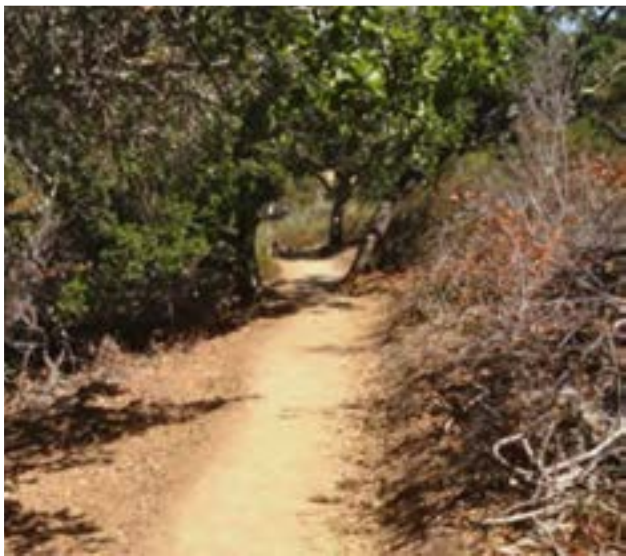
ATTACHMENT 1

Laurelwood Park and
Sugarloaf Mountain Open Space

MANAGEMENT PLAN AMENDMENT

DRAFT
October 24, 2014



Laurelwood Park and Sugarloaf Mountain Open Space Management Plan Amendment

Prepared by:
2M Associates

In collaboration with:
Placemakers
Environmental Collaborative
Wildland Resource management, Inc.

October 24, 2014 (Draft)

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1.0 INTRODUCTION

1.1 Background

Laurelwood Park and Sugarloaf Mountain make up the 225-acre property nestled in the hills on the west side of the city. In January 2007 the San Mateo City Council adopted the *Laurelwood Park and Sugarloaf Mountain Management Plan* (the Management Plan) and accompanying *Mitigated Negative Declaration*.

This Management Plan Amendment incorporates by reference all aspects of the existing Management Plan and mitigation measures with exceptions related to the trail system and habitat compartmentalization zones identified in the Management Plan.

1.2 Purpose and Need

Laurelwood Park sits at the base of Sugarloaf Mountain. Figure 4 in the existing Management Plan illustrates a pattern of trails that, over time, have been found too impractical to construct and/or not conducive to directing use in a way that would discourage volunteer trails and subsequent erosion and other resource damage. Figure 5 in the existing Management Plan depicts a series of fire management actions, one of which are "Habitat Compartmentalization Zones". These zones, as identified, are somewhat problematic in that they are not coordinated with trail access that would be useful to create the zones and then maintain them over time.

This Management Plan Amendment proposes only two revisions to the existing Management Plan. These are:

- To replace the trail routing component of the existing Management Plan. The purposes for the revised trail system plan are to:
  - direct pedestrian access to the top of Sugarloaf Mountain from perimeter access points along trail routes that are sustainable from environmental and management perspectives, safe, and designed and constructed to encourage use.
  - offer the visitor a wide variety of trial loop opportunities to the various areas of the Open Space area.

  - provide one route from Laurelwood Park to the peak of Sugarloaf Mountain that could be used by City staff for patrol and maintenance purposes using a small all-terrain vehicle.

- To realign Habitat Compartmentalization Zones to coordinate them with the trails and the access they provide.

All other programs and actions identified in the Management Plan remain unchanged.

2.0 MANAGEMENT PLAN AMENDMENT

2.1 Trail Plan and Guidelines

Figure 1 identifies the existing pedestrian trails within the Laurelwood Park and Sugarloaf Mountain Open Space Area. Also illustrated are those volunteer trails that are located along what used to be fire breaks or that have been made from use by nearby residents.

Figure 2 illustrates the proposed trail routes of this Management Plan Amendment. All trails on Sugarloaf Mountain are for pedestrian use only with exception being for trails that are indicated for emergency access purposes that are also designated for bicycle use. These include the existing Salson Trail and Tenderfoot Trail.

The majority of the proposed trail routes are essentially realigned trails to replace volunteer trails and allow such trails to be decommissioned and revegetated. Four types of trails are identified. These are:

- Four- to five-foot-wide pedestrian trails. Most of these trails also involve some steps to navigate steep terrain where the trail would otherwise be steeper than a 12% gradient.
- One trail from Laurelwood Park to the peak of Sugarloaf Mountain, which will be constructed to be compatible with the Americans with Disability Act[1] guidelines for trails.
- A six-foot-wide pedestrian trail that could also accommodate maintenance and patrol access from Laurelwood Park to the top of Sugarloaf Mountain.
- The Salson Trail, an existing route linking Laurelwood Park with the City of Belmont's San Juan Canyon Open Space and East Laurel Creek Road. This route will be retained for pedestrian as well as fire and emergency access. The existing Management Plan calls for removing a culvert and installing a bridge over Laurel Creek immediately adjacent to Laurelwood Park. Implementation of this feature is a precursor to construction of the accessible

1 Architectural Barriers Act Accessibility Guidelines; Outdoor Developed Areas. 36 CFR Part 119, RIN 3014-AA22. Architectural and Transportation Barriers Compliance Board.

trail to Sugarloaf Peak.

2.1.1 General Trail Design Parameters

Figures 3 through 5 illustrate the general design and construction guidelines for the various trails. All trails are designed for pedestrian use and will be constructed at a 5% to 10% sustained grade on cut bench with fill scatter casted (spread) below the trail tread. In some locations a 12% gradient will be needed. All trails will be drained by outsloping and reverse grade dips. Short segments of trail may be supported on low (<3' high) rock or wood retaining structures. Where soil conditions are moist or slippery in the winter months, portions of the trail tread may be surfaced with rock aggregate or paving stones. Short trail bridges are proposed at ephemeral watercourse crossings. No disturbance of channel bed or banks will occur.

2.1.2 Trail Construction Methods

Two types of construction techniques are associated with trail development. The majority of foot trails that are up to 5 feet wide will be constructed by hand. Trail route clearing would be done with chainsaws and other mechanical equipment. Compaction would be established by mechanical means. Hand construction of trails would occur in the late fall and winter months when soil is easily workable.

The 6-foot-wide trail developed for both pedestrian and patrol access will be constructed using small trail dozer (SWECO or Sutter). Mechanized construction would occur in the dry season prior to October 15.

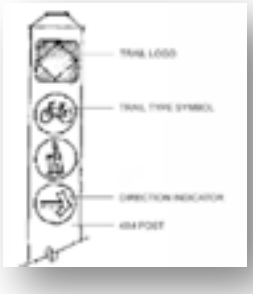
2.1.3 Signs, Wayfinding, and Accessible Information

Signs to be employed to manage TRAIL use include the following:

Information Kiosks / Accessible Information: To be located at in Laurelwood Park at the edge of the lawn areas at the beginning of the Tenderfoot trail and at the Salson Trail. Information presented would be include general open space use regulations, a trail map, and universal access conditions for each trail. The following information would be conveyed to the trail user:

- Trail name
- Accessible trails
- Length of trail or trail segment

- Surface type
- Change in elevation over the total trail length and maximum elevation obtained
- Typical and minimum tread width
- Typical and maximum running slope
- Typical and maximum cross slope
- Presence and frequency of obstacles



Trail Markers: To be used at all trail entry points and all intersections of trails. Markers would include trail names and directional arrows to key locations or other trails. Only if non-permissible uses become a management challenge would strikethrough icons be used on trail markers to help manage trail use.

2.2 Trail Construction and Integrated Mitigation Measures

Many of the trails are located on moderate to steep terrain (15% to 75%) with the majority of the trails sited where cross slopes are less than 50%. Soils consist of Fagan loam (15% to 50% slopes); Los Gatos loam (30% to 75% Slopes), and Maymen gravelly loam (30% to 50% slopes) derived from sandstone, shale and argillite of the Franciscan Complex (McLaughlin and others, 2001). In general soils are moderately well suited for trail construction recognizing that overall permeability is moderate, runoff is fairly rapid, and the erosion potential is high unless preventive design measures are taken, particularly on steeper gradient trials. Figures 3 through 5 present trail construction guidelines to minimize the footprint of trail construction and associated effects, particularly with regard to erosion control and water quality. Construction of the trails, however, will not significantly increase any landslide hazard.

In addition, the mitigation measures of the existing Management Plan are incorporated by reference for the entire Management Plan once amended. Those that specifically apply to construction and vegetation management are itemized below.

2.2.1 Air Quality

The following construction practices will be implemented during all phases of construction on the project site and applied as a condition of approval for all future planning approvals:

- Cover all trucks hauling demolition debris from the site.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.
- Install gravel bags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.

2.2.2 Biological Resources

Riparian Areas

- Any future encroachment into riparian habitat shall be mitigated at a 1:1 ratio by establishing native riparian habitat within the remaining setback area. Such revegetation would reduce this impact to a less than significant level.
- The contractor shall undertake measures to ensure that no construction equipment will be operated within the live stream channel.
- When work in a flowing stream is unavoidable, any stream flow shall be diverted around the work area by a barrier, temporary culvert, pipe or a new channel capable of permitting wildlife movement.
- Construction of the diversion shall normally begin in the downstream area and

continue in an upstream direction and the flow shall be diverted only when construction of the diversion is completed.

- No debris, soil, silt, sand, bark, sawdust, cement, concrete, washings, petroleum products or other organic or earthen material shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into the channel.

Special Status Plants

- Preconstruction surveys during the blooming period for these species in the direct impact area shall be completed. Any special-status plant species shall be avoided if feasible. A buffer area around those plants shall be determined by a qualified biologist and clearly marked.
- Should avoidance be infeasible, a qualified biologist shall determine the importance of the portion of the population to be impacted balancing any proposed site-specific grassland restoration efforts associated with the impact and whether the impact to that population is significant. If the impact is determined to be significant, construction shall not proceed and a change in conditions will have occurred requiring reassessment and additional environmental review under CEQA. If the impact is determined to be at a level that is less-than-significant, then construction can proceed.

Purple Needlegrass Grasslands

- Preconstruction surveys in the direct impact area shall be completed. Any grasslands stands where there is a predominance of purple needlegrass shall be avoided during trail construction and restoration activities if feasible. A buffer area around those plants shall be determined by a qualified biologist and clearly marked.
- Should avoidance be infeasible, a qualified biologist shall determine the importance of the portion of the population to be impacted balancing any proposed site specific grassland restoration efforts associated with the impact and whether the impact to that population is significant. If the impact and whether the impact to that population is significant. If the impact is determined to be significant, construction shall not proceed and a change in conditions will have occurred requiring reassessment and additional environmental review under CEQA. If the impact is determined to be at a level that is less-than-significant, then construction can proceed.

*Mission blue butterfly (Icaricia icaroides missionensis)***:** The species is known to occur within 6 miles from Sugarloaf Mountain, but has not been observed on site. Surveys have recorded silver bush lupine on the mountain that are known as host plants for the butterfly. This area is delineated on Figure 2 and is generally located in open herbaceous areas (versus oak woodlands and chaparral). However, in the past 10 years native plants have been colonizing the edges of fire breaks running up and down the slopes of Sugarloaf Mountain that may contain lupines. Surveys for the butterfly are recommended if trail construction activities would impact the host plant. Mitigation

measures include:

- In the spring blooming season prior to construction, preconstruction surveys for silver bush lupine in the direct impact area shall be completed. Such surveys shall take place prior to any activities that may impact the lupine populations on site. Any silver bush lupine should be avoided if feasible.
- Prior to work or other activities taking place within the vicinity of silver bush lupine populations, a qualified biologist shall mark a 25-foot buffer around each stand. Activity within the 25-foot buffer shall meet any conditions of approval designated by a qualified biologist for each specific task.
- Prior to any work or other activities that will disturb individual silver bush lupine plants, a species-specific management plan shall be developed to protect the mission blue butterfly and provide specific mitigation for impacts to its habitat. This process may include protocol-level surveys for mission blue butterflies. The United States Fish and Wildlife Service (USFWS) should be informally consulted as to the importance of the habitat for the recovery of the species. A more involved consultation process, as prescribed by the Federal Endangered Species Act, may follow. This process can be involved and may require formal consultation with the USFWS.

2.2.3 Vegetation and Fire Management

- Some natural habitats are more desirable for fire safety, e.g., oak woodlands; therefore, the assessment of whether an area needs to be managed for fire hazard reduction, or which areas should be treated to create and maintain Habitat Compartmentalization Zones shall include assessment of sensitive habitats by a qualified biologist. The determination of necessity for fire management shall include consideration of the fire ecology and fire hazard of sensitive habitats and shall avoid or minimize damage to natural habitats with lower fire hazard.
- Vegetation management shall use the least intrusive or destructive techniques, e.g., by hand or grazing. Vegetation management in habitat compartmentalization units shall be rotated, treating one area approximately every three years to provide management without intensive impacts.

2.2.4 Water Quality (see also Section 2.3 Permits below)

The following measure will be applied as a condition of approval for all future planning approvals and would be included in the SWPPP:

- Effective, site-specific Best Management Practices for erosion and sediment control during the construction and post-construction periods.
- Cover soil, equipment, and supplies that could contribute non-visible pollution prior to rainfall events or perform monitoring of runoff.
- Schedule excavation and grading work for dry weather.
- Remove existing vegetation only when absolutely necessary.
- Provide temporary cover of disturbed surfaces to help control erosion during construction.

- Protect downslope drainage courses and storm drains with fiber rolls, silt fences, berms or filters during wet weather periods during construction.
- Provide permanent cover to stabilize the disturbed surfaces after construction has been completed.
- Clean up leaks, drips and spills immediately to prevent contamination of soil and groundwater or leaving a residue on paved surfaces.

When a construction phase is complete, a Notice of Termination (NOT) will be filed with the Regional Water Quality Control Board. The NOT will document that all elements of the SWPPP have been executed, construction materials and waste have been properly disposed of, and a post-construction storm water management plan is inplace as described in the SWPPP for the site.

- The project would include features to minimize nonpoint source pollutants from entering Laurel Creek. Such features will include placement of effective, sediment control features, such as fiber rolls, adjacent to disturbed areas during construction.
- As part of the mitigation for post-construction runoff impacts addressed in the SWPPP, the project will implement regular maintenance activities (i.e., maintain runoff distribution trenches, vegetative swales, litter control) at the site to prevent soil, grease, and litter from accumulating on the project site and contaminating surface runoff.

2.2.5 Cultural Resources

- In the event any significant cultural materials are encountered during subsurface construction, all construction within a radius of 50 feet of the find would be halted. The City's Chief of Planning, a qualified archaeologist and the Native American Heritage Commission (or local California Indian organization) would be notified. The archaeologist will examine the find and make appropriate recommendations regarding the significance of the find and the appropriate mitigation. Recommendations could include collection, recordation and analysis of any significant cultural materials. A report of findings documenting any data recovered during monitoring would be submitted to the City Planning Department.
- In the event that human skeletal remains are encountered, the applicant will immediately notify the County Coroner. Upon determination by the County Coroner that the remains are Native American, the coroner shall contact the California Native American Heritage Commission, pursuant to subdivision (c) of section 7050.5 of the Health and Safety Code and the County Coordinator of Indian Affairs. No further disturbance of the site may be made except as authorized by the County Coordinator of Indian Affairs in accordance with the provisions of State law and the Health and Safety Code. The City's Chief of Planning will also be notified immediately if human skeletal remains are found on the site during development.

2.2.6 Noise

- Construction activities shall be restricted to weekdays between 7:30 a.m. and 6:00 p.m. unless such construction will not include activities that generate noise beyond 65 Leq at the project site property line.
- Earth haul and materials delivery to and from the site, including truck arrivals and departures to and from the site, will be prohibited between the weekday hours of 4:00 p.m.- 5:30 p.m. Signs outlining these restrictions shall be posted at conspicuous locations on site. The signs shall be per the City Standard Drawing for posting construction hours.

2.3 Permits

Figure 6 identifies new or realigned trail segments to be constructed. Table 1 lists the trail segments, its length, construction widths, and other special considerations related to permitting. When combined, these segments will provide a wide series of trail loop opportunities to the visitor.

TABLE 1: Trail Characteristics and Permitting (see also Figure 6)

Map Key	Description	Appx. Trail Length (feet)	Potential Max. Trail Width (feet)	Appx. Width of Ground Disturbance (feet)	Appx. Total Area of Ground Disturbance (square feet)	Special Requirements / Permitting
1	Creek Overlook Trail Realignment	460	5	12	5,520	• Bridge crossing of drainage requiring CDFW permit
2	Tenderfoot Trail at Laurelwood Dam to Amphitheater Trail	1,815	5	12	21,780	
3	Salson Trail to Amphitheater Trail	680	5	12	8,160	
4	Salson Trail to Amphitheater Trail (Accessible Trail)	3,315	5	12	39,780	• May impact silver bush lupine (Mission blue butterfly habitat) • Pre-construction surveys required. Consultation with USFWS as appropriate. • Specific grading plan with 1- foot contours required
5	Amphitheater Trail to Sugarloaf Peak (Accessible Trail)	1,525	5	8	12,200	• Shallow cross slopes • May impact silver bush lupine (Mission blue butterfly habitat) • Pre-construction surveys required. Consultation with USFWS as appropriate. • Specific grading plan with 1- foot contours required
6	Amphitheater Trail to Center Point	1,175	5	10	11,750	• Shallow to moderate cross Slopes
7	Tenderfoot Trail to Center Point (Center Point Trail)	2,255	5	12	27,060	• Likely bridge crossing of drainage requiring CDFW permit
8	Center Point Trail to East Point	1,200	5	12	4,400	
9	East Laurel Creek Road to East Point	2,725	5	12	32,700	• Likely bridge crossing of drainage requiring CDFW permit
10	Salson Trail to Sugarloaf Peak (Patrol Trail)	2,673	6	18	48,150	• Specific grading plan with 1- foot contours • SWPPP required

Source: 2M Associates

2.3.1 National Pollutant Discharge Elimination System (NPDES)

Specific exclusions to the provisions of the *California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater NPDES Permit* include trails constructed with permeable surfaces. No paved trails are being proposed in this Management Plan Amendment therefore no NPDES permits will required.

2.3.2 Storm Water Pollution Prevention Plans (SWPPPs)

Construction activity resulting in a land disturbance of one acre or more must obtain the Construction Activities Storm Water General Permit (2009-0009-DWQ Permit). Construction activities includes clearing, grading, excavation, stockpiling, and reconstruction of existing facilities involving removal and replacement. Construction activity does not include routine maintenance such as maintenance of original line and grade, hydraulic capacity, or original purpose of the facility. The average 5-foot-wide trail would result in ground disturbance along an approximately 12-foot-wide corridor.

Trail segments shown in Figure 6 and described in Table 1 will be constructed mostly by volunteers over time as individual projects. With the exception of Segment 10, individual segments would not be subject to formal SWPPP requirements. Segment 10, that will involve mechanized construction equipment, will require a full SWPPP as required in the mitigation measures. However, as it relates to best management practices, the following specific measures will be applied for all trail development.

- Effective, site-specific Best Management Practices for erosion and sediment control during the construction and post-construction periods.
- Cover soil, equipment, and supplies that could contribute non-visible pollution prior to rainfall events or perform monitoring of runoff.
- Remove existing vegetation only when absolutely necessary.
- Provide temporary cover of disturbed surfaces to help control erosion during construction between October 15 and April 1.
- Protect downslope drainage courses and storm drains with fiber rolls, silt fences, berms or filters during wet weather periods during construction.
- Provide permanent cover to stabilize the disturbed surfaces after construction has been completed. This could be either seeding and mulching, or use of erosion control blankets as appropriate.
- Clean up leaks, drips and spills immediately to prevent contamination of soil and groundwater or leaving a residue on paved surfaces. When the construction phase is complete where a SWPPP is required, a Notice of Termination (NOT) will be filed with the Regional Water Quality Control Board. The NOT will document that all elements of the SWPPP have been executed, construction materials and waste have been properly disposed of, and a post-construction storm water management plan is in place as described in the SWPPP for the site.

- The project would include features to minimize nonpoint source pollutants from entering Laurel Creek. Such features will include placement of effective sediment control features, such as fiber rolls, adjacent to disturbed areas during construction.
- As part of the mitigation for post-construction runoff impacts addressed in the SWPPP, the project will implement regular maintenance activities (i.e., maintain runoff distribution trenches, vegetative swales, litter control) at the site to prevent soil, grease, and litter from accumulating on the project site and contaminating surface runoff.

2.3.3 Stream Alteration Permit

The California Department of Fish and Wildlife (CDFW) is responsible for conserving, protecting, and managing California's fish, wildlife, and native plant resources. To meet this responsibility, the Fish and Game Code (Section 1602) requires the City to notify CDFW of any proposed activity that may substantially modify a stream, including ephemeral streams.

For Sugarloaf Mountain, at higher elevations the determination of where a stream begins is a function of topography and vegetation types. Generally if a culvert or bridge is needed, CDFW should be consulted prior to construction to determine if a stream alteration permit required. Any work near Laurel Creek and trail segments 1, 7, and 9 as illustrated on Figure 4 and described in Table 1 would likely require a stream alteration permit.

2.3.3 City of Belmont

A portion of the Salson to Sugarloaf Peak Pedestrian and Patrol Trail falls with in the San Juan Canyon Open Space owned by the City of Belmont. Additionally a realigned trail leading from East Laurel Creek Road, while entirely on City of San Mateo property, would be accessed from the City of Belmont. An agreement either in the form of a Encroachment Permit or a Memorandum of Understanding would be required between the two Cities prior to the construction of these trails.

2.4 Accessible Trails

In November 2013, the United States Access Board passed into law the Architectural Barriers Act Accessibility Guidelines for Outdoor Developed recreation Areas. These guidelines address trails, their design characteristics, and the passing spaces and resting areas that are required along trails to be accessible. The text of the guidelines as applicable to the accessible trail shown on Figure 2 is contained in Appendix B.

Site conditions at Sugarloaf Mountain presents two significant challenges in providing

an accessible trail to its peak from the Laurelwood Park staging area. First, the elevation change between the staging area and the peak is approximately 395 feet. The second challenge is the presence of habitat suitable for hosting endangered species, in particular the Mission blue butterfly.

Figure 2 illustrates an accessible trail route from Laurelwood Park to Sugarloaf Peak. A significant section of this route would involve long continuous slopes requiring turnout and resting areas at a minimum of 200-foot intervals. Additional turnout and resting areas may be required if site conditions such as avoidance of mature trees or Mission blue butterfly habitat require segments steeper than a 8.33% gradient.

2.5 Habitat Compartmentalization Zones

The Management Plan identifies that maintenance activities should occur to create vegetation types and structure that facilitate containment during a wildfire to minimize the chance of the entire open space burning. Compartmentalizing the open space will also serve as wildlife refugia because the fauna can escape to the unburned areas. Three areas that are to be managed for compartmentalization are shown on the Figure 7. Consistent with the Management Plan prescriptions for these zones, their general characteristics are:

- Extending the removal of shrubs for a minimum of approximately 30 to 50 feet on both sides of a trail where it passes through the compartmentalization zone.
- Targeting, though not exclusively, widened grasslands by removing shrubby chaparral areas; converting them to grassland or managed woodlands to serve as a fuel break; and targeting for removal species which sprout (e.g., poison oak and coyote brush) rather than those than depend solely on seed for regeneration.
- Limbing up the lower branches of all trees in woodland areas within the compartmentalization zone to prevent a fire from burning tree canopies. No trees would be removed.
- Maintaining areas using grazing with mobile herds of goats or sheep (goats are preferred grazers in shrubs, sheep in grass), mechanical equipment, or hand labor every 5-10 years. Grazing could require temporary closure of individual trails.

F I G U R E S

Figure 1

EXISTING TRAILS

THIS MAP IS NOT A TRAIL GUIDE:
This map is a planning tool. The routes identified on this map as "proposed" are not open to the public for any purpose. This map does not convey any right to the public to use any routes shown on this drawing that are not within public lands; nor does this map exempt any person from trespassing charges.

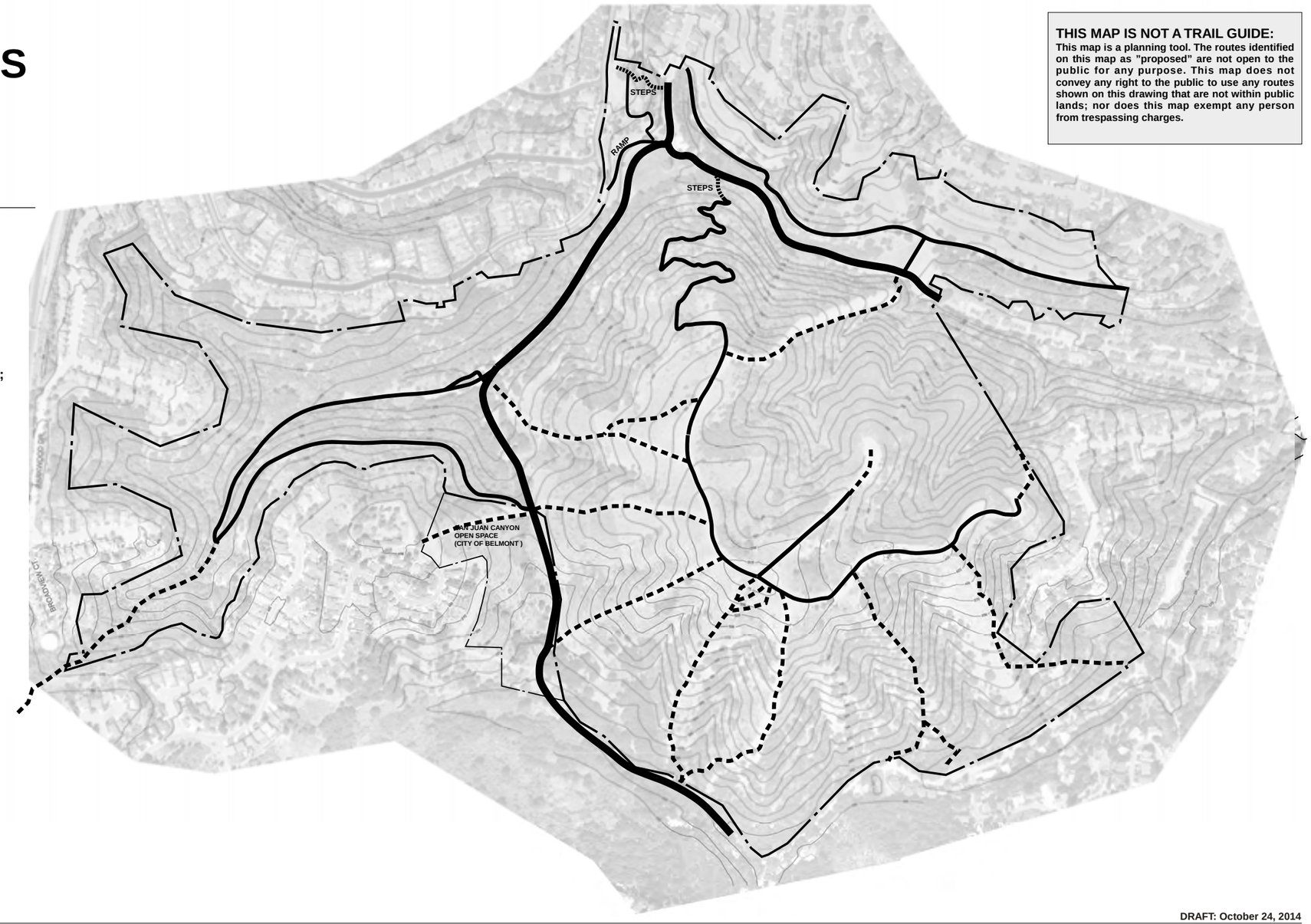
PARK AND OPEN SPACE AREA BOUNDARY

EXISTING DEVLOPED TRAILS to BE REtAINED

EMERGENCY ACCESS ROAD; PEDESTRIAN AND BICYCLE TRAIL

HIKING TRAIL

SOCIAL TRAIL TO BE RESTORED



DRAFT: October 24, 2014

LAURELWOOD PARK AND SUGARLOAF MOUNTAIN OPEN SPACE
MANAGEMENT PLAN AMENDMENT TRAILS
CITY OF SAN MATEO
DEPARTMENT OF PARKS AND RECREATION

SCALE
0 100 200 400 FEET

NORTH

This drawing is conceptual and for planning and permit processing purposes only. Program information, scale, location of areas, and other information shown are subject to field evaluation and modification.

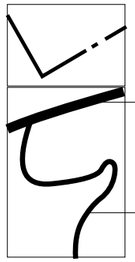
Base photograph and topography from *Master Site Plan* contained within the *Laurelwood Park and Sugarloaf Mountain Open Space Management Plan* by Moore, Iacofano, Goltsman, Inc. dated September, 2006.

2M ASSOCIATES

Figure 2

TRAIL SYSTEM

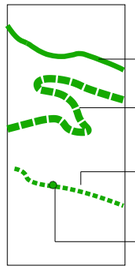
Legend
(see text for explanation)



PARK AND OPEN SPACE AREA BOUNDARY

EXISTING EMERGENCY ACCESS ROAD; PEDESTRIAN AND BICYCLE TRAIL TO BE RETAINED

EXISTING FOOT TRAIL TO BE RETAINED



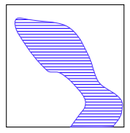
PROPOSED HIKING TRAILS

4' OPTIMUM WIDTH

6' OPTIMUM WIDTH; PATROL ROUTE

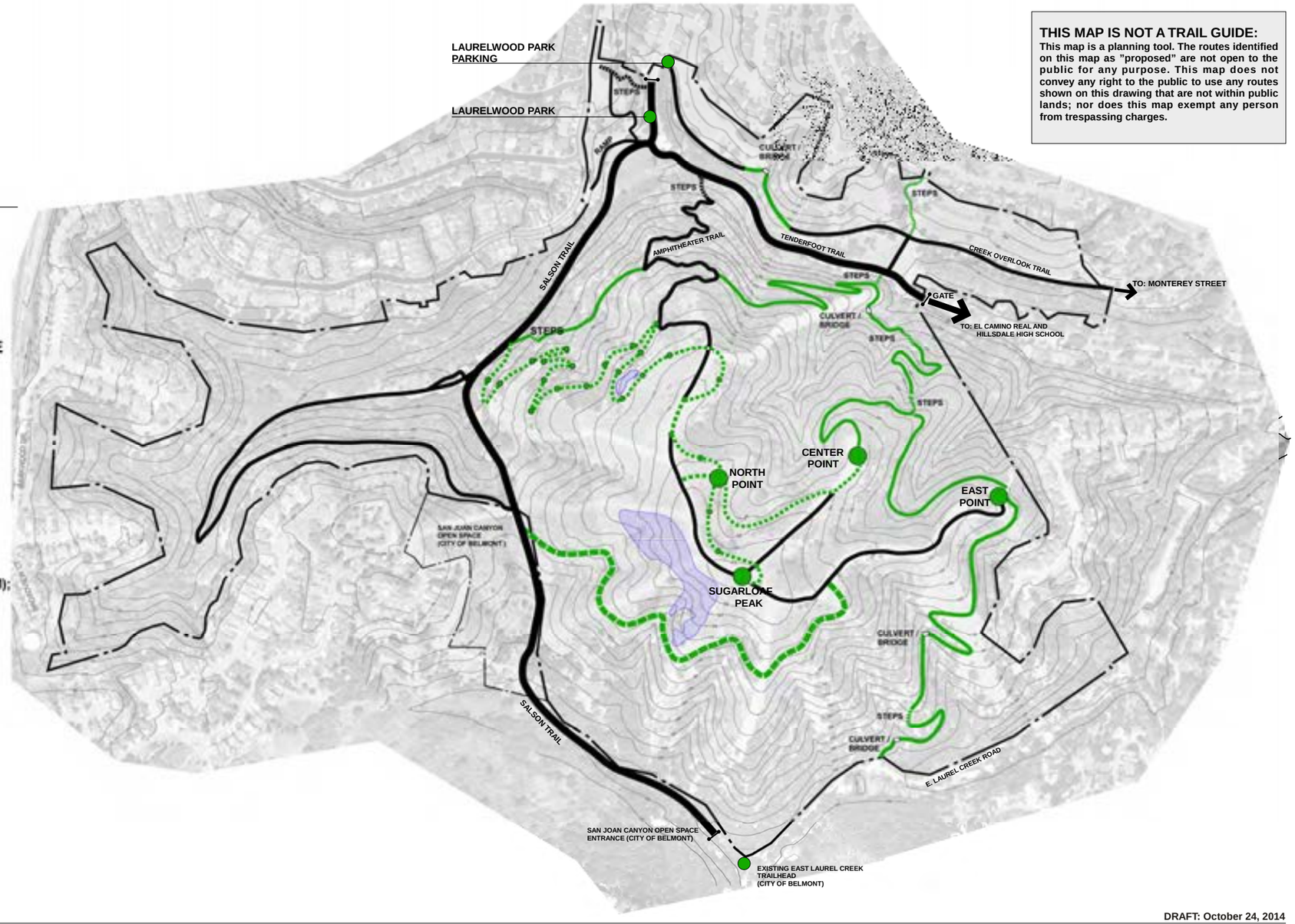
ACCESSIBLE TRAIL
4‘ OPTIMUM WIDTH (3’ MINIMUM); 8.33% MAX SLOPE

PASSING / RESTING SPACES (AS NEEDED)



SILVER BUSH LUPIN EXCLUSION ZONE

NOTE: BICYCLE USE IS PERMITTED ON THE SALSON AND TENDERFOOT TRAILS / EMERGENCY ACCESS ROUTES



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MANAGEMENT PLAN AMENDMENT - TRAILS
CITY OF SAN MATEO
DEPARTMENT OF PARKS AND RECREATION

SCALE
0 100 200 400 FEET

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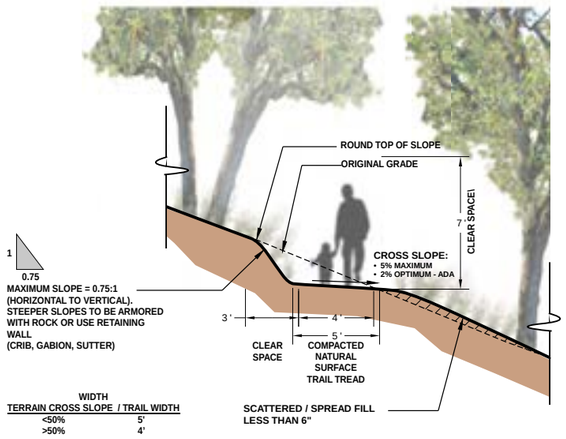
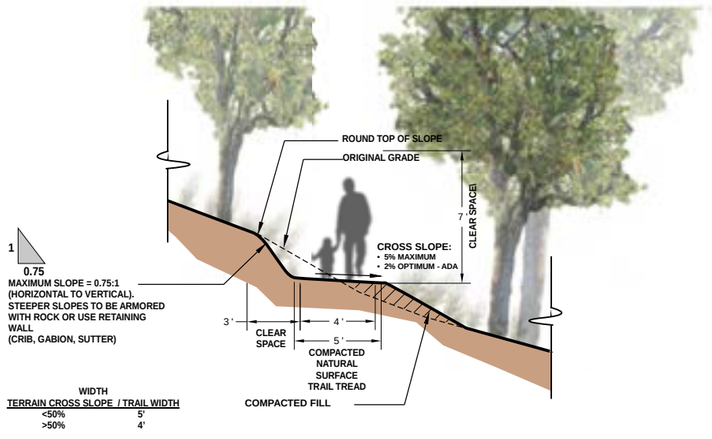
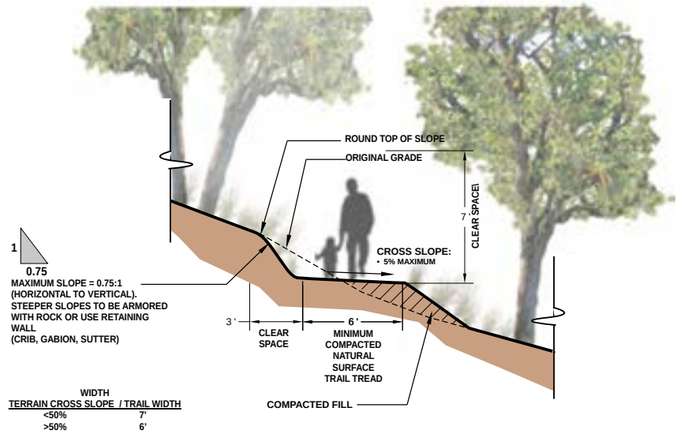


FULL CUT BENCH PEDESTRIAN TRAIL



PARTIAL BENCH PEDESTRIAN TRAIL



PATROL AND PEDESTRIAN TRAIL

TRAIL CONSTRUCTION GUIDELINES

The following guidelines apply to all trail construction:

General

- All applicable **Integrated Mitigation Measures** contained in the *Laurelwood Park and Sugarloaf Mountain Open Space Management Plan* will be implemented prior to any ground disturbance.
- Trails should be laid out to conform to natural terrain to contour alongside slopes and create an aesthetically pleasing alignment. The alignment should avoid long straight reaches. The alignment should incorporate natural terrain features to form required reverse grades to the extent feasible.

Vegetative Clearing

- The trail corridor extends 3 feet to either side of the trail tread. The trail corridor shall be cleared of all vegetation including trees and logs less than 6 inches DBH. Trees greater than 6 inches DBH within the trail corridor shall be removed only if approved by the City.
- All roots exposed during construction shall be clean cut to avoid tree damage.
- Trim branches that extend into the trail corridor to leave 8-foot-high (minimum) vertical clearance.
- Lop or mulch vegetation into less than 6-foot pieces as necessary and scatter on ground either to block access to volunteer trails or as mulch on the downhill slopes of trails.

Grading and Excavation

- Optimally the trail should be constructed at a 5% to 10% sustained grade with 3/4 of the bench a cut and with 1/4 of the bench fill scatter. Fill to be placed and spread downhill of the trail tread. Trail will be drained by outsloping and reverse grade dips.
- Some segments of trail may be supported on low (<3-foot-high) rock or wood retaining structures.
- Portions of the trail tread and fill areas may be surfaced with rock aggregate as site conditions dictate. Examples include areas leading up to bridges, wet crossings, or highly erodable soil areas that need stabilization.
- Pedestrian trails (other than the Patrol and Pedestrian Trail as shown on Figure 2) should be constructed at 4- to 5-foot maximum width on balanced cut and fill.
- Areas to receive fill should be stripped of vegetation and highly organic soil (~ 4-inch depth). Vegetation would then be used as mulch once fill has been placed.
- Onsite soils should be reused as fill. Fill should be compacted to a level equal or greater than the surrounding native materials (approximately 85 percent relative compaction). During placement and compaction of fill, the moisture content of the materials being placed should be maintained as necessary.
- Compacted fill should be a maximum of 24 inches thick.
- Compacted fill embankment should be inclined no steeper than 1.5H:1V without additional stabilization such as erosion control blanket or rock aggregate.
- Cutbank backslopes should be inclined at 0.75H:1V slope. Where cuts are steeper than 6 feet or where seepage of water or unsuitable earth materials are encountered structural measures should be used to reinforce the slope.
- All disturbed areas should be treated to control erosion either through seeding and mulching, or use of erosion control blankets as appropriate (see Integrated Mitigation Measures).

Erosion Control and Water Pollution Prevention

- Provide temporary cover of disturbed surfaces to help control erosion during construction that may occur between October 15 and April 1.
- Exposed soils outside of the trail tread greater than 50 square feet and with exposed slope distance exceeding 20 feet and with less than 80% ground coverage of natural vegetation shall be mulched 2 to 4 inches deep in order to reduce the potential for short-term sheet and rill erosion.
- Protect downslope drainage courses with fiber rolls, silt fences, berms or filters during wet weather periods during construction.
- Provide permanent cover to stabilize the disturbed surfaces after construction has been completed. This could be either seeding, mulching, or use of erosion control blankets as appropriate.
- Mulching:
  - Use native mulch where feasible.
  - Where native mulch is unavailable, mulch composed of 1-1/2 inch to 2 inch certified weed-free rice straw mulch may be used. Exposed slopes steeper than 1H:1V may be covered with biodegradable fabric.
- Timing: All erosion control measures associated with trail construction using mechanized equipment (the Patrol and Pedestrian Trail) shall be implemented by October 15 or prior to inclement weather, whichever comes first. Erosion control measures should be installed and maintained continuously during construction.

DRAFT: October 24, 2014

LAUREL WOOD PARK AND SUGARLOAF MOUNTAIN OPEN SPACE
MANAGEMENT PLAN UPDATE

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DEPARTMENT OF PARKS AND RECREATION

Figure 3

DESIGN GUIDELINES: TRAIL SECTIONS

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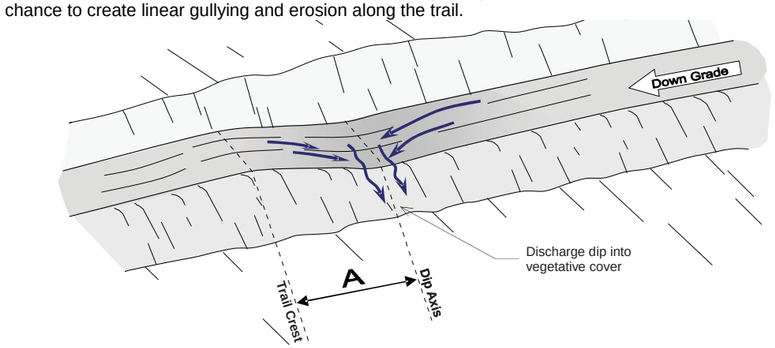
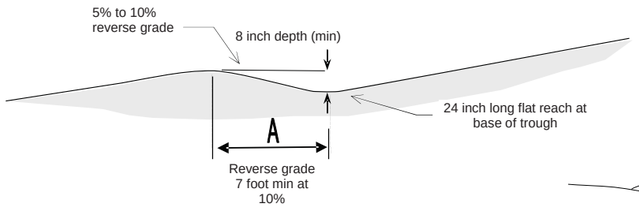
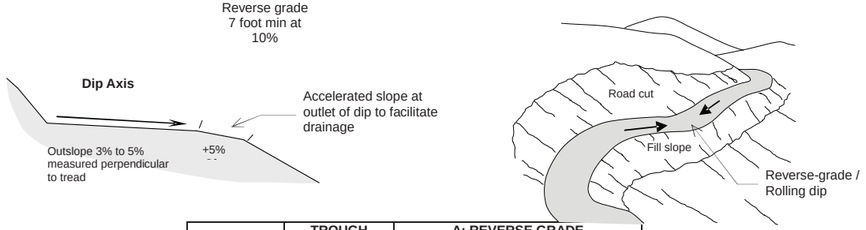
REVERSE-GRADE ROLLING DIP (Typical)

A reverse-grade dip (or rolling dip) is a broad, long, permanent dip constructed into native soils. The dip is a constructed outsloped escape in a down-sloping trail. It is created by raising the trail grade for its full width on the downside of the dip axis to divert surface water running along the trail to the outside before stormwater has a chance to create linear gullying and erosion along the trail.







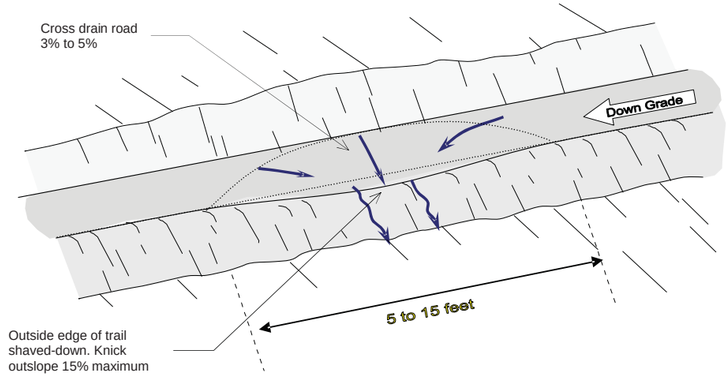
TRAIL GRADE (%)	TROUGH: Minimum depth below downslope crest	A: REVERSE GRADE: Minimum distance from dip axis to down trail crest (ft)	A: REVERSE GRADE: Grade (%)
0-5%	8 inches	15	-5%
5-15%	8 inches	7	-10%
>15%	To be determined based on field conditions		

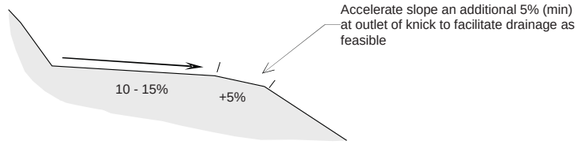
NOTES

- The elevation of the dip shall be a minimum of 8 inches below the elevation of the trail crest and typically incorporate a 2-foot-long flat reach at the base of the trough.
- The reverse grade shall be sloped from 5% for a minimum of 15 feet, to 10% for a minimum of 7 feet, to form the minimum 8 inch deep dip.
- The dip axis should be outsloped (measured perpendicular to trail) 3% to 5% .
- Dip outlets should be located to drain into areas with adequate sediment filter quality and non-erodible material such as rock, slash, brush, or mulch.
- Based on cross-slopes and soil conditions the bottom of the dip outfall may surface-rocked.
- Where natural cross slopes exceed 50%, fill shall not be pushed over the dip outlet. The trail should be realigned at the dip so that the dip outlet consists of natural grade or undisturbed cut.
- Dips should be placed as site conditions warrant but generally should be placed at maximum 75-foot spacings.

KNICK (Typical)

A knick is a semi-circular, shaved-down section of the outside edge of the trail. Knicks are not used along accessible trails.

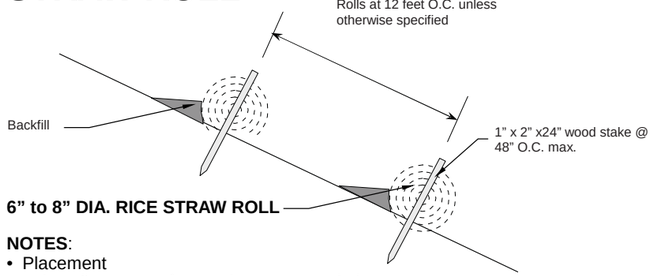




NOTES:

- The center of the knick outlet is outsloped at 10% to 15% to draw water off of the trail.
- Dip outlets should be located to drain into areas with adequate sediment filter quality and non-erodible material such as rock, slash, or brush.
- Knicks to be installed based on site conditions.

STRAW ROLL



6" to 8" DIA. RICE STRAW ROLL

NOTES:

- Placement
  - Install per manufacturer's recommendations.
  - Rolls to be placed on slope contour.
  - Adjacent rolls to overlap; turn ends of rolls up.
  - Runoff must not be allowed to run under or around the roll.

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LAURELWOOD PARK AND SUGARLOAF MOUNTAIN OPEN SPACE
MANAGEMENT PLAN UPDATE

CITY OF SAN MATEO
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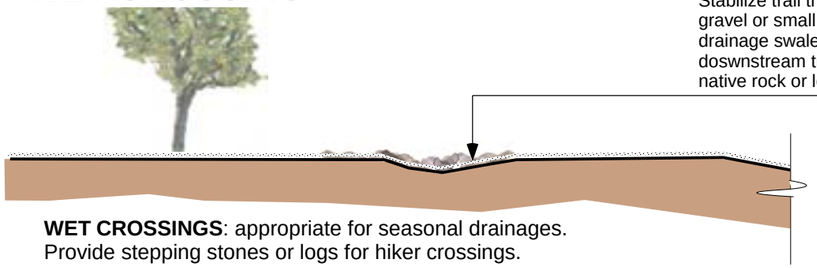
Figure 4

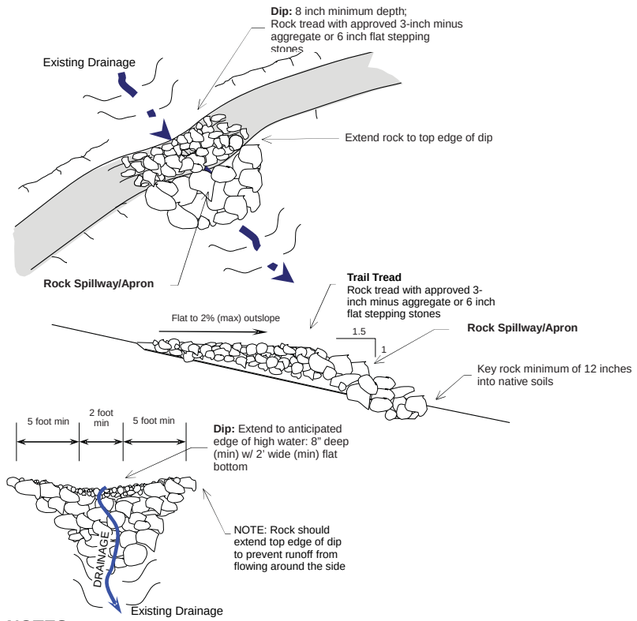
DESIGN GUIDELINES: TRAIL DRAINAGE

2M ASSOCIATES

WET CROSSING



WET CROSSINGS: appropriate for seasonal drainages.
Provide stepping stones or logs for hiker crossings.



NOTES

- Construct trail to dip through watercourse.
  - Dip to extend to anticipated edge of high water.
  - Minimum 8 inches deep and 2 feet wide typical.
  - Establish well-defined spillway at dip outlet.
- Armor outside trail edge with rock to form apron in the spillway.
  - Rock should be sound, durable, angular rock.
  - 50% (D50) of rock should be greater than 12 inches minimum diameter.
  - Rock should generally be well-graded, incorporating mix of sizes.
  - Voids should be filled with smaller rock to prevent piping around the larger rock.
  - Larger rock to be placed at base of apron.
  - Rock should extend to top edge of dip or above anticipated edge of high water to prevent high flows from eroding around the edge of the rock; place rock to form a well-defined spillway.
- Armor trail tread with rock: 3- to 4-inch sound, durable, angular rock should be used; alternatively use 6-inch flat rock to form stepping stones.

BRIDGE

BRIDGE: Crossing major streams and drainages

NOTES

- Bridge footings will be outside the 100-year flow line of the creek or drainage.
- Safety railings will be used where drop is greater than 30 inches from bridge deck. Railings should be a minimum of 42 inches high from the deck surface with no openings greater that 4 inches.
- Depending on site conditions, trail tread armoring using paving stones or other rock work may be used on sections leading up to the bridge.

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LAURELWOOD PARK AND SUGARLOAF MOUNTAIN OPEN SPACE
MANAGEMENT PLAN UPDATE

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Figure 5

DESIGN GUIDELINES: DRAINAGE CROSSINGS

2M ASSOCIATES

Figure 6

TRAIL SEGMENTS

THIS MAP IS NOT A TRAIL GUIDE:
This map is a planning tool. The routes identified on this map as "proposed" are not open to the public for any purpose. This map does not convey any right to the public to use any routes shown on this drawing that are not within public lands; nor does this map exempt any person from trespassing charges.

PARK AND OPEN SPACE AREA BOUNDARY

EXISTING EMERGENCY ACCESS ROAD; PEDESTRIAN AND BICYCLE TRAIL TO BE RETAINED

EXISTING FOOT TRAIL TO BE RETAINED

PROPOSED HIKING TRAILS

4' OPTIMUM WIDTH

6' OPTIMUM WIDTH; PATROL ROUTE

ACCESSIBLE TRAIL
4' OPTIMUM WIDTH (3' MINIMUM); 8.33% MAX SLOPE

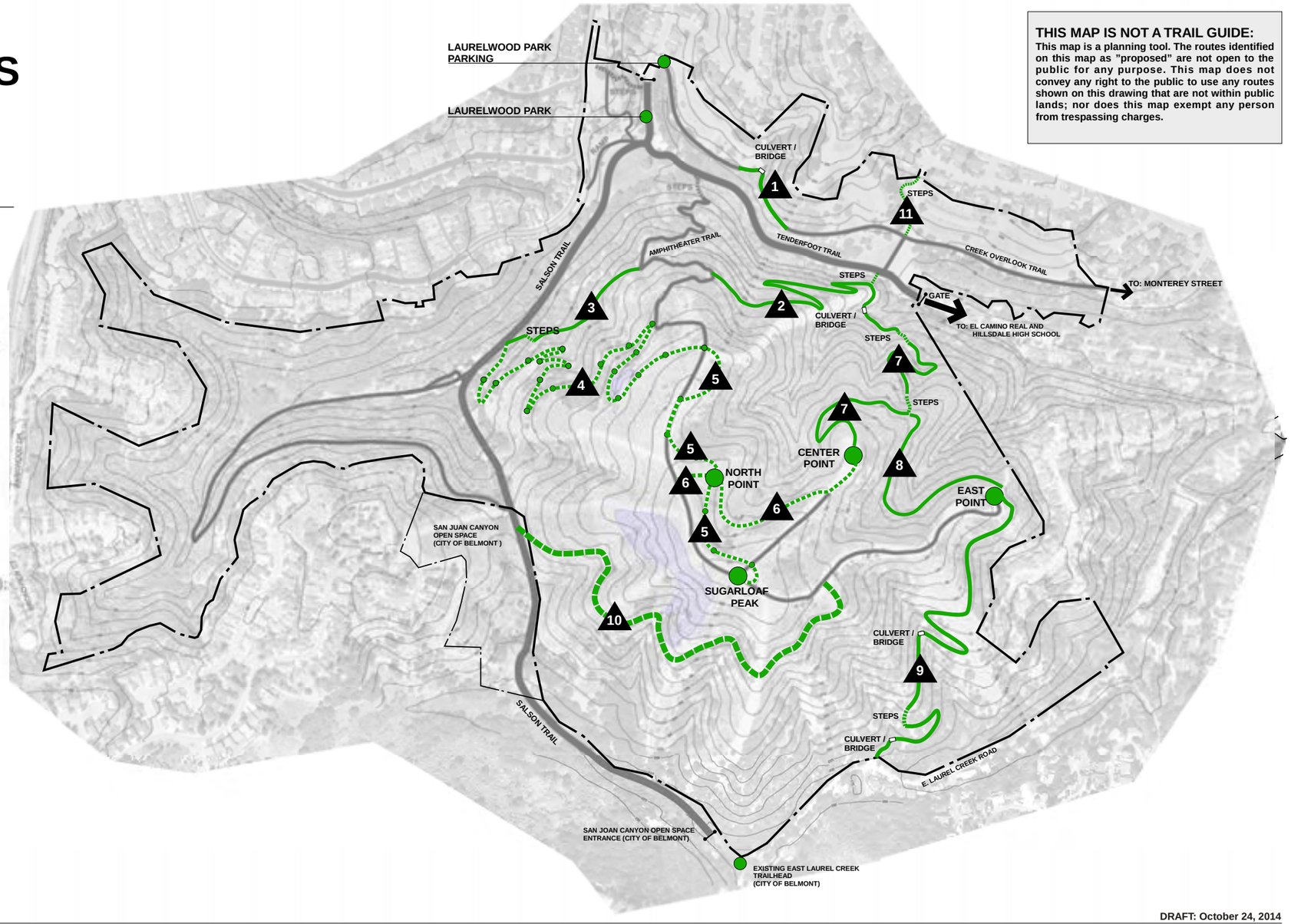
PASSING / RESTING SPACES (AS NEEDED)

SILVER BUSH LUPIN EXCLUSION ZONE

NEW / REALIGNED TRAIL SEGMENTS (SEE TABLE 1)

VISTA POINT

NOTE: BICYCLE USE IS PERMITTED ON THE SALSON AND TENDERFOOT TRAILS



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LAURELWOOD PARK AND SUGARLOAF MOUNTAIN OPEN SPACE
MANAGEMENT PLAN AMENDMENT TRAILS

CITY OF SAN MATEO
DEPARTMENT OF PARKS AND RECREATION

SCALE
0 100 200 400 FEET

NORTH

This drawing is conceptual and for planning and permit processing purposes only. Program information, scale, location of areas, and other information shown are subject to field evaluation and modification.

Base photograph and topography from *Master Site Plan* contained within the *Laurelwood Park and Sugarloaf Mountain Open Space Management Plan* by Moore, Iacofano, Goltsman, Inc. dated September, 2006.

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Figure 7

HABITAT COMPARTMENTALIZATION MANAGEMENT ZONES

THIS MAP IS NOT A TRAIL GUIDE:
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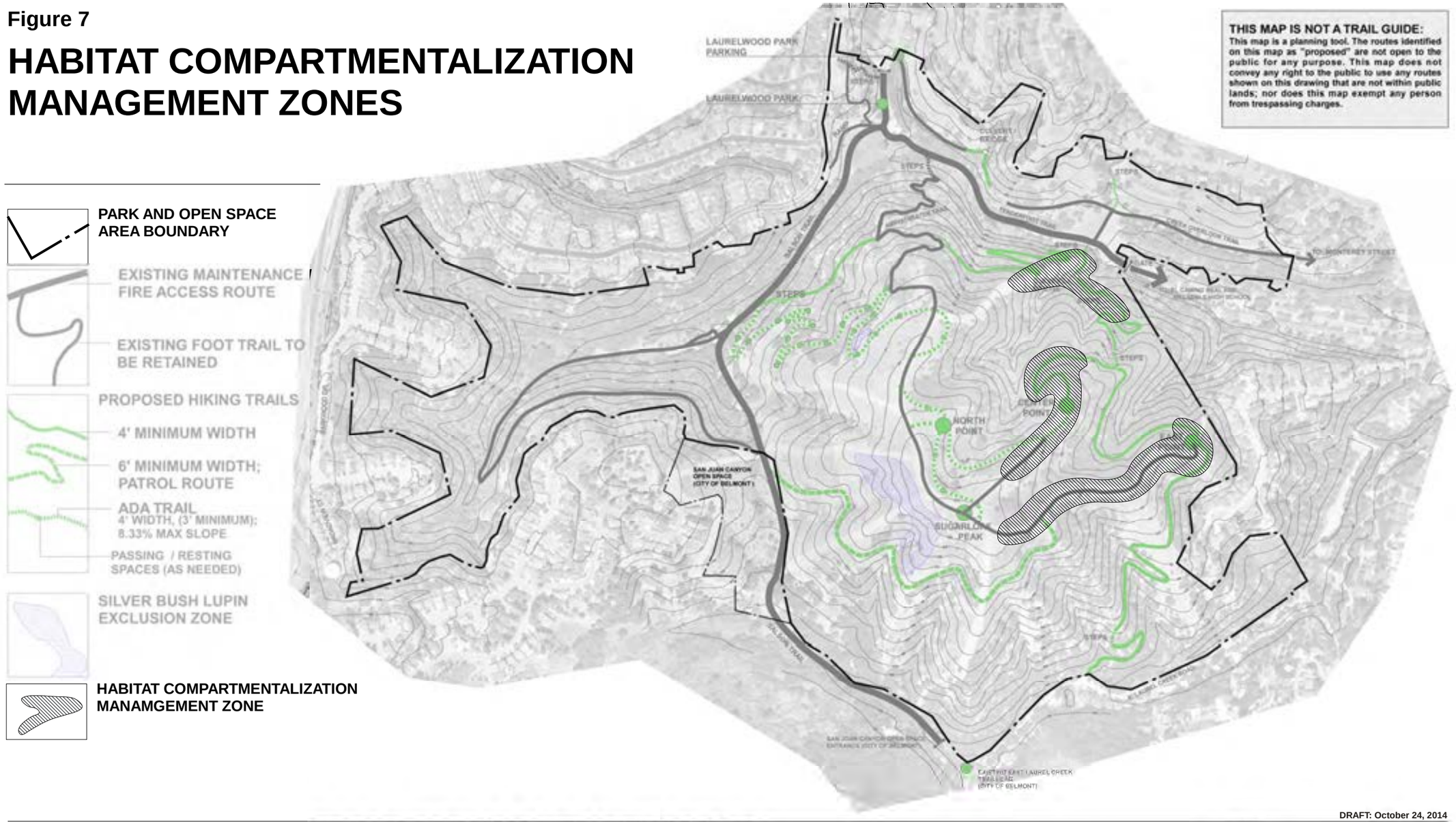

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LAURELWOOD PARK AND SUGARLOAF MOUNTAIN OPEN SPACE
MANAGEMENT PLAN AMENDMENT - FUEL MANAGEMENT

CITY OF SAN MATEO
DEPARTMENT OF PARKS AND RECREATION

SCALE
0 100 200 400 FEET
NORTH

This drawing is conceptual and for planning and permit processing purposes only. Program information, scope, location of areas, and other information shown are subject to field evaluation and modification.

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Appendix

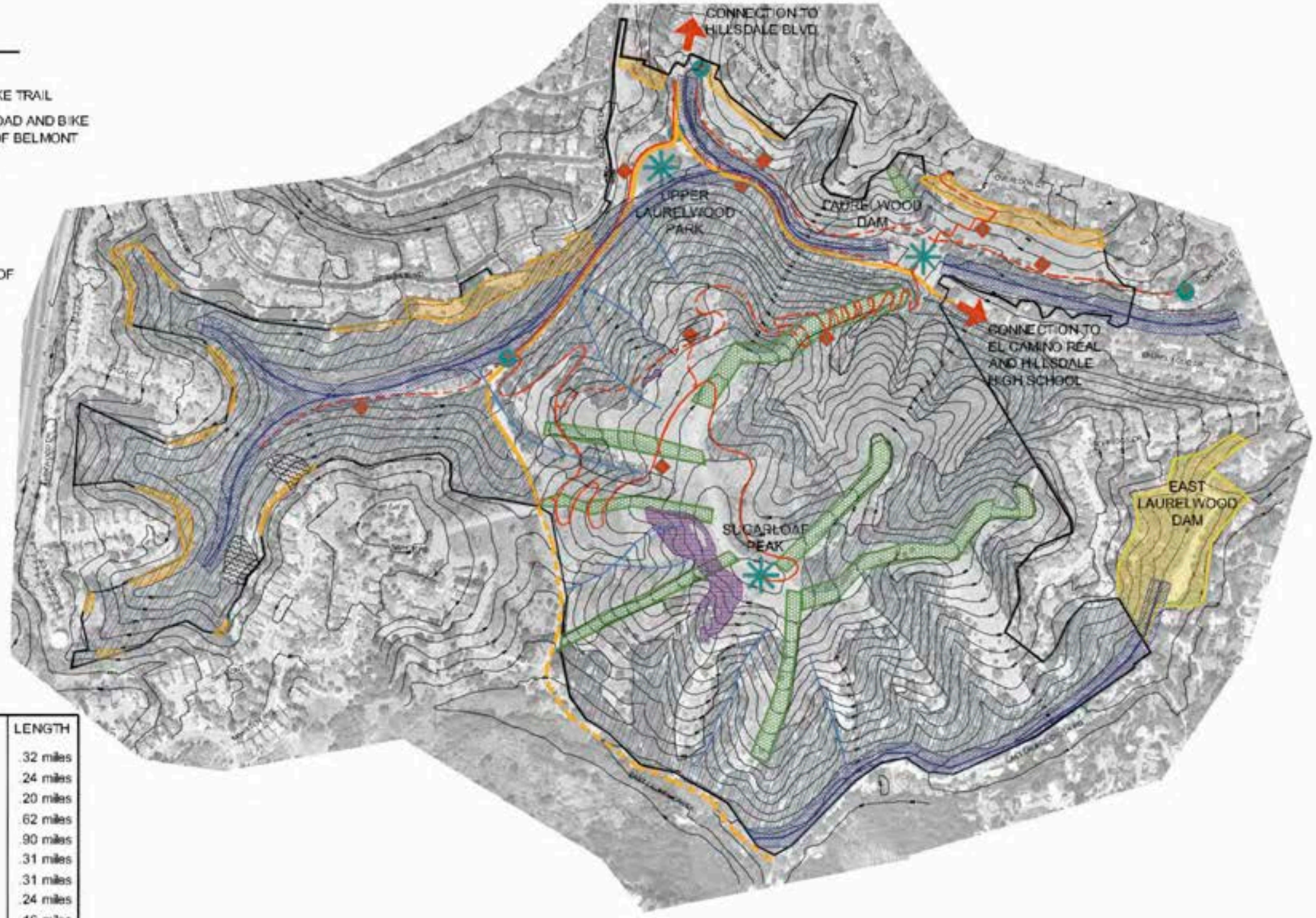
A

EXISTING MANAGEMENT PLAN FIGURES

The following existing Management Plan figures contain information about trails and habitat compartmentalization areas. The Management Plan Amendment alters these figures as depicted in Figure 2 and Figure 7.

LEGEND

- OPEN SPACE BOUNDARY
- EMERGENCY ACCESS ROAD AND BIKE TRAIL
- POTENTIAL EMERGENCY ACCESS ROAD AND BIKE LINK SUBJECT TO REVIEW BY CITY OF BELMONT
- HIKING TRAIL
- ACCESSIBLE HIKING TRAIL
- EPHEMERAL STREAM
- FIRE CONTROL SETBACK
- ADDITIONAL STUDY AREA OUTSIDE OF EXISTING OPEN SPACE BOUNDARY
- FIRE BREAK RESTORATION AREAS
- CREEK CHANNEL WITH 100' PROTECTION ZONE
- OAK WOODLAND
- LUPINE
- INTERPRETIVE OPPORTUNITY
- TRAILHEAD
- TRAIL IDENTIFICATION NUMBER
- COMMUNITY CONNECTION



TRAIL KEY

NUMBER	DESCRIPTION	LENGTH
◆	Parking Lot to Trailhead	.32 miles
◆	Laurel Creek Trail	.24 miles
◆	Laurel Creek to Sugarloaf Peak	.20 miles
◆	Laurelwood Dam to Sugarloaf Peak	.62 miles
◆	Laurel Creek to Sugarloaf Peak (Accessible)*	.90 miles
◆	Parking Lot to Laurelwood Dam	.31 miles
◆	Laurelwood Dam to Upper Parking Lot	.31 miles
◆	Laurelwood Dam to Monterey St.	.24 miles
◆	Laurelwood Dam to Overlook Ct.	.16 miles
	TOTAL	3.30 miles

* The grades on Accessible Trails are generally 5 % slope with limited 50' sections of trail at 8 % slope, and 30' sections of trail at 10 % slope with 5' resting areas as recommended in the "Accessibility Guidelines for Outdoor Developed Areas" published by the Federal Access Board, September 1999.

NORTH

SCALE: 0 100 200 400 feet

FIGURE 4

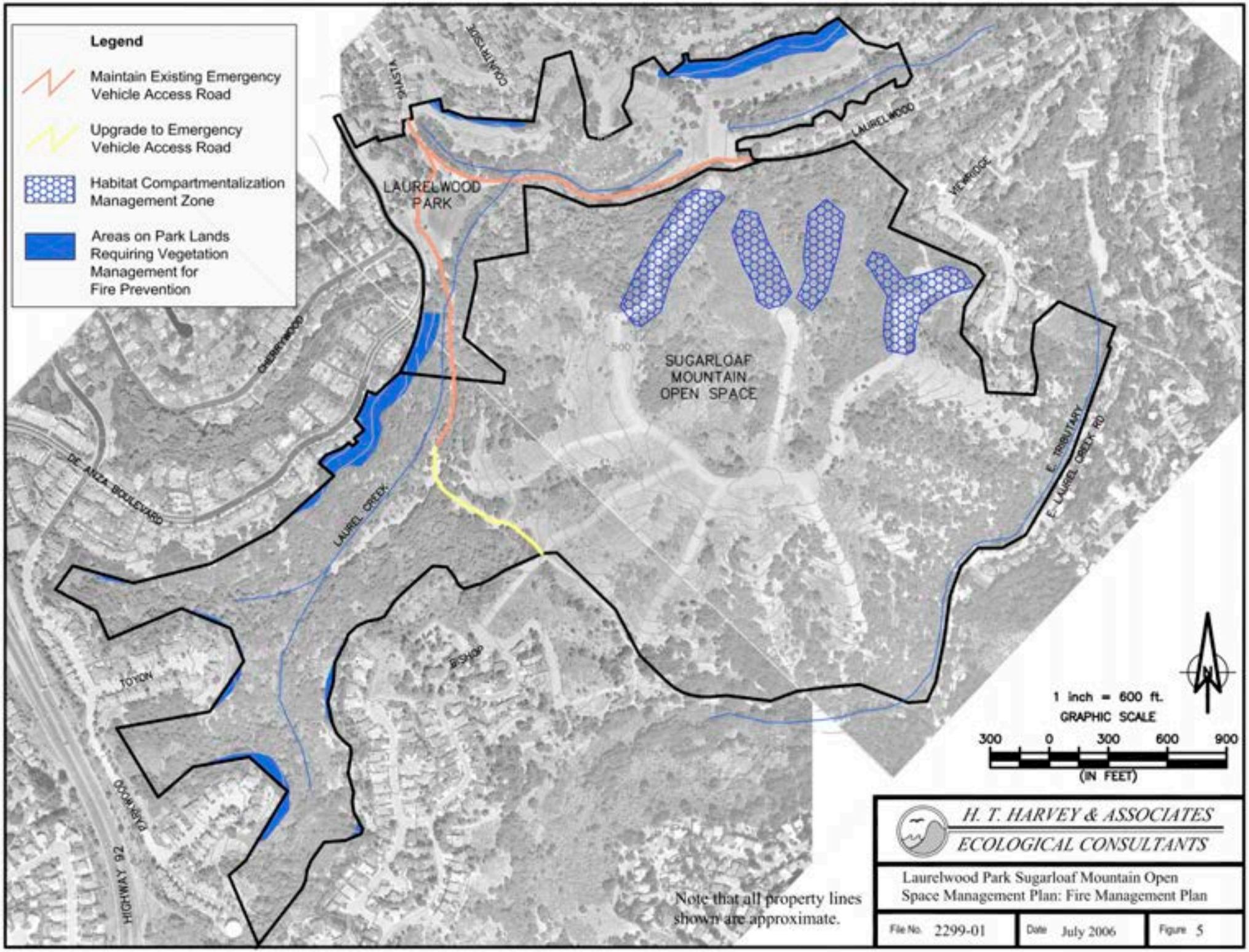
MASTER SITE PLAN

LAURELWOOD PARK AND SUGARLOAF MOUNTAIN OPEN SPACE AREAS

CITY OF SAN MATEO
DEPARTMENT OF PARKS AND RECREATION

JULY 2006

MIG
MOORE IACOFANO GOLTSMAN, INC.
800 HEARST AVENUE BERKELEY, CA 94710
TEL 510/845-7549 FAX 510/845-8750
www.migcom.com


Legend
Maintain Existing Emergency Vehicle Access Road
Upgrade to Emergency Vehicle Access Road
Habitat Compartmentalization Management Zone
Areas on Park Lands Requiring Vegetation Management for Fire Prevention
LAURELWOOD PARK
SUGARLOAF MOUNTAIN OPEN SPACE
SHASTA
COUNTRYSIDE
LAURELWOOD
VILLAGE
CHERRYWOOD
DE ANZA BOULEVARD
LAUREL CREEK
E. TRIBUTARY
E. LAUREL CREEK RD
TOYON
BISHOP
CASWOOD
HIGHWAY 92
1 inch = 600 ft.
GRAPHIC SCALE
300 0 300 600 900
(IN FEET)
Note that all property lines shown are approximate.
H. T. HARVEY & ASSOCIATES
ECOLOGICAL CONSULTANTS
Laurelwood Park Sugarloaf Mountain Open Space Management Plan: Fire Management Plan
File No. 2299-01
Date July 2006
Figure 5

Appendix

B

ACCESSIBILITY GUIDELINES FOR TRAILS

The following complements the accessible trail design guideline's presented in the existing Management Plan. There are numerous essential design characteristics that render a trail accessible. These are:

1. **Surface.** The surface of trails, passing spaces, and resting intervals shall be firm and stable.
2. **Clear Tread Width.** The clear tread width of trails shall be 36 inches (915 mm) minimum
3. **Passing Spaces.** Trails with a clear tread width less than 60 inches shall provide passing spaces at intervals of 1000 feet maximum and at the ends of the individual trail segments. Where the passing space is the intersection of two trails, the intersection must be as flat as possible so that all of the wheels of a mobility device touch the ground when turning into and out of the passing space. The passing space shall be either:
   - A space 60 inches minimum by 60 inches minimum; or
   - The intersection of two trails providing a T-shaped space where the base and the arms of the T-shaped space extend 48 inches minimum beyond the intersection. Vertical alignment at the intersection of the trails that form the T-shaped space shall be nominally planar.
4. **Tread Obstacles.** Tread obstacles on trails, passing spaces, and resting intervals shall not exceed 1/2 inch (13 mm) in height measured vertically to the highest point. The vertical alignment of joints in concrete, asphalt, or board surfaces can be tread obstacles. Natural features such as tree roots and rocks within the trail tread can also be tread obstacles. Where possible, tread obstacles that cross the full width of the trail tread should be separated by a distance of 48 inches (1220 mm) minimum.
5. **Openings.** Openings in the surface of trails, passing spaces, and resting intervals shall not allow the passage of a sphere more than 1/2 inch (13 mm) in diameter
6. **Slopes.** Not more than 30 percent of the total length of a trail shall have a running slope steeper than 1:12 (8.33%). The running slope of any segment of a trail shall not be steeper than 1:8 (12%). Where the running slope of a segment of a trail is steeper than 1:20 (5%), the maximum length of the segment shall be in accordance with Table B-1 and a resting interval shall be provided at the top and bottom of each segment.
7. **Length.** Gradual running slopes on trails are more useable by individuals with disabilities. Where the terrain results in steeper running slopes, resting intervals are required more frequently. Where running slopes are less severe, resting

intervals are permitted to be further apart.

8. **Cross Slope.** The cross slope shall be not be steeper than 1:48. An exception exists where the surface is other than concrete, asphalt, or boards, cross slopes not steeper than 1:20 shall be permitted when necessary for drainage.

Table B-1: Maximum Running Slope and Segment Length

Running Slope of Trail Segment		Maximum Length of Segment
Steeper Than	**But Not Steeper Than**	
1:20 (5%)	1:12 (8.33%)	200 feet
1:12 (8.33%)	1:10 (10%)	30 feet
1:10 (10%)	1:8 (12%)	10 feet

9. **Resting Intervals.** Resting intervals shall be 60 inches (1525 mm) long minimum. Where resting intervals are provided within the trail tread, resting intervals shall be at least as wide as the widest segment of the trail tread leading to the resting interval. Where resting intervals are provided adjacent to the trail tread, the resting interval clear width shall be 36 inches (915 mm) minimum. Resting intervals shall have slopes not steeper than 1:48 in any direction. An exception exists where the surface is other than concrete, asphalt, or boards, cross slopes not steeper than 1:20 shall be permitted when necessary for drainage.
10. **Turning Space.** Where resting intervals are provided adjacent to the trail tread, a turning space shall be provided. Vertical alignment between the trail tread, turning space, and resting interval shall be nominally planar.
11. **Protruding Objects.** Constructed elements on trails, passing spaces, and resting intervals shall comply with 307. Protruding objects on trails, passing spaces, and resting intervals can be hazardous for individuals who are blind or have low vision. Signs and other post mounted objects are examples of constructed elements that can be protruding objects.
12. **Trailhead Signs**. Trail information signs at trailheads shall include the following:
    - Length of the trail or trail segment
    - Surface type
    - Typical and minimum tread width
    - Typical and maximum running slope
    - Typical and maximum cross slope

Exceptions

The law allows for exceptions when the managing entity finds that any of the following conditions does not permit full compliance with the design provisions:

- Compliance is not practicable due to terrain.
- Compliance cannot be accomplished with the prevailing construction

practices.

- Compliance would fundamentally alter the function or purpose of the facility or the setting.
- Compliance is limited or precluded by any of the following laws, or by decisions or opinions issued or agreements executed pursuant to any of the following laws:
  - Endangered Species Act (16 U.S.C. §§ 1531 et seq.);
  - National Environmental Policy Act (42 U.S.C. §§ 4321 et seq.);
  - National Historic Preservation Act (16 U.S.C. §§ 470 et seq.);
  - Wilderness Act (16 U.S.C. §§ 1131 et seq.); or
  - Other federal, state, or local law the purpose of which is to preserve threatened or endangered species; the environment; or archaeological,