

# Summary Report

## TRAILS AND GOLF COURSES: Best Practices on Design and Management





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## **SUMMARY**

Golf courses, with their large expanses of 'undeveloped' land, can appear to be a tempting place to locate a trail or bikeway in a community seeking to overcome gaps in their trail system. The golf course industry has been resistant to allowing increased public access for several reasons, including privacy, security, safety, liability, and impacts on golf operations. At the same time, trails and golf courses do co-exist around the country with few reported problems. The conclusion of this report is:

- In some locations, a trail or bikeway may be able to co-exist with a golf course as long as some basic design, operations, and management techniques are employed.
- Most of the existing courses that have allowed trails are publicly owned and publicly accessible courses.
- Additional research is needed to verify conditions in the case study sites, and to identify the conditions and practices that may be applicable to other locations.

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## **INTRODUCTION**

The purpose of this document is to highlight innovative techniques used to successfully integrate trails with golf courses throughout North America using a combination of case studies and a checklist of best practices for design and security concerns in implementation. Much of this information and analysis is based on available resources, case study research, and limited interviews.

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Golf courses are developed and designed for a specific user group and activity (golfers and golf) rather than as publicly accessible parks or open space areas in a community. Managers of private and public golf courses operate these facilities to make a profit, and are concerned not only with golfer's appreciation and enjoyment of the course, but also with the safety and security of golfers and adjacent land uses.

Golf course developers and operators plan, design, and operate their facilities assuming there will be no general public access. There typically are not corridors preserved for trails or bikeways, nor is their consideration given for allowing the general public to traverse the greens or tee areas. Any trail that is being considered for an area with an existing or proposed golf course should commit to working very closely with the course managers and designers before basic feasibility can be determined.

## **CASE STUDIES**

### **NORTHERN CALIFORNIA GOLF COURSES WITH PUBLIC TRAILS**

There are several golf courses in the San Francisco Bay Area with adjacent or internal public trails. Two golf courses, one in San Ramon and one in Half Moon Bay, have public multi-use trails running through them. In San Ramon, the regional multi-use Iron Horse Trail passes through the privately owned San Ramon Royal Vista Golf Course. In Half Moon Bay, the Ocean Colony resort and golf course has provided for public access on a multi-use trail that winds through the private course. The design and use of these trails differ significantly but both provide examples of potential best practices for multi-use trail design in a golf course context.

#### **SAN RAMON ROYAL VISTA GOLF COURSE**

Location:	<b>9430 Fircrest Lane, San Ramon</b>
Type of Trail:	<b>Paved multi-use</b>
Length of Trail	<b>0.5 mile</b>
Setbacks	<b>20 yards</b>
Age of Trail	<b>4 years</b>
Owner:	<b>Waterhouse Properties, Inc.</b>
Contact:	<b>Russ Davies, 925-828-6100</b>

#### **Description:**

- Internal alignment
- Privately owned and operated
- Existing right-of-way (Right-of-way predates golf course)



#### **Public Access:**

The San Ramon Royal Vista Golf Course is an 18-hole golf course that has a portion (about 0.5 miles) of the regional Iron Horse Trail passing through. The course was established in 1961 and the trail, originally railroad right-of-way was upgraded in 1999. The trail was upgraded to a 10' wide paved multi-use trail with 12' high chain link fencing to protect trail users from errant golf balls. The fence also forms a tunnel in two segments

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where, along with the club pro, designers determined there would be the most significant danger of errant golf balls hitting trail users.

**Design and Implementation:**

While there is a trailhead for trail users with 40 parking spaces, this lot often fills up and trail users use the golf course clubhouse parking lot. Setbacks are generally about 20 yards throughout the course. Chain-link fencing is used on both sides of the trail for most of its length through the course to protect trail users from errant golf balls. At a few points, there is no fence between the golf course and the trail where it is assumed safe from errant golf balls.

**Management Issues**

No trail users have reported being hit by golf balls. There are signs warning trail users and golfers at the two crossings.

**Evaluation**

The trail is well protected and provides clear warning signage.

**OCEAN COLONY GOLF COURSE**

Location:	<b>Two Miramontes Point Road, Half Moon Bay</b>
Type of Trail:	<b>Paved, multi-use</b>
Length of Trail	<b>0.5 miles</b>
Setbacks	<b>Variable</b>
Age of Trail	<b>6 years</b>
Owner:	<b>Ocean Colony, City of Half Moon Bay</b>
Contact:	<b>Rollie Wright, 650-726-8297</b>

**Description:**

- Internal alignment
- Privately owned
- Privately operated
- Public easement

**Public Access:**

The Ocean Colony Golf Course features two 18-hole golf courses, known as the Old and New courses, along the pacific shoreline in the City of half Moon Bay. The resort and New course opened in 1997, and the public multi-use trail was part of mitigation measures required for the development. The two courses are connected by an on-street bike lane that runs from the resort to the Old course. The segment of trail that passes through the courses is part of the larger Coastal Bluff Top multi-use trail that runs along the shoreline and is maintained by the City of Half Moon Bay. As of this study, the trail segment passing through the golf course is not yet connected to the existing northern segment of the trail.



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### **Design and Implementation:**

There is a parking lot with about 45 spaces for beach access and trail users located where the existing northern end of the trail becomes equestrian-use-only (to be completed as paved multi-use trail segment and connected to Golf Course segment in near future) and fills up during peak beach hours. Setbacks are variable, but generally no more than 20 yards throughout the course. There is no fencing or signage in the New Course segment as the trail has yet to be fully implemented, though only the installation of signage is expected. In the Old Course segment chain-link fencing was installed at two locations in the course to protect trail users from errant golf balls. Along the majority of the trail, there is no fence between the golf course and the trail, as it is assumed safe from errant golf balls.

One significant design issue centers on the decision of where the trail enters the course. While the City of Half Moon Bay preferred running the trail from the existing northern section and continue it down along the shoreline, the resort and golf course management preferred the routing it away from the shoreline. The resulting entry point requires traversing a grade that is too steep to meet ADA requirements.

### **Management Issues**

No trail users have reported being hit by golf balls. However, public trail-user volumes have been low due to the fact that the trail through the courses is not yet connected at the northern entry to the course and the existing Coastal Bluff Top Trail.

### **Evaluation**

As of this writing, the trail is still not completed. One observation made that highlights some of the difficulties of allowing for public multi-use trails to run through private golf facilities was the decision of the trail alignment as discussed above, that ultimately would not meet ADA requirements.

## **PORTLAND (OR) AREA GOLF COURSES WITH PUBLIC TRAILS**

In the Portland, Oregon metropolitan area, five golf courses have adjacent or internal public trails. Three of these courses are publicly owned, and two are privately owned. These trails vary from neighborhood-serving, soft-surface jogging trails, to regional, paved shared-use paths. Also, the setback between the trails and the golf courses vary greatly (from no setback to horizontal setback with fencing and vegetation). In general, the trails have not created significant problems for the golf course operators or the golfers who use the courses. Likewise, errant golf balls have not caused injury to any trail users in recent history<sup>1</sup>.

According to local course operators, the primary concerns related to the interaction of trail users and golfers have been: occasional lack of courtesy on the part of trail users (not waiting for golfers to tee-off), un-leashed dogs on golf courses, and use of the golf course as a park (i.e. picnicking on the fairway).

The following pages contain profiles of two of the five Portland-area golf courses and their respective public trails: Glendoveer GC (with the most extensive trail) and Heron Lakes GC.

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<sup>1</sup> As a note, any damage or injury caused by errant golf balls are the responsibility of the golfer. Therefore, golf course operators are not typically held liable for any damage caused by the golf balls.

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## GLENDOVEER GOLF COURSE

Location:	NE 140th and Glisan St., Portland
Type of Trail:	Fitness trail, wood chips
Length of Trail	2 miles
Setbacks	Variable
Age of Trail	25 years
Owner:	Metro
Contact:	Dale Vasnik, 503-665-6918

### Description:

- Internal alignments
- Publicly owned
- Privately operated
- No easement
- No bikes allowed

### Public Access:

Glendoveer is an 18-hole golf course that has a 2 mile jogging trail. The course was established in 1927 and the trail was officially built in 1979. The trail originally was an informal, neighborhood walking path and was graded and constructed as part of a CETA (Comprehensive Employment and Training Act) workforce training program. No easement was created. The trail is popular with local residents. This may speak to the fact that the surrounding neighborhood is park deficient. About 50,000 rounds of golf are played each year. Trail use is consistent, year round with more than 100,000 users per year.

### Design and Implementation:

While there is a trailhead for trail users with 40 parking spaces, this lot often fills up and trail users use the golf course clubhouse parking lot. Setbacks vary throughout the course. At some locations, a vegetative barrier is used, at other locations, fencing with 1" spacing is used to protect trail users from errant golf balls. At a few locations, there is no barrier between the golf course and the trail.

### Management Issues

No trail users have reported being hit by golf balls. There are signs warning trail users about the golf balls.

### Evaluation

The trail is highly successful. The only recommendation for improvement was to expand the trailhead.

## HERON LAKES GOLF COURSE

Location:	3500 N. Victory, Delta Park, Portland
Type of Trail:	Short trail section, part of 40-mile loop, wood chips
Length of Trail	200 yards
Setbacks	Berm (elevation) and 20 yds from fairway

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Age of Trail	<b>3 years</b>
Owner:	<b>City of Portland</b>
Contact:	<b>John Zoller, 503-823-5104</b>

**Description:**

- Adjacent alignment
- Publicly owned
- Privately operated

**Public Access:**

Part of the larger 40-mile loop  
 Used by non-golfers only  
 No safety or warning signs (supposed to be)  
 No signage or wayfinding  
 Public access after hours

**Design and Implementation:**

No setback or fencing  
 No intersections between trails and roadways

**Management Issues**

Liability: golfers are responsible for errant golf balls (industry standard). Homeowners' insurance covers this  
 No accidents injuries in past few years. (2 in last 10 years all 4 Portland courses)  
 No trail users have been hurt

**Evaluation**

Tenuous situation...Trail users enjoy. Golfers have no problems with trail. Biggest problem is that trail users sometimes turn their dogs loose, creating "new hazards."

**Other**

Two more trails are planned for the Golf Course. John Zoller assessed compatibility - buffer between golfers, their balls, and trail users. John was also asked to consult on the Fanno Trail adjacent to the Portland Golf Club.

**OTHER CASE STUDIES**

Numerous other trail and golf course locations existing around the country, including places like Palm Springs, CA, and Scottsdale, AZ. As information is collected on these locations, this report will be updated. Summaries of some of these other case studies are presented below, as collected by the Sacramento Area Bicycle Advocates (SABA).

**Mountain Shadows Golf Course**

Rohnert Park, CA

There are entrances and exits and many people use it to ride their bikes through the golf course.

**Oakhurst Country Club**

Clayton, CA

There are entrances and exits and many people use it to ride their bikes through the golf course.



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### **Scottsdale, AZ**

A number of trails along golf courses. One trail goes right across a course.



### **West Orange Trail**

Orlando, FL

I have ridden by the golf course on the many times. While there is a chain link fence, its purpose is to keep the cyclists and other trail users from getting hit by errant golf balls. This appears to be a situation where there is absolutely no conflict at all. It does run right next to a golf course for quite a distance and at close enough proximity to the greens that trail users could presumably "disturb" the golfers. The West Orange gets about 40,000 users per month; probably 2,500 per day on a weekend. Most of those users would pass between 8:00 a.m. and 5:00 p.m., so that means 2 to 4 trail users would pass every minute. I've heard of no complaints from the golfers.

### **Bidwell Park**

Chico, CA

We have one through the golf course in Bidwell Park. It's a road for most of its length and crosses a fairway, leading to a bike/ped/golf cart bridge over Big Chico Creek to a network of off road options. It gets a lot of use with minimal user conflicts.

### **Silverstrand**

San Diego, CA

Coronado, the island/peninsula city west of downtown San Diego, has a bike path along part of the perimeter of a golf course. Much of the path had to have a very high chain link fence - to protect the bicyclists from golf balls. Interestingly enough the sidewalk along another section of the course does not have a fence.... poor pedestrians.

### **Pompano Beach, FL**

I don't know if the photos attached will help. They are aerials that show the proximity of a multi-purpose path to the fairways on a public golf course. You'll notice that there is also an airport next to the golf course. You may want to have your city staff call the Pompano Beach Recreation Dept. at 954 786-7191. I have never heard of any problems between golfers and path users and I have been out to the path a couple times to help them correct some design problems.

### **Chicago, IL**

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We have lots of trails that go around golf courses, I don't know of any that go through.  
No pictures

### **Tampa Bay Golf and Country Club**

San Antonio, FL

Paved trail that winds around the golf course

### **The Ritz Carlton Hotel**

Half Moon Bay on Hwy 1 CA

Popular multiuse path through their golf course. At one point a short stretch of fence was erected to protect bikes/peds from golf balls. The fence, on one side of the path only, consists of typical 8-foot chain link with a curved chain-link attachment projecting perhaps a foot or two over the path. The upper portion of the fence is covered with a nylon mesh to keep errant golf balls from penetrating the chain links.

### **Westerville, OH**

Haggin Oaks Golf Course,  
Sacramento, CA

Trail between golf course and Capital City Freeway (formerly called Business I-80). Trail receives little use. Fences on both sides.

### **American River Bike Trail**

Campus Commons Golf Course  
Sacramento, CA

Immensely popular trail runs immediately adjacent to 9-hole course. Very high fence (20 feet+) with chicken wire to protect cyclists. Trail runs very near a couple of tees and greens. No reported problems between cyclists and golfers in over 25 years of use.

### **Ancil Hoffman Golf Course**

Sacramento, CA

Bike trail adjacent to driving range and golf course. Little trail use.

### **Community Pedestrian Trail**

The Indian Peaks community provides a pedestrian trail that winds throughout the property and intersects with the golf course cart path system in several locations. Although pedestrians are not allowed access to the golf course, the pedestrian trail intersects the golf course to allow safe passage into other subdivisions of the community. Clearly marked pedestrian trail signs will guide you through these intersections. Please stay on the marked pedestrian trail at all times and enjoy this uniquely diversified trail system.

## **RECOMMENDED BEST PRACTICES**

Based on past experience the following is a survey of most frequently used design practices and security measures utilized in combining golf courses with trail systems. Each practice is provided with a brief description of the practice and accompanying photo and figure drawing where available.

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## LAND OWNERSHIP

One of the basic golf course management obstacles to trail development is the land ownership itself. Golf courses are either privately owned, owned by a private community, or if publicly owned, managed by a private golf course operator. Any new public access in the form of a trail or bikeway would need to be secured by an easement or right-of-way on privately owned or controlled land. While a publicly owned course may consider the interests of the larger community and consider a new trail, private owners and operators will typically not consider new access to an existing course. They may consider a trail or bikeway if it is part of the development approval process, but typically not after the course is developed. The exception to this would be if the trail entity could meet the concerns of the property owner and offer adequate compensation and assurances.

Trails through golf courses will almost always be located on a new easement, either leased or purchased by the trail entity. This easement agreement defines the responsibilities for liability, security, and maintenance. The easement will need to be surveyed and formally included in the title to the property.

## DESIGN CONSIDERATIONS

**Choosing Trail Alignments** – In selecting trail alignments on golf course property, an understanding of both the property layout and golf course operations is needed. In most cases, it will be preferable to remain on the perimeter of a golf course, as far removed from fairways, tees, and clubhouse as possible. The best alignment would be one that crosses no cart path or fairway, and can be set back against the property line for its entire length.

This rule would remain even in cases where homes are located on the golf course. Trails have been developed in front of private golf course homes in Palm Springs with no apparent impact on property values. However, it is reasonable to expect that unless high fences protect golf course homes, adjacent trails may be strongly resisted.





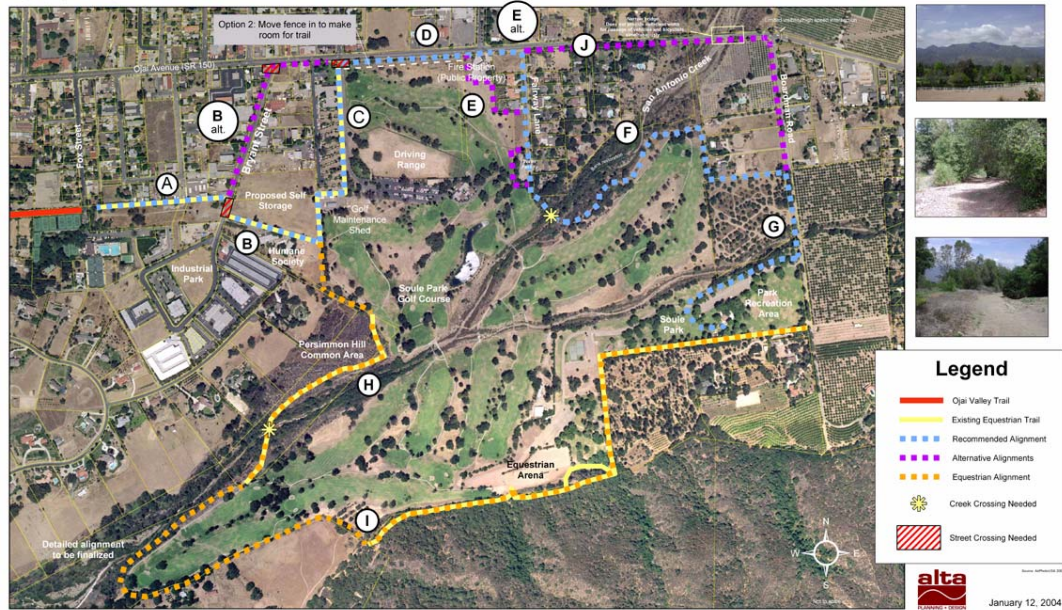
In many cases it may not be possible to remain on the perimeter of a golf course. Often, a perimeter trail will be too circuitous or steep to be functional. When considering any route that is close to a fairway or tee, or a route that bisects a golf course, it is important to consider direction of the tees, fairway, greens, and golf cart circulation. On tees, any trail located within a 180-degree arc of the tee orientation and within 200 yards or less in distance, will need to be buffered by berms, fencing and/or trees and shrubs. It is recommended that tees be oriented as far away from the trail as feasible. On fairways, any trail located within 50 feet of the fairway would also need to be buffered by berms, trees and/or shrubs, similar to a public roadway. Any trail located closer than 50 feet from the backside of a green would need similar protection.

The Ojai Valley Trail Feasibility Study, conducted by Alta Planning + design in 2003, is a good example of a trail and golf course alignment and feasibility study. The objective of the project was to connect the Ojai Valley Trail, a paved multi-use trail between Ojai and Ventura, California (over 20 miles), to Soule County Park in Ojai. This connection would provide a natural termination point for the trail, along with ample trailhead facilities such as parking, restrooms, drinking fountains, and other amenities. The alignments had many of the typical issues facing other trails: right-of-way, concerns neighbors, stream crossings, mixed-use with equestrians, and of course, an active public golf course. As can be seen in the feasibility study map on the following page, numerous alternatives were considered including some alignments that did not come close to the golf course at all. The preferred alternative was the most direct and functional routes for users, and was located on the perimeter of the golf course so as not to impact operations. Objections from neighbors have slowed this project and it has not been completed as of 2005.



## OJAI VALLEY TRAIL EXTENSION ALIGNMENT ALTERNATIVES

City of Ojai, California

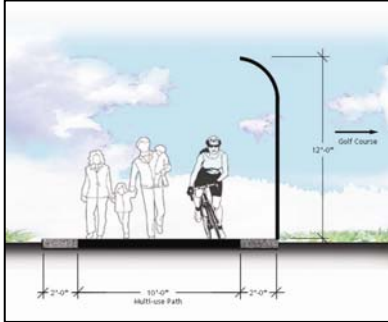


**Golf Cart Paths** - Trails that bisect a golf course but manage to meet the criteria described above will still need to address golf cart circulation. Golf carts and trails typically cannot be one and the same facility. Golf cart paths are not built wide enough to allow for carts to pass pedestrians and bicyclists, and neither user will be expecting the other on the narrow surface. In some cases, a wider pathway (at least 12 feet wide) with delineation can be shared between golf carts and trail users, separated by a striped line. In most cases, it is preferable to keep the facilities separate, even if they are parallel with each other. Where a trail crosses a golf cart, typical Yield and Stop sign controls will be needed, along with signs posted stating 'Golf Carts Only' where needed.



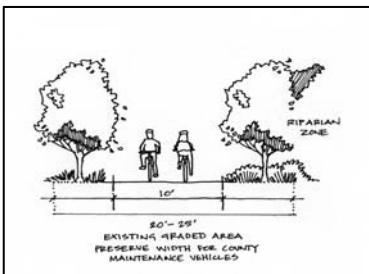
**Fencing Types** – At some point given proximity to active course areas, fencing will be necessary to protect trail users from errant golf balls. Below is a compilation of fencing types used in the case studies from the previous section.

### High Curved Fences



The high curved fences are typically a minimum of 12 feet in height and curved at the tops. The photograph above shows an example where the fence is painted black to blend with the landscape. Below, is an example of utilizing trees as a form of visual as well as protective screening for trail users. In many cases no fencing is needed due to golf course configuration and thorough understanding of possible golf ball trajectories.

### Vegetation



### Cage



### No Fence



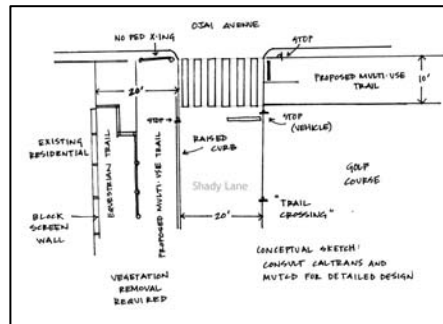
### Netting



Above are examples of more extensive as well as costlier methods of protecting trail users. The cage fencing fully encloses trail users which would be appropriate for trail alignments that pass under driving ranges. Netting allows for intercepting higher flying golf balls and while the initial cost of materials is low compared to metal fencing, longterm maintenance and replacement should always be considered when choosing

this material.

## Trail Intersections



Trails with alignments that run through courses will potentially intersect with golf cart paths and interior roadways. Above are examples of treatments which have been successfully implemented in the case studies cited earlier.

## Signage



In every case of integrating trails with golf courses, signage is necessary for delineating the point of entry to private golf course property. This is where recommendations to trail users of course hours of operation, to reminders on ways to ensure respectful conduct can be shared with trail users. Simple and legible signage with text printed against a contrasting background color is ideal.

**Signage** – Signs can help manage trail users in golf course areas. Some trails post a sign at the trail entry reading: “Active Golf Course. Stay on the trail surface, no stopping, and please be quiet. Flying golf balls may cross the trail: use at your own risk.” Other trails are closed between dusk and dawn. Where a trail approaches a tee or green area, a sign may be posted that reads: “Please stop if the tee/green area is occupied”.

## SAFETY, SECURITY, AND LIABILITY

Limited information from existing case studies indicates that safety, security, and liability have not been major problems on existing trails. If properly designed and managed, a trail would have roughly the same safety conditions as a home or public road located next to a golf course—both common conditions. The following sections outline how a trail can maximize safety and security while minimizing liability.

## TRAIL DESIGN

In order to maximum safety and function for users, and to minimize liability exposure for the project developer/operators, the trail design should meet all mandatory and advisory standards as identified by the local agency, State DOT, and other relevant agencies and documents. A Design Exception process should be completed with appropriate documentation on (a) the need any non-standard design, (b) any remedial



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actions needed to address potential problems, and (c) an analysis on the potential for safety problems.

### **Maintenance Costs**

1. Provide an adequate pavement structural section (3") to support maintenance vehicles
2. Minimize the extent of retaining walls and slope disruption
3. Provide adequate access to the path to prevent trespassing
4. Provide adequate fencing where needed

### **TRAIL MANAGER RESPONSIBILITIES**

The designated Trail Manager for this project will be responsible for each of the activities involved in operating the golf course trail. The following sections address specific operating procedures and responsibilities.

#### **Developing Trail Use Regulations**

The purpose of trail regulations is to promote user safety and enhance the enjoyment of all users. It is imperative that before the trail is opened it must include posted use regulations at entry points and key access points. Establishing that the facility is a regulated traffic environment like other public rights-of-way is critical for compliance and often results in a facility requiring minimal enforcement. Appropriate civil statutes and penalties should be referenced on regulatory signs other than basic traffic control signage such as speed limit signs. The trail management agency will review proposed regulations with the local Attorney for consistency with existing ordinances and enforceability.

Below are samples of trail regulations to be adopted and enforced by the trail manager:

- Hours of use; 6am – 9pm.
- Motor vehicles, other than power assisted wheelchairs, are prohibited
- No loitering; no vandalism; no dumping (civil statutes)
- Keep to the right except when passing
- Yield to on-coming traffic when passing
- Bicycles always yield to pedestrians
- Give a vocal warning when passing
- Pets must always be on short leashes
- Travel no more than two abreast
- Alcoholic beverages are not permitted on the Bikeway (civil statute)
- 20 mph speed limit
- Bicycles to yield to maintenance vehicles

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### **Trail Closures**

The golf course trail may be closed from time to time during periodic maintenance of the facility or golf course. Trail users will need to be managed during these closures. The procedural policies that will be followed prior to the trail closing, including a variety of means to inform the public, are listed below:

- a. The Trail Manager will provide at least 48 hours advance notice to the appropriate department to post signs at all trail entrances on the impacted segments to be closed indicating the duration of the closure. Do everything possible to keep the public informed and make every effort to keep the closure period as short as possible. The 48-hour notice will be waived in the case of emergencies.
- b. The Manager will physically block the trail that is being closed with barriers and post "Trail Closed" signs.
- c. The Manager will provide "Detour" signs describing alternate routes.
- d. The Manager will not re-open the trail until it has been inspected by the Manager or other appropriate local agency staff to ensure that the trail is in usable condition. Where obstructions remain, provide warning signs for bicyclists to slow down or dismount where needed.

### **Trail Monitoring**

In order to manage multiple user types with potential conflicts, the Manager will be prepared to address user conflicts as they arise, based on patterns of usage and recorded incidents. The Manager will also review complaints and accident reports on an on-going basis to determine if there is a pattern of user conflicts that needs to be enforced. Remedial actions may be in the form of signage and enforcement and may include:

- Lowered speed limits in some areas
- New or increased patrols
- Citizen volunteer education efforts
- Enforcement of overtaking and other requirements
- Changes in the hours of operation for specific user groups

### **Trail Maintenance Plan**

Proper maintenance of the trail is of utmost importance for the productive use of the facility and the protection of the financial investment each community has made in the facility. The following list represents a minimum standard for trail maintenance to supplement existing local practices.

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**Table 2: Bikeway Maintenance Activities and Frequencies**

Item	Estimated Frequency
Shoulder and grass mowing	As needed
Remove fallen trees	As needed
Trash disposal	As needed
Pothole filling	As needed
Bollard replacement	As needed
Irrigate/water plants	Weekly - monthly as needed
Graffiti removal	Immediately or within 24 hours of discovery
Pavement sweeping	Monthly - annually as needed
Weed control	Monthly - as needed
Tree, shrub, & grass trimming/fertilization	5 months- 1 year
Sign replacement/repair	As needed
Repaint Pavement markings	1-3 years
Fence/barrier repair and replacement	Immediate
Clean drainage system	As needed
Maintain irrigation lines/replace sprinklers	1 year
Lighting replacement/repair	As Needed
Maintain furniture	As needed
Maintain emergency telephones	As needed
Pavement sealing/repaving	Seal every 4 years / overlay every 20 years / pavement repairs as needed

Many of these maintenance items are dependent on the type and amount of landscaping and supporting infrastructure that is developed along the trail.

Adherence to the general maintenance schedule identified above is important. In addition, it is recommended that the trail be inspected once a year by the Manager to determine if the pathway surface has vertical or horizontal separation that might impact ADA access or user safety. Appropriate remedial actions need to be taken to address any condition deemed a safety hazard.

### **Security and Public Safety**

If properly designed and managed, the golf course trail will offer provide a reasonable level of safety and security. Studies by the Rails-to-Trails Conservancy indicate that crime and other problems on bike paths generally is the same as the adjoining communities. These studies have also shown that the best and most effective method of enhancing safety and security is to design a functional facility that is well used by the general public. Bike paths in isolated locations exist around the country and have generally not experienced significant safety problems. The approach to safety and security outlined in this plan is to provide reasonable security features and be prepared to enhance those efforts in the future if safety and security prove to be problems.

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**Patrols and Enforcement:** Like other trails, the golf course trail is expected to be generally self-enforcing by the general public. For the first three (3) months after opening, and on an intermittent basis afterwards, the Manager should patrol the trail with ranger trucks on a daily basis. The level of patrols should be based on reported incidents and problems. The cost of these patrols should be included in the operating costs for the project.

### **Emergency Response and Access**

Emergency access for safety, security, or maintenance purposes will be based on an established protocol between local fire and police departments. Response protocol will be developed along with an Emergency Plan that will be developed by each department. The initial responding party will notify the other departments as soon as possible. Normally, the trail manager will take primary responsibility for all incidents on the trail itself, and will immediately contact SMART and local agencies as needed and appropriate. The trail itself is designed to allow emergency vehicles full access to the facility, although vehicles should proceed cautiously where there is restricted space.

### **TRESPASSING REDUCTION**

In areas where there is a history of usage and trespassing across the golf course, a higher security type of fencing shall be installed. This may include hardened steel or wrought iron.

A summary of key security and safety measures is presented below.

1. The golf course will be posted "No Trespassing" to keep trail users out of restricted areas. Appropriate fencing that discourages scaling by potential trespassers will be provided as needed. No Trespassing signs will be posted with maximum fines supported by local ordinance.
2. The Trail Manager will provide local fire and police departments with a map of the system, along with access points and keys/combinations to gates/bollards.
3. The local agencies will enforce rules of the road and other standard recreational guidelines.

### **NEXT STEPS**

Additional research is needed on this subject to enhance the quality of the case study research, and compile best practices for golf course and trail planners, designers, and managers. It is preferable that additional research be in conjunction with a golf course industry association, such as those listed below.

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## **GOLF COURSE ORGANIZATIONS - WEBLINKS**

<http://www.golfsuper.com/> Golf Course Superintendents of America

<http://www.golfclubmanagersassociation.com/>

<http://www.wsgagolf.org/> western states golf association

<http://www.ncga.org/> northern California golf association

<http://www.ncpga.com/> PGA of Northern California

<http://www.asgca.org/> American Society of Golf Course Architects -

<http://www.ngf.org/cgi/home.asp> National Golf Foundation -

[http://www.mngolf.org/allied\\_mpgma.cfm](http://www.mngolf.org/allied_mpgma.cfm) Midwest Public Golf Course Managers Association