Tilden Park: A Rating System For Determining Appropriate and Safe Trail Use

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Introduction

There are several ways to enjoy the natural beauty of a park--one could be a hiker, bird-watcher or simply a picnicker--or, on a more active level, one could be a jogger, runner or a biker. "Recreation in and of itself is a personal, multidimensional activity, it is by its very nature different things to different people" (Barbera *et al*, 1986).

In the last five years, the sale of bicycles has steadily increased. "Many bike shops are now reporting that half of their weekly sales are for fat tire bicycles" (Douglass, 1987). According to Donald Douglass, the Land Access Director of the National Offroad Bicycle Association (NORBA), "this breed of bicycles (mountain bikes) is equally at home on dirt roads, narrow steep trails, bushy, rocky, sandy and yes, even in snowy places where people can walk" (Douglass, 1987). Since mountain bikes can go almost anywhere, they can be utilized on pedestrian as well as equestrian trails. Land managers and park rangers are now faced with the problem of integrating mountain bikes and other trail users. At Tilden Park the current policy is that "bicycles are permitted on paved bicycle trails and on paved and unpaved roads. They are not permitted on narrow gauge trails [which are] limited to hiking or horseback riding unless otherwise posted" (East Bay Regional Park District, 1988).

A trail rating system which addresses the question of safe and appropriate uses would help a land manager deal with the problem of making these determinations. The only publication that contains such a rating system is the West Bay Trails Council's (WBTC) *Trail Assessment Tool For Determining Appropriate and Safe Trail Use.* This trail assessment tool provides a way for users as well as park managers to evaluate each trail, and is designed to "offer...official evidence that a fair and objective judgement has been used" (WBTC, 1988). The purpose of my paper is to present the results of my application of the WBTC rating system to selected trails in Tilden Park, and to demonstrate its usefulness to park officials in their determination of safe and appropriate trail uses.

Background

The WBTC rating system uses three factors to evaluate a trail: trail use, physical characteristics and management considerations. Each factor is evaluated by tabulating numerical assessments on a rating chart to be completed from the standpoint of a hiker, runner, biker and equestrian. Along with the rating chart, definitions are given as guidelines for the evaluators. Each factor is broken down into 8-13 categories. Each category is worth 10 points, with a zero being the lowest or least positive evaluation (WBTC,1988).

After all the factors are tabulated, a composite rating is created with which a land manager could answer the question of "whole access." Whole access is defined as having hikers, runners, bikers and equestrians utilizing a trail at the same time. Whole access has two components: appropriateness and safety. Appropriateness deals with the compatibility of an activity to the environment. Safety deals with the overall safety not only for a particular user group, but also in relation to other user groups. A safe trail means that under normal conditions, anyone can use a trail without fear of injury.

Trail Use Characteristics: The "Historical Use" category evaluates the numbers of each user group using a trail more than five years ago. "Present Use" covers the use of the trail within the last five years, while "Projected Use" covers the future use of the trail. The "Desire to Use" category assesses the desire of users to use a trail who cannot because of their schedule. The "Access" category is about the accessibility of the trailhead from the main road. The "Distance" category is the appropriateness of a trail length for each user group. "User Group Participation" involves each user group's participation in trail construction, maintenance and financial support. The "Connector Trail" category deals with the importance of a particular trail as a connecting trail between other trails (WBTC, 1988).

Trail Physical Characteristics: This factor has 13 categories. The first category is "Alternate Routes". A high rating is given to a trail if similar trails are available to diffuse traffic. The "Layout and Construction" category asks for the appropriateness of the trail's grade, tread, slope, drainage, side slope and cut for each user group. In the "Width" category, a high rating means that even if all user groups are utilizing a trail at one time, it is still adequate. The "Switchbacks" category deals with the number and type of switchbacks for each user group. The "Obstacle" category involves low trees, poor tread, rock protrusion and poison oak. "Brushing" deals with vegetation on both sides and overhead along a trail. The "Visibility" category is the line of sight on a trail for a user group to avoid accidents. The "Weather Conditions" are slotted into two categories: Winter and Summer. Both deal with the suitability

of a trail for general enjoyment. The "Esthetics" category asks how pleasant the trail is in terms of its view, lakes, streams, trees and geography. "Location of Trail" deals with how close the trail is to urban population centers or roads. "Educational Value" involves the educational or historic value of a trail. And, the "Connector Trail" category deals with the importance of this trial as a connecting trail between other trails (WBTC, 1988).

Trail Management Considerations: This last factor has 13 categories. The "Multi-use Conflicts" category deals with the potential conflict for each user group on another group. Here, a zero rating equals a very high existing conflict. The "Inter-agency Concerns" category deals with potential conflicts if a trail is in two or more parks. A zero rating means more coordination between agencies is needed. The "Site Priority" category involves how much a user group fights for access to a trail and how they restrict other users from utilizing a trail. Again, a zero rating means a low priority. The "Site Emphasis" category is how a user group encourages its members to use a particular trail. "Staffing" deals with how much a user group manages the trail in terms of policing its members and other users. Here, a zero rating means a very low staffing. The "Alternate Routes" category involves other trails that might disperse user traffic. The rating is broken down into:

0-1 No alternate trails exist or are planned

2-3 No alternate trails exist but the possibility exists

4-6 Alternate trail planned

7-8 An acceptable alternate exits

9-10 Very good alternate route exists for the user group

The "Access" rating involves various factors such as parking, location of trailhead, permits and gates. "Closures" deal with seasonal or temporary closures. A zero rating equals frequent closures. If a zero is given on the "Trail Maintenance" category, it means much maintenance is required. The "Signing" category is also broken down into:

0-2 Little or no signing presently or planned

3-4 Signing planned

5-7 Acceptable signing exists

8-10 Signing is good to excellent

The "Facilities" category deals with restrooms, picnic tables and water fountains. The "Maps" category rates the availability of maps as well as quality; a zero rating means no map is available. If a zero rating is given on the "Environmental Impact" category a severe degradation on the trail is occurring (WBTC, 1988).

Methodology

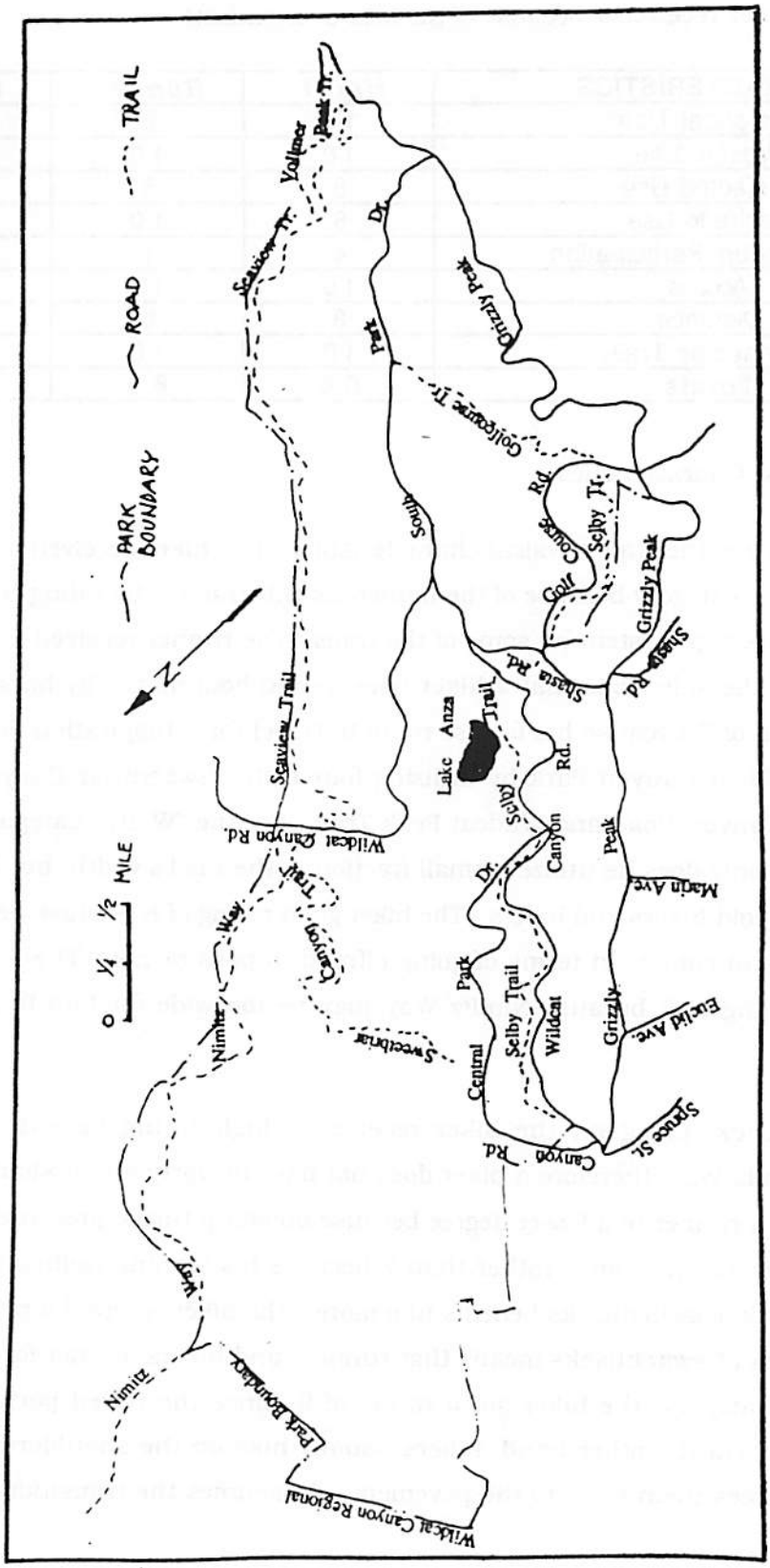
I acted out different roles as I evaluated selected trails in Tilden Park. To utilize the WBTC rating system, I hiked, ran and biked the Nimitz Way on the 2nd and 5th of February. Due to time and budget constraints, I did not evaluate Nimitz Way's and other selected trails' suitability for equestrians. To show how the trail assessment tool works, I present a detailed review of the evaluation procedure for Nimitz Way. Categories dealing with safety directly are explained, like "Present Use" and "Projected Use" on the trail use factor. Categories where the difference between ratings are 3 or more are also explained in detail.

In addition to the Nimitz Way, I also evaluated the Sweetbriar Canyon Trail, Seaview Trail, Vollmer Peak Trail, Golfcourse Trail and Selby Trail (Map 1). I chose these trails because they go through points of interest in Tilden Park. For example, the Sweetbriar Canyon Trail enables access to Tennis Courts, Pony Ride, Little Farm, Environmental Education Center and Inspiration Point. I analyze the data and answer the question of suitability of "whole access" for each trail. Again, let me reemphasize that whole access has both appropriateness and safety components. I also explain problems which arise from this rating system in terms of how each category is weighted. Lastly, I give recommendations for appropriate use of certain trails and for Tilden Park as a whole.

Nimitz Way

The first factor is the trail use characteristics. I gathered my data in the first week of February, and summarize them on Table 1. In the "Historical Use" category, I gave the hiker the rating of 10 because I know that runners and bikers were not major users five years ago. The runner received a higher rating than biker because cycling was not as popular then. For the "Present Use", all three user groups received the highest rating because all three use the trail regularly. The biker in the "Projected Use" received a higher rating than both the hiker and runner because I feel that the limiting factor for the hikers and runners will be the parking lot on Inspiration Point; bikers simply hop on their bikes and pedal to the trail.

In the "Desire to Use" category, the runner got a highest rating because he can finish his exercise in a much shorter time than the other users; therefore, he could easily find open spots in his schedule. The hiker received a higher rating than the biker because he can easily drive his car and go hiking. For the "User Group Participation", the biker received a rating of 6 because I know that the Bicycle Trails Council of the East Bay go into Tilden Park every three



Map 1. Tilden Park Trails.

months and restore a trail. The hiker received a 4 rating because of the presence of hiking clubs, while the runner received 1 because of the lack of organization.

CHARACTERISTICS	*Hiker*	*Runner*	*Biker*
Historical Use	10	8	6
Present Use	10	10	10
Projected Use	8	8	10
Desire to Use	8	10	7
User Group Participation	4	1	6
Access	10	10	10
Distance	8	9	10
Connector Trail	10	10	10
Totals	**68**	**66**	**69**

Table 1. Trail Use Characteristics.

Table 2 summarizes the trail physical characteristics. The hiker received a rating of 9 on the "Alternate Routes" category because of the numerous side trails. The rating could have been higher but poison oak is persistent on some of the trails. The runner received an 8 because he cannot utilize all of the side trails that a hiker uses due to hoof marks by horses. The biker received a low rating of 5 because his fastest route to travel form Inspiration Point to Wildcat Peak is to go to Wildcat Canyon Park by utilizing four trails: Sweetbriar Canyon Trail, Blue Gum Trail, Laurel Canyon Road and Wildcat Peak Trail. For the "Width" category, the runner got a 9 because not only does he utilize a small fraction of the road's width, but he is also very mobile and able to avoid hikers and bikers. The biker got a rating of 8 because he is usually the passer; hence, he is in control in terms of going offroad to pass or not. The hiker received a surprisingly low rating of 7 because Nimitz Way may be too wide for him to get the feel of nature.

In the "Switchback" category, the biker received a high rating because there are no switchbacks on Nimitz Way; therefore a biker does not have to worry about sharp curves. The same holds true for a runner to a lesser degree because on sharp turns, pressure on the ankles increases. The biker received an 8 rather than 7 because his turning radius is wider than a runner; thus, the lack of switchbacks benefits him more. The hiker received a rating of 5 due to the fact that the lack of switchbacks means that runners and bikers are not forced to go slow. In the "Obstacles" category, the biker got a rating of 9, since the paved portion of the trail (middle) is utilized. On the other hand, hikers usually hike on the shoulders, except where occasional brush forces them to go to the pavement. Sometimes the transition from unpaved

to paved trail is rough; therefore, the hiker received a rating of 6. The runner got a rating of 7 because I noticed that runners run on either pavement or dirt.

CHARACTERISTICS	*Hiker*	*Runner*	*Biker*
Alternate Routes	9	8	5
Layout/Construction	9	9	10
Width	7	9	8
Switchbacks	5	7	8
Obstacles	6	7	9
Brushing	7	7	7
Visibility	9	9	8
Weather Conditions/Summer	10	10	10
Weather Conditions/Winter	10	9	8
Esthetics	8	8	8
Location of Trail	8	9	10
Educational Value	5	3	3
Connector Trail	8	7	5
Totals	**101**	**102**	**99**

Table 2. Trail Physical Characteristics.

In the "Visibility" category, the hiker and runner received a rating of 9 because the turns are smooth enough to see a good 15-20 feet. The biker got an 8 due to the fact that he travels at a greater speed; therefore, a longer range is desired. The "Connector Trail" category in this factor is different than the trail use factor because it deals with existing trails rather than the desire for such trails. Nimitz Way is an excellent connector trail for hikers because they can use several unmarked side trails. Because of the presence of hoof marks, I gave the runner a lower rating. The biker received a rating of 5 because other than going to Wildcat Canyon Park, he can only utilize Rotary Peace Grove.

Table 3 presents data on the trail management considerations. In the "Multi-use Conflict" category, the hiker received 8 because he presented a low potential of conflict to the other users. Conversely, a biker got a 3 because he most likely causes problems to others due to the higher speed. The runner got a rating of 5 because he travels in between the speed of a hiker and biker. For the "Inter-agency Concerns" category, the rating progressively declined from hiker to biker because of the range of each user group. Since the biker is likely to travel farther, he will be at Wildcat Canyon Park more often than the other two users. In the "Alternate Routes" category, a 4 was awarded to bikers because of the lack of alternative. In the "Facilities" category, the hiker received a rating of 8 because of various benches and picnic tables which

offer a resting stop. The runner received a rating of 4 because of the lack of a drinking fountain. I felt that a runner is more susceptible to heat because he does not carry water bottles like bikers; hence, bikers got a rating of 5.

CHARACTERISTICS	*Hiker*	*Runner*	*Biker*
Multi-use Conflicts	8	5	3
Inter-agency Concerns	10	8	6
Site Priority	8	8	8
Site Emphasis	8	10	8
Staffing	4	3	5
Alternate Routes	10	7	4
Access	9	9	9
Closures	10	10	10
Trail Maintenance Required	9	9	9
Signing--Present and Planned	8	8	8
Facilities	8	4	5
Maps	9	9	9
Environmental Impact	10	10	9
Totals	**111**	**100**	**93**

Table 3. Trail Management Considerations.

Trail Composite Ratings: Table 4 summarizes Table 1-3. With the use of this table and the comment section, the "whole access" question and other recommendations can be formulated.

FACTORS	*Hiker*	*Runner*	*Biker*
Trail Use Characteristics	68	66	69
Trail Physical Characteristics	101	102	99
Trail Managements Considerations	111	100	93
Totals	**280**	**268**	**261**

Table 4. Composite Ratings.

As Table 4 indicates, Nimitz Way is rated highly by hikers, runners and bikers. The trail use and trail physical characteristics are pretty even for all three user groups, but management considerations do not favor the biker, mainly because of the potential for conflict. Due to the lack of alternate routes and the increased usage of Nimitz Way, the potential for an accident exists.

Other Selected Trails

Along with Nimitz Way, the composite ratings of Sweetbriar Canyon Trail, Seaview Trail, Vollmer Peak Trail, Golfcourse Trail and Selby Trail are summarized by in Figure 1. Since Nimitz Way is the highest rated trail, it is used as reference.

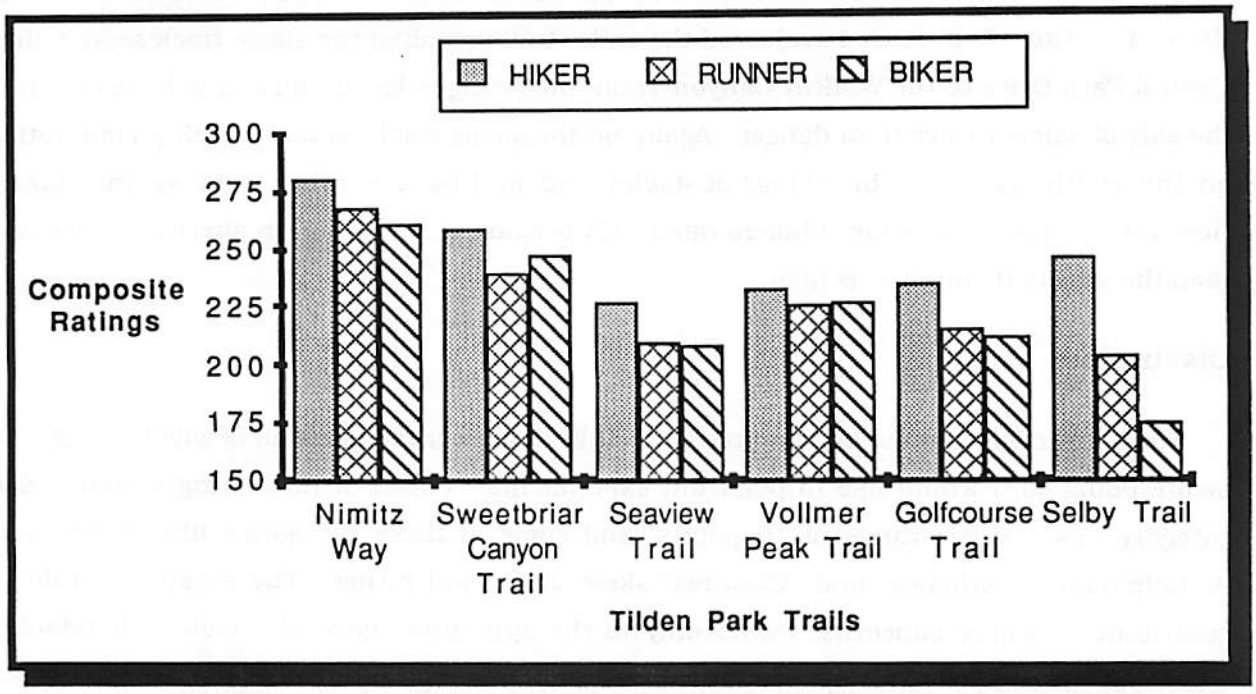


Figure 1. Composite Ratings.

The Sweetbriar Canyon Trail and the Vollmer Peak Trail are the next most highly rated trails for all types of users. As Figure 1 indicates, hikers, runners and bikers rated these trails very similarly. Due to the hoof marks along the trail and its moderate grade, joggers rated Sweetbriar Canyon Trail at 239. On the other hand, bikers simply roll over these obstacles; hence, they rated it higher. Again, due to the flexibility of hikers, the rating is also high. Data on Vollmer Peak Trail are similar to Sweetbriar Canyon Trail because the conditions are about the same. The only difference is that Vollmer Peak is paved; thus, the runner's rating is closer to the biker's.

Following these trails are Golfcourse and Seaview Trails. Golfcourse Trail rated lower than preceding trails because of the physical characteristics of the trail. For instance, when it rains, it easily turns muddy. This is also why runners and bikers rated lower than hikers; mud tends to stick on running shoes and bicycle tires. Similarly, Seaview Trail rated lower because

of its physical characteristics. It is the most challenging trail which leads to the highest point of Tilden Park. Due to this steep grade, there are relatively few users.

Lastly, Selby Trail is rated the lowest because of its physical characteristics and management concerns. If I had only evaluated the double track section of trail (from Golf Course Drive to Central Park Drive), its rating would have been comparable to Sweetbriar Canyon's rating. But, since I evaluated the entire trail including the single track section (from Central Park Drive to the Wildcat Canyon Trail), the rating is low because it is better to err on the side of safety rather than danger. Again, on the single track section of Selby Trail, ratings on the width, visibility, brushing, obstacles and multi-use conflict went against bikers. However, the trail use factor of bikers rated high because the need for an alternate route other than the streets themselves is high.

Discussion

The data collected must be interpreted carefully to answer the question of whole access. But before doing so, I would like to point out experimental biases of this rating system. Each category has a value range of 10 points, and some of these categories like "User Group Participation", "Esthetics" and "Closures" skew the overall rating. These categories do not contribute to safety concerns, rather only to the appropriateness of a trail. Therefore, in looking at the composite rating, one must be aware that a high rating does not necessary mean a trail is safe.

Table 1's "Present Use" and "Projected Use" gives an idea of how crowded the trail is or will be. "Present Use" indicates that each of the three user groups use Nimitz Way heavily. It will get more and more crowded until a carrying capacity is reached. A rating of 10 means a trail is used regularly.

"Alternate Routes" on Table 2 shows that a biker has little choice but to use Nimitz Way. A rating of 5 means that there are few alternate routes; hence, a trail is used heavily. The "Width" category favors the runner. In this category, a 7 for hikers mean that they do not feel safe. This can be attributed to the fact that a hiker is immobile compared to a runner or a biker, therefore he gets passed frequently. The "Obstacles" category is a little bit confusing because the hiker received 6 while the biker received 9. In keeping with the definitions, the obstacles only include low trees, poor tread, rock protrusion and poison oak. Hikers received a 6, and they should be on the lookout for uneven pavement along the Nimitz Way. In the "Visibility"

category, all three users received scores within the range of 8-10 which means visibility is excellent.

Table 3's "Multi-use Conflicts" greatly favors the hiker who got a rating of 8. The hiker does not cause potential problems to other users because he moves so slowly. The runner got a 5 because he moves faster than a hiker, therefore the reaction time decreases. The biker's rating is 3 which means his potential to cause problems is high. Again, a biker moves at higher speed than all users, and at high speed, he tends to lean into a curve in which he virtually sweeps the whole width of the trail.

Experimental Biases: The results on Table 4 and Figure 1 should be taken with a grain of salt. The data might be under-evaluated in some cases. For instance, if the single track portion of Selby Trail had not been considered, the biker's composite rating would be much higher. In addition, some categories answer the whole access question by a different angle--appropriateness. The "Educational Value", "Facilities" and "Environmental Impact" categories addresses the appropriateness of a recreational type on a trail. Lastly, none of my data includes the standpoint of equestrians; therefore, the full impacts of all users are not known.

Whole Access: Keeping these difficulties in mind, I feel that whole access to Nimitz Way is not possible even though all 3 users rated it highly. With dogs running around, cows roaming freely, hikers stopping for the view and slow moving wheelchairs and strollers, injuries are bound to happen.

Whole access is possible on Sweetbriar Canyon, Seaview, Vollmer Peak and Golfcourse Trails. These trails are wide enough to accommodate current as well and projected users. In addition, alternate routes diffuse impact in these trails unlike Nimitz Way. The steepness of Seaview Trail also limits the number of users.

Selby Trail is currently closed to bikers even though a section of it is double track. I feel that on this double track section, whole access is possible. I believe that the major backers for keeping it closed to bikers are equestrians. I noticed that high clearances favor equestrians; plus, hoof marks and horse manure along the trail means they use the trail frequently. On the single track section, whole access is out of the question. Widening this section of the trail is ecologically unsound.

Recommendations

Tilden Park officials are highly encouraged to evaluate all trails by using the WBTC rating system. I evaluated Nimitz Way in two days with an average time of two hours per day. At this rate, the major trails in Tilden Park can be evaluated in two weeks by one person. Based on my findings on Nimitz Way, the sooner an evaluation is started the better in order to head off possible accidents. A task force should be created as soon as possible. The task force should consists of two hikers, runners, bikers and equestrians, plus two Tilden Park officials, so that there will be equal representation as each trail is evaluated.

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