THE SUSAN JANE AVALANCHE PATH: A CASE STUDY IN SKI AREA PLANNING AND AVALANCHE PATH IDENTIFICATION

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ABSTRACT

Some of the planning efforts for a ski area expansion project are studied, identifying aspects of the planning process which related to potential avalanche hazard, evaluating the adequacy of that planning and suggesting directions for more effective planning.

INTRODUCTION

In early 1987, the Stevens Pass Ski Area, located in the central Cascades of Washington state, USA, was poised to build a large, fixed-grip chairlift, opening up nearly 500 acres of additional ski terrain. This project had been eagerly anticipated by the ski area, the skiing public, and the land owner, the U.S. Forest Service. Not surprisingly, it would have been difficult to find any group of people opposed to the project.

But in mid-February of that year, it was belatedly discovered that a large avalanche path, relatively close to the bottom terminal of the proposed lift, had not been identified in a 1982 ski area master plan, and hence had not been added to the ski area's permit boundary when recent adjustments were made. Rather than being within their jurisdiction and control--as the ski area had been assuming for some time--the starting zone and track of this avalanche path, called the Susan Jane avalanche path, had been made a part of the Alpine Lakes Wilderness (1985). The Susan Jane path, although perhaps not a high risk to the lift terminal, was viewed by the ski area and the authors as posing a threat under the most severe conditions. Since the use of explosives for avalanche control is not normally permitted within federally designated wilderness area, this situation placed both the ski area and the U.S. Forest Service in an awkward position, and a way out of the immediate problem had to be found if the project was to proceed. To their credit, the U.S. Forest Service found a solution, developing guidelines for avalanche control on an "emergency basis," allowing the project to go forward.

GOALS OF THE CASE STUDY

This paper presents the results of a study of the planning processes that

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preceded the expansion of the Stevens Pass Ski Area. The authors have attempted to uncover whatever events, situations, or assumptions might have short-circuited more adequate planning. The study is offered as a learning experience, an aid to better planning in the future. The investigation included public documents and personal interviews.

FIVE ASPECTS OF THE PLANNING PROCESS

Five aspects of the planning process have been identified, where there appeared to be either a breakdown or a lost opportunity:

Master Plan Analysis of Potential Avalanche Areas

Figure 1 gives the longitudinal profile of Susan Jane. The alpha angle from chairlift bottom terminal to starting zone is 22°. Vertical drop from starting zone to lift bottom terminal is 1800 feet. Figure 2 shows the relationship of Susan Jane to the bottom terminal. The Stevens Pass Ski Resort Master Plan (1982) does not include this path as a potential hazard, so it is not surprising that the eventual boundaries for both the Alpine Lakes Wilderness and the ski area permit do not reflect a concern about it. We can only speculate about the thoughts of the consultants who did the original master plan survey, but there are without doubt some problems in trying to give an accurate account of avalanche history in the area. The runout zones near the bottom terminal are complex, with several paths seeming to converge--Susan Jane lying to the south, and another path to the west. A second problem in path identification was caused by the construction in the 1950's of a high-tension power line. Tree removal during and after construction makes the analysis of vegetation difficult. Situations like this may make alpha angle comparisons useful, especially if nearby paths could be found with similar configurations. The Master Plan did draw one conclusion which more recent observation tends to question: "The lower lift terminals are clustered adjacent to a stand of trees which are untouched by slide activity." Small tree removal near the bottom terminal revealed substantial avalanche damage.

The Ski Area's Understanding and Evaluation of Their Master Plan

For reasons we could not determine, ski area management was apparently unaware of the critical boundaries for both the enlarged permit area and proposed Alpine Lakes Wilderness additions, even though those were an integral part of the Master Plan. It is speculative, but likely, that boundary changes more favorable to the ski area would have been drawn in final wilderness legislation if the Master Plan had expressed a need for such, and if avalanche control needs had been more explicitly addressed. When the Alpine Lakes Wilderness boundary alternatives were being developed by the U.S. Forest Service, a planning team actively sought input and recommendations. It is ironic that key ski area personnel had always planned on having the capability to control Susan Jane, when the Master Plan expressed just the opposite assumption.

U.S. Forest Service Review of the Master Plan

The Master Plan was signed by the Forest Service in 1982, preceded by a review process. This review period was an opportunity for any weaknesses in

the Master Plan to be discovered and corrected.

Communication

Because the ski area extends over two national forests, the processes of review, evaluation and overall communication are complicated and perhaps weakened. Both the Susan Jane avalanche path and the wilderness boundary in question are within a national forest which is not the administrative forest for the ski area. The administrative forest contains the original ski area, and its administrative responsibilities have extended into a neighboring forest as the ski area has grown. This is not a unique situation, but it does make the communication of important facts more difficult. Yet it is difficult to understand why the importance of Susan Jane wasn't passed through the chain of communication, from ski area personnel to ski area planners and hence to administrative agencies.

Master Plan Follow-up

The Master Plan has one note of caution concerning potential avalanche problems in the proposed expansion area: "Prior to any major undertaking in the Mill Creek area, a definitive evaluation of snow deposition and potential avalanche hazards must be conducted." A "definitive evaluation" should have been an integral part of the master plan process itself. Post master plan evaluation of avalanche hazards were limited to ski patrol planning of control routes and strategies which, although thorough, carried on the assumption that the ski area would have the capability to use normal control measures as needed in the Susan Jane area.

CONCLUSIONS

There is no substitute for thorough planning, supported by sound and detailed observations both winter and summer. Ski area master plans need to be functioning documents, thoroughly understood and used by decision makers, with frequent review and evaluation. Avalanche professionals need to be an integral part of initial ski area planning, and they need to be aggressive in seeking that role and functioning in that role.

REFERENCES

Stevens Pass Ski Resort Master Plan, 1982, 86-79.

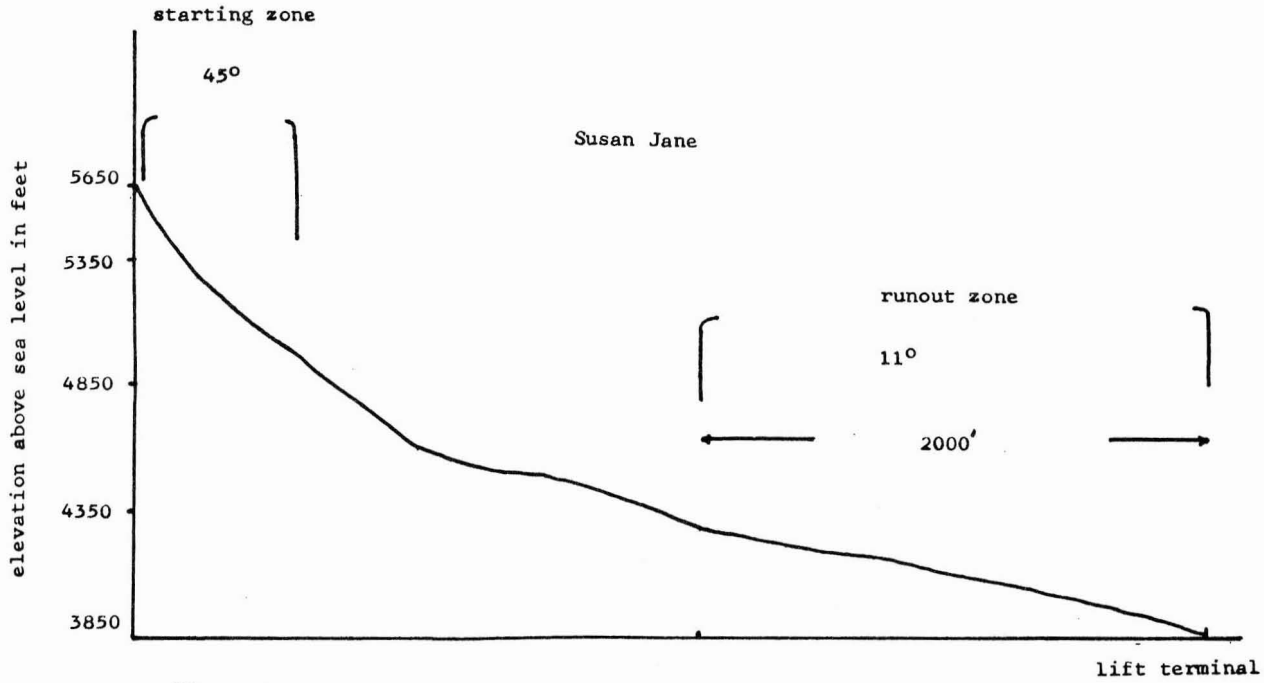
starting zone
45°
Susan Jane
5650
5350
4850
4350
3850
elevation above sea level in feet
runout zone
11°
2000'
lift terminal

Figure 1