represents the number of skiers who are actually on the ski trails. The "ski area design density" figure accounts for the total carrying capacity of the trails, including skiers on the slopes, riding the lifts, waiting in lift lines, and using milling areas and support facilities. At a well-balanced ski facility, approximately one-third of the active skiers will be on the slopes while the remaining two-thirds of the active skiers will be either riding the lifts or waiting in the lift lines. Active skiers make up 70 to 85 percent of the total number of skiers visiting a resort. As a result, the "acceptable slope density" must be multiplied by a factor of 3 to 4 to

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derive the overall “ski area design density.” A ski area’s terrain capacity is derived by finding the product of the average “ski area design density” and the skiable area.

One of the critical steps in estimating total capacity, and a method for making certain the density figures are applicable, is to determine the actual density of skiers per acre of skiable terrain, on a lift-by-lift basis. Using the trail and capacity figures developed in earlier tables, PCSA’s density breakdown is depicted in Table III-7.

**Table III-7  
EXISTING TERRAIN CAPACITY AND DENSITY ANALYSIS**

Lift Name	Area (acres)	CCC (skiers)	Terrain Capacity (skiers)	Actual Density (CCC/acre)	Acceptable Density (CCC/acre)	Difference (+/-)	Difference (actual/acceptable)
Prospector	110.5	1,940	2,044	18	19	-1	0.97
Thaynes	39.7	390	583	10	15	-5	0.68
Three Kings	17.1	430	482	25	28	-3	0.89
Pay Day	73.0	1,140	1,401	16	19	-3	0.83
Crescent	24.6	290	330	12	13	-1	0.90
First Time	12.9	430	428	33	33	0	0.99
King Con	103.4	1,790	1,788	17	17	0	0.98
Jupiter	83.3	350	833	4	10	-6	0.40
Ski Team	55.9	510	693	9	12	-3	0.72
Motherload	48.2	840	820	17	17	0	1.00
Pioneer	46.0	810	782	18	17	1	1.06
Town	15.8	270	256	17	16	1	1.05
Eagle	24.3	250	374	10	15	-5	0.65
Gondola (lower)	8.9	130	198	15	22	-7	0.68
Gondola (upper)	27.9	340	549	12	20	-8	0.61
<b>Total:</b>	<b>691.5</b>	<b>9,910</b>	<b>11,561</b>				

Source: PCSA Resort Management, Sno.engineering, Inc.

Table III-7 shows that PCSA’s downhill terrain capacity (11,561 skiers) exceeds the CCC of the lifts (9,910 skiers). This fact indicates that PCSA’s uphill lift capacity and downhill terrain capacity is relatively well-balanced, even on peak days when as many as 11,000 skiers visit PCSA. The small surplus of downhill terrain capacity is one sign that PCSA has uncongested trails. On a lift-by-lift basis, Table III-7 illustrates that Prospector, Crescent, First Time, King Con, Motherlode, Pioneer, and Town have uphill lift and downhill terrain capacities that are in equilibrium. The uphill capacity of all the other lifts could be increased to effect a more balanced lift/trail system. PCSA’s upgrading plan should focus on balancing the lifts and downhill capacities so that capital decisions produce a well-balanced and well-utilized product.

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#### 4. Skiers Access and Egress Analysis

##### Morning Access Capacity

The existing lift configuration at PCSA features seven out-of-base access lifts (Three Kings, Pay Day, First Time, Ski Team, Town, Eagle, and the Gondola) which provide access from the PCSA base area to the remote lifts, as well as to round-trip skiing opportunities on the lower slopes of the ski area. These lifts have a total out-of-base capacity of 6,264 skiers per hour. (The combined hourly capacity of these lifts is adjusted to reflect a 95 percent peak period loading efficiency rate.) To appraise the suitability of the access lifts for carrying skiers to the up-mountain lifts within an acceptable time frame, a computer modeling technique has been used to simulate the staging functions of each access lift. This model computes the percentage of the uphill capacity of the access lift that is dedicated to access versus the percentage of the lift capacity required for round-trip skiing during the access period. Knowing the total skier staging requirement for each access lift and the amount of uphill access capacity available, the access time for each lift can be calculated and compared to an industry standard. Table III-8 summarizes the access times for PCSA's out-of-base lifts.

**Table III-8  
EXISTING MORNING ACCESS CAPACITY**

Access Lift	Hourly Capacity* (skiers/hr.)	Percent Access (%)	Percent Round-Trip (%)	Access Capacity (skiers/hr.)	Total Access Requirement (skiers)	Access Time (minutes)
Three Kings	810	50	50	405	430	64
Pay Day	1,710	79	21	1,357	2,759	122
First Time	810	50	50	405	430	64
Ski Team	1,140	87	13	992	1,970	119
Town	1,710	86	14	1,466	945	39
Eagle	1,140	93	7	1,065	1,910	108
Gondola	600	96	4	573	1,466	153
Total:	7,920			6,264	9,910	

Source: Sno.engineering, Inc.

\* Reduced for loading efficiency.

According to an accepted industry standard, a destination ski resort's dedicated access lifts should have sufficient hourly capacities to supply the resort's remote lift systems with their daily CCC requirements in a period of 90 to 120 minutes. Table III-8 shows that the access times for the Ski Team and Eagle chairlifts are near the 120 minute limit. The access time at Pay Day exceeds 120 minutes and at the Gondola's access time is significantly higher (estimated at 153 minutes). This access deficiency is apparent on weekends and during holiday periods when morning lift lines are long at these locations.

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The access times in the right hand column of Table III-8 should not be confused with the length of the lift line at the various access lifts. The access time represents the amount of time the particular out-of-base lift is used primarily for access during the morning hours to supply the remote lifts with their daily capacity. The actual length of the lift line is dependent on the rate at which skiers are arriving at the lift in comparison with the uphill hourly capacity of the access lift. When the arrival rate of skiers is higher than the uphill lift capacity, lift lines will grow. Typically, when the access time extends longer than 90 minutes, the combined number of skiers arriving at the lift for their first ride (access skiers), and skiers who are also arriving at the lift's lower terminal from runs on terrain served by that lift (round-trip skiers) will exceed the uphill lift capacity, causing lift lines to grow.

### **Egress Capacity**

At the end of the ski day, PCSA's entire CCC must return to the resort's base facilities or to the base of the Town chairlift. The mandate of the egress capacity analysis is to ensure that there is a sufficient number of ski trails to accommodate the additional traffic returning from the remote ski lifts during the last 60 minutes of the ski day without causing unacceptable congestion on the return trails.

Currently, the majority of the skiers return to the base area or town via one of the following routes (or combination of routes): Pay Day Egress (Drift, Pay Day, Nastar), Sidewinder Egress (Silver Hollow, Sidewinder, Gotcha Cutoff, Treasure Hollow), Three Kings Egress (First Time, Pick N' Shovel/Clementine), Town Egress (Creole Entrance), and Upper Mountain Egress (Upper Claim Jumper, Webster, Bonanza Road, Silver Queen Road, Broadway/Thaynes).

The egress capacity analysis investigates the skier capacity of each egress trail based on acceptable skier flows at observed "bottleneck" areas. Table III-9 sets forth the resultant skier densities (number of skiers per acre) on each egress trail during the 60-minute egress period. The egress densities calculated for PCSA's return trails are then compared with acceptable density figures, which are based upon egress criteria collected at other ski areas within the Rocky Mountain region.

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**Table III-9  
EXISTING EGRESS TRAIL CAPACITY STUDY**

Egress Route	Min. Width (ft.)	Skier Speed (fpm)	Ability Level	Egress Req. (skiers)	1 Hour Egress* (skiers)	Egress Density (skier/acre)	Acceptable Density (skier/acre)	Diff. +/-	Diff. (%)
<b>Pay Day Egress</b>									
Drift	40	1,200	Low Int.	2,467	1,604	24	20	4	121
Pay Day	100	1,500	Inter.	1,044	679	3	15	(12)	22
Nastar	80	1,500	Inter.	695	451	3	15	(12)	18
<b>Sidewinder Egress</b>									
Silver Hollow	100	1,000	Beginner	6,125	3,981	29	25	4	116
Sidewinder	120	1,200	Low Int.	5,144	3,343	17	20	(3)	84
Gotcha Cutoff	75	1,800	Inter.	981	638	3	15	(12)	23
Treasure Hollow	60	1,500	Low Int.	2,365	1,537	12	20	(8)	62
<b>Three Kings Egress</b>									
First Time	80	1,200	Novice	559	363	3	20	(17)	14
Pick N' Shovel/Clem	150	1,200	Low Int.	551	358	1	20	(19)	7
<b>Town Egress</b>									
Creole Entrance	80	1,500	Inter.	1,072	697	4	15	(11)	28
<b>Upper Mtn. Egress</b>									
Upper Claim Jumper	95	1,200	Low Int.	5,848	3,801	24	20	4	121
Webster	25	1,200	Low Int.	1,610	1,046	25	20	5	127
Bonanza Road	50	1,200	Low Int.	3,314	2,154	26	20	6	130
Silver Queen Road	30	1,500	Adv. Int.	925	601	10	10	(0)	97
Broadway/Thaynes	30	1,500	Low Int.	433	281	5	20	(15)	23

Source: Sno.engineering, Inc.

\* Assumes that 65 percent of skiers exit the ski area from 3:30 PM to 4:30 PM.

Table III-9 indicates that the trail densities on Drift, Silver Hollow, Upper Claim Jumper, Webster, and Bonanza Road are subjected to congested conditions at the end of the ski day while other egress routes are underutilized. Section IV contains alternatives for improving PCSA's egress trail capacity.

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## **B. Visitor Services**

### **1. Visitor Service Buildings**

The buildings and facilities that accommodate visitor services must be sized and located such that they complement the mountain capacity. PCSA's existing visitor services are provided primarily in the Park City Resort Center and at three on-mountain locations: the Snow Hut at the base of the Prospector Chairlift, the Mid-Mountain Lodge off the Webster Trail, and the Summit House at the top of the Gondola (see Figure III-1 for building locations). The following discussion outlines the general layout of PCSA's visitor service buildings.

#### **Park City Resort Center**

Most of PCSA's visitor services are located in the buildings which comprise the Park City Resort Center. The main day lodge, located at the base of the Gondola, houses the Steeps Restaurant, as well as rest rooms, ski equipment rental and repair shops, and a retail shop. There are 504 indoor food service seats at Steeps and 140 outdoor seats. The day lodge building is well-located relative to the ski trails served by the Pay Day, Three Kings, First Time, Eagle, and Gondola lifts.

Other visitor service buildings in the Resort Center include the Gondola building, the Ticket building, Kinderschule, ski school, and several retail/rental/repair shops. Located adjacent to the base lodge, the Gondola building contains ski patrol/first aid space, as well as public and PCSA employee lockers. The primary ticket windows are located in the Ticket building across the plaza from the main day lodge. Additional ticket windows are located at a kiosk at the base of the Three Kings and Eagle chairlifts.

The new employee building is located to the east of the Resort Center and houses administration offices, rest rooms, and employee locker/lounge space.

#### **On-Mountain Buildings**

The Summit House, Snow Hut, and Mid-Mountain Restaurants provide food service facilities at strategic locations on the upper mountain. The Summit Restaurant is directly accessible from Pioneer, Thaynes, Motherlode, Prospector, and Upper Gondola lifts, and offers 392 indoor food service seats and 72 outdoor seats. The 168 indoor seats and 246 outdoor seats at the Snow Hut are conveniently located for access to and from King Con, Prospector, and Motherlode chairlifts. The Mid-Mountain Restaurant is centrally located on the upper mountain and offers 506 indoor seats and 508 outdoor seats.

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## 2. Size and Placement of Visitor Service Functions

Table III-10 shows the size and placement of all existing visitor services at PCSA.

**Table III-10  
EXISTING SPACE USE BY BUILDING/LOCATION**

Service Function	Resort Center (sq. ft.)	Summit (sq. ft.)	Snow Hut (sq. ft.)	Mid-Mountain (sq. ft.)	Total Space (sq. ft.)
Restaurant Seating*	9,050	6,000	3,000	7,280	25,330
Kitchen/Scramble	1,947	1,000	250	1,342	4,539
Bar/Lounge	6,171	0	0	0	6,171
Rest Rooms	1,898	1,200	320	1,594	5,012
Ski School	0	0	0	0	0
Ski Wee/Day Care	5,980	0	0	0	5,980
Rentals/Repair/Retail Sales	9,254	0	0	0	9,254
Ticket Sales	3,478	0	0	0	3,478
Public Lockers	2,407	0	0	0	2,407
Ski Patrol	3,971	0	0	0	3,971
Administration	16,382	0	0	0	16,382
Employee Lockers/Lounge	19,761	0	0	0	19,761
Total:	80,299	8,200	3,570	10,216	102,285

Source: PCSA Resort Management

\* Restaurant seating space does not include outdoor deck space

It should be noted that space use square footage information, available to PCSA management, was limited and included some known inconsistencies. Therefore, the information set forth in Table III-10 is not complete, and may include some inaccuracies. Field verification of PCSA's square footage information was beyond the scope of this report.

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Based upon a CCC of 9,910 skiers, Table III-11 illustrates the industry standards for space use for a resort of similar size and market orientation as PCSA. Space requirements outlined in Table III-11 are supplied for comparison and planning purposes only, and should not be considered absolute requirements for PCSA. However, given PCSA's mountain capacity of 9,910 skiers, space for the following services appears to be underappointed: restaurant seating, kitchen/scramble, ski school, public lockers, and ski patrol.

**Table III-11  
EXISTING TOTAL SPACE USE REQUIREMENTS**

Service Function	Resort Center (sq. ft.)	Summit (sq. ft.)	Snow Hut (sq. ft.)	Mid-Mountain (sq. ft.)	Total Space (sq. ft.)
Restaurant Seating	11,976	5,130	3,771	2,798	23,674
Kitchen/Scramble	4,790	2,736	2,011	2,238	11,775
Bar/Lounge	1,996	1,425	1,048	746	5,214
Rest Rooms	2,156	1,539	1,131	1,007	5,833
Ski School	5,252	0	0	0	5,252
Ski Wee/Day Care	5,351	0	0	0	5,351
Rentals/Repair	4,261	0	0	0	4,261
Retail Sales	6,042	365	268	239	6,913
Ticket Sales	1,487	0	0	0	1,487
Public Lockers	4,460	0	0	0	4,460
Ski Patrol	5,946	0	0	0	5,946
Administration	6,640	0	0	0	6,640
Employee Lockers/Lounge	2,478	0	0	0	2,478
Mechanical/Storage	4,152	784	576	492	6,003
Circulation/Waste	2,794	560	411	351	4,117
Total:	69,781	12,539	9,216	7,871	99,407

Source: Sno.engineering, Inc.

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### 3. Food Service Seating

Food service seating at PCSA can be found at the Resort Center and at on-mountain restaurants. There is a total of 1,570 indoor, cafeteria-style seats available to skiers, including 504 seats at the Steeps Restaurant, 506 seats at the Mid-Mountain Restaurant, 168 seats at Snow Hut, and 392 seats at the Summit House Restaurant. In addition to the indoor seats, there are 966 outdoor seats available at the four restaurant locations (140 seats at Steeps, 508 seats at Mid-Mountain, 246 seats at Snow Hut, 72 seats at Summit House).

A key factor in evaluating food service seating capacity is the seat turnover rate. A turnover rate of 3 to 5 is the standard range utilized in determining restaurant seating capacity. Sit-down dining at ski areas typically results in a turnover rate of 3, while cafeteria-style dining is characterized by a higher turnover rate. Furthermore, weather has an influence on turnover rates, as skiers will typically spend more time indoors on stormy days than on sunny days.

Table III-12 summarizes the seating requirements at PCSA, based on a logical distribution of the CCC to each service building/location.

**Table III-12  
EXISTING FOOD SERVICE SEATING REQUIREMENTS**

	Resort Center	Summit	Snow Hut	Mid-Mountain	Total
Total Skier Capacity	3,100	2,850	2,095	1,865	9,910
Average Seat Turnover	4.0	4.5	4.5	4.5	
Total Seats Required	775	633	414	466	2,288
Total Seats Available	504	392	168	506	1,570
Difference	-271	-241	-246	40	-718

Source: Sno.engineering, Inc.

Due to PCSA's predominance of cafeteria-style food service, an average turnover rate of 4.5 was used to calculate the seating capacity of the on-mountain facilities. An average turnover rate of 4 was used for the Resort Center to reflect the influence of the lower ability skiers who tend to take more time for lunch. Table III-12 shows a combined deficit of 718 seats (and estimated 3,096 skiers). The seating shortage is mitigated by the fact that outdoor seating is available at all food service locations, and additional restaurant opportunities exist in the Resort Center (a combined 516 seats at Baja, Moose's, Eating Establishment, Ziggy's, Bistro, and Yen Jing). However, as the ski area is upgraded, additional indoor food service seating should be provided.

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#### **4. Parking/Shuttle Services and Access**

A complete Parking and Capacity Analysis has been prepared for PCSA and is included in Appendix A of this document. The following is a summary of the Parking and Capacity Analysis for existing conditions.

##### **Parking**

There are approximately 1,700 parking spaces available to skiers and resort employees. About 200 of these spaces are used by resort employees, leaving 1,500 spaces for ski area guests. Parking surveys have indicated that the average car occupancy of cars arriving at PCSA is 3.7 people per car. As a result, the existing parking spaces can support a maximum of 5,550 skiers per day.

##### **Lodging at Base Area**

There are a total of 4,274 ski to/ski from beds available at PCSA's base area. Assuming a 95 percent peak occupancy, and that 20 percent of the accommodations guests are non-skiers, the existing bed base yields 3,249 ski to/ski from beds used by skiers at PCSA. Accordingly, the ski to/ski from accommodations in the base area can support a maximum of 3,249 skiers per day.

##### **Town Lift**

Based upon "design day" skier counts during the 1995-96 ski season, an average of approximately 1,100 skiers access PCSA via the Town lift.

##### **Park City Transit**

A number of PCSA surveys have been conducted which indicate that, on average, 13 percent of the skiers at PCSA arrived at the resort by riding some form of Park City transit. Using the aggregate of the figures given above, on a peak day, approximately 1,480 skiers access PCSA via Park City transit.

The combination of on-site parking, ski to/ski from accommodations, Town lift access, and Park City transit access can support a maximum of approximately 11,380 skiers per day. This illustrates that the current parking/access capacity at PCSA is sufficient to meet the demands of peak-day skier visitation patterns.

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## C. Conclusions

Based on Sno. engineering's initial investigation of the PCSA's existing conditions, the PCSA Mountain Upgrade Plan should contain recommendations which:

- ♦ Improve out-of-base access;
- ♦ Enhance egress routes off the mountain to improve skier egress traffic;
- ♦ Develop beginner, novice, intermediate, and advanced intermediate terrain (based on the physical capabilities of the land) to improve PCSA's distribution of terrain by ability levels;
- ♦ Modernize lifts and balance them with the available downhill terrain; and
- ♦ Position additional on-mountain seating to accommodate existing and upgraded capacities.

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## IV. MOUNTAIN UPGRADING PLAN

The improvements recommended for the upgrading of PCSA reflect the findings of Sno. engineering's analysis of the existing facilities. They also reflect the expectation for continued growth in demand and recognize skier preferences (confirmed by RRC's market research). The purpose of the upgrading plan is to produce a road map for ski area development that ensures the greatest practical and profitable use of the existing lands while remaining sensitive to the environment.

The upgrading plan is a dynamic document that will be implemented in accordance with market demand. The goal of the upgrading plan is to produce a high quality experience throughout the recreational complex. Accordingly, the upgrading plan is tailored to improve PCSA's ability to respond to market/skier demands through development of a more well-rounded resort experience. This plan should not only improve the ski area's current market niche, but also help to attract new visitors on a year-round basis.

### A. Skiing Facilities

During the course of the planning process, a number of alternatives were evaluated for the upgrading and expansion of PCSA. In formulating the upgrade plan, the following design criteria were considered:

- **Consistent Fall-Line** - New ski trails were designed to follow the natural fall-line, thus providing for the most natural flow of skier traffic and optimum skiing routes to serve specific skier ability levels, from top to bottom, on a consistent basis.
- **Trail Classification Distribution** - The new and upgraded ski trails were designed to provide a distribution of trail classifications that will more closely match the ability level profile of the PCSA skier market.
- **Optimum Skier Density (skiers-per-acre) on Trails** - The installation of new lifts has been suggested in order to balance the uphill capacity of each lift with the downhill capacity of the terrain which it serves.
- **Reasonable Waiting Lines for Lifts** - Low trail densities have been balanced with hourly uphill capacities on lifts. A maximum of ten minute waits have been specified for peak hour operations.
- **Lift Alignments** - Lift terminals have been located at practical sites, based upon evaluation of terrain, circulation, and ease of integration with existing ski facilities.

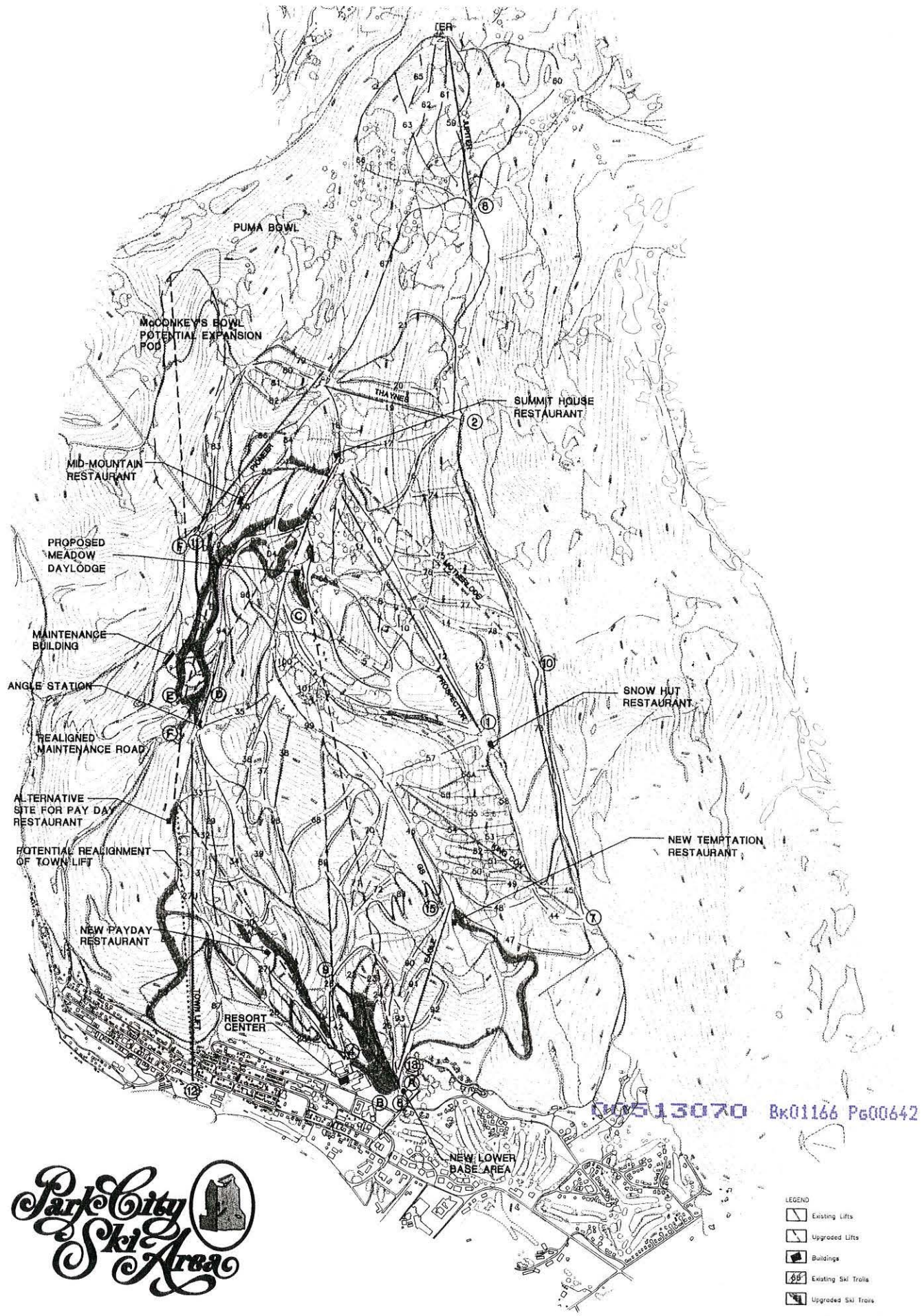
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- **Support Facility Requirements** - The mountain development has been organized to incorporate the interface of vehicular, pedestrian, and skier circulation, as well as skier support services and ski area maintenance.

Figure IV-1 is a graphic representation of analyses conducted using detailed topographic mapping and on-site field work. Prior to implementation of any component of the upgrading plan, it will be necessary to establish more detailed planning prior to final field adjustments.

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NO 13070 Bk01166 Pg00642




### MOUNTAIN UPGRADE PLAN

PREPARED FOR:  
 PARK CITY SKI AREA  
 PO BOX 39  
 PARK CITY, UT 84060  
 801-649-8111

PREPARED BY:  
  
 LMA  
 ENGINEERING, INC.  
 1000 W. 1000 S.  
 SUITE 100  
 PARK CITY, UT 84060  
 801-798-1111

**Figure IV-1**  
**Ski Area Upgrading**

DATE: AUGUST 1996  
 CONTOUR INTERVAL = 10 FT  
  
 0 500 1500 FT



## 1. Ski Lifts

The lift upgrading program involves the replacement and/or reconfiguration of several of PCSA's existing lifts. In addition, the existing Three Kings and Gondola lifts (and optionally Crescent chair) would be removed, and seven new lifts would be installed as shown in Figure IV-1 and summarized below in Table IV-1.

**Table IV-1  
LIFT SPECIFICATIONS - UPGRADING**

Map Ref.	Lift Name	Lift Type	Top Elev. (ft.)	Bot. Elev. (ft.)	Vert. Rise (ft.)	Horiz. Length (ft.)	Slope Length (ft.)	Avg. Grade (%)	Hourly Capacity (skiers/hr.)	Rope Speed (fpm)
1	New Prospector	Det. Six	9,250	7,980	1,270	5,130	5,285	25	3,000	1,000
2	New Thaynes	Triple	9,385	8,505	880	2,630	2,773	33	1,800	500
3	Three Kings	(removed)								
4	New Pay Day	Det. Six	8,250	6,980	1,270	5,790	5,928	22	3,000	1,000
5	Crescent	(removed)								
6	New First Time	Triple	7,170	6,900	270	1,900	1,919	14	1,200	350
7	King Con	Det. Quad	8,480	7,280	1,200	4,320	4,484	28	2,800	1,000
8	Jupiter	Double	9,960	8,935	1,025	3,200	3,360	32	1,200	500
9	Ski Team	Double	8,630	7,090	1,540	4,850	5,089	32	1,200	500
10	New Motherload	Det. Quad	9,230	7,975	1,255	5,110	5,262	25	2,200	1,000
11	Pioneer	Triple	9,400	8,400	1,000	4,070	4,191	25	1,800	500
12	Town	Triple	8,175	6,985	1,190	6,430	6,539	19	1,800	500
13	Eagle	Triple	8,050	6,915	1,135	3,300	3,490	34	1,200	500
14	Gondola	(removed)								
15	G.S. Lift	Triple	8,320	8,050	270	1,540	1,563	18	600	500
A	New Chondola	8-Passenger	8,940	6,890	2,050	10,100	10,306	20	2,800	1,000
B	New Beginner	Baby Double	6,962	6,900	62	850	852	7	500	300
C	New Beginner	Baby Double	8,920	8,870	50	600	602	8	500	300
D	New Bonanza I	Det. Quad	9,245	8,130	1,115	5,450	5,563	20	2,000	1,000
E	New Bonanza II	Double	8,450	8,130	320	2,100	2,124	15	600	350
F	Pay Day Link	Double	8,250	8,130	120	1,600	1,604	8	1,200	450
G	McConkey's	Det. Quad	9,575	8,410	1,165	4,850	4,988	24	1,800	1,000

Source: PCSA Resort Management, Sno.engineering, Inc.

The lift upgrading program at the base of the mountain has been developed to improve out-of-base access. The plan reflects the development of two formalized entry portals to the mountain, thus improving access and distribution to the mountain. The upper entry portal (next to Steeps) will be serviced by a relocated Pay Day Chairlift -- a detachable, six-passenger lift. From the top of the New Pay Day Chairlift, skiers will be able to access the summit of the mountain via the New Bonanza-I Chairlift (a detachable

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quad chairlift depicted as Lift E in Figure IV-1). This configuration of detachable chairs will reduce the ride time to the Summit House to about 12 to 15 minutes. The upgrading of Pay Day to a detachable lift will improve the utilization of the Pay Day terrain (the reduced ride time will enhance round-trip skiing).

An expanded entry portal will be located below the Eagle and First Time chairlifts. This site will feature a chondola lift (by definition, a detachable lift with both gondola cabins and quad chairs). PCSA's New Chondola will terminate at the meadow above Assessment Trail (an area commonly known as the meadow). Sno.engineering recommends the installation of a chondola lift to allow for the proposed construction of a beginner ski lift and the Meadow Restaurant (see Figure IV-1). Both beginner skiers and night/summer pedestrian traffic will require gondola cabins for downloading. In addition, the chondola lift will also provide downloading for novice skiers in ski school classes and act as an additional egress route off the mountain.

To help accommodate beginner skiers in the base area, Sno.engineering recommends the installation of a beginner, baby double chairlift (designed for first-time beginner skiers). This lift would access terrain specifically dedicated for first-time beginners -- providing a category of lift-served terrain that presently is not available at PCSA. The slopes served by the base area beginners' lift will require fencing to ensure that first-time beginner skiers are not intimidated by skiers of higher ability levels.

To create a logical progression from the beginner lift, Sno.engineering is recommending that the First Time Chairlift be relocated with significant reshaping of the slopes served by the lift to ensure the final slope gradients are suitable for a novice skier.

As a complement to these significant base area lift improvements, Sno.engineering recommends the upgrading of several up-mountain lifts (i.e. Motherlode from a triple to a detachable quad, Prospector from a detachable quad to a detachable six-passenger lift, and Thaynes from a double to a triple). The increased uphill hourly capacity on these lifts will provide a better equilibrium between uphill lift capacity and downhill terrain capacity.

Several new lifts are recommended, including a detachable quad to service McConkey's Bowl, an advanced beginner lift near the upper maintenance area for ski school instruction (New Bonanza-II Chairlift), and a return egress lift (from the bottom of the New Bonanza chairlifts to the top of Pay Day Chairlift) to provide an alternative return route off of the mountain.

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## 2. Ski Terrain

Improvements to the existing ski terrain, coupled with the addition of new trails, will increase the formal trail network from 691 acres to 792 acres -- an increase of 101 acres. This represents a 15 percent increase in the size of PCSA's formal trail network. Table IV-2 summarizes the terrain specifications for the upgraded trail network. Bold and italicized trails are either new or upgraded trails.

**Table IV-2  
SKI TERRAIN SPECIFICATIONS - UPGRADING**

Map Ref.	Trail Name	Vert. Drop (ft.)	Horiz. Length (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Area (acres)	Avg. Grade (%)	Max. Grade (%)	Ability Level
1	Upper Claim Jumper	488	3,416	3,459	145	11.51	14	25	Novice
<b>1A</b>	<b><i>New Trail</i></b>	90	630	636	100	1.46	14	25	Novice
2	Claim Jumper	598	3,039	3,103	195	13.89	20	31	Low Int.
<b>3</b>	<b><i>Lower Claim Jumper</i></b>	202	1,496	1,518	200	6.97	14	25	Low Int.
4	Assessment	733	3,443	3,539	150	12.19	21	36	Inter.
5	Powder Keg	435	1,259	1,335	175	5.36	35	35	Inter.
6	Hidden Splendor	920	3,704	3,740	150	12.88	25	45	Inter.
<b>6A</b>	<b><i>New Trail</i></b>	80	500	506	50	0.58	16	25	Inter.
7	Mel's Alley	450	2,150	2,197	75	3.78	21	26	Low Int.
8	Newport	445	989	1,088	150	3.75	45	57	Expert
9	Lost Prospector	360	850	923	100	2.12	42	62	Expert
10	Dynamite	332	892	956	150	3.29	37	52	Adv. Int.
11	Upper Lost Prospector	300	1,500	1,530	150	5.27	20	29	Low Int.
12	Prospector	783	2,638	2,768	200	12.71	30	51	Adv. Int.
13	Lower Parley's	365	1,450	1,495	200	6.87	25	44	Inter.
14	Parley's Park	310	794	880	200	4.04	39	43	Inter.
15	Upper Prospector	469	2,936	2,981	100	6.84	16	28	Low Int.
16	Single Jack	595	2,400	2,473	75	4.26	25	29	Low Int.
<b>16A</b>	<b><i>Single Jack Glades</i></b>	400	1,000	1,077	300	7.42	40	51	Adv. Int.
17	Double Jack	675	1,743	1,879	200	8.63	39	56	Expert
18	Summit Road	145	1,386	1,405	50	1.61	10	10	Low Int.
19	Thaynes	817	2,177	2,345	200	10.77	38	68	Expert
20	Hoist	739	2,133	2,290	100	5.26	35	70	Expert
21	Keystone	827	4,417	4,538	75	7.81	19	45	Inter.
22	King's Crown	174	783	803	75	1.38	22	28	Inter.
<b>23</b>	<b><i>Three Kings</i></b>	146	592	611	100	1.40	25	36	Inter.
<b>24</b>	<b><i>Quick Silver</i></b>	138	535	553	100	1.27	26	29	Inter.
25	Pick 'n Shovel	461	2,495	2,544	150	8.76	18	25	Inter.
26	Silver Hollow	393	2,711	2,755	100	6.32	14	25	Novice

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Map Ref.	Trail Name	Vert. Drop (ft.)	Horiz. Length (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Area (acres)	Avg. Grade (%)	Max. Grade (%)	Ability Level
27U	<i>Upper Pay Day</i>	215	720	751	150	2.59	30	40	Inter.
27L	<i>Lower Pay Day</i>	470	1,910	1,967	150	6.77	25	33	Low Int.
28	<i>Nastar</i>	1,218	7,100	7,204	120	19.84	17	25	Novice
28A	<i>Lower Nastar</i>	219	795	825	110	2.08	28	34	Low Int.
29	Drift	361	3,265	3,302	40	3.03	11	34	Low Int.
30	Lower Blanche	354	1,735	1,773	150	6.10	20	25	Low Int.
30A	<i>Lwr. Blanche Cutoff</i>	60	340	345	80	0.63	18	26	Low Int.
30B	<i>New Lower Blanche</i>	511	2,165	2,224	150	7.66	24	39	Inter.
31	Nail Driver	565	1,346	1,469	175	5.90	42	69	Expert
32	Widowmaker	438	979	1,077	300	7.42	45	62	Expert
33	Dividend	271	769	817	175	3.28	35	43	Inter.
34	Treasure Hollow	703	2,973	3,073	200	14.11	24	44	Inter.
35	Silver Queen	567	1,530	1,643	125	4.72	37	58	Expert
35A	Silver Queen Road	116	1,076	1,085	125	3.11	11	19	Expert
36	Crescent	841	2,201	2,373	150	8.17	38	58	Expert
37	Silver Skis	671	1,414	1,573	125	4.51	47	66	Expert
38	Shaft	886	1,682	1,906	50	2.19	53	62	Expert
39	Water Fall	490	1,910	1,972	100	4.53	26	62	Expert
40	<i>New First Time</i>	273	1,934	1,966	350	15.79	14	18	Novice
41	<i>New Beginner</i>	66	962	966	130	2.88	7	12	Beginner
42	<i>Silver Hollow</i>	186	1,857	1,874	70	3.01	10	12	Beginner
43	Road to Hollow	70	1,600	1,602	30	1.10	6	10	Beginner
44	Hot Spot	265	1,213	1,249	150	4.30	22	38	Inter.
45	Combustion	302	1,132	1,192	150	4.10	27	57	Expert
46	Gotcha Ridge	357	1,951	1,984	150	6.83	18	23	Novice
47	Temptation	735	3,650	3,723	120	10.26	20	35	Low Int.
48	Seldom Seen	623	1,955	2,062	175	8.28	32	55	Adv. Int.
49	Climax	559	1,683	1,780	150	6.13	33	49	Adv. Int.
50	Monitor	523	1,525	1,619	125	4.65	34	53	Adv. Int.
51	Eureka	483	1,328	1,416	125	4.06	36	51	Adv. Int.
52	Liberty	504	1,309	1,407	175	5.65	39	54	Adv. Int.
53	Shamus	508	1,418	1,511	175	6.07	36	50	Adv. Int.
54	Sitka	641	2,027	2,143	175	8.61	32	58	Expert
55	Courchevel	568	1,603	1,708	150	5.88	35	52	Adv. Int.
56	High Card	672	2,032	2,150	150	7.40	33	55	Expert
56A	Chance	356	942	1,011	150	3.48	38	50	Adv. Int.
57	King Con	584	1,890	1,981	150	6.82	31	40	Inter.
58	Broadway	435	3,820	3,845	100	8.83	11	18	Low Int.
59	Shadow Ridge	990	3,110	3,264	100	7.49	32	56	Expert
60	Scotts Bowl	885	4,800	4,881	150	16.81	18	77	Expert
61	Fortune Teller	950	2,780	2,938	200	13.49	34	83	Expert

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Map Ref.	Trail Name	Vert. Drop (ft.)	Horiz. Length (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Area (acres)	Avg. Grade (%)	Max. Grade (%)	Ability Level
62	Silver Cliff	715	1,780	1,918	100	4.40	40	75	Expert
63	Indicator	780	2,100	2,240	100	5.14	37	95	Expert
64	Portuguese Gap	680	2,020	2,131	100	4.89	34	73	Expert
65	Six Bells	570	1,050	1,195	100	2.74	54	95	Expert
66	West Face	1,905	5,870	6,171	200	28.34	32	67	Expert
67	Jupiter Road	743	7,386	7,457	25	4.28	10	35	Low Int.
68	Silver King	904	1,966	2,184	200	10.03	46	76	Expert
69	Willy's Run	1,245	3,829	4,060	150	13.98	33	62	Expert
70	Men's GS	1,610	3,550	3,898	150	13.42	45	65	Expert
71	Men's SL	550	965	1,250	150	4.30	57	62	Expert
72	Ladies SL	397	991	1,073	200	4.93	40	59	Expert
73	Thaynes Canyon	1,150	9,450	9,520	50	10.93	12	19	Low Int.
74	Lower Single Jack	450	880	988	200	4.54	51	71	Expert
74A	<i>Single Jack Glades</i>	750	1,600	1,767	200	8.11	47	54	Adv. Int.
75	Ford Country	716	1,627	1,791	200	8.22	44	64	Expert
76	Glory Hole	720	1,817	1,964	200	9.02	40	55	Adv. Int.
76A	<i>Glory Hole Glades</i>	650	1,700	1,820	200	8.36	38	54	Adv. Int.
77	Sunny Side	686	1,926	2,059	175	8.27	36	53	Adv. Int.
78	Carbide Cut	310	970	1,018	150	3.51	32	42	Inter.
79	Sampson	470	1,557	1,653	100	3.80	30	55	Adv. Int.
80	Comstock	439	1,181	1,277	100	2.93	37	55	Adv. Int.
81	Red Fox	406	1,137	1,213	125	3.48	36	50	Adv. Int.
82	Hawk Eye	379	1,212	1,281	125	3.68	31	47	Adv. Int.
83	Woodside	713	3,271	3,371	100	7.74	22	42	Adv. Int.
84	Blue Slip Bowl	554	1,614	1,734	200	7.96	34	71	Expert
85	Webster	496	3,515	3,568	150	12.29	14	29	Low Int.
86	Lucky Boy	345	1,900	1,931	75	3.32	18	50	Adv. Int.
87	Creole	576	2,092	2,190	150	7.54	28	49	Adv. Int.
88	<i>Quit 'n Time</i>	551	2,724	2,811	150	9.68	20	45	Inter.
88A	<i>New Up. Quit 'n Time</i>	409	1,492	1,548	160	5.69	27	36	Inter.
89	<i>Gotcha Cutoff</i>	754	5,086	5,169	30	3.56	15	37	Inter.
90	C.B.'s Run	801	1,918	2,091	150	7.20	42	62	Expert
91	Upper Clementine	340	950	1,009	150	3.47	36	63	Expert
92	Commitment	500	1,150	1,254	150	4.32	43	83	Expert
93	<i>Clementine</i>	160	659	681	200	3.13	24	37	Inter.
94	Bonanza	400	3,150	3,175	200	14.58	13	25	Novice
95	<i>Bonanza Cutoff</i>	156	1,653	1,669	30	1.15	9	21	Novice
96	Bonanza Road	156	1,362	1,378	50	1.58	11	24	Novice
97	Belmont	465	1,745	1,821	150	6.27	27	59	Expert
98	Side Winder	1,003	5,864	6,002	200	27.56	17	35	Low Int.
99	King Con Access	197	3,457	3,474	30	2.39	6	21	Novice

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Map Ref.	Trail Name	Vert. Drop (ft.)	Horiz. Length (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Area (acres)	Avg. Grade (%)	Max. Grade (%)	Ability Level
100	Quarter Load	85	381	391	200	1.80	22	30	Low Int.
101	Half Load	141	427	450	200	2.06	33	38	Inter.
<i>C1</i>	<i>New Beginner</i>	45	624	629	130	1.88	7	10	Beginner
<i>D1</i>	<i>New Bonanza</i>	806	4,123	4,235	130	12.64	20	45	Inter.
<i>D2</i>	<i>New Bonanza</i>	358	2,448	2,485	120	6.85	15	34	Low Int.
<i>D3</i>	<i>New Bonanza</i>	46	367	371	75	0.64	12	18	Novice
<i>D4</i>	<i>New Bonanza</i>	201	1,108	1,129	100	2.59	18	25	Novice
<i>D5</i>	<i>New Bonanza</i>	53	519	525	30	0.36	10	21	Novice
<i>D6</i>	<i>New Bonanza</i>	340	775	846	100	1.94	44	65	Expert
<i>E1</i>	<i>New Spiro</i>	1,242	8,070	8,212	75	14.14	15	25	Novice
Total:						792.6			

Source: PCSA Resort Management, Sno.engineering, Inc.

The goal in developing the ski terrain upgrading program was to improve the distribution of ability levels to better match PCSA's skier market demand and to balance the downhill capacity of the trails with the capacity of the proposed lift network. The ski terrain upgrading has increased the amount of beginner terrain to the extent possible and has significantly increased the availability of novice terrain. To a lesser degree, the intermediate and advanced intermediate terrain has been enhanced. In addition to the improvements outlined above, the upgrading plan improves egress off the mountain and enhances the terrain available for ski school instruction.

Table IV-3 reflects the distribution of terrain by ability level after completion of the trail upgrading and expansion program.

**Table IV-3  
SKI TERRAIN DISTRIBUTION BY ABILITY LEVEL - UPGRADING**

Ability Level	Skiable Area (acres)	Skier Capacity (skiers)	Skier Distribution (%)	Skier Market (%)
Beginner	8.9	355	2	5
Novice	99.2	2,976	21	12
Low Intermediate	144.0	3,601	25	18
Intermediate	141.6	2,831	20	35
Adv. Intermediate	133.9	2,008	14	20
Expert	265.1	2,651	18	10
Total:	792.6	14,422	100	100

Source: Sno.engineering, Inc.

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### 3. Analysis of Comfortable Carrying Capacity

As a result of the upgrading program, the CCC would increase from 9,910 to 13,700 skiers per day, which represents a total of 3,890 additional skiers, or an increase of 38 percent. Table IV-4 details PCSA's CCC after upgrading.

**Table IV-4  
COMFORTABLE CARRYING CAPACITY - UPGRADING**

Lift Name	Lift Type	Slope Length (ft.)	Vert. Rise (ft.)	Hourly Capacity (skiers/hr.)	Oper. Hours (hrs.)	Load Eff. (%)	Adjust. Hrly. Cap. (skiers/hr)	VTF/Hr (000)	Vertical Demand (ft./day)	CCC (skiers)
New Prospector	Det. Six	5,285	1,270	3,000	6.75	95	2,850	3,810	11,769	2,080
New Thaynes	Triple	2,773	880	1,800	6.50	95	1,710	1,584	16,706	590
New Pay Day	Det. Six	5,928	1,270	3,000	7.00	70	2,100	3,810	11,976	1,560
New First Time	Triple	1,919	270	1,200	7.00	90	1,080	324	3,588	570
King Con	Det. Quad	4,484	1,200	2,800	6.75	95	2,660	3,360	12,061	1,790
Jupiter	Double	3,360	1,025	1,200	6.00	95	1,140	1,230	20,271	350
Ski Team	Double	5,089	1,540	1,200	6.75	90	1,080	1,848	21,635	520
New Motherload	Det. Quad	5,262	1,255	2,200	6.50	95	2,090	2,761	16,476	1,030
Pioneer	Triple	4,191	1,000	1,800	6.50	90	1,620	1,800	13,045	810
Town	Triple	6,539	1,190	1,800	7.00	25	450	2,142	13,820	270
Eagle	Triple	3,490	1,135	1,200	7.00	50	600	1,362	18,789	250
G.S. Lift	Triple	1,563	270	600	6.50	0	-	162	-	-
New Chondola	8-Pass.	10,306	2,050	2,800	7.00	40	1,120	5,740	13,058	1,230
New Beginner	Baby Double	852	62	500	7.00	90	450	31	1,796	110
New Beginner	Baby Double	602	50	500	6.50	90	450	25	1,813	80
New Bonanza-I	Det. Quad	5,563	1,115	2,000	6.50	95	1,900	2,230	10,272	1,340
New Bonanza-II	Double	2,124	320	600	6.50	95	570	192	5,486	220
Pay Day Link	Double	1,604	120	1,200	6.50	95	1,140	144	0	-
McConkey's	Det. Quad	4,988	1,165	1,800	6.50	95	1,710	2,097	14,432	900
<b>Total:</b>		<b>75,922</b>		<b>31,200</b>			<b>24,720</b>	<b>34,652</b>		<b>13,700</b>

Source: PCSA Resort Management, Sno.engineering, Inc.

It is a common practice at ski areas, and one that has been generally accepted by the ski industry, to exceed the CCC on peak ski days by as much as 25 percent. Based upon historical skier-visit performance records, PCSA anticipates future peak skier days to reach 110 percent of the CCC. This policy is acceptable as long as it does not become common practice. It is not believed that the ski area can economically justify a concurrent increase in the size of the visitor service facilities to accommodate the higher skier capacity. It should be noted, however, that the parking/shuttle accommodations and water and sewer systems must be sized for the capacity of a peak ski day. PCSA's peak ski day capacity is estimated at 15,070 skiers.

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## Terrain Capacity and Density Analysis

To create a high quality ski experience, PCSA should maintain skier-per-acre ratios that are at the low end of industry norms (see Table III-6 for the skier density per acre industry standards). Table IV-5 sets forth the skier density design criteria used for upgrading at PCSA. The "acceptable slope density" figures given in Table IV-5 represent the number of skiers actually populating the trails. The "ski area design density" figures take into account all of the skiers distributed throughout the entire ski area. As was mentioned in Section III, it has been estimated that approximately 25 to 33 percent of the total skier population (depending on weather and snow conditions) will be using the trail system itself at any given time, while the remaining 67 to 75 percent will be on the lifts, in the waiting lines, or in the day lodge buildings and milling areas. This means that if a particular lift and trail system has a design density of 15 skiers per acre, there are only between 4 and 5 skiers actually populating that acre at any given time.

**Table IV-5**  
**SKIER DENSITY<sup>1</sup> PER ACRE -- PCSA DESIGN CRITERIA**

Skill Classification	Ski Area Design Density	Acceptable Slope Density
Beginner	40/acre	10-13/acre
Novice	30/acre	8-10/acre
Low Intermediate	25/acre	6-8/acre
Intermediate	20/acre	5-7/acre
Adv. Intermediate	15/acre	4-5/acre
Expert	10/acre	2-3/acre

Source: PCSA Resort Management, Sno.engineering, Inc.

Using the trail acreage, capacity, and design criteria listed in earlier tables, the terrain capacity and density breakdown for the upgraded ski area is depicted on a lift-by-lift basis in Table IV-6.

Table IV-6 shows that the downhill terrain capacity at PCSA after upgrading (15,265 skiers) exceeds the upgraded CCC of the lifts (13,700 skiers) by a small margin. This fact indicates that the overall uphill lift capacity is well-balanced with the downhill terrain capacity, even on peak days when more than 15,000 skiers could be expected to visit PCSA.

<sup>1</sup> The "ski area design density" figures listed in column two of this table represent the total population of skiers distributed among the ski trails, waiting in lift lines, riding the lifts, and using the support facilities. The "acceptable slope density" column only reflects the number of skiers actually on the ski slopes.

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**Table IV-6**  
**DENSITY ANALYSIS - UPGRADING**

Lift Name	Area (acres)	CCC (skiers)	Terrain Capacity (skiers)	Actual Density (CCC/acre)	Acceptable Density (CCC/acre)	Difference (+/-)	Difference (Actual/Acceptable)
New Prospector	103.0	2,080	2,060	20	20	0	1.00
New Thaynes	42.9	590	644	14	15	-1	0.96
New Pay Day	82.9	1,560	1,824	19	22	-3	0.86
New First Time	18.3	570	586	31	32	-1	0.96
King Con	103.6	1,790	1,865	17	18	-1	0.97
Jupiter	83.3	350	833	4	10	-6	0.40
Ski Team	47.5	520	570	11	12	-1	0.94
New Motherload	68.4	1,030	1,094	15	16	-1	0.92
Pioneer	39.2	810	588	21	15	6	1.38
Town	24.4	270	464	11	19	-8	0.59
Eagle	29.1	250	466	9	16	-7	0.57
G.S. Lift	0	0	0	0	0	0	1.00
New Chondola	83.4	1,230	1,668	15	20	-5	0.76
New Beginner	2.6	110	104	42	40	2	1.05
New Beginner	1.9	80	76	43	40	3	1.08
New Bonanza-I	52.4	1,340	1,310	26	25	1	1.03
New Bonanza-II	9.7	220	213	23	22	1	1.06
Pay Day Link	0.0	0	0	0	0	0	1.00
McConkey's	60.0	900	900	15	15	0	1.00
<b>Total:</b>	<b>852.6</b>	<b>13,700</b>	<b>15,265</b>				

Source: Sno.engineering, Inc.

The results of the density analysis indicate that most of the lifts are within acceptable standards, with the exception of Jupiter, Pioneer, Town, Eagle, and the New Chondola.

The uphill lift capacity at Jupiter is underappointed relative to the downhill terrain capacity. In the upgrade, Jupiter's CCC was intentionally held at 350 skiers in an effort to preserve Jupiter's snow quality on powder days.

Pioneer's uphill capacity is also not in balance with its downhill acreage. Given that only minimal terrain is available, it will not be possible to bring Pioneer into balance unless the lift's hourly capacity is reduced.

The New Chondola, Town, and Eagle lifts could support additional terrain, but due to the physical configuration of the mountain, this is not possible.

Overall, the lift upgrading program is in equilibrium with the proposed ski trail enhancements.

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#### 4. Skier Access and Egress Analysis

##### Morning Access Capacity

The upgraded lift network at PCSA features six access lifts (Pay Day, First Time, Town, Eagle, New Chondola, and New Beginner) with a total out-of-base capacity, adjusted for lift efficiency, of 8,510 skiers per hour. The upgraded out-of-base capacity represents a 36 percent increase over the existing capacity of 6,264 skiers per hour.

The computer modeling technique for morning access (as described in Section III.A.4) has shown that all out-of-base access lifts meet the 90 to 120 minute standard for access time. Table IV-7 summarizes the findings of the upgrade modeling exercise.

Table IV-7  
MORNING ACCESS TIME - UPGRADING

Access Lift	Hourly Capacity* (skiers/hr.)	Percent Access (%)	Percent Round-Trip (%)	Access Capacity (skiers/hr.)	Total Access Requirement (skiers)	Access Time (minutes)
Pay Day	2,850	82	18	2,338	3,906	100
First Time	1,140	81	19	928	1,534	99
Town	1,710	95	5	1,621	2,606	96
Eagle	1,140	94	6	1,067	1,764	99
Chondola	2,660	85	15	2,271	3,781	100
Beginner	570	50	50	285	110	23
Total:	10,070			8,510	13,700	

Source: Sno.engineering, Inc.

\* Reduced for loading efficiency.

##### Egress Capacity

In an effort to improve the skier egress capacity at the end of the ski day, Sno.engineering has designed a new ski trail (Trail E-1) which links the Temptation and Clementine trails. This egress route, in concert with an improved Gotcha Cutoff, will provide those skiers utilizing King Con and Prospector chairlifts with an alternative egress to Treasure Hollow, Sidewinder, or Drift. On the east side of the mountain, Pay Day Link Chairlift (new Lift F), in conjunction with a new novice/low intermediate trail adjacent to Nastar, will allow skiers of lower ability levels using New Bonanza-I and New Bonanza-II (new lifts D and E) an additional egress to Drift/Treasure Hollow or Sidewinder. In addition to the above trail improvements, the installation of the New

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Chondola will also provide additional downloading capabilities. Table IV-8 summarizes the densities associated with PCSA's egress trails after upgrading.

**Table IV-8  
EGRESS TRAIL DENSITY ANALYSIS - UPGRADING**

Egress Route	Min. Width (ft.)	Skier Speed (fpm)	Ability Level	Egress Req. (skiers)	1 Hour Egress (skiers)	Egress Density (skier/ac.)	Accept. Density (skier/ac.)	Diff. +/-	Diff. (%)
<b>Pay Day Egress</b>									
Drift	40	1,200	Low Int.	1,935	1,257	19	20	(1)	95%
Pay Day	100	1,500	Int.	699	454	2	15	(13)	15%
Nastar	80	1,500	Int.	1,554	1,010	6	15	(9)	41%
<b>Sidewinder Egress</b>									
Silver Hollow	100	1,000	Beg.	4,797	3,118	23	25	(2)	91%
Sidewinder	120	1,200	Low Int.	3,986	2,591	13	20	(7)	65%
Gotcha Cutoff	75	1,800	Int.	811	527	3	15	(12)	19%
Treasure Hollow	60	1,500	Low Int.	2,051	1,333	11	20	(9)	54%
<b>Three Kings Egress</b>									
First Time	80	1,200	Nov.	1,451	943	7	20	(13)	36%
Pick N' Shovel/Clem	150	1,200	Low Int.	1,728	1,123	5	20	(15)	23%
Beginner Slope	130	1,000	Beg.	110	72	4	25	(21)	16%
New E-1	30	1,200	Novice	1,132	735	15	20	(5)	74%
<b>Town Egress</b>									
Creole Entrance	120	1,500	Int.	2,138	1,389	6	15	(9)	37%
<b>Upper Mtn. Egress</b>									
Upper Claim Jumper	95	1,200	Nov.	5,596	3,637	23	20	3	116%
Webster	25	1,200	Low Int.	800	520	13	20	(7)	63%
Bonanza Road	50	1,200	Nov.	2,040	1,326	16	20	(4)	80%
Silver Queen Road	30	1,500	Adv. Int.	800	520	8	10	(2)	84%
New D-4	50	1,200	Nov.	2,136	1,388	17	20	(3)	84%
Gotcha Ridge	80	1,500	Nov.	4,711	3,062	19	20	(1)	93%
Broadway/Thaynes	50	1,500	Low Int.	2,589	1,683	16	20	(4)	81%

Source: Sno.engineering, Inc.

Table IV-8 is predicated on the assumption that 65 percent of PCSA's skiers exit the ski area between 3:30 PM and 4:30 PM. Table IV-8 shows that the calculated skier densities on all of the egress trails are lower than the acceptable criteria. This is an indication that the proposed egress trails have sufficient capacity to exit the upgraded CCC without causing skier congestion on the return ski trails.

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## **B. Visitor Services**

### **1. Visitor Service Buildings**

The increase in mountain capacity resulting from upgrading of the lifts and trails must be complemented with a commensurate increase and improvement in visitor service building space in the base area and on the mountain. In general, a key objective for PCSA is to provide several food service facilities on the mountain, creating venues that are logically located to accommodate concentrations of lift capacity. The proposed concept of smaller, more intimate buildings is similar to the alpine eateries found at Snowmass, Aspen, and in the Alps.

The existing Steeps Restaurant and day lodge at the base of the existing Gondola should be upgraded and expanded to accommodate the new lift configuration in this area and the higher number of skiers who will be using these facilities, both for staging at the beginning of the day and for food service during the lunch period. Additional skier service facilities are recommended for the new lower base area portal at the lower terminal of the New Chondola. These facilities will service support functions for the alpine racing venue of the Olympic Winter Games, as well as the skier services associated with the new beginner/ski school area and the staging requirements of a major base area portal.

To complement the existing mountain restaurants that will remain in service and be expanded after upgrading, Sno. engineering recommends two on-mountain locations for the small scale restaurants described above: (1) the top of PCSA's alpine slide, and (2) the top of the Eagle Chairlift. This recommendation will ensure an even distribution of the skiers on the mountain throughout the ski day, reducing the congestion presently experienced during the lunch period.

Along with the smaller, more focused restaurants, Sno. engineering recommends the construction of a large facility (the proposed Meadow Restaurant) at the top of the New Chondola. In addition to the typical day lodge operations, this facility would feature dining opportunities during the late afternoon and evening hours.

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## 2. Size and Placement of Visitor Service Functions

Based on a CCC of 13,700 skiers, the size and placement of each visitor service facility has been derived by distributing the upgraded capacity for each lift/trail system to the appropriate building sites. Industry standard space use allocations have been applied to derive the total spatial requirement for each service building or location.

**Table IV-9a**  
**DISTRIBUTION OF CCC BY FACILITY/LOCATION - UPGRADING**  
**BASE AREA**

Lift Name	CCC	Upper Village		Lower Village	
		(%)	(CCC)	(%)	(CCC)
New Prospector	2,080		0		0
New Thaynes	590		0		0
New Pay Day	1,560	50	780		0
New First Time	570	25	142.5	75	427.5
King Con	1,790		0		0
Jupiter	350		0		0
Ski Team (shorten)	520	50	260	50	260
New Motherload	1,030		0		0
Pioneer	810		0		0
Town	270		0		0
Eagle	250		0	50	125
G.S. Lift	-		0		0
New Chondola	1,230	15	184.5	25	307.5
New Beginner	110		0	100	110
New Beginner	80		0		0
New Bonanza I	1,340		0		0
New Bonanza II	220		0		0
Pay Day Link	-		0		0
McConkey's	900		0		0
<b>Total:</b>	<b>13,700</b>		<b>1,367</b>		<b>1,230</b>

Source: Sno.engineering, Inc.

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**Table IV-9b**  
**DISTRIBUTION OF CCC BY FACILITY/LOCATION - UPGRADING**  
**MOUNTAIN RESTAURANTS**

Lift Name	Summit House		Mid-Mountain		Snow Hut		Meadow		Pay Day		Temptation		
	CCC	(%)	(CCC)	(%)	(CCC)	(%)	(CCC)	(%)	(CCC)	(%)	(CCC)	(%)	
New Prospector	2,080		0		0	50	1,040	50	1,040		0		0
New Thaynes	590	50	295	50	295		0		0		0		0
New Pay Day	1,560		0		0		0		0	50	780		0
New First Time	570		0		0		0		0		0		0
King Con.	1,790		0		0	50	895		0		0	50	895
Jupiter	350	50	175	50	175		0		0		0		0
Ski Team (shrtn)	520		0		0		0		0		0		0
New Motherload	1,030	50	515	50	515		0		0		0		0
Pioneer	810	25	202.5	50	405		0	25	202.5		0		0
Town	270		0	50	135		0	50	135		0		0
Eagle	250		0		0		0		0		0	50	125
G.S. Lift	-		0		0		0		0		0		0
New Chondola	1,230		0		0		0	60	738		0		0
New Beginner	110		0		0		0		0		0		0
New Beginner	80		0		0		0	100	80		0		0
New Bonanza I	1,340		0		0		0	100	1340		0		0
New Bonanza II	220		0		0		0	100	220		0		0
Pay Day Link	-		0		0		0		0		0		0
McConkey's	900		0	100	900		0		0		0		0
<b>Total:</b>	<b>13,700</b>		<b>1,188</b>		<b>2,425</b>		<b>1,935</b>		<b>3,756</b>		<b>780</b>		<b>1,020</b>

Source: Sno.engineering, Inc.

The total ski related space use requirements for the visitor service buildings are categorized by fifteen separate functions. These functions have been distributed to the appropriate facility location in order to accommodate the various user requirements and patterns throughout the day. Table IV-10 shows the total space use requirements after upgrading at PCSA.

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**Table IV-10**  
**SPACE USE REQUIREMENT BY BUILDING/LOCATION - UPGRADING**

Service Function	Upper Village (sq. ft.)	Lower Village (sq. ft.)	Summit House (sq. ft.)	Mid-Mountain (sq. ft.)	Snow Hut (sq. ft.)	Meadow (sq. ft.)	Pay Day (sq. ft.)	Temptation (sq. ft.)	Total Space (sq. ft.)
Restaurant Seating	5,581	5,909	2,850	5,820	4,644	11,267	1,872	2,448	40,391
Kitchen/Scramble	2,400	2,541	1,226	2,503	1,997	4,845	805	1,053	17,368
Bar/Lounge	1,710	2,508	451	922	735	1,427	296	388	8,437
Rest Rooms	3,825	5,610	1,009	2,061	1,645	3,192	663	867	18,873
Ski School	2,466	3,699				685			6,850
Ski Wee/Day Care	2,988	4,382				2,274			9,645
Rentals/Repair	3,330	4,884							8,214
Retail Sales	4,144	5,478	197	403	321	623	129	169	11,465
Ticket Sales	360	528							888
Public Lockers	2,385	3,498							5,883
Ski Patrol	1,644	2,466				1,370			5,480
Administration	2,740	4,110							6,850
Employee Lockers/Lounge	1,096	1,644							2,740
Mechanical	495	726	131	267	213	413	86	112	2,442
Storage	1,215	1,782	321	655	522	1,014	211	275	5,995
Circulation/Waste	2,547	3,484	433	884	705	1,898	284	372	10,606
<b>Total:</b>	<b>38,925</b>	<b>53,249</b>	<b>6,617</b>	<b>13,513</b>	<b>10,783</b>	<b>29,008</b>	<b>4,347</b>	<b>5,684</b>	<b>162,127</b>

Source: Sno.engineering, Inc.

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### 3. Food Service Seating

Food service facilities have been distributed around the mountain to alleviate the space limitations encountered at the base areas and to better serve skiers by locating facilities closer to activity hubs. After upgrading, food service seating will be provided at the Upper and Lower villages, and all of the existing and new mountain restaurants.

Table IV-11 summarizes PCSA's restaurant seating requirements after upgrading, based on a logical distribution of the CCC to each service building/location. The basic planning parameter used in deriving the seating requirements for each food service facility is the average seat turnover rate. A turnover rate of 4 was used for the Upper and Lower village facilities to reflect their cafeteria-style food service and significant use by beginner skiers. Cafeteria-style food service is envisioned for all of the on-mountain restaurants. Hence, a turnover rate of 4.5 was utilized for these facilities.

**Table IV-11**  
**FOOD SERVICE SEATING REQUIREMENTS - UPGRADING**

	Upper Village	Lower Village	Summit House	Mid-Mountain	Snow Hut	Meadow	Pay Day	Temptation	Total
Total Skier Capacity	1,367	1,230	1,188	2,425	1,935	3,756	780	1,020	13,700
Average Seat Turnover	4.0	4.0	4.5	4.5	4.5	4.5	4.5	4.5	
Total Seats Required	342	308	264	539	430	835	173	227	3,117

Source: Sno.engineering, Inc.

As shown in Table IV-11, there is a need for a total of 3,117 seats to balance food service seating capacity with PCSA's upgraded CCC of 13,700 skiers.

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#### **4. Parking/Shuttle Services and Access**

A complete Parking and Capacity Analysis has been prepared for PCSA and is included as Appendix A of this document. The following is a summary of the Parking and Capacity Analysis for the upgraded ski area.

##### **Parking**

There are a total of approximately 1,700 parking spaces currently available to skiers and resort employees. About 200 of these spaces are used by resort employees, leaving 1,500 spaces for ski area guests. A total of 500 new spaces will be developed at Parcel "E", of which 100 will be set aside for employees and 400 will be available for skier parking. Parking surveys have indicated that the average car occupancy of cars arriving at PCSA is 3.7 people per car. As a result, the existing parking spaces can support a maximum of 7,030 skiers per day ( $1,900 \times 3.7 = 7,030$ ).

##### **Lodging at Base Area**

There are a total of 4,274 ski to/ski from beds currently available at the base of the ski area. A total of 2,104 new beds are proposed for PCSA's base, giving a total of 6,378 beds. Assuming a 95 percent peak occupancy, and that 20 percent of the overnight guests are non-skiers, the current bed base yields 4,848 ski to/ski from beds used by skiers at PCSA. Accordingly, the ski to/ski from accommodations in the base area can support a maximum of 4,848 skiers per day.

##### **Town Lift**

Based upon "design day" skier counts during the 1995-96 ski season, an average of approximately 1,100 skiers currently access PCSA via the Town lift. It is assumed that future Town lift usage will increase to 1,600 skiers per day.

##### **Park City Transit**

A number of PCSA surveys have been conducted which indicate that, on average, 13 percent of the skiers at PCSA arrived at the resort by riding some form of Park City transit. Using the aggregate of the figures given above, on a peak day, approximately 2,014 skiers will access PCSA via Park City transit.

The combination of on-site parking, ski to/ski from accommodations, Town lift access, and Park City transit access can support a maximum of approximately 15,490 skiers per day. This illustrates that the current parking/access capacity at PCSA is sufficient to meet the demands of peak-day skier visitation patterns.

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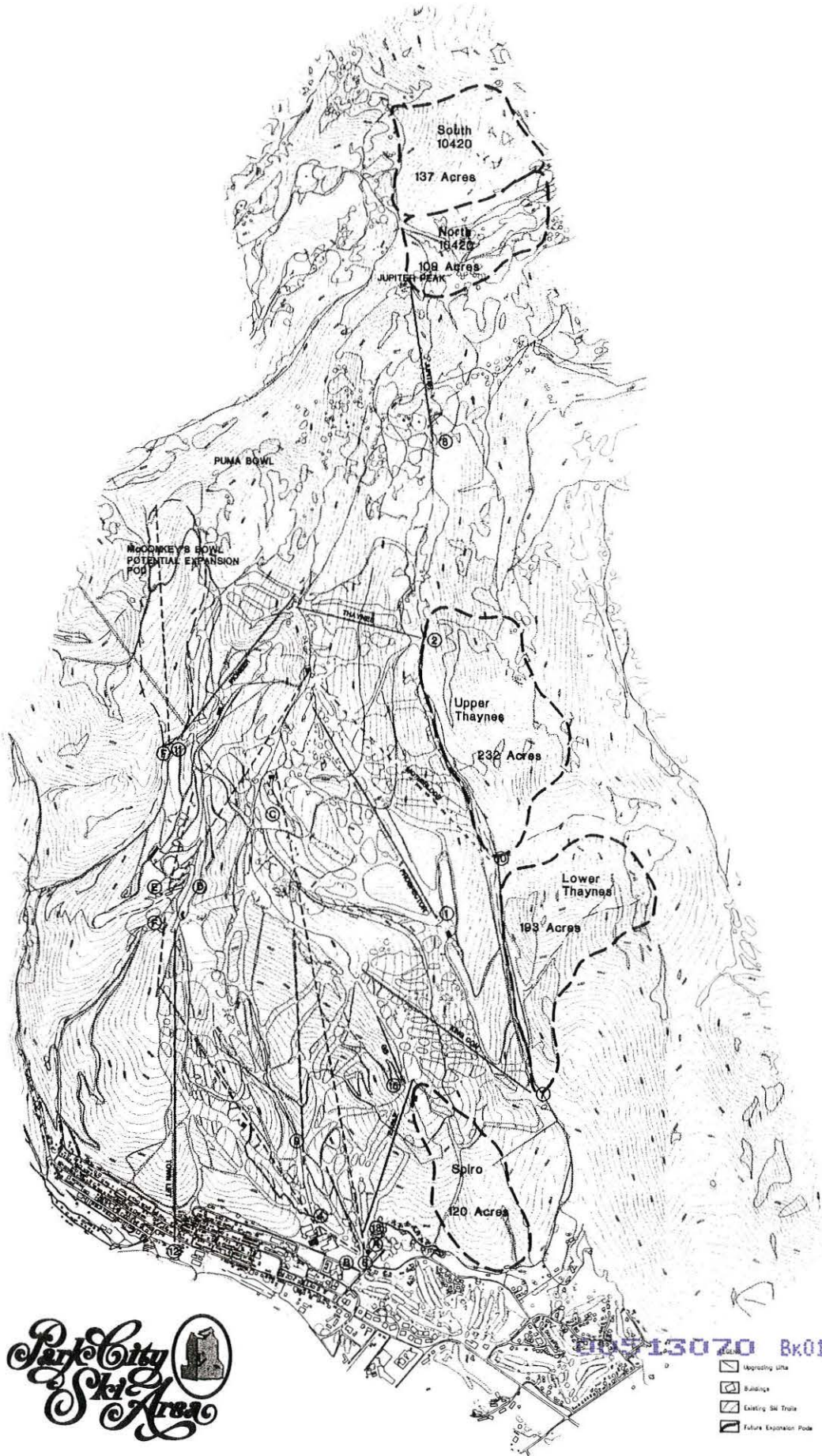


## V. FUTURE EXPANSION POTENTIAL

After complete buildout of the Mountain Upgrade Plan, there are a number of options for the future expansion of PCSA. Sno. engineering has identified, through map analysis only, five separate areas (pods) that could be developed for alpine skiing. These pods are logical additions to the existing ski area. The expansion pods are illustrated in Figure V-1 as "Spiro" near the base of the ski area and above the Park City golf course; "Lower Thaynes", which is located across Thaynes Canyon from the King Con and Prospector chairlifts, "Upper Thaynes" which is located across Thaynes Canyon from the Motherlode and Thaynes chairlifts; and "North 10420" and "South 10420" pods which occur to the southwest of Jupiter Bowl.

As illustrated in Figure V-1, the five future expansion pods comprise nearly 800 acres of potential ski development terrain, which could yield as much as 250 acres of additional skiable terrain. While it is premature to predict potential lift capacities for each of the expansion pods, it is anticipated that some degree of development in these areas could result in PCSA's CCC increasing to 16,000 or more skiers per day.

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**MOUNTAIN UPGRADE PLAN**

PREPARED FOR:  
 PARK CITY SKI AREA  
 PO BOX 339  
 PARK CITY, UT 84080  
 801-849-8111

PREPARED BY:  
  
 800-RegentCg

**Figure V-1  
 FUTURE EXPANSION PODS**

DATE: AUGUST 1998  
 CONTOUR INTERVAL=10ft  
  
 0 500 1500ft



## VI. CONCLUSION

The PCSA Mountain Upgrade Plan addresses the concerns found in Sno. engineering's analysis of the existing ski operation, as well as the shortcomings identified in the market research conducted by RRC. The plan, as outlined above, achieves the following objectives:

- ♦ improves PCSA's out-of-base access and enhances the resort's end of day return egress;
- ♦ increases the amount of beginner, novice, intermediate, and advanced intermediate terrain;
- ♦ reduces the resort's restaurant seating deficiencies;
- ♦ modernizes the resort's lift technology; and
- ♦ addresses the price versus value concerns expressed by PCSA guests.

Unfortunately, due to the site's geological formations, the availability of additional intermediate terrain is limited. However, through diligent grooming of the resort's advanced intermediate trails, PCSA should be able to satisfy the needs of the resort's intermediate skiers.

PCSA's efforts to improve and upgrade the existing facilities will help the resort position itself in the marketplace, allowing the resort to compete for both day and destination skiers. In addition, PCSA's on-mountain improvements will help stimulate future real estate development and improve real estate values.

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**APPENDIX A**  
**PARK CITY SKI AREA**  
**PARKING AND CAPACITY ANALYSIS**

00513070 Bk01166 Pg00663



## MEMORANDUM

TO: Douglas Clyde  
Powdr Corporation

DATE: July 31, 1996

RE: Parking and Capacity Analysis - Park City Ski Area

The following analysis has been prepared in response to your request to document the balance relationships between lodging, parking and mountain capacity at Park City Ski Area.

### Background

The current Comfortable Carrying Capacity (CCC) of the ski area is calculated to be 9,910 skiers (Sno.Engineering, 1996). The existing CCC of the ski area corresponds with the number of skiers that can be supplied from the existing parking, bed base, and bus system.

The CCC is a measure of the number of visitors that can be effectively served by the mountain facilities while maintaining a comfortable skiing atmosphere. Of the total CCC, 70-85 percent (depending on weather and snow conditions) will be active skiers, while the other inactive skiers will be using the skier support facilities and amenities. At a well balanced ski facility the active skiers will be evenly distributed throughout the mountain facilities; on the slope, waiting in the lift lines, or riding the ski lifts.

The accurate estimation of the ski area CCC is a complex issue and is the single most important planning criterion for the resort. Based on the proper identification of the mountain's capacity, all other related skier service facilities can be planned, such as base lodge seating, mountain restaurant requirements, sanitary facilities, parking, and other skier services. The CCC figure is based on a combination of the uphill hourly capacity of the lift system, the downhill capacity of the trail system, and the total amount of time spent in the lift waiting line, on the lift itself, and in the downhill descent. CCC is not a maximum capacity of the area, but rather a measure of the quality of the ski experience. The CCC figure represents the "comfortable" capacity of the resort. It is common for ski areas to experience "peak" days throughout the season during which the number of skiers visiting the resort exceeds the CCC, in many cases by 25% or more. Park City's peak days are significantly below these limits.



USA  
LITTLETON, NH  
FRISCO, CO  
BELLEVUE, WA  
CANADA  
WHISTLER, BC  
JAPAN  
TOKYO



Park City peak skier counts are generally in the range of 10% over CCC. Consequently 110% of CCC has been used throughout this analysis as as an approximate design guide for base facilities on peak days, while maintaining 125% as an upper limit.

Two recent (1994-95 season and 1995-96 season) analyses of parking and skier capacity have been conducted by RRC Associates and Sear Brown Group for Park City Ski Area. These works updated previous studies in the early 1970's by J. J. Johnson and Associates and VanWagner (1981) for the Park City Village project.

### **Current Parking Situation**

Park City Ski Area provides parking for skiers in 5 parking lots as shown below. The current parking lots have a capacity of approximately 1800 cars. This capacity varies with snow removal and control of parking cars by ski area parking lot personnel.

**Table 1**

<b>Parking Lot</b>	<b>Spaces</b>
Main Lot	492
Lower Lot	487
Underground Lot (see Table 1a)	510
Silver King Lot	243
Sweetwater Lot	80
<b>Total</b>	<b>1812</b>

The underground lot has reserved spaces for guests of the Resort Center and Village Loft units.

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**Table 1a**

<b>Parking Level</b>	<b>Parking Spaces</b>
P-1 Brown Level	52 (reserved for lodge parking)
P-2 Green Level	198
P-3 Red Level	198
P-4 Orange Level	60 (reserved for lodge parking)
<b>Total (skier spaces)</b>	<b>396</b>
<b>Total (Lodging spaces)</b>	<b>112</b>

The available parking for skiers is 1700 spaces. Prior to the 1995-96 ski season, ski area employees and employees of lodging, restaurant and retail operations parked in these lots. Based upon the 1994 parking study this resulted in approximately 200 parking spaces being used by employees in the Silver King Lot and all 80 spaces in the Sweetwater Lot. The Silver King and Sweetwater lots were designated for ski area employees as the appropriate location for parking thereby making parking closer to the lifts more available to ski guests. For the 1995-96 season, ski area employee parking was added at the Maintenance building location. Approximately 100 spaces were created. Paid parking was instituted to further increase the availability of close in and covered parking to ski guests and to control the amount of employee parking.

### **Other Arrivals by Skiers and Employees**

Skiers also arrive by Park City Transit, private bus/van service and walking. The 1994-95 study reviewed Park City Transit daily reports of trips to the Park City Ski Area over the President's Day week, traditionally a peak period for destination and day skiers. This study reported a range of 24% to 27% of skiers on the mountain to bus drop-offs counted by Park City Transit. An on-mountain survey of skiers was conducted for the 1995-96 study in addition to review of Transit drop-off rates. The 1995-96 data identified that 13% of skiers on the mountain rode the bus. The 1994-95 study is consistent with the 1995-96 study when the total skiers on the mountain are adjusted equally for season pass holders and VIP passes. The 13% rate is used in the following analysis. The 13% figure equals 43% of the total bus drop-offs during the 1996 study period. The difference between the skier drop off-rate and the total drop-offs is the

number of employees, guests and transfers to other busses taking place at the ski area.



### **Relationships of Parking and Lodging**

The relationships of parking count, lodging occupancy, and skier counts were analyzed for the 30 highest days over the previous three seasons and are presented in *Chart 1*. Park City Ski Area records total cars parked as well as ticket sales daily. Season pass usage was determined by the lift line surveys that were completed in the RRC report. Lodging occupancy was collected from the Park City Chamber Bureau.

Of the five largest skier days, 2 of which occurred in the 1995-96 season, theoretical parking capacity was reached only once. Of the 10 largest days parking capacity was reached four times. During these days, lodging occupancy ranged from 70% to 84% of maximum.

In the next tier of ten days, lodging rates dropped to a range of 70% to 74%, parking capacity was reached 2 times and came within 100 cars of full capacity 4 additional times (60% of the days).

In the final tier of largest skier days, lodging occupancy fell to a range of 40% to 70%; however the lots were within 100 cars of capacity 5 times. (50% of the days).

The above analysis is based on the theoretical parking lot capacity, which is dependent on snow removal and parking efficiency. Actual capacity was likely to have been lower during some of the days which are analyzed above.

Lodging capacity is the limiting factor in reaching capacity of the ski mountain during the high occupancy holiday periods. Lodging occupancy rate have a very high correlation to the 30 highest skier days. As lodging occupancy rates approach 85% area wide, lodging occupancy rates at the base area reach 95%.

Parking counts have little or no correlation to the 30 highest days due to the fact that off-peak parking is dominated by local skiers who have a very low ratio of skiers per car compared to destination visitors.

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An increase in beds at the base of the ski area will, of course, provide additional skiers without an increase in demand for bussing and parking. However, additional parking is required to support both the anticipated increase in local skiers during non-peak periods, as well as destination skiers staying in remote locations.

*Chart 1* shows the relationship of parking to skier days. The overall ratio of skiers to cars parked ranged from 4.2 to 6.3 over the period. The ratio for the top ten days ranged from 5.0 to 6.3 skier per car. These ranges are consistent with previous studies. The average of the total period is 5.15 skiers per car.

This overall ratio is the number of skiers on the mountain divided by the number of cars parked. Actual persons per car based on skier surveys is shown in Appendix Table A-30. It can be seen that Park City residents have a significantly lower rate of persons per car than destination skiers. It is also apparent that Salt Lake origin skiers use more parking for fewer skiers than destination guests.

Skiers being dropped off at the drop off area (Resort Center) also comprise a component of the overall ratio of skiers to cars parked. Measured observations in the 1993-94 studies indicated a drop off rate of 100 cars and 300 persons per hour peak. Drop off rates have been observed to increase over this rate in the 1996 parking lot evaluations due to skiers entering the lower lot to access the new ticket sales windows and the Eagle Chair access to the mountain.

As discussed previously, the current CCC of the ski area is 9910. Peak conditions can and will exceed the CCC. The CCC was exceeded four times in the period displayed in *Chart 1*. From operational experience, the peak skier counts are approximately 10% greater than design capacity. Again from *Chart 1*, it can be seen that the highest use condition occurs when lodging units are at full capacity.

For consistency in the following tables, beds are calculated from unit counts using Chamber Bureau and Land Management Code "Unit Equivalents". This results in 8 beds per unit or "Unit Equivalent" when developed to maximize beds i.e. hotel rooms or suites.

Table 2 through 4 shows the contribution of skiers from beds, parking and transit. This analysis is for the peak condition at various states of build out.

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Parking for the lodging units developed as part of the Park City Village plan is provided at the Land Management Code required rate per Unit Equivalent and is not shown separately in the *Tables 2 through 4*.



Employee parking for ski area employees is provided in off-site locations and considers employees using the Park City Transit and Ski Area provided bus transportation from out of Park City Locations in the same fashion as the current situation.

Employee parking for employees of new commercial operations not part of the current Ski Area operations are provided at a rate of 1 space per 400 square feet which is greater than the rate of employees per square foot in the existing commercial spaces. These spaces are shown in the following tables as "employee parking spaces".

Employee parking spaces for the lodging units are included in the code required and provided parking rates and are not shown separately for the purposes of the capacity calculations.

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Table 2

Current Condition

Skiers Provided

**I. Parking**

1700 parking spaces (skier and employee)  
<200> less spaces for employees  
1500 net parking spaces for skiers  
1500 net parking spaces @ 3.7 skiers per space<sup>1</sup> 5,550 skiers

**II. Lodging at Base Area<sup>2</sup>**

4274 existing beds  
<213> less 5% for peak condition 95% occupancy  
<812> less 20% for non-skiers and skiers skiing elsewhere  
3249 net skiers from bed base 3,249 skiers

**III. Town Lift**

based on 1995-96 season design day skier counts at  
Lift, 1128 skiers, use 1100. 1,100 skiers

**IV. Park City Transit**

13% of skiers<sup>3</sup> 1,479 skiers

**Total skiers at peak destination occupancy 11,378 skiers**

It can be seen from this calculation that the peak condition exceeds the CCC somewhat, however, it lies well within the acceptable range of 110 - 125% of CCC of the mountain (10,901-12,388).

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<sup>1</sup> Appendix Table A-30 attached

<sup>2</sup> Lodging units and beds Appendix Figure 1 attached

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<sup>3</sup> Appendix Table A-29 attached

## Future Relationship of Parking and Lodging



Using this analysis, the balance of mountain and base facilities is projected for two conditions. The first condition is established for the 2002 Olympic Winter Games. The second condition is at completion of the currently planned improvements to the mountain and base.

### I. Olympic Condition

The projected status of improvements at the Ski Area include the addition of out of base lift capacity and additional lodging and parking. Buildings expected to be complete are A, C and E. The potential also exists for a portion of parcel B to be completed. This results in an additional 2104 beds created as well as a new ski learning center, a replacement of the gondola building and skier support services and construction of the arcade entryway between the ski learning center (Parcel C) and Parcel E. Development of Parcel E will also add an additional 500 parking spaces for day skiers.

Mountain improvements include; new detachable quads for McConkey's Bowl, and the Bonanza Lift (angle station of the Gondola to the Summit House), replacement of PayDay and Motherlode with detachable quads, along with other lift improvements. Also a new transportation lift will run from the new plaza at First Time to a location near the top of Assessment. These improvements will result in a design capacity of 13,700 skiers.

The CCC of the mountain in the "Olympic Condition" is 13,700 skiers, (15,070 peak skiers). The corresponding analysis of base area beds, parking and transit is shown in *Table 3*. From the table it can be seen that a peak occupancy condition results in approximately 15,492 skiers which is well within the acceptable range.

*Table 4* shows the supply of skiers at the completion of the project to be 17,051. These skier volumes can be accommodated by the expansion terrain identified in the Ski Area Master Plan (Sno.Engineering 1996).

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Table 3

Olympic Condition

Skiers Provided

**I. Parking**



1,500 net parking spaces @ 3.7 skiers per space	5,550 skiers
500 new parking spaces at Parcel "E"	
<100> less new employee spaces	
400 net new skier parking spaces @3.7 skiers per space	1,480 skiers

**II. Lodging at Base Area**

4,274 existing beds	
3,249 net skiers from bed base	3,249 skiers
2,104 new beds	
<105> less 5% for peak condition 95% occupancy	
<400> less 20% for non-skiers and skiers skiing elsewhere	
1,599 net skiers from new bed base	1,599 skiers

**III. Town Lift**

use 1,100 skiers	1,100 skiers
increase in Town Lift use	500 skiers

**IV. Park City Transit**


13% of skiers	2,014 skiers
---------------	--------------

**Total skiers**

**15,492 skiers**

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Table 4



<u>Completion Condition</u>	<u>Skiers Provided</u>
<b>I. Parking</b>	
1,500 net parking spaces @ 3.7 skiers per space	5,550 skiers
600 new parking spaces at Parcel "B" and "E" (total)	
160> employee spaces	
440 net new skier parking spaces @3.7 skiers per space	1,628 skiers
<b>II. Lodging at Base Area</b>	
4,274 existing beds 3290 net skiers from bed base	3,290 skiers
3,640 new skiers from Park City Village Project	
<182> less 5% for peak condition 95% occupancy	
<692> less 20% for non-skiers and skiers skiing elsewhere	
2,766 net skiers from new bed base	2,766 skiers
<b>III. Town Lift</b>	
1,100, plus previous 500 skiers	1,600 skiers
<b>IV. Park City Transit</b>	
13% of skiers	2,217 skiers
<b>Total skiers</b>	<b>17,051 skiers</b>

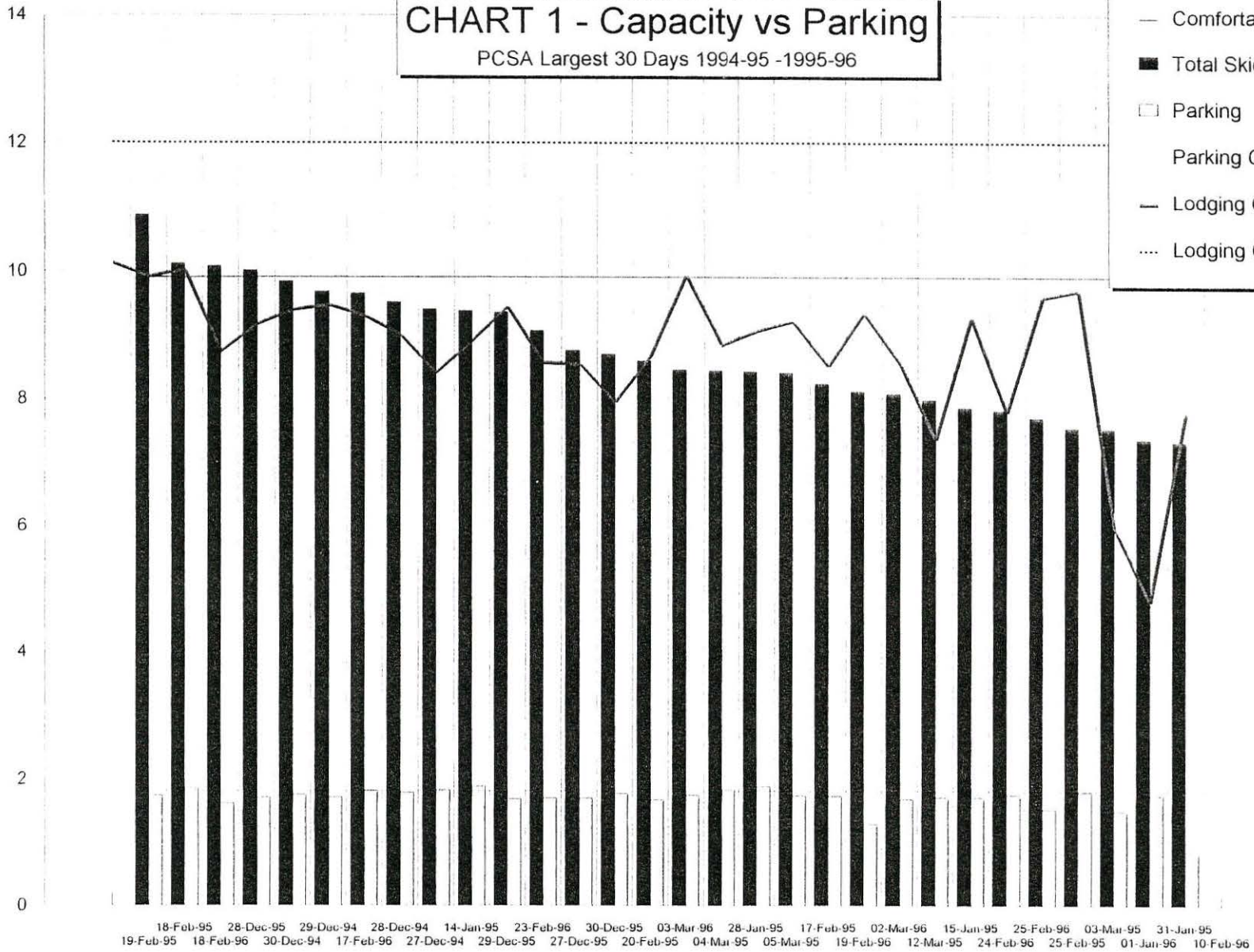
From the following tables and supporting information attached, it can be seen that the facilities as proposed maintain an effective balance between mountain capacity, lodging, and parking.

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# CHART 1 - Capacity vs Parking

PCSA Largest 30 Days 1994-95 - 1995-96

- Comfortable Capacity
- Total Skiers
- Parking
- Parking Capacity
- Lodging Occupancy
- .... Lodging Capacity



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Table A- 2

TRANSPORTATION & PARKING	OVERALL	VISITOR ORIGIN				PREVIOUS RESORT VISITS			MARITAL STATUS				SKIER ABILITY		
		PARK CITY	SALT LAKE COUNTY	OTHER UTAH	OUT OF STATE	FIRST VISIT	1 - 3 VISITS	4 OR MORE VISITS	SINGLE	COUPLE	SINGLE/ COUPLE W/ KIDS	EMPTY NEST	BEGINNER	INTER-MEDIATE	ADVANCED /EXPERT
HOW MANY PEOPLE CAME IN YOUR VEHICLE															
1	4%	16%	6%	14%	2%	2%	3%	6%	7%	5%	2%	4%		2%	6%
2	25%	38%	29%	14%	24%	29%	20%	27%	31%	35%	18%	30%	12%	23%	29%
3	17%	13%	26%	14%	16%	13%	19%	20%	17%	17%	19%	11%	12%	15%	19%
4	26%	22%	18%	27%	28%	30%	27%	20%	16%	25%	31%	26%	28%	32%	21%
5	11%	4%	12%	9%	12%	13%	10%	12%	14%	8%	13%	9%	36%	9%	11%
6	10%	4%	9%	18%	11%	7%	12%	13%	9%	9%	12%	11%	4%	11%	10%
7	4%	2%			5%	5%	5%	2%	4%	1%	3%	6%	4%	5%	3%
8	2%			5%	2%	2%	3%	1%	2%		2%	4%	4%	3%	1%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Average	3.7	2.8	3.3	3.8	3.8	3.8	3.9	3.5	3.5	3.3	3.9	3.8	4.4	3.9	3.5
n =	527	45	34	22	425	175	146	172	139	77	224	47	25	203	256

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TRANSPORTATION & PARKING	OVERALL	VISITOR ORIGIN				PREVIOUS RESORT VISITS			MARITAL STATUS				SKIER ABILITY		
		PARK CITY	SALT LAKE COUNTY	OTHER UTAH	OUT OF STATE	FIRST VISIT	1 - 3 VISITS	4 OR MORE VISITS	SINGLE	COUPLE	SINGLE/ COUPLE W/ KIDS	EMPTY NEST	BEGINNER	INTER-MEDIATE	ADVANCED /EXPERT
FORM(S) OF TRANSPORTATION USED TO GET HERE TODAY															
Rental car	40%	2%	3%	9%	46%	44%	47%	29%	40%	39%	39%	40%	47%	46%	34%
Private automobile	25%	73%	97%	73%	16%	12%	17%	48%	22%	31%	24%	21%	18%	14%	35%
Other	13%	8%			14%	12%	16%	9%	15%	10%	12%	9%	9%	13%	13%
Bus in Park City	12%	10%			13%	16%	13%	5%	11%	9%	13%	17%	12%	14%	10%
Bus from Salt Lake	9%			18%	10%	13%	7%	4%	7%	9%	9%	10%	12%	12%	5%
Traveled with family & friends	2%	10%			2%	2%	1%	3%	3%	3%	1%	4%	3%	1%	4%
Borrowed car	1%	4%			1%	1%	0%	3%	1%	3%	2%			1%	2%
TOTAL	101%	106%	100%	100%	101%	101%	100%	102%	101%	104%	101%	101%	100%	101%	102%
n =	756	51	33	22	644	293	206	205	201	108	324	70	34	328	330

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*Figure 1*  
*Park City Chamber Bureau Units Within Walking Distance to PCSA*

Lodging Properties Within Walking Distance of  
 Park City Ski Area  
 as of 4/13/94

<u>Property Name</u>	<u>Hotel</u>	<u>Studio</u>	<u>One Bdrm</u>	<u>Two Bdrm</u>	<u>Three Bdrm</u>	<u>Four Bdrm</u>	<u>Five Bdrm</u>	<u>Maximum People</u>
Acorn Chalet	2		2	1				18
All Seasons				7	7			98
Alpenhof			2	6	1			52
Chamonix Groupe & Chalets	25	1		6	4			120
Chateau Apres	52							104
Doublejack				6				36
Edelweiss				38				228
Empire Coalition				17	2			118
Empire House			10					40
Lifeline				1	12	1		112
Park Place			2	4	2			48
Powderpoint			21	12				156
Powder Ridge					6			48
Resort Center Lodge/Inn	27	53	22	17				350
Shadow Ridge	1		1	51	1			320
Silvertown				4	5	1		74
Silver Cliff				14				84
Silver King		18	28	15				238
Ski Team				8				48
Skier's Lodge			12	4				72
Snow Flower		7	6	59	39	14	6	916
Snowblaze		1	11	3	3			88
Snowcrest			14	8				104
Sunflower				4	4			56
Sweetwater		6	24	45	15			498
The Gables			11		8	2		128
Wasatch Condos					15			120
<b>TOTALS*</b>	<b>107</b>	<b>86</b>	<b>166</b>	<b>330</b>	<b>124</b>	<b>18</b>	<b>6</b>	<b>4,274</b>

\*These totals include all units in any given property whether or not they are in the rental pool. Some owner associations could not be reached; total number of units in these cases has been estimated by adding number of units managed by various property management companies.