

APPENDIX F - TRAIL OPERATIONS AND MAINTENANCE REPORT

INTRODUCTION

The Trail Maintenance and Operations Report was developed as an introduction to residents, political leaders and City staff on the maintenance and operational (M&O) tasks and functions involved when trails are developed in Cupertino. The report includes estimated costs and City organizational impacts associated with adding trails to the City's facility inventory.

In addition to introducing M&O tasks and service levels associated with managing urban hard surface (paved) and rural soft surface (dirt) trails, the report also addresses trail management objectives, maintenance and operational tasks and assignment options. At this time the report does not address a review of codes and or ordinances that will, in the future, play an important role in management of the proposed six miles of trails in Cupertino.

The report includes management information and trail budgets from Mountain Views, Santa Clara County, Los Gatos, San Jose, Campbell and the East Bay Regional Park District. In developing the Maintenance and Operations Report the following sections were included in order to logically move from broad management objectives, management tasks and responsibility to operational costs:

Section 1 - Trail Management Objectives

Prior to proceeding with maintenance and operational tasks, responsibilities and budget information it is critical for all program elements to conform to a consistent list of objectives which can be measured and evaluated as trails are developed. The list of objectives provided in this section are the results of operational goals and philosophy of other regional trail agencies, possible mitigation requirements imposed by regulatory agencies, neighborhood and environmental concerns, current maintenance and operational standard of Cupertino's park system, and design standards currently being considered in the Feasibility Study.

Section 2 - Major Maintenance and Operating Tasks and Standards

In order to achieve Trail Management Objectives (Section 1) major trail maintenance and operating tasks and standards have been developed similar to Stevens Creek, Los Gatos Creek, Coyote Creek, Los Alamitos Creek and for the trails in the East Bay Regional Park District. This section includes

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discussion and recommendations on which department within the City should be responsible for overall trail management in Cupertino.

Section 3 - Summary of Trail Areas

This section reviews the four trail study areas addressed in the Feasibility Study, type of trail surface, special design amenities, landscaping requirements and probable usage. Maintenance and operational requirements are reviewed for each study area.

Section 4 - Trail Maintenance and Operational Cost Estimates

Cost estimates have been prepared with service level alternatives based on trail management objectives, standards, tasks and a review of the four trail study areas addressed in the Feasibility Study.

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SECTION 1 - TRAIL MANAGEMENT AND OPERATIONS OBJECTIVES

The overall objective of maintenance and operations is to provide visitor safety/security, minimize trail impact to adjacent property owners, protect the City's capital investment and maintain public access.

Maintenance of the trail and creek corridor will be provided at a sufficient level to maintain the trail at or near its original construction and/or design level.

All trail maintenance and operation elements will reflect the City's commitment to preserve and enhance creek and upland wildlife and natural resources and to meet mitigation requirements of regulatory agencies.

Since the trail ultimately has the potential to link to other regional trails, the trail management plan reflects a regional approach that could be easily adopted by other agencies for management consistency throughout the regional trail system.

Although the trail is located within an urban area, its management should reflect an unmanicured level of maintenance, generally consistent with other County hard surface trails such as Stevens Creek, Los Gatos, Los Alamitos and Coyote Creek trails.

To minimize trail maintenance and operating costs and to promote positive public interest in the trail, use of volunteers and alternative labor sources should be incorporated into management of the trail wherever and whenever appropriate.

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SECTION 2 - MAJOR MAINTENANCE AND OPERATING TASKS AND STANDARDS

The Major Maintenance and Operating Tasks and Standards section provides City officials with a list of major task and functions that are required to insure that trail management objectives are being met (Section 1). The tasks listed represent an overall level of service and not necessarily detailed instructions of how each task will be performed or task frequency. It does, however, attempt to identify the necessary skill level required of the task and primary positions and/or group in Cupertino responsible for achieving the task objective.

Overall Trail Management

Although the City of Cupertino organization chart lists a Parks and Recreation Department, in reality park maintenance is handled under a division within Public Works. City officials should consider who will have responsibility for overall trail management when approving the Feasibility Study.

Although the City's current organization structure is working, there are merits, to consolidating the overall management of urban trails within a single department such as Parks and Recreation with assistance from Public Works. Cupertino may develop four separate trail sections in the future; consistency in trail development, maintenance levels, standards, enforcement, environmental sensitivity and property owner complaint resolution can best be served when those responsibilities are under the control of a single department and manager.

The Cupertino trail system is likely to have mitigation requirements imposed by agencies such as the Santa Clara Valley Water District, California Department of Fish and Game, US Fish and Wildlife Services and the US Army Corps of Engineers, as well as grant funding agencies. It is important that a single manager be responsible for overseeing and complying with mitigation requirements in order to meet conditions imposed by regulatory agencies.

The Feasibility Study includes trail connections to areas managed by the Midpeninsula Regional Open Space District (trail from Rancho San Antonio County Park to Stevens Creek Blvd.) and by Santa Clara County Parks and

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Recreation Department (trail from Linda Vista to Stevens Creek County Park). It may be desirable and practical to have these public agencies manage a part of Cupertino's trail system.

The department responsible for overall trail operations should be, in the eyes of the public, the department they would naturally expect to manage trails within the City. It should also be a department that routinely works with volunteers and can support and encourage volunteers working on City trails.

Trail Operations

In consideration of the above, it is recommended that the City's Parks and Recreation Department be given overall responsibilities for the management of trails within Cupertino as they are developed. If it is determined that Parks and Recreation should manage trails within the City, then the Parks and Recreation Director should begin evaluating work load priorities. A position will be needed that can devote approximately 10 hours per week to managing the trails once they are developed.

Such a position would be responsible for overall trail coordination within the City (once they are developed) with tasks such as: budget preparation; administration of contract ranger services, neighborhood complaint resolution, coordinating maintenance work, overseeing contractors and interacting with Sheriff Deputies. The position would also be responsible for regulatory agency and mitigation requirements (For a detailed list of responsibilities normally assigned to an individual responsible for trails see Attachment A - Urban Trail Maintenance and Operations Task/Responsibility List)

Trail Supervision - Paid Rangers

With approximately six miles of trails being considered for development in the future, it is recommended that contract rangers be used in a similar manner as in Mountain View. Although Mountain View uses a contract ranger service to patrol over ten miles of trail along Stevens Creek and Shoreline Park they do not have code enforcement responsibilities. Instead, the Mountain View Police Department works closely with the rangers in responding to trail code violations such as homeless encampments, after hour use by teenagers, graffiti, vandalism etc. If contract rangers are used, it is important that County Sheriff Deputies, who police Cupertino support the

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rangers and respond to calls for assistance in a similar manner as in Mountain View.

Trails in Cupertino should be patrolled at least once per day during the winter and twice per day during summer months by contract rangers with code enforcement assistance from the Sheriff Deputies. While on patrol the rangers main objective should be trail safety and security, code enforcement, responding to neighborhood complaints and inquiries, visitor information and education, litter control and minor maintenance as further defined in this report. In addition to routine daytime patrol by rangers, periodic shift changes and or additional ranger patrols may be required during evening hours if there is significant unauthorized evening use of trails when closed (For a detailed list of responsibilities normally assigned to an individual responsible for trails see Attachment A - Urban Trail Maintenance and Operations Task/Responsibility List).

Community Involvement - Trail Supervision/Volunteers

To supplement paid rangers, trained adult uniformed volunteers should be used to supplement the frequency and patrol duration of paid rangers. Volunteer rangers main objective is visitor information and education, litter control, trail safety and security. Volunteer rangers should patrol trails on foot or bicycle, preferably in pairs, and should carry radios and or cell phones for emergency communication.

Community Involvement - "Trail and Creek Clean Up Days"

The maintenance focus is on the trail surface and corridor area. However, at times, special litter and debris clean up is necessary along the creek and in environmentally sensitive areas. In most cities the Santa Clara Valley Water District is responsible for the maintenance of the creek bed and slope.

To further enhance the work performed by the Santa Clara Valley Water District, annual creek cleanup days should be scheduled and organized in cooperation with volunteer groups such as the Friends of Stevens Creek Trail. In addition to large cleanup days, scouting, civic, church, business or similar groups should be organized periodically to supplement the annual cleanup. Volunteer cleanup days require supervision and coordination by paid rangers or City staff responsible for urban trails.

Trail Maintenance

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Trail Surface Care

Besides normal litter and debris control, routine patrols by paid and volunteer rangers should keep the trail free from obstacles or hazards such as broken glass, fallen limbs and rocks. In addition, eroded, rutted and washout areas along trail shoulders should be repaired as part of normal patrol duties and or part of assignments given to other park maintenance staff. Leaves, grass, small pebbles, base rock fines, etc. should not be removed from trail surface unless they impose a hazard. Naturally occurring debris, such as branches and limbs, should be removed to adjacent areas and allowed to decompose naturally unless they impose a fire and or safety hazard.

Annually, during late summer months, any area in which a paved asphalt surface is employed should be inspected for cracks, upheavals and potted areas. These locations should be repaired by City crews and or contractors familiar with such work. In addition to normal repairs, any asphalt paved trail surface should be slurry sealed every 8-10 years by a paving contractor.

Trail Landscape Maintenance

Landscape maintenance within the City-owned trail corridor, or areas for which the City has assumed maintenance responsibilities, generally consist of irrigated areas that were planted as mitigation, natural non-irrigated areas and special small irrigated entry points with upscale landscaping.

Unless natural non-irrigated landscaping becomes a fire or safety hazard, restricts public access or line of site or damages the City's trail section, no maintenance should be performed. For safety hazards such broken overhanging tree limbs, removal should be performed by City crews experienced in such removal, unless the limb can be safely removed by an experienced paid ranger. Line of site brush and or shrub clearing adjacent to trails can be performed by volunteer or school organizations with supervision and coordination coming from rangers and/or City park workers.

Since the trees and shrubs selected for the irrigated areas are mainly native or hardy species, that have been selected to enhance wildlife value within the corridor, maintenance shall generally consist of restocking trees, pruning, trimming growth intruding into the trail corridor, and removal and replanting dead or dying trees and shrubs. Unless such maintenance is of a

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nature that requires skilled pruning, work should be performed by paid rangers, volunteers and or seasonal part time employees.

The water conservation bubbler irrigation system should be adjusted, tested and repaired as needed by either experienced park maintenance crews or seasonal part time employees trained and supported by park maintenance employees. Inspection of the system and performance of non-technical repairs should be handled by paid rangers during normal patrols, with a special emphasis placed on summer periods.

Weed Control

Grasslands adjacent to buildings and structures are a potential fire hazard. In the past, these areas were normally disked by every spring. However, due to environmental concerns over destroying habitat and disrupting the natural succession of grasses, a more conservative approach has been taken by many cities. Rather than disking entire fields, perimeter disking or mowing of fire breaks near buildings and structures is now the common practice. Since specialized equipment is normally needed for weed abatement, most cities hire mowing and disking contractors when weed abatement is deemed necessary by the local Fire Marshall. To minimize the need to abate weeds, some cities are using spreading readily available bark chips along trails to assist in fire management. In addition to reducing fire danger the chips also reduce the need to clear weeds that infringe into the trail surface and retain soil moisture around native plantings.

Amenities

Amenities are signs, bollards, benches, drinking fountains, trash receptacles, gates, railings, fences and other trail elements requiring minor maintenance that may be located along the trail. Except for repair and replacement of items such as steel gates, fences, drinking fountains, (which should be maintained by City crews or contractors) the maintenance of most amenities is within the skill level of the paid Rangers or trained seasonal part-time employees that have normal household "handy man" skills. Additional resources may be found in county work furlough programs supervised by paid rangers or assigned park maintenance workers.

Graffiti

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Graffiti occurring within the trail corridor should be removed in accordance with the City's maintenance guidelines (usually within 48 hours). Minor removal should be accomplished by paid Rangers as part of their normal duties, volunteer groups or court referral personnel. Time involved with graffiti removal can be significantly reduced by pre-painting concrete walls and support columns with Caltrans standard color and by having rangers carry "paint over kits" utilizing the same Caltrans color (Alum Rock Gray) during normal patrols.

Winter Storm Closure

Since several sections of the trail between Linda Vista Park and Blackberry Farm are within the Stevens Creek flood zone, the Santa Clara Valley Water District (SCVWD) may require that the City establish a detailed storm closure plan that identifies closure responsibilities, criteria for closure, areas to be closed during flood events and conditions under which the trail is reopened. Since Mountain View has several areas along Stevens Creek Trail that require periodic winter closure Cupertino may seek assistance from Mountain View officials in preparing the plan.

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SECTION 3 - SUMMARY OF TRAIL AREAS

This section of the report addresses each study area as it relates to the type of trail, landscaping and special maintenance and operation requirements and challenges above those listed in the previous section of the report (Section 2). The trail areas include:

Feasibility Report Study Areas

Area A - Rancho San Antonio County Park to Stevens Creek Blvd.

Area B - Stevens Creek County Park to Linda Vista Park

Area C - Linda Vista Park through McClellan Ranch to Blackberry Farm

Area D - McClellan Ranch through Blackberry Farm to Stevens Creek Blvd.

Study Area A - Rancho San Antonio County Park to Stevens Creek Blvd.

Study Area A is south of Hwy 280 and includes Maryknoll Seminary, Gates of Heaven Cemetery, Whispering Creek Stables, Rancho San Antonio County Park and the Forum Housing development. Included in the area is the Hammond - Snyder historical home, Permanente Creek and Deer Hollow Farm. Public areas are mostly open grasslands and oak woodlands. When developed there will be 1.0 mile of hard surface/multi-use trail and 1.5 mile natural surface/multi-use trail for equestrians and pedestrians.

Special Maintenance Considerations:

Weed abatement and dust control

Special Operations Considerations:

Conflicts between equestrians, bicyclists and pedestrians and emergency response to isolated areas

Multi-facility operational coordination with MROSD, Santa Clara County Parks and Recreation Department, Deer Hollow Farm and Hammond - Snyder historical home, Union Pacific R.R. and Kaiser Cement Company (i.e. code enforcement, parking and use of land, right-of-way and facilities)

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Wildlife protection and removal/relocation of domestic and injured wildlife

Unauthorized vehicles

Regulatory requirements associated with freshwater wetlands

Study Area B - Stevens Creek County Park to Linda Vista Park

This area includes Stevens Creek County Park, a closed privately owned quarry, Deep Cliff Golf Course, Linda Vista Park and residential areas along Linda Vista Drive. Public areas include Stevens Creek County Park and Linda Vista Park (City). When developed there will be 1.25 mile of natural surface/single-track trail for mountain bikes and hikers through the old quarry (steep terrain) and .25 mile natural surface/multi-use trail for mountain bikes, equestrians and hikers to link existing PG&E maintenance fire access road.

Special Maintenance Considerations:

Maintenance of natural surface trail damaged by winter erosion and use

Weed abatement

Sign vandalism and damage to trash receptacles, gates and fences

Special Operations Considerations:

Potential conflict between bicyclists and hikers

Response to emergencies in isolated and steep terrain

Wildlife protection and removal/relocation of domestic and injured wildlife

Unauthorized vehicles (motorcycles and ATV's)

Study Area C - Linda Vista Park through McClellan Ranch to Blackberry Farm

This study area includes a portion of Stevens Creek, which flows between Deep Cliff Golf Course (private), Linda Vista Park, McClellan Ranch Park and Blackberry Farm (City). Residential areas near the proposed trail alignment

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include Linda Vista Drive, McClellen Road and the Scenic Blvd. neighborhood. Public areas include Linda Vista Park and McClellan Ranch Park. When developed there will be .33 mile of off-street boardwalk style trail alignment within the 40-foot haul road right of way that parallels Linda Vista Drive or 1.0 mile of on-street bike route and sidewalk to McClellan Road. In addition, there will be a .33 mile natural or hard surface multi-use trail through McClellan Ranch and a grade-separated underpass at McClellan Road.

Special Maintenance Considerations:

Trimming and damage to large trees

Line of site shrub clearing

Graffiti removal

Native plant and mitigation landscaping along old haul road

Special Operations Considerations:

Residential complaints from homeowners which live adjacent to old haul road alignment

Use of parking lots at McClellan Ranch and Linda Vista Park by trail users.

Wildlife protection and removal/relocation of domestic and injured wildlife

High use of section by trail users

Study Area D - McClellan Ranch through Blackberry Farm to Stevens Creek Blvd.

This study area begins at McClellan Ranch extends through Blackberry Farm and connects to Stevens Creek Blvd. Public areas include Blackberry Farm Picnic Area and Golf Course. The trail when developed will include .66 mile of natural or hard surface multi-use trail through Blackberry Farm and an at-grade intersection at Stevens Creek Blvd.

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Special Maintenance Considerations:

Repair of flood damaged trail sections along Stevens Creek

Repair of trestle bridge decking

Damage to landscaping and irrigation system

Trimming and damage to large trees near trail

Special Operations Considerations:

Conflicts between trail users and Blackberry Farm Golf Course users

Monitoring safety and use of at-grade crossing

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SECTION 4 - MAINTENANCE AND OPERATIONS COST ESTIMATES

Like all public facilities, trails once they are built have annual costs associated with maintenance and operations. There is also a periodic need to fund capital expenditures for major renovation, retrofitting and design modifications to meet changing needs, safety or regulatory agency requirements. Although most individuals think of trails as narrow dirt pathways "through the woods" (which require little to no upkeep), urban trails through populated areas such as Los Gatos Creek Trail, Stevens Creek Trail, Coyote Creek Trail and the routes being studied in Cupertino, are designed, and in many ways function, as long, narrow, passive linear city parks requiring similar per acre M&O budgets as neighborhood parks.

There are similarities between the proposed trail in Cupertino and the developed sections of Stevens Creek Trail in Mountain View. Consequently, the Mountain View 2001/2002 FY budget for Stevens Creek Trail was used as a basis for creating the \$149,335 budget estimate for maintaining and operating the six miles of trail proposed in Cupertino. The budget information provided should be viewed as approximate and does not differentiate differences in maintenance and operations between the four study sites and misc. work by park and street crews. The information also is based on all four study areas being constructed and opened simultaneously.

Annual Budget Comparison

Cost Per Mile: Cupertino 6 miles @ \$24,889/mile
 Mountain View 3.5 miles @ \$19,480 /mile

Note: Mountain View's budget information does not include the cost for an administrator responsible for managing trails. If the Mountain View administrator salary and one time purchase of Cupertino's patrol vehicle were factored into the cost per mile, comparisons between the cities would be similar.

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Annual M&O Budget Estimate Detail

Personnel:

25% Trail Manager (1)	\$ 26,285
3000 Hrs. Contract Ranger (2)	57,000
800 Hrs. Part-time Laborer @ \$15.00	12,000
Total Personnel Services	\$ 95,285

Non-Personnel:

Misc. Office Supplies (Paper, pens, pencils etc)	\$ 300
Supplies and Materials (litter bags, paint, hand tools, tree stakes, shrub and tree replacement)	8,500
Uniforms and Clothing (uniform rental/cleaning, hats, name tags etc.	1,500
Gas and Electric (irrigation controllers, security lighting)	1,000
Water (drinking fountains and irrigation)	7,500
Rental of Equipment (trenches, chippers, generators etc.)	1,500
Trail Conferences and Mtgs.	250
Vehicle Maintenance(gas, oil and service)	5,000
Weed Abatement Services (5 acres @ \$100)	500
Total Non-Personnel Services:	\$26,050

Initial Capital Outlay:

Electric Utility Vehicle (includes light bar, radio and winch)	\$28,000
Total Initial Capital Outlay	\$28,000
Total Cost	\$149,335

Notes:

Trail Manager costs is based on top step of Cupertino Recreation Supervisor salary range and includes 38% for fringe benefits.

Ranger per hour rate (\$19.00) based on California Land Management rate in Mountain View.

Except for Weed Abatement Services all Non-Personnel costs reflect Mountain Views 2001/2002 FY budget information.

Service Level Alternatives:

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Replace contract ranger with 1.5 full time code enforcement rangers - add approx. \$150,000

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APPENDIX A - URBAN TRAIL MAINTENANCE AND OPERATIONS TASK/RESPONSIBILITY LIST

The list represents those tasks and responsibilities required to operate and maintain Stevens Creek Trail in Mountain View and is intended to be used for discussion purposes as the City of Cupertino begins to develop urban trails and how these trails will be managed.

OPERATIONS

Trails Administrator/Manager

- Member of trail planning and development team
- Review trail plans and specifications
- Contact person for neighborhood complaints and resolution alternatives
- Establishes City M&O standards
- Write staff reports related to trail M&O
- Meets with neighborhood, civic and trail organizations, commissions, and City Council
- Establishes trail related forms and monitoring reports
- Drafts codes and policy recommendations
- Coordinate repair to trail (non routine) by other City departments
- Prepares annual trail budget and long term CIP projections
- Attend trails conferences
- Establishes patrol frequency and enforcement standards with enforcement
- Meets with SCVWD, County and MROSD Rangers over common issues and problems
- Establish emergency access points and communication plan in cooperation with fire officials
- Coordinate volunteer work days
- Routinely inspect and identify trail M&O deficiencies
- Coordinate posting of special signs and notices
- Establish and maintain trail signage standards and maps
- Responsible for trail regulatory permit and grant condition reports

Public Safety/Patrol Personnel

- Respond to injuries, crime and fires
- Patrols trail on routine basis as well as periodic night and special purpose patrols
- Educate and enforce trail codes and policies
- Advise trail administrator/manager on M&O deficiencies
- Recommend trail code and policy changes

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- Maintain required equipment and vehicles
- Maintain trail patrol logs and monthly activity reports
- Meet routinely with City trail M&O staff and provide special training
- Post warning and special condition signs and notices
- Close and open trail under emergency conditions
- Remove/relocate injured or threatened wildlife
- Assist with trail surveys

MAINTENANCE

Landscaping and General Maintenance

- Maintain water lines and irrigated landscaped areas as designed
- Plant trees and shrubs as directed
- Remove/clear vegetation alongside and above trail corridor. (Includes line of sight pruning)
- Maintain growth within trail corridor as required by fire marshal
- Assist/coordinate volunteer planting projects
- Remove litter and graffiti -empty trash receptacles
- Maintain required equipment and vehicles
- Maintain drinking fountains, fences, bollards, posts, headboards, signs and gates
- Post safety signs when working

Trail Surface

- Remove gravel, rocks and slip hazards
- Crack seal (AC)
- Repair chuck holes and uneven surface areas (Includes root removal)
- Stripe center delineator makings
- Overlay and or slurry coat (AC)
- Post safety signs when working
- Maintain required equipment and vehicles

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