chapter 8

Trails Plan

TOLAY LAKE REGIONAL PARK
Master Plan Project

Photo credit: Kent Walker

TRAILS PLAN

The trail system proposed in this Master Plan provides Park visitors with an opportunity to explore the various park features, to learn about the Park's history, and to increase their awareness of the natural world. Trails provide both physical and cognitive benefits - regular physical activity lowers blood pressure, helps with weight management, lowers the risk of diabetes and cardiovascular diseases, and improves the brain's creativity and problem-solving functions. Interaction with nature is particularly effective in replenishing brain attention function. The part of the brain that controls attention function can become depleted with multi-tasking common in the use of cell phones and computers. Spending time outdoors helps to increase attention spans and creative problem-solving skills (Atchley et. al, 2012).

There is also the benefit of the sights, sounds, smells of nature, which revitalizes the spirit. Nature walks are associated with reducing the risk of depression, in addition to alleviating the negative effects of stress (Steele 2014). The Park trails allow users to experience solitude and quiet, take in spectacular views, find space to contemplate alone, or join an interpretive group hike that shares the spiritual history of the native people and the land.

The trail plan is designed to accommodate all types of trail users, ranging from passive recreation (birding, wildlife viewing, looking at scenery, botanizing, hiking) to active recreation (horseback riding, or mountain biking). The multi-use trails through pastoral lands are attractive to equestrians and to mountain cyclists looking for an easy to moderate riding experience or a through-route from Highway 121 to Lakeville Highway. Park trails provide varied opportunities for hikers of all abilities. From short interpretive hikes at the Park Complex to climbing trail-loops up ridgelines, the trail system accommodates many abilities and interests.

Key themes that emerged through stakeholder meetings included:

- Creating a centralized trail system, with easy trails in the Park Complex
- Designing new trails for optimum safety
- Ensuring trails are protected during the wet season
- Providing some pedestrian only trails
- Providing access to the Park from Highway 121
- Providing equestrian friendly gates
- Protecting sensitive resources
- Providing connections to regionally significant trails
- Providing opportunity for interpretation and education of cultural, prehistoric, historic and natural resources throughout the park.

The trail system was conceived after extensive public input and consideration of the many unique opportunities and the constraints of protecting sensitive natural and cultural resources. The Master Plan team made multiple site visits, hiking possible trail alignments to verify the feasibility of proposed new trails. Alignments were assessed to minimize impacts and to best protect and avoid natural and pre-historic cultural resources. The final preferred trail alignments are shown in Figure 5-2.

Types of Trails

The Park will include two basic trail classifications: multiple use (multi-use) and pedestrian use (hiker-only) only trails. The existing roads used by park staff will also serve as travel-ways for all users. Trails widths as described below:

- 12' wide trail (maximum). These existing unpaved roads will be open to emergency and Regional Parks maintenance vehicles in addition to all types of trail users.

- 5’ wide trail (maximum). The predominant trail type in the park is built to five-foot width but more commonly maintained at three-foot width with regular trail use. This width pertains to multi-use trails.

Multiple Use Trails

Most of the existing trails on the property open to the public (Interim Access Tolay Lake Regional Park) are defined as multiple use, which means they are open to the public for hiking, mountain biking, and equestrian use. Multiple use trails will be constructed of native soil, stabilized soil, or gravel, with the exception of segments designated as “accessible” that are required to have an all-weather surface per California State Parks Accessibility Guidelines.

12-foot wide trail

Educational Nature Trail

In response to public requests for the provision of some quieter, more peaceful experiences within the trail system, the Master Plan features a select number of trails that will be limited to pedestrian use only.

Construction of hiker-only trails is like multi-use trails, but will be signed at key locations alerting users to trail use limitations. These trails may also be considered single track from 18” to 36” in width. Additionally, hiker-only trails are designed to meet the criteria for an “educational nature trail” as defined in Section 41 of the California State Parks Accessibility Guidelines.

3-foot wide trail

Photo credit: Regional Parks staff

Existing Trails

Description

Table 8-1 summarizes information about existing trails or road trail conversion. This table includes: trail type, length, difficulty, and habitats. There are approximately 12.7 miles of existing trails, and all are multi-use trails. On Figure 5-2, yellow trail lines denote trails or ranch road/trail conversion that will remain on existing alignments.

Table 8-1 Trails on Existing Alignments

Trail Name	Approx. Mileage	Description
Cardoza Lane	0.40	This trail has a slight grade and follows a historic route lined with eucalyptus trees.
Ranch Interpretive	0.20	This is a gentle grade trail that uses internal ranch circulation paths to enable visitors to view historic structures within the Park Complex.
Duck Pond	0.20	Gentle grade trail that uses internal ranch circulation paths to enable visitors to view spring fed ponds in the Park Complex.
Causeway	1.30	Trail has a gentle to slight grade and crosses Tolay Lake. It offers views of the lake, and opportunities to view waterfowl and other wildlife.
Historic Lakeville Road	2.70	Trail on the historic alignment of Lakeville Road is a gentle grade to and along Tolay Creek passes through rock cairns that form a gate.

Table 8-1 Trails on Existing Alignments		
Trail Name	Approx. Mileage	Description
West Ridge	3.60	Trail has a gentle grade and offers outstanding views of San Pablo Bay and the Petaluma River.
East Ridge	1.60	Trail has a gentle to moderate grade, and passes through an oak woodland area to 3-Bridge Vista and provides outstanding views of the Tolay Creek Watershed.providing views of the Bay, surrounding Cities and Tolay Creek Watershed
Pond	0.80	Trail has a gentle to slight grade and connects the Causeway Trail to the upland ponds.
Upland Pond Loop	0.90	Trail has a slight grade and provides access to a unique portion of the Park with its own micro-topography, springs, and spring wildflowers.
South Creek	0.30	Spur trail from West Ridge Trail that provides views of the Petaluma River and South Creek.
Middle Reach	0.50	Existing section of ranch road on moderate grade from Upland Pond Loop Trail along east side of the park.
Coyote	0.30	Trail begins on an existing ranch road alignment and extends from West Ridge Trail to Tolay Creek near backcountry campsites.
Total Miles	12.8	

Photo credit: Gerald Moore

Proposed Trails

Description

Table 8-2 shows the implementation schedule for trails. Phases 1 through 3 include a mix of trails and bridge replacements, and trail development throughout the Park. Phase 4 focuses on trails on the Tolay Creek Ranch property. Trail names are used for identification purposes for this document, but many will change with construction and installation of the new trail sections. New trails are depicted in green in Figure 5-2.

Table 8-2 Trail Implementation Phasing and Mileage

	Phase and Trail Segment	Approx. Mileage	Description
Phase 1 – First 5 Years	Tolay Creek Ranch Entry to West Ridge (m)	1.80	Moderate grade trail from southern park entry road creek crossing (Bridge #1) connecting to the existing section of West Ridge Trail.
	South Entry (n)	0.30	Switchback accessible compliant trail from southern parking area across bridge #1 to the intersection of Tolay Creek Ranch Entry and Meadow Trail.
	Bridge Southern Entry (#1) (Vehicle Bridge – maintenance operations and emergency access vehicles only)	n/a	Multi-use trail access across Tolay Creek at southern park entrance.
	Lake Vista (o)	0.10	Short multi-use trail connects the Historic Lakeville Road Trail to an overlook of southern Tolay lake.
	Fish Pond (b)	0.60	This multi-use trail has a slight grade and extends trail south of Cardoza Creek to the Historic Lakeville Road Trail.
	Oak Knoll (c)	0.40	This hike-only trail has a slight grade wandering through the only oak woodlands in the north area of the park, opening to picnic area and views of the Tolay watershed.
	West Ridge Interpret (d)	1.20	Hike-only trail has a slight grade and offers outstanding views of the Petaluma River and San Pablo Bay.
	South Creek (e)	0.60	This multi-use trail has a moderate grade running from the Vista on the Existing South Creek Trail down to the creek and provides a quite area to rest or picnic along the creek.
	Burrowing Owl (a) (new alignment)	0.70	This multi-use trail has a moderate grade on a new alignment from Historic Lakeville Road Trail to the intersection of West Ridge Trail and South Creek Trail. Creating a shorter loop walk, approximately three miles round trip from the park center.
	Ghost Rock (p) (Park Complex)	0.20	This hike-only trail has a gentle grade and offers views from the northwest end of Tolay Lake.
	Equestrian (q) (Park Complex)	0.40	This short segment of multi-use trail connects the equestrian parking area to the Northern Park Core.

Table 8-2 Trail Implementation Phasing and Mileage

	Phase and Trail Segment	Approx. Mileage	Description
Phase 2 - 5-10 years	Middle Reach Loop (f)	1.50	This hike-only trail has a moderate grade and offers panoramic views of the region.
	East Ridge South (r)	1.30	The extension of the Middle Reach multi-use trail on moderate to steep grades will connect the Upland Pond Loop Trail with the southern end of the Historic Lakeville Road Trail
	Historic Lakeville Eastside Link (s)	0.40	The short segment of multi-use trail with gentle grades is on a new alignment on the east side of Tolay Creek. The new alignment is provided to avoid the thick growth of willows along the original road alignment on the Westside of Tolay Creek. The new alignment will link the existing northern and southern segments of the Historic Lakeville Road Trail
	Bridge Lakeville Road (#4) (Vehicle Bridge – maintenance operations and emergency access vehicles only)	n/a	n/a
	East Ridge Canyon (k)	1.20	This multi-use trail has a moderate to steep grade through a secluded canyon along upper Cardoza Creek
	Group Camp (Park Complex)	0.10	This short multi-use trail has a moderate grade and connects the Group Camp to equestrian parking.
	Group Camp (Park Complex)	0.10	This short hike-only trail connects the group camp at the park center to Cardoza Road Trail.
	Group Picnic (Park Complex)	0.10	Hike-only trail from existing group picnic area to equestrian trail.
	Kaye (j)	1.10	This hike-only trail is a gentle grade running above and west of Tolay Creek from the Meadow Trail to Coyote Trail
Phase 3 – 10-20 Years	Coyote (t)	0.40	This multi-use trail on moderate grades connects the Historic Lakeville Road Trail to the backcountry Coyote campsites and West Ridge Trail
	Coyote Camp (t)	0.20	Internal circulation trail to backcountry campsites.
	Tolay Creek East (i)	0.90	This hike-only trail has a gentle grade, starting from the southern park entry along the eastside of Tolay Creek to Historic Lakeville Road Trail.
	Bridge - Near Mangel Road (#2) (trail bridge)	n/a	n/a
	Replacement – (#3) (trail bridge)	n/a	n/a
	Meadow (u)	0.90	This multi-use trail has a gentle grade starting at the southern park entry through open meadow to Historic Lakeville Road Trail.

Table 8-2 Trail Implementation Phasing and Mileage			
	Phase and Trail Segment	Approx. Mileage	Description
Phase 3 – 10-20 Years	Middle Reach Connect (f)	0.80	The hike-only trail with moderate grade connects Middle Reach Loop through open grasslands to Historic Lakeville Road Trail
	Toe of Slope (v)	1.0	This hike-only trail with a gentle to moderate grade that follows the base of the East Ridge from the Causeway Trail to the Upland Pond Loop Trail. This trail provides a unique perspective of the park just above the valley floor.
	Tolay Lake Boardwalk (Park Complex – Causeway)	0.10	This short hike-only boardwalk trail will connect the Vistor Center to the Causeway Trail in the Northern Park Core.
	Assess Additional Trail Needs	n/a	n/a
Phase 4 – 20-35 Years	Assess Additional Trail Need	n/a	These trails are tentatively proposed. Specific trail alignments would be determined only if there is sufficient demand and no impacts to sensitive cultural and biological resources. These trails will not exceed three miles in combined total length.
	One Tree Knoll	n/a	n/a
	Boardwalk Boat Access	n/a	n/a
	Tolay Creek connect to Hwy 121	n/a	n/a
	East Ridge Connect Hike	n/a	n/a

Photo credit: Regional Parks staff

Road and Trail Decommissioning

Many of the existing ranch roads on the property are in eroding and poor condition. The Master Plan identifies existing ranch roads and trails that will be decommissioned. These existing trails and ranch/maintenance roads are either unnecessary for ranch/maintenance needs or are on poor/unstable alignments. New alignments for these eroding road/trails have been identified and are included as new trails, depicted in green in Figure 5-2. Nearly eight miles of deteriorating ranch roads will be decommissioned.

When a section of road/trail is abandoned, steps shall immediately be taken to restore it. For sections that have been abandoned but not yet restored, assessment of obliteration and restoration will be evaluated for extent and immediacy of the restoration need and a restoration plan developed before implementation. Restoration work will include the following as needed:

- Correct the source of any problems such as source of water flowing into and down road/trail.
- Scarify the road/trail tread surface to break up the compacted soils to allow new vegetation to grow.
- Where erosion has occurred, the resulting ruts and gullies must be eliminated to prevent further loss of soil. This will be accomplished by filling in channels if possible with local soils and gravel and returning the surface to its original shape and contour. Further stabilization may be accomplished by the placement of rocks in areas of sheet erosion or use of erosion cloth, net or other biodegradable covering agents so that the speed of water runoff is impeded and gullying and riling inhibited.
- Once cuts and gullies have been stabilized, vegetation needs to be reestablished with native seed in open grasslands or woody vegetation in wooded areas.
- The areas being restored must be blocked from use and, if possible, from being seen. This will be accomplished by laying logs, limbs, brush and rocks on the area.

Trail Design and Construction

The following contains guidelines and standards for designing and constructing the trail system at the Park. General information is presented that applies to all trails, followed by specific details for each of the different trail types. Guidelines are good trail building and maintenance practices that should be followed where and when feasible. Standards are intended to be trail building and maintenance practices that should be followed more strictly than the guidelines. Trail logs will be developed prior to construction implementing these guidelines and standards.

General Trail Design

The following is a list of general guidelines and standards that apply to all trail types within Tolay Lake Regional Park

General Trail Design and Construction Guidelines and Standards	
T-G1	Locations for new trails should take advantage of existing roads, trails, or other disturbed areas wherever possible and appropriate.
T-G2	Trails should provide diverse opportunities for visitors to experience a variety of environments, settings, and features.
T-G3	Strategies should be implemented to keep visitors on trails and discourage informal trail creation. These may be: install clear directional signage at trailheads and intersections, provide educational signage on trail stewardship, install new trails using as possible natural features as barriers to minimize volunteer trail development, use volunteer trail patrols, engage trail users in park stewardship, use logs and vegetation debris to block newly developed volunteer trails, and keep trails well maintained and usable.

General Trail Design and Construction Guidelines and Standards

T-G4 Benches or other seating opportunities should be provided along trails at key locations such as: at the top of steep inclines, near educational exhibits, and at significant viewpoints. Benches should be sensitively placed in the landscape, such as under large shade trees and use natural features to provide a peaceful respite. Avoid placing benches or other infrastructure in native grasslands and setback trails as feasible from other sensitive resources.

T-G5 Locations of new trails should be planned to minimize ground alteration activities. Where ground alteration is unavoidable, mitigate disturbance and revegetate promptly.

T-S1 To maximize accessibility for most users, all trails shall meet the following criteria wherever practicably feasible:

- Minimum 32" in width. Exception: trail segments identified as single track may be narrower.
- Minimum 80" vertical clearance (to overhanging tree limbs, etc). If this cannot be mitigated, a cane-detectable barrier to warn the visually impaired shall be provided.

T-S2 Visual impact of trails shall be minimized. Final routing should be carefully considered in order to preserve the integrity of viewsheds into the property from the Petaluma and adjacent lands, and also from within the property.

T-S3 Trails will be aligned along cross slopes and outsloped as feasible; running slopes will be minimized to avoid erosion to the greatest extent feasible.

T-S4 Full bench construction shall be used where feasible. This means the full tread width is supported by undisturbed soil without the need for fill on the downhill side. This technique results in more stable trails that are less susceptible to erosion.

T-S5 Locally-sourced materials shall be used for trail construction as available.

T-S6 Recycled and/or renewable materials shall be used for trail construction where feasible.

T-S7 A clinometer or other device shall be used to determine running slope of final trail layout. See Table 8.3 for running slope standards.

T-S8 Comply with all applicable County, State, and federal regulations for construction activities relevant to trails.

T-S9 Rolling dips shall be constructed to direct water off the trail for minor seasonal drainage crossings and at appropriate intervals to effectively dewater trail based on trail slope.

T-S10 Armored rolling dips shall be constructed at moderate seasonal drainage crossings to minimize erosion and sediment impacts and provide all weather access for trail users.

T-S11 Log causeways, armored crossings, or drainage lenses shall be constructed at seasonally wet areas to minimize erosion and sediment impacts and provide all-weather access for trail users.

T-S12 Corner-cutting shall be discouraged through the use of rock, log or other physical barriers or by veering the trail away quickly at switchbacks.

T-S13 The development of new trail crossings over stream channels and through riparian vegetation shall be avoided to the greatest extent feasible. Where possible, trails shall be located on existing stable roads or pathways rather than developing new trails through undisturbed riparian habitat. See S20 and S66.

T-S14 New riparian/creek crossings shall be located on geomorphically stable sites (i.e. low slopes in channel and banks) and constructed to minimize, to the greatest extent possible, streambank and bed erosion. See S20 and S66.

T-S15 Development of new public trails through landslide areas shall be avoided.

Photo credit: Kent Walker

Multiple-Use Trails

Most of the trails in Tolay Lake Regional Park are multi-use trail designed for use by pedestrians, bikers, and equestrians. Multi-use trails will be constructed of native soil, stabilized soil, or gravel. The trail segments designated as "accessible" will have an all-weather surface to comply with California State Parks Accessibility Guidelines.

Multiple-Use Trail Design and Construction Guidelines and Standards	
T-G6	Easy and accessible trail sections should be provided close to staging/parking areas.
T-G7	Sudden transitions between open, straight sections and tighter, curvy sections of trail should be avoided. Smooth transitions help cyclists' maintain control at higher speeds, and reduces a common cause of conflict with pedestrians.
T-G8	Trails should "surf the contours." On side slope traverses, consider creating a trail that dips and rises frequently but subtly about every 20' to 40'. Use existing natural barriers such as boulders or trees to surf around. This adds interest, and is especially appealing for mountain bikers.
T-G9	Frequent grade breaks should be incorporated into trail routes. Long runs of constant grade encourage excessive cycling speed (if downhill), can be boring (if uphill), and can accelerate erosion issues. Long climbs with short descents mixed in, allow users to catch their breath and regain momentum.
T-G10	Trails should provide good visibility to users when approaching sharp turns or crests.
T-G11	Trails should be designed to control speeds. Some techniques to consider include: curvilinear alignment with frequent wide turns, add or leave existing barriers, vary the terrain and trail surface, make steep sections one-way up only.
T-G12	At busy staging areas, consideration should be given to separating the different user groups by providing each group with their own trailhead. This allows the users on the trail to thin out before the trails converge into one trail a short distance ahead.
T-S16	Width shall be between 32" and 72" (48" is ideal if terrain allows). Exception: single track segments may be as narrow as 18", and emergency access routes shall be 8' to 10' wide.
T-S17	Average trail slope shall be 10% or less for distinct segments of trail over the length of the trail.
T-S18	Clear tread width shall be a maximum of 72".
T-S19	The running slope of a trail shall not exceed half the cross slope of the hillside (also known as the "half-rule").
T-S20	Running slopes in the direction of travel shall be as shown in Table 8.3.
T-S21	Trail cross slope (perpendicular to the direction of travel) shall be 5% maximum, except at armored crossings and rolling dips where cross-slope shall not exceed 10%.
T-S22	Resting spaces shall be no less than 60" in length, and less than 5% running slope at the intervals.
T-S23	Trail shall be constructed with pervious material. Appropriate materials are native soil, stabilized soil, and gravel.
T-S24	Trails shall be routed to the uphill side of established trees to avoid roots, and to utilize the structural support they provide.
T-S25	Fence crossings will include equestrian friendly gates.

Educational Nature Trails (Pedestrians Only)

An educational nature trail is defined by the California State Parks Accessibility Guidelines as a pedestrian-only trail whose primary purpose is to educate the public on the natural or cultural resources of the area. At Tolay Lake Regional Park, these trails will not be open to bikers or equestrians, and will offer hikers the opportunity for a calm and relaxing experience.

Educational nature trails place an emphasis on providing access to a variety of environments and features with a corresponding interpretive program aimed at highlighting the natural and cultural resources of the property. These trails are located at lower elevations of the property, and although they may contain some short, steeper segments, they are relatively easy routes.

Educational Nature Trail Design and Construction Guidelines and Standards	
T-G13	Minimize average slope not to exceed 8%. Steeper sections should be kept to a minimum.
T-S26	Overall average slope should be gentle and minimize steeper trail sections.
T-S27	Clear tread width shall be 36”.
T-S28	Running slopes in the direction of travel shall be sufficient to cross drain water.
T-S29	Widened areas shall be provided near interpretive signage and at frequent intervals along trail to enable small groups to gather and/or pass.
T-S30	When an educational nature trail crosses a wetland or seep, a boardwalk may be constructed. See boardwalk guidelines and standards below.

Boardwalk Design and Construction Guidelines and Standard	
T-G14	Boardwalks should be constructed using the longest practicable post spacing to minimize site disruption.
T-G15	Boardwalks should be constructed between 12” to 18” above the ground just above water where practical to avoid need for safety rails, and to minimize visual impact.
T-G16	Boardwalks should have frequent changes in direction to provide interest, minimize visual impact, and discourage non-permitted (i.e. mountain biking and equestrian) use.
T-G17	Boardwalk width should be wider where interpretive or educational exhibits are located.
T-G18	Technology and installation techniques should be utilized to minimize disruption to the site. For example, steel helical piles have a smaller footprint and require less excavation than wood posts.
T-S31	Boardwalks shall be pedestrian-only.
T-S32	Clear tread width shall be 36”.
T-S33	Openings in the surface shall not be greater than ½” wide.
T-S34	Elongated openings shall be either perpendicular or diagonal to the dominant direction of travel. Exception: Openings may run parallel to the direction of travel if the openings are no wider than ¼”.
T-S35	Running slope shall not exceed 3%.
T-S36	Cross slope perpendicular to the direction of travel shall not exceed 2%.

Boardwalk Design and Construction Guidelines and Standard	
T-S37	Objects that protrude into the boardwalk between 27” and 80” from the deck surface, such as a mounted sign, shall not protrude more than 4” into the path of travel. Objects mounted below 27”, such as an interpretive exhibit or bench, may protrude any amount but shall not reduce the clear width of the boardwalk to less than 36”.
T-S38	Install a safety rail or toe plate wheel guard along edge if boardwalk surface is equal to or greater than 30” above the adjacent ground.

Photo credit: Regional Parks staff

Accessible Trails

ADA-accessible trails shall be connected to developed staging areas. They are intended to be the most accessible of all the trail types and should comply with Americans with Disabilities Act (ADA) guidelines. These trails are intended to be utilized by the broadest section of the community, including people who are physically impaired, seniors, and parents/caregivers with strollers or wheelchairs.

Accessible Trail Design and Construction Guidelines and Standards	
T-G19	Accessible trails should be loops where feasible.
T-S39	Primary facilities and programs shall be connected by an outdoor recreation route pursuant to ADA Section 1016.
T-S40	Clear tread width of accessible trails shall be 48” minimum, and 72” maximum.
T-S41	Cane-detectable edging shall be provided along at least one side of accessible trails. This can either include an elevation change (such as curb, 3” minimum height), or texture change (such as a transition from gravel to vegetation).
T-S42	Running slopes of accessible trails in the direction of travel shall be as follows: 5% or less for any distance. From 5.1% to 8.33% for 200’ maximum.

Accessible Trail Design and Construction Guidelines and Standards	
T-S43	Cross slope (perpendicular to the direction of travel) of accessible trails shall be 3% maximum.
T-S44	Where accessible trail clear tread width is less than 60”, and the running slope is greater than 5%, a 60” long resting space shall be provided at least every 200’.
T-S45	Accessible trails shall be constructed with an all-weather surface that retains its surface integrity when wet. Examples include stabilized soil or decomposed granite, wood or plastic decking, unit pavers, asphalt paving, or concrete.
T-S46	Steps shall not be permitted on accessible trails.
T-S47	Accessible trails shall not have tread obstacles, such as roots or rocks, higher than 3”
T-S48	Objects that protrude into an accessible trail between 27” and 80” from the ground shall not protrude more than 4”. Objects mounted below 27”, such as interpretive exhibits or benches, may protrude any amount but shall not reduce the clear width of the trail to less than 36”.

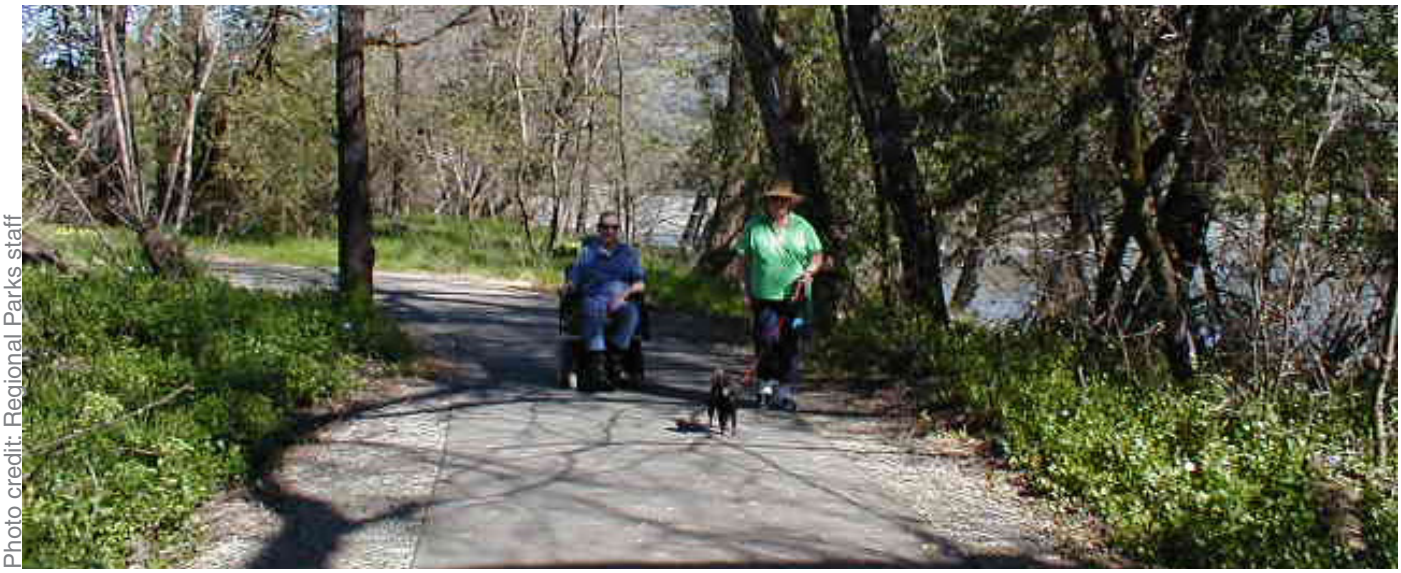

Photo credit: Regional Parks staff

Emergency Access Roads

These routes are designed to allow emergency vehicles and other authorized vehicles (such as Regional Parks operations and maintenance trucks) occasional access to some key areas of the park, and will have the character of a ranch road. In daily use, emergency access routes simply function as wide multi-use trails. In the event of a true emergency, these roads would present a launching point for 4WD vehicles to access more remote areas.

Emergency Access Road Design and Construction Guidelines and Standards	
T-S49	Emergency access roads shall be permeable wherever feasible. Suitable materials include compacted or stabilized native earth, or gravel.
T-S50	Emergency access roads shall be a minimum of 8’ wide and a maximum of 12’.
T-S51	Corner radii shall be 20’ minimum to accommodate truck turning movements.

Trail Maintenance Guidelines and Standards

Trail Tread

Trail Tread Guidelines and Standards	
T-G20	Trail features and associated infrastructure shall be well maintained and pose no threat to surrounding sensitive biological resources.
T-S52	Sonoma County Regional Parks staff shall conduct annual trail inspections noting conditions and need for repair.
T-S53	Trail inspectors shall record information about runoff and effects on water quality of nearby habitats, spread of invasive exotic plants, and status and quality of any known sensitive resources in the immediate vicinity that could be affected by road or trail use and/or maintenance.

Photo credit: Regional Parks staff

Trail Drainage Structures

Trail Drainage Structures Guidelines and Standards	
T-G21	Blocked culverts may affect water quality, change the watercourse, increase erosion or sediment runoff, or affect wildlife. Therefore, trails should be designed to minimize the need for culverts. Those trails that do include culverts should be inspected on a regular basis to ensure that they do not clog with sediment or debris. Any materials blocking culverts should be removed and disposed of outside the watercourse in an area not subject to erosion. If a significant blockage or sedimentation exists, Regional Parks should plan and implement corrective actions as necessary. Excavation of sediments within "Waters of the State" may require a maintenance permit from the U.S. Army Corps of Engineers, the California Department of Fish and Wildlife, and/or the Regional Water Quality Control Board.
T-G22	Any unstable fill slopes and cut banks that have the potential to erode and negatively affect water quality of nearby wetlands and waters should be removed entirely and graded to a stable contour. These areas should be revegetated with appropriate native species. Sediment filtration barriers should be deployed around the edges of unstable slopes as necessary to prevent erosion and runoff into wetlands and waters.
T-S54	Where applicable, prune woody vegetation four feet back from sides of all roads and trails, with a 14-foot vertical clearance.
T-S55	Evaluate and remove unhealthy or dead trees and limbs in close proximity to all roads and trails.
T-S56	Remove sediment and debris from drainage structures.
T-S57	Grading and other activities associated with road or trail maintenance shall only occur during the dry months (generally April 1 to October 31), when associated erosion can be reduced to the maximum extent possible.

Litter Removal Standards

Litter Removal Standards	
T-S58	All trash receptacles shall be emptied daily on weekends, and at least every other day on weekdays.
T-S59	All trash receptacles shall have lids that close and lock to dissuade wildlife from foraging, and thus limit potential interaction between park visitors and wildlife.
T-S60	From April through October, restroom facilities shall be cleaned regularly, with daily trash removal and amenities (e.g., toilet paper, soap, paper towels) checked for replacement.
T-S61	Manufacturer guidelines for proposed self-composting toilets shall be followed, with consideration of maintenance suggestions from contractors as appropriate.

Photo credit: Regional Parks staff

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