Recommended Trail Alternative: Access into the Los Alto Hills Trail System to be provided by the Juan Bautista de Anza Trail and Corte Madera Trail

Recommended Procedures for Abandonment and Site Restoration:

See procedures for closing eroded trails.

**Trail I**

**Trail Length:** 976 linear feet

**Reason for Closure:**

- Biotic Resources. Serpentine soils provide habitat for sensitive biotic species
- Soils. Steep, entrenched trails
- Parallel Trails. There are parallel trail routes that provide similar experiences and connect to the same destinations

Recommended Trail Alternative: Bay View Trail and Corte and Madera Trail

Recommended Procedures for Abandonment and Site Restoration:

See procedures for closing serpentine trails.

**Trail J**

**Trail Length:** 1117 linear feet

**Reason for Closure:**

- Soils. Steep, entrenched trails
- Parallel Trails. There are parallel trail routes that provide similar experiences and connect to the same destinations

Recommended Trail Alternative: Juan Bautista de Anza Trail

Recommended Procedures for Abandonment and Site Restoration:

See procedures for closing eroded trails.

**Trail K**

**Trail Length:** 1897 linear feet

**Reason for Closure:**

- Biotic Resources. Serpentine soils provide habitat for sensitive biotic species
- Parallel Trails. There are parallel trail routes that provide similar experiences and connect to the same destinations

Recommended Trail Alternative: Juan Bautista de Anza Trail

Recommended Procedures for Abandonment and Site Restoration: See procedures for closing serpentine trails.

**Trail L**

**Trail Length:** 830 linear feet

**Reason for Closure:**

- Parallel Trails. There are parallel trail routes that provide similar experiences and
connect to the same destinations.

Recommended Trail Alternative: Juan Bautista de Anza Trail

Recommended Procedures for Abandonment and Site Restoration:
See procedures for closing eroded trails. Protect lone oak during restoration.

**Trail M**

Trail Length: 1345 linear feet

Reason for Closure:

- **Privacy Buffer.** Trail directs public into adjacent private property
- **Lack of Trail Connectivity.** Trail does not provide connectivity to overall trail system

Recommended Trail Alternative: Access into the Los Alto Hills Trail System to be provided by the Juan Bautista de Anza Trail and Corte Madera Trail

Recommended Procedures for Abandonment and Site Restoration:
See procedures for closing eroded trails.

**Trail N**

Trail Length: 1082 linear feet

Reason for Closure:

- **Parallel Trails.** There are parallel trail routes that provide similar experiences and provide opportunities to connect to the same destinations

Recommended Trail Alternative: Stanford Pastures Trail

Recommended Procedures for Abandonment and Site Restoration:
See procedures for closing eroded trails.

**Trail O**

Trail Length: 2203 linear feet

Reason for Closure:

- **Biotic Resources.** Southwest corner of westerly trail and most of the lower trail cross and or parallel wetland areas that provides habitat for sensitive species
- **Soils.** Wet areas within trail tread are causing users to attempt to step around the boggy areas resulting in the trail becoming wider and impacting more of the wetland
- **Operations/Fire Protection.** Portions of both the westerly and southerly trails follow disk lines and are subject to annual disturbance when fire breaks are established

Recommended Trail Alternative: Gateway Trail and North Perimeter Trail

Recommended Procedures for Abandonment and Site Restoration:
See procedures for closing trail in riparian or wetland areas.
Trail P

Trail Length: 649 linear feet
Reason for Closure:
  - Biotic Resources. Trail crosses through a riparian area that provides habitat for sensitive species
  - Soils. Wet areas within trail tread are causing users to attempt to step around the boggy areas resulting in the trail becoming wider and impacting more of the wetland

Recommended Trail Alternative: New Trail Alignment – Juan Bautista de Anza Trail Segment 1
Recommended Procedures for Abandonment and Site Restoration:
See procedures for closing trail in riparian or wetland areas.

Trail Q

Trail Length: 1309 linear feet
Reason for Closure:
  - Biotic Resources. Trails go through native grass stands.
  - Soils. Excessively steep trail

Recommended Trail Alternative: New Trail Alignment – Oak Trail
Recommended Procedures for Abandonment and Site Restoration:
Hand collect native grass seed at start of restoration work and store. Reseed area with hand collected seed upon completion of procedures for closing eroded trails.

Trail R

Trail Length: 1050 linear feet
Reason for Closure:
  - Biotic Resources. Trail directs public into pristine area of the Preserve
  - Lack of Trail Connectivity. Trail does not provide connectivity to overall trail system

Recommended Trail Alternative: Access into the Foothill Park to be provided by the Arastradero Creek Trail
Recommended Procedures for Abandonment and Site Restoration:
Hand collect native grass seed at start of restoration work and store. Reseed area with hand collected seed upon completion of procedures for closing eroded trails.

Trail S

Trail Length: 890 linear feet
Reason for Closure:
  - Biotic Resources. Trail crosses Arastradero Creek as it enters Arastradero Lake and parallels the Lake in a riparian area that provides habitat for sensitive species.

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- **Soils.** Wet areas within trail tread are causing users to attempt to step around the boggy areas resulting in the trail becoming wider and impacting more of the wetland.

- **Construction Mitigation Costs.** Construction costs to provide a boardwalk to cross the creek are too high to warrant mitigating impacts in an area that would still be subject to seasonal closures to protect sensitive species.

**Recommended Trail Alternative: Arastradero Creek Trail and Corte Madera Trail**

**Recommended Procedures for Abandonment and Site Restoration:**

See procedures for closing trail in riparian or wetland areas
<table>
<thead>
<tr>
<th>Trail Segment</th>
<th>Segment #</th>
<th>Description</th>
<th>Trail Length</th>
<th>Ex. Trail Width</th>
<th>Proposed Trail Type</th>
<th>Proposed Trail Width / Surface Treatment</th>
<th>Priority Action Ranking</th>
<th>Recommended Capital Improvements</th>
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<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>Future Studies</td>
<td>Improve Accessibility</td>
<td>Accessing the Presence of, Erosion, Identification, Safety Improvements</td>
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<tr>
<td>High Maintenance Trails</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Acorn Trail Segment 1</td>
<td>Act1</td>
<td>Araratadero Creek Trail to Juan Bautista de Anza Trail</td>
<td>6944 LF</td>
<td>10'x6'</td>
<td>High Maintenance Utility Trail, Year-round use</td>
<td>Hardened Trail Tread, 10' wide</td>
<td>Priority Ranking tied to scheduled utility maintenance</td>
<td></td>
</tr>
<tr>
<td>Acorn Trail Segment 2</td>
<td>Act2</td>
<td>Juan Bautista de Anza Trail to Bay Leaf Trail</td>
<td>666 LF</td>
<td>Greater than 6 ft.</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 4' wide</td>
<td>Low</td>
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</tr>
<tr>
<td>Acorn Trail Segment 3</td>
<td>Act3</td>
<td>Bay Leaf Trail to Araratadero Creek Trail</td>
<td>1512 LF</td>
<td>4'</td>
<td>High Maintenance Recreation Trail, Seasonal use</td>
<td>Native Soil 4' wide</td>
<td>Moderate - Potential erosion/safety concerns associated with culverted drainage crossings</td>
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<tr>
<td>Araratadero Creek Trail Segment 1</td>
<td>Act5</td>
<td>Juan Bautista de Anza Trail to Araratadero Creek Trail, Segment 2</td>
<td>1071 LF</td>
<td>4'x6'</td>
<td>High Maintenance Recreation Trail, Seasonal use</td>
<td>Hardened Trail Tread, 4' wide</td>
<td>High Corrective action needed to eliminate ex. safety hazards</td>
<td>Biotic Study</td>
</tr>
<tr>
<td>Araratadero Creek Trail Segment 2</td>
<td>Act2</td>
<td>Araratadero Creek Trail, Segment 1 (at Lake) to South Terminus of Acorn Trail</td>
<td>360' LF</td>
<td>10'x4'</td>
<td>High Maintenance Utility Trail, Year-round use</td>
<td>Hardened Trail Tread, 10' wide</td>
<td>High - Utility Dept. scheduled to perform road improvements FY2001. Priority Ranking tied to scheduled utility maintenance</td>
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</tr>
<tr>
<td>Araratadero Creek Trail Segment 3</td>
<td>Act3</td>
<td>South Terminus of Acorn Trail to Foothills Park Boundary</td>
<td>279 LF</td>
<td>10'x4'</td>
<td>High Maintenance Utility Trail, Seasonal use</td>
<td>Hardened Trail Tread, 10' wide</td>
<td>High, Priority Ranking tied to scheduled utility maintenance</td>
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</tr>
<tr>
<td>Araratadero Creek Trail Segment 1</td>
<td>Act4</td>
<td>Araratadero Creek Trail @ Araratadero Lake across Bridge &amp; tip of Dam &amp; to Umele Park</td>
<td>409 LF</td>
<td>10'x4'</td>
<td>High Maintenance Utility Trail, Year-round use</td>
<td>Compacted engineered fill on dry flat, 10' wide, wooden bridge</td>
<td>Priority Ranking tied to scheduled utility maintenance</td>
<td></td>
</tr>
<tr>
<td>Corte Madonna Trail Segment 1</td>
<td>CN1</td>
<td>Araratadero Creek Trail @ Araratadero Lake across Bridge &amp; tip of Dam &amp; to Corte Madonna</td>
<td>409 LF</td>
<td>10'x4'</td>
<td>High Maintenance Utility Trail, Year-round use</td>
<td>Compacted engineered fill on dry flat, 10' wide, wooden bridge</td>
<td>Priority Ranking tied to scheduled utility maintenance</td>
<td></td>
</tr>
</tbody>
</table>

*Note: The table shows the Trail Implementation Program - Recommended Capital Improvements for various segments of trails, including priority actions and recommended capital improvements.*
<table>
<thead>
<tr>
<th>Trail Segment</th>
<th>Segment #</th>
<th>Description</th>
<th>Trail Length</th>
<th>Ex, Trail Width</th>
<th>Proposed Trail Type</th>
<th>Proposed Trail Width</th>
<th>Surface Treatment</th>
<th>Priority Action Ranking</th>
<th>Recommended Capital Improvements</th>
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<tbody>
<tr>
<td>Corte Madera Trail Segment 2</td>
<td>CM2</td>
<td>East Preserve Perimeter to Arastadesa Lake</td>
<td>1724 LF</td>
<td>10’ x 4’</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil &amp; 6’ wide</td>
<td>Low</td>
<td>Future Studies</td>
<td>Improve Accessibility</td>
</tr>
<tr>
<td>Gateway Trail Segment 1</td>
<td>Ga1</td>
<td>Parking Lot to Gate A</td>
<td>995 LF</td>
<td>6’ x 6’</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Hardened Trail Tread, 6’ wide</td>
<td>High - Safety &amp; accessibility needs for primary entry into Preserve</td>
<td>Future Studies</td>
<td>Improve Accessibility</td>
</tr>
<tr>
<td>Gateway Trail Segment 2</td>
<td>Ga2</td>
<td>Parking Lot to Arastadesa Road/Pond’s Access Road</td>
<td>1632 LF</td>
<td>NA</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil &amp; 6’ wide</td>
<td>Moderate - Partial realignment, Link new construction with closure of Route A &amp; N</td>
<td>Biotic Study</td>
<td>Future Studies</td>
</tr>
<tr>
<td>Juan Bautista de Anza National Historic Trail Segment 1</td>
<td>JB1</td>
<td>Arastadesa Road to Gate A</td>
<td>792 LF</td>
<td>NA</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil &amp; a new easement bridge</td>
<td>High - Proposed Trail Tread new construction &amp; safety, Link new construction with closure of Trail Route P</td>
<td>Biotic Study</td>
<td>Future Studies</td>
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<td>Juan Bautista de Anza National Historic Trail Segment 2</td>
<td>JB2</td>
<td>Gate A to Arastadesa Creek Trail</td>
<td>1115 LF</td>
<td>10’ x 12’</td>
<td>High Maintenance Utility Trail, Year-round use</td>
<td>Hardened Trail Tread, 10’ wide</td>
<td>Low, Priority Ranking saw to scheduled utility maintenance</td>
<td>Biotic Study</td>
<td>Future Studies</td>
</tr>
<tr>
<td>Juan Bautista de Anza National Historic Trail Segment 3</td>
<td>JB3</td>
<td>Arastadesa Creek Trail to cr. of Juan Bautista de Anza Trail, 4’ &amp; Portal Pastures Trail</td>
<td>240 LF</td>
<td>6’ x 4’</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil &amp; 6’ wide</td>
<td>Moderate - Partial realignment, New construction req, Link new trail construction with closure of Trail Routes J &amp; K</td>
<td>Biotic Study</td>
<td>Future Studies</td>
</tr>
<tr>
<td>Juan Bautista de Anza National Historic Trail Segment 4</td>
<td>JB4</td>
<td>Portal Pastures Trail to Acorn Trail</td>
<td>226 LF</td>
<td>6’ x 4’</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil &amp; 6’ wide</td>
<td>Moderate - Partial realignment, New construction req, Link new trail construction with closure of Trail Routes J &amp; K</td>
<td>Biotic Study</td>
<td>Future Studies</td>
</tr>
<tr>
<td>Trail Segment</td>
<td>Segment #</td>
<td>Description</td>
<td>Trail Length</td>
<td>Ex. Trail Width</td>
<td>Proposed Trail Type</td>
<td>Proposed Trail Width/ Surface Treatment</td>
<td>Priority Action Ranking</td>
<td>Recommended Capital Improvements</td>
<td>Vegetative Management/Habitat Enhancement</td>
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<tr>
<td>Juan Bautista de Anza</td>
<td>J65</td>
<td>Acorn Trail to Woodland Trail</td>
<td>1079 LF</td>
<td>&lt;4</td>
<td>High Maintenance</td>
<td>Hardened Trail, 10' wide</td>
<td>Low Priority Ranking</td>
<td>Install Trail Tread (harden as noted in plan)</td>
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<tr>
<td>National Historic Trail</td>
<td>Segment 5</td>
<td></td>
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<td>Recreation Trail, 10' wide</td>
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<tr>
<td>Juan Bautista de Anza</td>
<td>J86</td>
<td>Woodland Trail to West</td>
<td>1542 LF</td>
<td>10/-</td>
<td>High Maintenance</td>
<td>Native Soil 4' wide</td>
<td>Low Priority Ranking</td>
<td>Install Trail Tread (harden as noted in plan)</td>
<td>Biotic Study, Traffic Study</td>
</tr>
<tr>
<td>National Historic Trail</td>
<td>Segment 6</td>
<td>Preserve Perimeter Boundary</td>
<td></td>
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<td>Recreation Trail, 10' wide</td>
<td></td>
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<tr>
<td>Meadowlark Trail</td>
<td>M61</td>
<td>Gait O to Oat Trail</td>
<td>2710 LF</td>
<td>10/-</td>
<td>Moderate Maintenance Utility Trail, Seasonal Use</td>
<td>Hardened Trail, 15' wide</td>
<td>Low Priority Ranking</td>
<td>Install Trail Tread (harden as noted in plan)</td>
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<tr>
<td>North Perimeter Trail</td>
<td>N7</td>
<td>Gashway Trail to Stanford</td>
<td>3608 LF</td>
<td>&lt;4</td>
<td>High Maintenance</td>
<td>Native Soil 4' wide</td>
<td>Low</td>
<td>Install Trail Tread (harden as noted in plan)</td>
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<tr>
<td></td>
<td></td>
<td>Pastures Trail</td>
<td></td>
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<td>Recreation Trail, 10' wide</td>
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<tr>
<td>Portal Pastures Trail</td>
<td>PP1</td>
<td>Portal Pastures Access Road</td>
<td>305 LF</td>
<td>NA</td>
<td>High Maintenance</td>
<td>Native Soil 4' wide</td>
<td>Low</td>
<td>Install Trail Tread (harden as noted in plan)</td>
<td>Biotic Study, Traffic Study</td>
</tr>
<tr>
<td>Trail Segment 1</td>
<td></td>
<td>to Portal Pastures Trail</td>
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<td>Recreation Trail, 10' wide</td>
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<tr>
<td>Portal Pastures Trail</td>
<td>PP2</td>
<td>Portal Pastures Segment 2</td>
<td>1219 LF</td>
<td>&lt;4</td>
<td>High Maintenance</td>
<td>Native Soil 4' wide</td>
<td>Low</td>
<td>Install Trail Tread (harden as noted in plan)</td>
<td>Biotic Study, Traffic Study</td>
</tr>
<tr>
<td>Trail Segment 2</td>
<td></td>
<td>to Juan Bautista de Anza Trail</td>
<td></td>
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<td>Recreation Trail, 10' wide</td>
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<tr>
<td>Stanford Pastures Trail</td>
<td>SP</td>
<td>Parking Lot to Preserve</td>
<td>1732 LF</td>
<td>10'</td>
<td>High Maintenance</td>
<td>Native Soil 4' wide</td>
<td>Low</td>
<td>Install Trail Tread (harden as noted in plan)</td>
<td>Biotic Study, Traffic Study</td>
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<td>Boundary with Stanford Lands</td>
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<td>Recreation Trail, 10' wide</td>
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<tr>
<td>Moderate Maintenance Trails</td>
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<tr>
<td>Bay Leaf Trail</td>
<td>BaL1</td>
<td>Acorn Trail to Meadowlark</td>
<td>676 LF</td>
<td>&lt;4</td>
<td>Moderate Maintenance</td>
<td>Native Soil 4' wide</td>
<td>Low</td>
<td>Install Trail Tread (harden as noted in plan)</td>
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<tr>
<td>Trail Segment 1</td>
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<td>Trail</td>
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<td>Recreation Trail, Seasonal Use</td>
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| Trail Segment | Segment # | Description | Trail Length | Ex. Trail Width | Proposed Trail Type | Proposed Trail Width | Priority Action Ranking | Future Studies | Improve Accessibility | Accessing the Preserve, Entry Identification Safety Improvements | Utility Vehicles Access | Install Bridge, Boardwalk, Pumps | Develop Trail Drainage Systems | Install/Repair Culvert | Correct Drainage/Erosion | Remove Ex. Trail | Repair Trail Tread (needed to correct eroded/ damaged trail) | Correct Trail Tread Width | Correct Trail Width | Install Bolts | Vegetative Management - Native Habitat Enhancement | New Amenities (e.g., benches, water troughs, fenc | Estimated Costs to Close Paralleled Trail |
|---------------|-----------|-------------|--------------|----------------|---------------------|---------------------|-----------------------|----------------|------------------|-------------------------------------------------|-----------------------|---------------------------|-----------------------------|----------------|----------------|-----------------------------|----------------|----------------|---------------------|----------------|----------------|-----------------------------|----------------|----------------|-----------------------------|-----------------|
| Sky Leaf Trail - Segment 2 | 2a.2 | Meadowbrook Trail to Woodland Trail | 824 LF | <4’ | Moderate Maintenance Recreation Trail, Seasonal use | Native Soil wide | Moderate, Seasonal water quality issues | | | | | | | | | | | | | | | | | | | Trail Seg. 1 |
| Sky View Trail | 6V | Juan Bautista de Anza Trail to Corte Madera | 1510 LF | <4’ | Moderate Maintenance Recreation Trail, Seasonal use | Native Soil wide | Moderate will receive high use in summer | | | | | | | | | | | | | | | | | | Trail Seg. C |
| Bowl Loop Trail | 3L | Meadow Lark Trail to Oak Trail | 7338 LF | <4’ | Moderate Maintenance Recreation Trail, Seasonal use | Native Soil wide | Low | Biotic Study | | | | | | | | | | | | | | | | | | Trail Seg. E |
| Inspiration Point Trail | 1P | Spur off of Meadow Lark Trail Near Old Burn Site | 550 LF | <4’ | Moderate Maintenance Recreation Trail, Seasonal use | Native Soil wide | Low | Biotic Study | | | | | | | | | | | | | | | | | | Trail Seg. B |
| Meadowbrook Trail - Segment 2 | 2a.2 | Oak Trail to Juan Bautista Trail Seg. 2 | 4556 LF | <4’ | Moderate Maintenance Recreation Trail, Seasonal use | Native Soil wide | Low | | | | | | | | | | | | | | | | | | Trail Seg. G |
| Oak Trail | 2a | Meadow Lark Trail to Sidney Like Trail | 1834 LF | NA | Moderate Maintenance Recreation Trail, Seasonal use | Native Soil wide | Moderate | Corrective action needed to correct eroded/slow trail. Access should be improved until trail is reconstructed to minimize erosion impact. | | | | | | | | | | | | | | | | | | Trail Seg. E |
| Woodland Trail - Segment 1 | Vo1 | Gate B to Bay Leaf Trail | 1478 LF | 10’+ | High Maintenance Utility Trail, Seasonal use | Horseshoe Trail Tread, 10’ wide | Low. Priority ranking tied to scheduled utility maintenance | | | | | | | | | | | | | | | | | | Trail Seg. B |
| Woodland Trail - Segment 2 | Vo2 | Bas Leaf Trail to Meadow Lark Trail | 1871 LF | <4’ | Moderate Maintenance Recreation Trail, Seasonal use | Native Soil wide | Moderate | Corrective action needed to correct eroded/ damaged trail | | | | | | | | | | | | | | | | | | Trail Seg. B |

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<tr>
<th>Trail Segment</th>
<th>Segment #</th>
<th>Descriptions</th>
<th>Trail Length</th>
<th>Ex. Trail Width</th>
<th>Proposed Trail Type</th>
<th>Recommended Annual Maintenance Tasks</th>
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<tbody>
<tr>
<td>High Maintenance Trails</td>
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<tr>
<td>Acorn Trail - Segment 1 Ac1</td>
<td>Arastadero Creek Trail to Juan Bautista de Anza Trail</td>
<td>954lf</td>
<td>12'-4&quot;</td>
<td>High Maintenance Utility Trail, Year-round use</td>
<td>Hardened Trail Tread, 10' wide</td>
<td></td>
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<tr>
<td>Acorn Trail - Segment 2/3 Ac2</td>
<td>Juan Bautista de Anza Trail to Bay Laurel Trail</td>
<td>1668lf</td>
<td>Greater than 4 Ft.</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 4' wide</td>
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<tr>
<td>Acorn Trail - Segment 3 Ac3</td>
<td>Bay Laurel Trail to Arastadero Creek Trail</td>
<td>1512lf</td>
<td>4ft</td>
<td>High Maintenance Recreation Trail, Seasonal use</td>
<td>Native Soil 4' wide</td>
<td></td>
</tr>
<tr>
<td>Arastadero Creek Trail - Segment 1 Ac1</td>
<td>Juan Bautista de Anza Trail to Arastadero Creek Trail, Segment 2</td>
<td>1072lf</td>
<td>4'-4&quot;</td>
<td>High Maintenance Recreation Trail, Seasonal use</td>
<td>Hardened Trail Tread &amp; Native Soil, 4 wide</td>
<td></td>
</tr>
<tr>
<td>Arastadero Creek Trail - Segment 2 Ac2</td>
<td>Arastadero Creek Trail, Segment 1 (at Lake) to South Terminus of Acorn Trail</td>
<td>3607lf</td>
<td>12'-4&quot;</td>
<td>High Maintenance Utility Trail, Year-round use</td>
<td>Hardened Trail Tread, 10 wide</td>
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<tr>
<td>Arastadero Creek Trail - Segment 3 Ac3</td>
<td>South Terminus of Acorn Trail to Footills Park Boundary</td>
<td>2797lf</td>
<td>12'-0&quot;</td>
<td>High Maintenance Utility Trail, Year-round use</td>
<td>Hardened Trail Tread, 10 wide</td>
<td>Gate D</td>
</tr>
<tr>
<td>Corte Madera Trail - Segment 1 CMT</td>
<td>Arastadero Creek Trail @ Arastadero Lakeshore Bridge &amp; top of Dam &amp; to Corte Madera 2</td>
<td>405lf</td>
<td>10' wide</td>
<td>High Maintenance Utility Trail, Year-round use</td>
<td>Composted engineered fill, drainage, 10 wide &amp; wooden bridge</td>
<td></td>
</tr>
</tbody>
</table>

| Recommended Annual Maintenance Tasks | |
|--------------------------------------||
| Emergency | |
| Storm damage repair | |
| Drainage | |
|}& |
| Structures & repair (e.g. bridges, benches) | |
| Vegetative Management - Control of invasive, non-native | |
| Vegetative Management - Control of woody vegetation | |
| Grassland & MeADOWS with native grasses | |

| Proposed Trail Width/ Surface Treatment | |
|----------------------------------------||
| Emergency | |
| Storm damage repair | |
| Drainage | |
| Structures & repair (e.g. bridges, benches) | |
| Vegetative Management - Control of invasive, non-native | |
| Vegetative Management - Control of woody vegetation | |
| Grassland & MeADOWS with native grasses | |

| Proposed Trail Width/ Surface Treatment | |
|----------------------------------------||
| Emergency | |
| Storm damage repair | |
| Drainage | |
| Structures & repair (e.g. bridges, benches) | |
| Vegetative Management - Control of invasive, non-native | |
| Vegetative Management - Control of woody vegetation | |
| Grassland & MeADOWS with native grasses | |

March 2001
<p>| Trail Segment | Segment # | Description | Trail Length | Ex. Trail Width | Proposed Trail Type | Proposed Trail Width/ Surface Treatment | Emergency storm damage &amp; repair | Clean, inspect, &amp; repair outfalls, drains, &amp; pipe &amp; waterbars | Repair &amp; maintain seeding, mowing, &amp; treatment | Structures inspection &amp; repair, e.g. bridges, gates, benches | Install &amp; maintain fire breaks, emergency access roads | Install &amp; maintain seasonal access surfaces | Rip repair, rehabilitation &amp; replacement, n(A) = trail markers &amp; signage, m = trail markers | Vegetative management, control of invasive, non-natives | Vegetative management, control of woody vegetation | Caring &amp; Bracing, Woody vegetation | Grassland Mow/Trim/Weed control |
|---------------|-----------|-------------|--------------|-----------------|---------------------|-----------------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Corte Madera Trail - Segment 2 | OM2 | East Preserve Perimeter Boundary to Arastadero Lake | 724 LF | 15' +/- deteriorated asphalt road | High Maintenance Recreation Trail, Year-round use | Native Soil 6' wide |  |  |  |  |  |  |  |  |  |  |  |
| Gateway Trail - Segment 1 | 3a1 | Parking Lot to Gate A | 295 LF | 6' +/- | High Maintenance Recreation Trail, Year-round use | Hardened Trail, 6' wide |  |  |  |  |  |  |  |  |  |  |  |
| Gateway Trail - Segment 2 | 3a2 | Parking Lot to Arastadero Road/Potola Pasture Access Road | 1532 LF | NA | High Maintenance Recreation Trail, Year-round use | Native Soil 6' wide |  |  |  |  |  |  |  |  |  |  |  |
| Juan Bautista de Anza National Historic Trail - Segment 1 | JB1 | Arastadero Road to Gate A | 752 LF | NA | High Maintenance Recreation Trail, Year-round use | Native Soil 6' wide &amp; new equestrian bridge |  |  |  |  |  |  |  |  |  |  |  |
| Juan Bautista de Anza National Historic Trail - Segment 2 | JB2 | Gate A to Arastadero Creek Trail | 1115 LF | 10' 12&quot; | High Maintenance Utility Trail, Year-round use | Hardened Trail, 10' wide |  |  |  |  |  |  |  |  |  |  |  |
| Juan Bautista de Anza National Historic Trail - Segment 3 | JB3 | Arastadero Creek Trail to pit, of Juan Bautista de Anza Trail Seg. 4 &amp; Potola Pasture Trail | 540 LF | 4' | High Maintenance Recreation Trail, Year-round use | Native Soil 6' wide |  |  |  |  |  |  |  |  |  |  |  |
| Juan Bautista de Anza National Historic Trail - Segment 4 | JB4 | Potola Pasture Trail to Acorn Trail | 228 LF | 4' | High Maintenance Recreation Trail, Year-round use | Native Soil 6' wide |  |  |  |  |  |  |  |  |  |  |  |</p>
<table>
<thead>
<tr>
<th>Trail Segment</th>
<th>Segment #</th>
<th>Description</th>
<th>Trail Length</th>
<th>Ex. Trail Width</th>
<th>Proposed Trail Type</th>
<th>Proposed Trail Width/ Surface Treatment</th>
<th>Recommended Annual Maintenance Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juan Bautista de Anza National Historic Trail - Segment 5</td>
<td>JS5</td>
<td>Acorn Trail to Woodland Trail</td>
<td>1579 LF</td>
<td>4'</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 6' wide</td>
<td>■ Gate B</td>
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</tr>
<tr>
<td>Juan Bautista de Anza National Historic Trail - Segment 6</td>
<td>JS6</td>
<td>Woodland Trail to West Preserve Perimeter Boundary</td>
<td>1542 LF</td>
<td>10+</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Hardened Trail, 10' wide</td>
<td>■ ■ ■</td>
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<tr>
<td>Meadowlark Trail - Segment 1</td>
<td>M1</td>
<td>Gate C to Oak Trail</td>
<td>3710 LF</td>
<td>10+</td>
<td>Moderate Maintenance Utility Trail, Seasonal use</td>
<td>Hardened Trail, 10' wide</td>
<td>■ ■ ■ Gate C, bench</td>
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<tr>
<td>North Perimeter Trail</td>
<td>NP</td>
<td>Gateway Trail to Stanford Pasture Trail</td>
<td>309 LF</td>
<td>4'</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 4' wide</td>
<td>■ ■ ■</td>
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<tr>
<td>Portola Pastures Trail - Segment 1</td>
<td>PP1</td>
<td>Portola Pastures Access Road to Portola Pastures Segment 2</td>
<td>955 LF</td>
<td>NA</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 4' wide</td>
<td>■ ■ bridge</td>
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<tr>
<td>Portola Pastures Trail - Segment 2</td>
<td>PP2</td>
<td>Portola Pastures Segment 2 to Juan Bautista de Anza Trail</td>
<td>1616 LF</td>
<td>10+</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 4' wide</td>
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<tr>
<td>Stanford Pasture Trail</td>
<td>SP</td>
<td>Parking Lot to Preserve Boundary with Stanford Lands</td>
<td>1773 LF</td>
<td>12+</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 4' wide</td>
<td>■ ■ ■ ■</td>
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<tr>
<td>Moderate Maintenance Trail</td>
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<tr>
<td>Bay Leaf Trail Segment 1</td>
<td>BL1</td>
<td>Acorn Trail to Meadowlark Trail</td>
<td>676 LF</td>
<td>&lt;4'</td>
<td>Moderate Maintenance Recreation Trail, Seasonal use</td>
<td>Native Soil 4' wide</td>
<td>■ ■ ■</td>
</tr>
</tbody>
</table>

Grassland Mow Trim with weed water
<table>
<thead>
<tr>
<th>Trail Segment</th>
<th>Segment #</th>
<th>Description</th>
<th>Trail Length</th>
<th>Ex. Trail Width</th>
<th>Proposed Trail Type</th>
<th>Proposed Trail Width</th>
<th>Surface Treatment</th>
<th>Recommended Annual Maintenance Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bay Leaf Trail - Segment 2</td>
<td>2a, 2c</td>
<td>Meadowlark Trail to Woodland Trail</td>
<td>1506 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail</td>
<td>Seasonal use</td>
<td>Native Soil 4' wide</td>
<td>#</td>
</tr>
<tr>
<td>Bay View Trail</td>
<td>E</td>
<td>Juan Bautista de Anza Trail to Corte Medanos</td>
<td>1510 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail</td>
<td>Seasonal use</td>
<td>Native Soil 4' wide</td>
<td>#</td>
</tr>
<tr>
<td>Bowl Challenges Trail</td>
<td>B</td>
<td>Meadowlark Trail to Oak Trail</td>
<td>7399 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail</td>
<td>Seasonal use</td>
<td>Native Soil 4' wide</td>
<td>#</td>
</tr>
<tr>
<td>Inspiration Point Trail</td>
<td>1F</td>
<td>Spur Off Meadowlark Trail Near Old Barn Site</td>
<td>550 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail</td>
<td>Seasonal use</td>
<td>Native Soil 4' wide</td>
<td>#</td>
</tr>
<tr>
<td>Meadowlark Trail - Segment 2</td>
<td>2a, 2c</td>
<td>Oak Trail to Bay Leaf Trail</td>
<td>4006 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail</td>
<td>Seasonal use</td>
<td>Native Soil 4' wide</td>
<td>#</td>
</tr>
<tr>
<td>Oak Trail</td>
<td>C</td>
<td>Meadowlark Trail to Sibley Lake Trail</td>
<td>184 LF</td>
<td>NA</td>
<td>Moderate Maintenance Recreation Trail</td>
<td>Seasonal use</td>
<td>Native Soil 4' wide</td>
<td>#</td>
</tr>
<tr>
<td>Woodland Trail - Segment 1</td>
<td>W01</td>
<td>Gate B to Bay Leaf Trail</td>
<td>106 LF</td>
<td>10'4&quot;</td>
<td>High Maintenance Utility Trail</td>
<td>Seasonal use</td>
<td>Hardened Trail Trail, 10' wide</td>
<td>#</td>
</tr>
<tr>
<td>Woodland Trail - Segment 2</td>
<td>W02</td>
<td>Bay Leaf Trail to Meadowlark Trail</td>
<td>1871 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail</td>
<td>Seasonal use</td>
<td>Native Soil 4' wide</td>
<td>#</td>
</tr>
</tbody>
</table>

Note: This table does not include Preserve wide maintenance tasks such as clearing the banks and maintaining the drainage area and perimeter fencing that must also be considered when developing the annual maintenance program.
<table>
<thead>
<tr>
<th>Trail Segment</th>
<th>Segment #</th>
<th>Description</th>
<th>Trail Length</th>
<th>Ex. Trail Width</th>
<th>Proposed Trail Type</th>
<th>Proposed Trail Width/Surface Treatment</th>
<th>Cyclical Maintenance Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acorn Trail Segment 1</td>
<td>1</td>
<td>Arastradero Creek Trail to Juan Bautista da Anza Trail</td>
<td>954 LF</td>
<td>12'</td>
<td>High Maintenance Utility Trail, Year-round use</td>
<td>Hardened Trail Tread, 12' wide</td>
<td>□ Replace culverts, drainage, berms, gates (10-15 years) Replace Restrooms &amp; Resurface Grave Parking Lot (These improvements are related to the proposed Gateway Project implementation. Currently the Preserve uses portable toilets. Parking lot expansion &amp; configuration are determined by Gateway Project) Replace Drinking Fountains &amp; Water Troughs (5-10 years)</td>
</tr>
<tr>
<td>Acorn Trail Segment 2</td>
<td>2</td>
<td>Juan Bautista da Anza Trail to Bar Leaf Trail</td>
<td>1695 LF</td>
<td>Greater than 4 Ft.</td>
<td>High Maintenance Rehabilitation Trail, Year-round use</td>
<td>Native Soil 4' wide</td>
<td>□ Replace signboards</td>
</tr>
<tr>
<td>Acorn Trail Segment 3</td>
<td>3</td>
<td>Bay Leaf Trail to Arastradero Creek Trail</td>
<td>1512 LF</td>
<td>4'</td>
<td>High Maintenance Rehabilitation Trail, Year-round use</td>
<td>Native Soil 4' wide</td>
<td>□ Replace signboards</td>
</tr>
<tr>
<td>Arastradero Creek Trail Segment 1</td>
<td>1C1</td>
<td>Juan Bautista da Anza Trail to Arastradero Creek Trail Segment 2</td>
<td>1072 LF</td>
<td>4'</td>
<td>High Maintenance Rehabilitation Trail, Year-round use</td>
<td>Hardened Trail Tread, Native Soil, 4' wide</td>
<td>□ Replace culverts, drainage, berms, gates (10-15 years) Replace Restrooms &amp; Resurface Grave Parking Lot (These improvements are related to the proposed Gateway Project implementation. Currently the Preserve uses portable toilets. Parking lot expansion &amp; configuration are determined by Gateway Project) Replace Drinking Fountains &amp; Water Troughs (5-10 years)</td>
</tr>
<tr>
<td>Arastradero Creek Trail Segment 2</td>
<td>1C2</td>
<td>Arastradero Creek Trail Segment 1 (at Lake) to South Terminus of Acorn Trail</td>
<td>3607 LF</td>
<td>10'</td>
<td>High Maintenance Utility Trail, Seasonal use</td>
<td>Hardened Trail Tread, 10' wide</td>
<td>□ Replace culverts, drainage, berms, gates (10-15 years) Replace Restrooms &amp; Resurface Grave Parking Lot (These improvements are related to the proposed Gateway Project implementation. Currently the Preserve uses portable toilets. Parking lot expansion &amp; configuration are determined by Gateway Project) Replace Drinking Fountains &amp; Water Troughs (5-10 years)</td>
</tr>
<tr>
<td>Arastradero Creek Trail Segment 3</td>
<td>1C3</td>
<td>South Terminus of Acorn Trail to Foothills Park Boundary</td>
<td>2797 LF</td>
<td>10'</td>
<td>High Maintenance Utility Trail, Seasonal use</td>
<td>Hardened Trail Tread, 10' wide</td>
<td>□ Replace culverts, drainage, berms, gates (10-15 years) Replace Restrooms &amp; Resurface Grave Parking Lot (These improvements are related to the proposed Gateway Project implementation. Currently the Preserve uses portable toilets. Parking lot expansion &amp; configuration are determined by Gateway Project) Replace Drinking Fountains &amp; Water Troughs (5-10 years)</td>
</tr>
<tr>
<td>Corte Madera Trail Segment 1</td>
<td>GM1</td>
<td>Arastradero Creek Trail @ Arastradero Lake access bridge &amp; top of Dam &amp; to Corte Madera 2</td>
<td>406 LF</td>
<td>12'</td>
<td>High Maintenance Utility Trail, Year-round use</td>
<td>Compacted 16' on dam face, 10' wide &amp; wooden bridge</td>
<td>□ Monitor dam repairs / modifications to Arastradero Lake Dam to meet code requirements by Public Works Dept. to ensure rail surface is maintained</td>
</tr>
<tr>
<td>Trail Segment</td>
<td>Segment #</td>
<td>Description</td>
<td>Trail Length</td>
<td>Existing Trail Width</td>
<td>Proposed Trail Type</td>
<td>Proposed Trail Width</td>
<td>Surface Treatment</td>
</tr>
<tr>
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</tr>
<tr>
<td>Core Mates Trail - Segment 2</td>
<td>OM2</td>
<td>East Preserve Perimeter Boundary to Aravada Lake</td>
<td>1754 LF</td>
<td>10’ +/- deteriorated asphalt road</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 6’ wide</td>
<td>Replace Bridges &amp; Resurfacing Hardened trails (15-20 years)</td>
</tr>
<tr>
<td>Gateway Trail - Segment 1</td>
<td>Kat</td>
<td>Parking Lot to Gate A</td>
<td>995 LF</td>
<td>5’ +/-</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 6’ wide</td>
<td>Replace Signs</td>
</tr>
<tr>
<td>Gateway Trail - Segment 2</td>
<td>Kat</td>
<td>Parking Lot to Aravada Road/Portola Passages Access Road</td>
<td>1832 LF</td>
<td>NA</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 6’ wide</td>
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<tr>
<td>Juan Bautista de Anza National Historic Trail Segment 1</td>
<td>JB1</td>
<td>Aravada Road to Gate A</td>
<td>752 LF</td>
<td>NA</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 6’ wide &amp; new equestrian bridge</td>
<td>Monitor &amp; replace bridges req.</td>
</tr>
<tr>
<td>Juan Bautista de Anza National Historic Trail Segment 2</td>
<td>JB2</td>
<td>Gate A to Aravada Creek Trail</td>
<td>1115 LF</td>
<td>10’ +/-</td>
<td>High Maintenance Utility Trail, Year-round use</td>
<td>Hardened Trail Tread, 10’ wide</td>
<td></td>
</tr>
<tr>
<td>Juan Bautista de Anza National Historic Trail Segment 3</td>
<td>JB3</td>
<td>Aravada Creek Trail to Cl. fr Jim Bautista s Aran Trail &amp; 4.4 Portola Passages Trail</td>
<td>540 LF</td>
<td>4’</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 6’ wide</td>
<td></td>
</tr>
<tr>
<td>Juan Bautista de Anza National Historic Trail Segment 4</td>
<td>JB4</td>
<td>Portola Passages Trail to Aron Trail</td>
<td>226 LF</td>
<td>4’</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 6’ wide</td>
<td></td>
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</tbody>
</table>

**Table 7 Trail Implementation Program - Recommended Cyclical Maintenance Improvements (Continued)**
<table>
<thead>
<tr>
<th>Trail Segment</th>
<th>Segment #</th>
<th>Description</th>
<th>Trail Length</th>
<th>EX Trail Width</th>
<th>Proposed Trail Type</th>
<th>Proposed Trail Width/ Surface Treatment</th>
<th>Cyclical Maintenance Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Juan Bautista de Anza National Historic Trail, Segment 8</td>
<td>J85</td>
<td>Acorn Trail to Woodland Trail</td>
<td>1378 LF</td>
<td>4'</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Hardened Trail Tread, 10' wide</td>
<td>□ Replace Bridges &amp; Resurface hardened trails (15-20 years)</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>□ Replace Culverts, ditches, guard rails, stops, gates (10-15 years)</td>
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<td>□ Replace Pedestrian Bridge Tread</td>
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<td></td>
<td></td>
<td>□ Replace Gate B</td>
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<td></td>
<td>□ Replace Signs</td>
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<td></td>
<td></td>
<td>□ Replace Signs</td>
<td></td>
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<tr>
<td>Meadowlark Trail, Segment 1</td>
<td>MeL1</td>
<td>Gate to Oak Trail</td>
<td>2710 LF</td>
<td>10'</td>
<td>Moderate Maintenance Utility Trail, Seasonal use</td>
<td>Hardened Trail Tread, 10' wide</td>
<td>□ Replace Bridges &amp; Resurface hardened trails (15-20 years)</td>
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<td></td>
<td></td>
<td></td>
<td>□ Replace Culverts, ditches, guard rails, stops, gates (10-15 years)</td>
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<td></td>
<td></td>
<td></td>
<td>□ Replace Pedestrian Bridge Tread</td>
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<td></td>
<td></td>
<td>□ Replace Drainpipe</td>
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<td></td>
<td></td>
<td>□ Replace Gate C</td>
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<tr>
<td>North Perimeter Trail</td>
<td>NP</td>
<td>Gateway Trail to Stanford Pastures Trail</td>
<td>2002 LF</td>
<td>4'</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 4' wide</td>
<td>□ Replace Bridges &amp; Resurface hardened trails (15-20 years)</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>□ Replace Culverts, ditches, guard rails, stops, gates (10-15 years)</td>
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<td>□ Replace Pedestrian Bridge Tread</td>
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<td></td>
<td></td>
<td>□ Replace Gate B</td>
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<td></td>
<td></td>
<td>□ Replace Signs</td>
<td></td>
</tr>
<tr>
<td>Portola Pastures Trail, Segment 1</td>
<td>PP1</td>
<td>Portola Pastures Access Road to Portola Pastures Segment 2</td>
<td>365 LF</td>
<td>NA</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 4' wide &amp; new easement bridge</td>
<td>□ Replace Bridges &amp; Resurface hardened trails (15-20 years)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>□ Replace Culverts, ditches, guard rails, stops, gates (10-15 years)</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>□ Replace Pedestrian Bridge Tread</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>□ Replace Sign</td>
<td></td>
</tr>
<tr>
<td>Portola Pastures Trail, Segment 2</td>
<td>PP2</td>
<td>Portola Pastures Segment 2 to Juan Bautista de Anza Trail</td>
<td>1016 LF</td>
<td>4'</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 4' wide</td>
<td>□ Replace Bridges &amp; Resurface hardened trails (15-20 years)</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>□ Replace Culverts, ditches, guard rails, stops, gates (10-15 years)</td>
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<td></td>
<td>□ Replace Pedestrian Bridge Tread</td>
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<td></td>
<td></td>
<td></td>
<td>□ Replace Sign</td>
<td></td>
</tr>
<tr>
<td>Stanford Pastures Trail</td>
<td>SP</td>
<td>Parking Lot to Preserve Boundary with Stanford Lands</td>
<td>1779 LF</td>
<td>10'</td>
<td>High Maintenance Recreation Trail, Year-round use</td>
<td>Native Soil 4' wide &amp; new easement bridge</td>
<td>□ Replace Bridges &amp; Resurface hardened trails (15-20 years)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>□ Replace Culverts, ditches, guard rails, stops, gates (10-15 years)</td>
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<td>□ Replace Pedestrian Bridge Tread</td>
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<td></td>
<td>□ Replace Sign</td>
<td></td>
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<tr>
<td>Moderate Maintenance Trail</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bay Leaf Trail, Segment 1</td>
<td>BlL1</td>
<td>Acorn Trail to Meadowlark Trail</td>
<td>876 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail, Seasonal use</td>
<td>Native Soil 4' wide</td>
<td>□ Replace Bridges &amp; Resurface hardened trails (15-20 years)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>□ Replace Culverts, ditches, guard rails, stops, gates (10-15 years)</td>
<td></td>
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<tr>
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<td></td>
<td></td>
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<td></td>
<td>□ Replace Pedestrian Bridge Tread</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>□ Replace Sign</td>
<td></td>
</tr>
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</table>

**Table 7** Trail Implementation Program - Recommended Cyclical Maintenance Improvements (Continued)
<table>
<thead>
<tr>
<th>Trail Segment</th>
<th>Segment #</th>
<th>Description</th>
<th>Trail Length</th>
<th>Ex. Trail Width</th>
<th>Proposed Trail Type</th>
<th>Proposed Trail Width/ Surface Treatment</th>
<th>Cyclical Maintenance Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day Ledge Trail</td>
<td>Sec2</td>
<td>Meadowlark Trail to Woodland Trail</td>
<td>825 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail, Seasonal use</td>
<td>Native Soil 1' wide</td>
<td>Replace Bridges &amp; Pavement (1.5-20 years)</td>
</tr>
<tr>
<td>Bay View Trail</td>
<td>9V</td>
<td>Juan Coutsisto de Anza Trail to Corra Madera</td>
<td>1510 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail, Seasonal use</td>
<td>Native Soil 1' wide</td>
<td>Replace Signs</td>
</tr>
<tr>
<td>Bow Challenges Trail</td>
<td>BL</td>
<td>Meadow Lark Trail to Oak Trail</td>
<td>739 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail, Seasonal use</td>
<td>Native Soil 1' wide</td>
<td>Replace Signs</td>
</tr>
<tr>
<td>Inspiration Point Trail</td>
<td>P</td>
<td>Spur off Meadow Lark Trail Near Old Barn Site</td>
<td>550 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail, Seasonal use</td>
<td>Native Soil 1' wide</td>
<td>Replace Signs, Bench</td>
</tr>
<tr>
<td>Meadowlark Trail</td>
<td>Sec2</td>
<td>Oak Trail to Bay Trail</td>
<td>458 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail, Seasonal use</td>
<td>Native Soil 1' wide</td>
<td>Replace Benches</td>
</tr>
<tr>
<td>Oak Trail</td>
<td>0a</td>
<td>Meadow Lark Trail to Soloy Lake Trail</td>
<td>1804 LF</td>
<td>1'</td>
<td>Moderate Maintenance Recreation Trail, Seasonal use</td>
<td>Native Soil 1' wide</td>
<td>Replace Benches</td>
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<td>Woodland Trail</td>
<td>W01</td>
<td>Gate B to Day Ledge Trail</td>
<td>1476 LF</td>
<td>1'</td>
<td>High Maintenance Utility Trail, Seasonal use</td>
<td>Hardened Trail, 1 Water Trough, 16' wide</td>
<td>Replace Benches</td>
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<tr>
<td>Woodland Trail</td>
<td>W02</td>
<td>Bay Ledge Trail to Meadow Lark Trail</td>
<td>1671 LF</td>
<td>4'</td>
<td>Moderate Maintenance Recreation Trail, Seasonal use</td>
<td>Native Soil 1' wide</td>
<td>Replace Benches</td>
</tr>
</tbody>
</table>
7 Trail Maintenance Techniques and Tools
7. Trail Maintenance Techniques and Tools

7.1 Overview

This section of the trails management plan includes descriptions and illustrative diagrams to guide the development and maintenance of the Preserve trail system. Examples of tread surface improvements, drainage structures, bridges, and horizontal and vertical guidelines for clearing and brushing are provided to give better clarity to the recommended program tasks described in Section 6. These are guidelines. They provide general direction, but cannot be substituted for field investigations and construction drawings developed to address specific site conditions.

General Techniques for Performing Trail Maintenance
Trail construction and maintenance work should be undertaken in a manner that minimizes resource damage and efficiently utilizes on-site materials. Environmental damage and user conflicts can be kept to a minimum through careful construction techniques. Areas that are wet, located on steep slopes, characterized by poor soils or which support fragile vegetation require particularly careful and sometimes costly construction and maintenance techniques.

The worst sections in terms of resource damage should be repaired first. Areas that require cuts should be worked initially so that the excess material can be used in fill sections. Prior to placing fill material, drainage structures should be installed to accelerate the hardening of the fill soils and provide better finishing conditions.

Trail construction and maintenance work should be performed so that each section of trail is fully completed. New sections of trail should be completed and allowed to “cure” prior to closing and restoring alternative trail routes. Whether new construction or maintenance, the finished product should be free of construction scars, provide for maximum erosion control, encourage the growth of native vegetation and reduce future maintenance and resource rehabilitation needs. Ideally the trail will appear to have been in place a long time, with natural conditions prevailing along the side.

7.2 Improving Access and Accessibility

Access Defined
Access as it relates to the Preserve is defined as providing a means for the public to enter and have passage through the variety of natural environments that the Preserve
has to offer. Access as defined here also pertains to proving adequate means for authorized City maintenance and emergency staff to enter the Preserve in their vehicles and be able to perform necessary routine and emergency procedures. Within the boundaries of this Preserve access is to be provided by means of a contiguous system of unpaved, 4-foot and 6-foot wide recreation trails and hardened 10-foot wide maintenance access trails.

To elaborate, the trail development and maintenance program should strive to:
- Provide safe entry to and passage through the Preserve
- Accommodate a variety of skill levels regardless of their physical limitations
- Offer an opportunity for tranquil study and nature observation, well as provide “challenging” trail experiences
- Provide access to key points of interest including:
  - Arastradero Lake
  - The “bowl”
  - Viewpoints such as the overlook near the old house site and the Stanford/Preserve boundary
- Maximize use of the utility access routes for public recreational use without adversely impacting the Utility Department operations or the natural environment
- Provide adequate emergency access and passage for the City Fire Department to be able to respond to fires and life safety emergencies

**Accessing the Preserve**

Arastradero Road cuts through the Preserve. The parking lot is located north of Arastradero Road while most of the Preserve lies on the south side of the road. Arastradero Road is a two-lane connector between Page Mill Road in Los Altos Hills and Alpine Road in Portola Valley. It is a popular on-street bicycle route. The road has no posted speed limit in the area where the primary trail crossings are located. Because Arastradero Road divides the Preserve at key entry points, safety improvements are needed to make the connection between the northern and southern sections of the Preserve and for bicyclists to enter from the road onto the Preserve trail system.

As there is currently no posted speed limit for the road and no current data on motor vehicle and bicycle use of the road, a traffic engineering study is recommended to validate the proposed Preserve entry treatments where they interface with the roadway system.

**Crosswalks**

Crosswalk enhancements are recommended as a means to make a safer connection across Arastradero Road between the northern and southern parts of the Preserve for
all trail users including pedestrians, equestrians and bicyclists. Crosswalks should be considered in two locations:

- The primary entry to the Preserve from the parking lot at Gate A – retain existing
- The Portola Stables Drive at the Preserve boundary – subject to further study

The design for the crossing enhancements should incorporate the safety improvements, as required, after a traffic study including traffic counts and speed counts has been completed. These crossings will need to follow the mid-block crosswalk guidelines recently adopted by the City Council. Some of the enhancements which may occur include:

- Trail crosswalks that are a minimum of 10 feet wide and painted to highlight the crossing
- Special crosswalk treatments that are coordinated with the City Transportation Division to ensure that will meet with City standards
- Clearing vegetation to maintain a clear sight distance for 200 feet (or more depending on the recommendation of a traffic engineering study) at all points where trails meet Arastradero Road. Riparian vegetation that is removed to improve sight distance shall be replaced elsewhere on the stream corridor, in the near vicinity, if possible
- A posted speed limit for motorists along Arastradero Road between the Los Altos Hills Town limit and 200 feet west of the junction with Juan Bautista de Anza Trail (or in accordance with the results of the traffic engineering study)
- Additional caution signs for motorists at an optimum of 100 feet before entering the “Preserve Crossing Zone” (speed bumps and/or clatter bars are not recommended because they pose hazards to bicyclists)
- Warning signs for trail users on the trail at an optimum of 100 feet before the road crossings
- Bike crossing signs (W79/W80) at where access is provided from Juan Bautista de Anza National Historic Trail Segments 1 and 6
- Upright visual identity markers (such as a large sign or other vertical object(s) that enhance Preserve identity) in the vicinity of the crosswalk that do not compromise sight distance for either the trail users or motorists

**Bicycle Crossings**

In addition to the formalized Arastradero Road crossings, bicyclists travelling on Arastradero Road to access the Preserve will need to transition from a Class II bike lane (at the Los Altos Hills town boundary) or a Class III bike route (at the western boundary of the Preserve). These crossings should be designed to promote a safe transition from the Preserve to the roadway system, but should not be designed to promote pedestrian or equestrian crossings.
These Preserve entry points should be designed to include:

- A well-defined, 6-foot wide tread that has been adequately cleared and brushed and identified as the Juan Bautista de Anza National Historic Trail on the south side of Arastradero Road as it extends into the Town of Los Altos Hills to the east and the Town of Portola Valley as it continues to the west
- Signage that designates the Preserve trail system as a shared use facility that welcomes pedestrians, equestrians, bicyclists and dogs on leash and designates an established pattern for trail users to yield to each other
- Adequate directional, safety and regulatory definition between trail and road system including:
  - Clearing vegetation to maintain a clear sight distance between trail users and drivers for 200 feet or more depending on the prevailing speed of the motorists
  - Posting warning signs for trail users on the trail at an optimum of 100 feet before the road crossings
  - Installing additional caution signs for motorists at an optimum of 100 feet before the entering the “Preserve Crossing Zone”
  - Visual identity markers such as a large sign or other vertical object(s) in the vicinity of the Preserve entry (Placement must enhance Preserve identity without compromising the sight distance between trail users and drivers)
  - A respite on the north side of Arastradero Road for bicyclists to wait for a safe time to cross the road

No public entry should be designed in conjunction with the emergency/maintenance vehicle access at Gate B due to poor sight distances and lack of connections to any external trail system or trail user facility (such as the equestrian center at Portola Stables).

**Neighborhood Connections**

There are three proposed points of entry into the Preserve that do not connect to Arastradero Road. These potential and existing connections may in the future or now provide access to:

- The Town of Los Altos Hills Trail system at the east Preserve boundary where Corte Madera Trail terminates (existing)
- Stanford lands at the north Preserve boundary where Stanford Pastures Trail terminates (potential)
- Foothills Park at the south Preserve boundary where Sobey Pond Trail (hiking only) terminates (potential)

These entry points should be designed to include the following design features:

- A well-defined, 6-foot wide tread that has been adequately cleared and brushed
• Signage that designates the Preserve trail system as a shared use facility that welcomes pedestrians, equestrians, bicyclists and dogs on leash and designates an established pattern for trail users to yield to each other
• Narrow public trail entry points (5 feet optimum) and signing to discourage unauthorized vehicular entry
• Visual identity markers such as a large sign or other vertical object(s) in the vicinity of the Preserve entry

Promoting Accessibility
All entry points into the Preserve should be developed so that there are no physical obstructions (such as log motorcycles barriers or gates with difficult latches) precluding entry by people with mobility limitations. Remedial actions should include:
• Correcting existing transitions between the paved edges along Arastradero Road and the trail so that these two surfaces are flush and mirror the trail width at a minimum
• Removing log motorcycles barriers and bollards
• Narrowing the public trail entry points to 5 feet and signing the entry to discourage unauthorized vehicular entry
• Eliminate any physical obstructions greater than 2” in height along the primary route of travel

At Gate A, which serves as the primary access into the Preserve, special care should be taken to design an accessible route of travel. Remedial actions to the primary access route from the parking lot into the Preserve should include:
• Removing existing barriers (e.g. log barriers and uneven surfaces a road edges) at the trail junctions with Arastradero Road
• Regrading the trail to provide a gradient of less than 8% along the entire trail segment
• Maintaining a minimum trail width of 6 feet

Within the Preserve, on those trails designated High Maintenance, the trail design should provide, as environmentally appropriate:
• Level passing/rest areas every 1,000 feet where the trail width is less than 5 feet and where sight lines and/or adjacent side slopes do not allow for other users to step off the trail to allow for wheelchairs/strollers to pass
• A trail surface that is firm and stable enough to provide traction and free movement of wheels so as to accommodate a wheelchair during the dry season

Refer to Figure 1 – Hardened Trail Tread for prototypical “all-weather” accessible trail surface design guidelines.
3" Compacted aggregate surface stabilized with hardened "natural appearing" tread surface material

4" Compacted class II aggregate base course compacted to 95%

5'-0" Min.

Max. allowable cross slope: 2%

Non-woven geotextile fabric
Compact subgrade
Collector ditch lined with geotextile fabric and covered with gravel; depth and width of channel will vary with specific site conditions

SECTION / ELEVATION

Note:
Collector Ditch: size appropriately to avoid failure. Size of collector ditch should be reviewed and certified by a registered civil, soils, or hydraulics engineer to match site specific conditions. Factors to be considered will include: water flow and debris load of watershed area.

HARDENED TRAIL TREAD
SCALE: 3/4" = 1'-0"

FIGURE 1
Accommodating Patrol, Emergency and Maintenance Vehicle Access

To ensure that the existing trails within utility corridors are maintained for year-round use utilizing the most skilled, cost effective and environmentally sound trail maintenance techniques, develop a formal maintenance agreement that will clarify maintenance responsibilities. The agreement should be developed so that future “road maintenance work” on maintenance access trails is performed by the Public Works Department. The work should done in conformance with the guidelines set forth in this handbook. Patrol, maintenance and emergency access should consist of keeping access into and through the Preserve serviceable by:

- Providing a 40 to 45 foot “drive” between Arastradero Road and Access Gates A and B to provide a safe place for staff to safely park their vehicles when opening the Preserve entry gates.
- Ensuring that all 6 access points can accommodate fire, utility, construction and maintenance vehicles at all times. These access points include:
  - The parking lot
  - The access gate north of Arastradero Road west of the parking lot
  - Gate A (access limited to the existing turn-around on the west side of the first concrete bridge spanning Arastradero Creek)
  - Gate B, which serves as the primary Utility Department access
  - Gate C, which is located off John Marthens Lane
  - Vista Hills Trail Gate D in Foothills Park
- Using a uniform maintenance gate at all major entry points with a universal locking device to facilitate routine and emergency access into the Preserve by multiple department staff.
- Maintaining the following maintenance access trails as “all-weather maintenance access trails” suitable for year-round maintenance access and year-round trail use:
  - The maintenance access trail that parallels Arastradero Creek between Arastradero Lake and Gate D Vista Hills Trail in Foothills Park (Arastradero Creek Trail Segments 2 & 3)
  - The maintenance access trail from Gate A to the existing turn-around on the west side of the first cement bridge spanning Arastradero Creek Lake (Juan Bautista de Anza Trail Segment 2)
  - The maintenance access trail that extends east from Gate B to Arastradero Lake (Juan Bautista de Anza Trail Segment 5 and Acorn Trail Segment 1) and west from Gate B to the junction with the Woodland Trail (Juan Bautista de Anza Trail Segment 5)
- Maintaining the following as maintenance access trails for year-round maintenance and hiking access and seasonal bike and equestrian use:
  - The road that extends from the old barn site to John Marthens Lane (emergency vehicle access only) (Meadowlark Trail Segment 1)

- Maintaining the following as maintenance access trails for year-round maintenance access and seasonal trail use:
  - The maintenance access trail that services the water tank (Woodland Trail Segment 1)

- Maintaining the existing compacted aggregate trail tread to provide a firm and stable surface and/or consider surfacing the trail with a hardening solution to improve the firmness and stability of the surface if the soils are limiting year-round use. The hardener should have a natural appearance and no water quality impacts. Refer to Table 8 Trail Surface Synopsis for tread surfacing options.

- Closing, restoring and annually mowing designated emergency access routes within the Preserve as needed to create a circulation route for vehicles in the case of emergency

- Providing emergency road turn arounds in a hammer head configuration to facilitate patrol, construction, maintenance and emergency operations. To minimize potential impacts to the natural resources, these designated vehicle turn-arounds will be the only acceptable turning points for motor vehicles within the Preserve. The final siting of the new turn-arounds (#2, 5 and 9) should be flagged prior to construction and the Open Space Division Superintendent should be advised of pending construction. Each turn-around should be clearly delineated and mapped to prevent removal of or impact to sensitive biological resources. Refer to Table 9 – Vehicle Turn-around Design Summary.

- Recognizing that these turn-arounds are to be used for routine maintenance, construction and patrol. In special circumstances where larger fire trucks and oversized utility vehicles must access the Preserve, these vehicles may not be able to use the turn-arounds and will have to travel through the Preserve in a one-way direction. In this case it is recommended that the vehicles enter and leave through Gates B and D. In the case of a wildfire, public safety will override resource protection. In this case the Fire Department may be required to override these vehicle guidelines to be able to suppress a fire.

- Informing all maintenance, inspection, construction, patrol and environmental education staff and contractors of appropriate entry points, access routes and
enforcing the restrictions on vehicle use in the Preserve. All staff and contractors should be provided with summary copies of this handbook containing at a minimum:

- Section 4.5-Managing to Meet Multiple Department Objectives - Coordinating with the Fire Department
- Section 4.6 Managing to Meet Multiple Department Objectives - Coordinating with the Utility Department
- Map 4-Fire Protection & Emergency & Maintenance
- Table 9 - Vehicle Turn-around Design Summary

- Stipulating that only the designated turn-abouts are to be used for turning vehicles and equipment around on any Preserve contracts for maintenance, inspection, construction, patrol and environmental education.

- Permitting temporary closures when there is a threat to public safety in order to facilitate:
  - Routine maintenance of the utility equipment and maintenance access trails
  - Repair of storm damaged utility infrastructure
  - Moving heavy equipment or materials through the Preserve to perform maintenance on the infrastructure

Refer to Map 4 Fire Protection & Emergency & Maintenance Access for

- Emergency/maintenance access points of entry
- Trail travel routes to be maintained for use by the Fire Department and Utility Department when servicing the Preserve
- Disk lines
- Sensitive resource areas in the Preserve that should not be accessed by heavy vehicles

Refer to Figure 2 – Gates & Entry Treatments for gated entries that will accommodate patrol, construction, maintenance and emergency vehicles. Refer to Figure 3 – Standard ‘Hammerhead’ Turn-around for the design of a turn-around that will accommodate maintenance and emergency vehicles.
TRAIL GATES & ENTRY TREATMENTS

SCALE: 1" = 10'-0"

FIGURE 2

Final
Arastradero Preserve Trails Management Plan
Trail Maintenance Techniques and Tools

March 2001
7-10
Notes:
1. Native vegetation shall be used as necessary to soften the visual impact of the turnaround, as directed by the Parks and Open Space Department. Such vegetation shall consist of native species, be similar to existing nearby vegetation, and be placed in a natural design in order to prevent the vegetation itself from creating an adverse visual impact.

2. None of the turn-arounds shall be paved except #8, which is an existing paved access encircling the water tank. Turn-around #8 is not suitable for Type 3 & 4 vehicles due to the tight turning radius.
7.3 Trail Tread Construction Techniques

Trail Tread and Trail Bed Defined
The tread is the portion of the trail on which people actually travel. The trail bed encompasses the trail tread, along with the soil underneath and around it.

Elements of Trail Tread Construction and Maintenance
Tread maintenance should consist of keeping the tread surface serviceable by:

- Maintaining trail tread width to a minimum of 4 to 6 feet
- Maintaining safe access at trail entry points
- Restoring uniform outsloped, insloped or crowned surfaces
- Maintaining the backslope (angle of repose) and removing slough deposits
- Correcting entrenched trails to provide positive drainage
- Filling ruts and holes in the tread
- Removing and spreading slough deposits on the trail tread to allow drainage patterns to work as intended
- Installing and maintaining water bars and water dips
- Cutting loose, exposed tree roots
- Restoring sections of tread damaged by slides, uproots, and washouts
- Removing loose rocks
- Restoring fill approaches to puncheons and bridges

These ongoing maintenance procedures will typically result in minimizing resource impacts, public hazards and use conflicts and lower the need for major, ongoing expensive and labor intensive corrective maintenance.

Refer to Figure 4 - Trail Structure Terminology for an explanation of trail terms.

The remainder of this sub-section is laid out to provide recommended actions in a combined format of text and illustrations for typical trail tread conditions.
TRAIL STRUCTURE TERMINOLOGY

SCALE: 1/4" = 1'-0"

SECTION / ELEVATION

SECTION - LENGTHWISE

Trail Grade = \( \frac{\text{Rise}}{\text{Run}} \)

Example: 8.33% = \( \frac{1'}{12'} \)
Trail Condition: Breakdown of Outside Edge of Trail
Recommended action for breakdown of outside edge of trail:
- Select full bench trail construction, when and where practical, rather than 3/4 or
  1/2 (balanced section) bench tread to avoid breakdown of outside edge by
  mountain bikers who tend to ride on the outer edge of the tread to keep their
  inside pedal from scraping the backslope.

Refer to Figure 5 - Trail Tread and Side Slopes for full bench construction
 techniques.

Trail Condition: Excessive Trail Grade
Recommended action for excessive trail grade:
- Incorporate switchbacks into the trail design to reduce the trail grade where
  severe constraints eliminate other grading options. Space switchback turns to
  provide gradual climbs and barriers to discourage shortcuts. When the terrain
  requires the use of switchbacks, provide a gradual curve with a turning radius
  that will minimize skidding or braking by bicyclists, where feasible.
- Where wider turns are not practical, consider installing cribbing (treated timber
  wall construction with four-by-four boards to reduce resource impacts caused by
  mountain bicyclists cutting the switchback or riding on the outer edge.

Refer to Figure 5 - Trail Tread and Side Slopes– Typical Cross Sections and Figure 6 –
Switchbacks: Trail Stability on Excessive Slopes for recommendations on designing
Switchbacks.

Trail Condition: Handling Excess Material
Recommended action for handling excess material:
- Make every effort to utilize excess materials (i.e. rock, dirt topsoil and duff) on
  the trail prior to casting it aside or importing materials from another location
- Ensure that native soils are compacted to 95% minimize future erosion

Post Construction Curing Period
Once the trail has been constructed it should not be opened for public use until:
- The trail has had adequate time to “cure” or harden
- Desired drainage patterns have become established
- Vegetation on side slopes is providing adequate cover to minimize erosion and
  potential off-trail use.

Typically this curing period should occur over a minimum of one winter season.
After the first winter season and prior to opening the trail to the public, corrective
action should taken where ever the trail design is not performing to the intended
design standard.
50% Side Slope
Excess soil material to be used in fill areas
1:1 Back Slope
Heel

40% Side Slope
1:1 Back Slope

30% Side Slope
1/2 Bench
1 1/2:1 Fill Slope

20%-5% Side Slope
1 1/2:1 Fill Slope
4'-0"

Trail bed w/ outslope shown for all grades and slopes

Note: Amount of bench varies linearly with percent of side slope. All fill to be soil w/ no vegetative debris. Amount of cross slope varies with trail type and overall gradient of trail.

TRAIL TREAD & SIDE SLOPES - TYPICAL CROSS SECTIONS
SCALE: 1/4" = 1'-0"

Figure 5

Final Arastradero Preserve Trails Management Plan Trail Maintenance Techniques and Tools
March 2001
7-15
Minimum Radius (r)

<table>
<thead>
<tr>
<th>Cross Slope of Hillside</th>
<th>Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>15%-25%</td>
<td>25'</td>
</tr>
<tr>
<td>&gt;25%</td>
<td>15'</td>
</tr>
</tbody>
</table>

Minimum trail center line radius

PLAN
SCALE: 1/16" = 1'-0"

Retain barriers such as rocks, plant materials or fences to discourage shortcuts between switchback levels.

SECTION / ELEVATION
SCALE: 1/4" = 1'-0"

Notes:
1. Provide switchbacks in areas of steep slopes to reduce trail grade. Space switchback turns to provide long gradual climbs.
2. Use switchbacks where severe constraints eliminate other grading options.
3. Optimum use on 4-foot to 6-foot wide compacted native soil recreation trails; not suitable for 10-foot wide utility trails.

SWITCHBACKS: TRAIL STABILITY ON EXCESSIVE SLOPES
SCALE: AS NOTED

FIGURE 6
Trail Condition: Entrenched Trail

Recommended action for an entrenched trail:

- Remove and spread deposits of soil berm found on the outside edge of the trail over the width of the trail to produce the intended drainage surface
- Drain and fill low spots in the trail tread capable of holding surface water with mineral soils and/or rock not exceeding 2 inches in diameter
- Fill and resurface ruts and holes, gullies and other damage to the tread occurring through normal use exposure
- Where incision is occurring on a slope, after filling incision, provide drain dips or water bars every 50 feet at end of dry season to dissipate water and prevent further entrenchment
- Where incision occurs in a flat area, regrade the trail tread in a crown formation to facilitate draining water off the trail

Refer to Figure 7 - Entrenched Trail Repair – Flat Areas for recommendations on correcting an entrenched trail.
Notes:
1. In correcting an entrenched trail in a flat area, water must also be diverted every 50'-100' upslope w/ water bars or drain dips to dissipate volume of water reaching flat areas.
2. Place temporary water bars across repaired trail until fill is thoroughly compacted through use and run-off pattern has been established directing water off trail.
Trail Condition: Multiple Parallel Trails or Overwide Trails

Recommended action for multiple, parallel trails:

- Narrow trail to the standard width of 4 – 6 feet by pulling in part of the “sidewalk” if the trail is cut into a side slope. Where plants are present, they should first be removed with their root ball intact and replanted in to the remaining side slope. In open areas, if it is a no-cut, no-fill trail, narrow trail to the standard width of 4 – 6 feet by scarifying the redundant trail alignments to break up the compacted soils and allow new vegetation to grow. Reestablish vegetation with native species appropriate to the specific site. In some instances it may be necessary to block the extra trail width with natural debris such as down logs, limbs brush and rock to discourage further use. Place material in a scattered or irregular pattern so it does not look artificial. Partially bury rocks and logs with weathered side placed up.

- Install signs stating “Area Closed: Habitat Restoration” at trail junctions leading into the restoration area.

Refer to Figure 8 - Restoration Plan – Trails Closed for Permanent Abandonment or Re-Route for recommendations on trail restoration. Refer to Figure 18 - Prototypical Educational Signs for guidelines on developing informational signs.
Compacted native soil berm

Log or branches installed to restrict trail use and protect transplants

Rocks placed to protect transplants

Trail to be abandoned and restored

New Trail Alignment

Scarify old trail bed to be revegetated to reduce soil compaction. Seed former trail bed with native plant materials appropriate to the site.

Old trail bed to be tilled or dug up to reduce soil compaction

RESTORATION PLAN - TRAILS CLOSED FOR PERMANENT ABANDONMENT OR RE-ROUTE

SCALE: 1/4" = 1'-0"

Final
Arastradero Preserve Trails Management Plan
Trail Maintenance Techniques and Tools

March 2001
7-20
Trail Condition: Wet Soils

Recommended action for wet soils:

- Consider using trail paver blocks, puncheons (a timber structure built close to the ground) or rock drains to protect trail surfaces from erosion. These solutions can be used effectively on sections of wet, boggy trails that are critical to the High Maintenance Trail to improve year-round accessibility. Puncheons, bridges or other elevated trail structures may be the only appropriate solution where the trail cannot otherwise be drained.

Refer to Figure 9 Rock Drain (sometimes referred to as a French Drain) and Figure 10 - Puncheon for recommendations on drainage structures.
ROCK DRAIN

NO SCALE

SECTION

Soil and gravel cap
Geotextile fabric
Drain rock
Geotextile fabric
Native soil

FIGURE 9
Trail Condition: Stream Crossings

Recommended actions for Stream Crossings:

- Consider using a bridge or boardwalk to cross creeks or seasonal drainages on a trail route otherwise considered as part of the "all-weather", accessible trail system and/or to minimize impacts to sensitive habitat.
- Crossing should be designed to:
  - Meet current safety and accessibility standards
  - Have the structural integrity to accommodate equestrians even where equestrians are not to be an authorized use
  - Allow for wildlife movement within the waterway
  - Facilitate accessibility by a wide range of trail users and minimize damage to sensitive riparian or pond habitat
  - Visually and functionally blend with the environment
- Height of bridge railings should be 4'6" minimum where height of bridge is 3 feet above grade
- Decking should be no narrower than the approach to the structure and it should incorporate "curbing" along the edge of the decking to improve accessibility

- When determining the specific placement of the bridge or boardwalk:
  - Locate the structure where the stream is narrow, the channel straight, the banks high, even and solid
  - Perform a biological assessment to guide the placement of the bridge to ensure that bridge and boardwalk footings avoid special status species to the maximum extent feasible and removal of riparian vegetation will be avoided to the greatest extent feasible
  - Have a registered hydrological engineer review the design and placement of the structure to ensure it will meet the design flows anticipated for the creek
  - Conduct a pre-construction biological survey for sensitive species along the entire trail to ensure compliance with state and federal law (California Environmental Quality Act, California Department of Fish and Game Code, Migratory Bird Treaty Act, state and federal Endangered Species Acts). Obtain environmental regulatory permits as required to perform construction work
  - Incorporate NPDES “Best Management Practices” when constructing trails to prevent soils from entering creeks, ponds, lakes and springs and degrading water quality. Obtain NPDES permits as required to perform construction work

Refer to Figure 11 – Bridges & Boardwalks for recommendations on designing these water crossings.
Bridge width to mirror width of trail bridge approach at a minimum. Single-span prefabricated bridge.

Trail Bridge Approach

Wetlands

SECTION/ ELEVATION

Boardwalk width to mirror width of trail approach at a minimum

Provide adequate clearance to allow for anticipated creek flows & wildlife movement

2"x4" Wheel Stop

SECTION/ ELEVATION

BRIDGES & BOARDWALKS

SCALE: 1" = 10'-0"

FIGURE 11
7.4 Grading and Drainage

Trail Grade Defined
Trail grade is the slope maintained by the trail in the direction of travel. It is measured in percentage (feet change in elevation for every 100 horizontal feet). In determining the upper limit of the grade, the nature of the trail surface and the relative degree of traction should be considered. Refer to Section 5 for a more detailed discussion on soils/slopes.

Drainage Defined
Drainage is the control of the flow of water either across, under, through, or around the trail (or maintenance access route). In dealing with drainage it is important to understand the characteristics of water flow:

- Water flows downhill along the steepest and fastest route available
- The faster water flows, the more cutting force it develops
- The more solid matter the water carries, the more cutting force it develops
- The greater the volumes of flowing water, the greater cutting force it develops
- Rapidly flowing water resists changing direction
- The slower the water flows, the greater the possibility for water to percolate into the soil

There is no single factor with as much ability to damage a trail as the unchecked flow of water. Problems can occur when the trail interrupts the natural drainage process. Improper drainage design can result in problems of two kinds: flowing water and standing water. The trails on hillsides can intercept sheet flow or stream flow and turn into a stream channel that can erode the trail surface. Trails in flat, low lying areas can become saturated resulting in wet, slippery, muddy conditions. In general, the way to minimize water damage is with a trail design that sheds water rapidly, without permitting a build-up of velocity or volume.

Grading Techniques
Cuts should be contoured to blend with the natural slopes. Cut banks should be lightly compacted and covered with a thin layer of duff. New or reworked trail tread should be compacted to promote sheet run off. Large scale grading is generally unacceptable. Use of steps is generally unacceptable because it greatly limits accessibility. Trails designed for areas where the terrain exceeds 50% should be certified by a registered civil or soils engineer for stability.

Refer to Figure 12 - Grading & Drainage for trail grading and drainage guidelines.
All new trail designs with hillside cross-slopes in excess of 2:1 must be certified by a registered civil or soils engineer for stability.

Optimum Trail Grading

For short, relatively flat slopes and hardened surfaces to meet ADA requirements provide a 1-3% cross-slope for drainage. For back country and steeper slopes provide a 5-8% cross-slope for drainage. Water bars may be required.

Grading for special circumstances such as natural streams, wet soils or on switchbacks may require insloping and cross trail drainage such as water bars or culverts to move water off the trail.

TRAIL GRADING & DRAINAGE

SCALE: 1/4" = 1'-0"
Techniques for Directing the Flow of Water

Following are descriptions and illustrations of many of the standard drainage techniques used to divert water from the trail to maintain the integrity of the trail in order of preference. The intent in providing an order of priorities is to use the means that is least disturbing to the natural environmental. In determining which drainage facility to use, the order of priorities may not always be possible to follow; depending on terrain features, volume of water involved and soils characteristics. For example, water bars may have to be used rather than drain dips where soil lacks cohesion (e.g. dips may fill in or erode out in sandy soils). Another example would be where the slope of the trail would be steeper than the slope of the drain dip.

Outsloping the Outside Edge of a Trail

Definition. Outsloping is created by developing a downward slope toward the outside of the trail causing water to runoff the trail tread by sheet flow.

Construction Guidelines. Surface water can be diverted from trails by outsloping the trail tread between 1% and 3% where feasible. Outsloping the trail will allow water to sheet flow along its natural course across the trail and down the slope. Outsloping the trail can be the quickest and most immediate form of drainage control. Ideally all tread should be outsloped, but due to certain physical restraints, this is not always possible. If the trail surface is durable, the backslope stable and the trail traffic is light and the vegetation cover is sparse, the outslope is easy to maintain. However, in areas with heavy traffic, material sloughed off the backslope and dense vegetation growth on the outside edge of the trail, debris can build up creating a berm that will obstruct the natural flow of water. This berm and slough material should be removed.

Advantages/Disadvantages. For outsloping to be effective, the trail surface needs to be reasonably smooth. Even minor ridges, such as tire tracks or windrows left from grading can cause the water to stand or flow along the trail length. The outside edge needs to be free of vegetation and obstructions (such as berms, large rocks, and stumps) which would prevent water from leaving the trail surface.

Refer to Figure 4 - Trail Terminology and Figure 5 - Trail Tread & Side Slopes for recommendations on outsloping the outside edge of a trail.

Crowning the Trail

Definition. Crowning is a construction technique used to drain water off the trail bed.

Construction Techniques. The highest point is in the center and the sides are typically sloped out and down at a 1-2% angle. For very wet areas or for trails along level...
terrain, the tread surface may be crowned by building it slightly above the ground level to minimize resource impacts and discourage multiple routes from being created.

**Advantages/Disadvantages.** This technique should only be used in flat areas where outsloping is impossible because there is not adequate side slope to drain the water away from the trail. Crowning may also be used in some situations to correct an entrenched trail. However, on steeper slopes this technique can make travel difficult and can lead to channeling within the trail tread.

Refer to *Figure 4 - Trail Terminology* and *Figure 7 - Entrenched Trail Repair - Flat areas* for recommendations on crowning the trail.

**Drain Drips or Drainage Swales**

**Definition.** A drain dip is a physical structure placed across the trail that turns and directs the water to the downhill side of the slope where the slope of the trail tread is less than 10%. Drain dips share an exaggerated outslope that terminates in a shallow trough. They are used as an erosion control device where the volume of surface water runoff is in excess of what a normal outslope can handle.

**Construction Guidelines.** Drain dips are designed by reversing the grade of the trail for 10-20 feet. A drain dip begins on the up trail side with a normal outslope. The outslope is gradually increased (4% to 10%) as the trail grade is cut and lowered to create the trough and drain point. Ideally, drain dips should be located where natural swales or drainages bisect the trail. The dip is usually accompanied by an outslope which diverts the water off the trail tread. Below the drain point, a ditch or drainage channel must be provided to allow water to escape from the trail and fill slope without creating undue erosion. This channel may also require armoring with native rock to reduce scouring and bank erosion. Drain dips should be incorporated into the initial construction of the trail where the side slopes are gentle and broad enough to dissipate the water. The terrain and volume of water encountered usually determines the length and degree of outslope used in the drain dip. Generally steeper terrain and higher flows require longer drain dips with more outslope.

**Advantages/Disadvantages.** They are inexpensive to install but breakdown over time and must be rebuilt.

Refer to *Figure 13 – Drain Dips* for guidelines on constructing a drain dip.
Notes:
1. Dip should be built at a 45 degree angle from a line perpendicular to the trail direction.
2. The dip should slope to outside edge of trail at 15% (min. 8" drop for 4' wide trail).
**Water Bars**

**Definition.** Water bars are shallow ditches that cross the trail to direct water to the downhill side of the trail on running slopes greater than 5%.

**Construction Guidelines.** Water bars are used to divert water where slopes are too steep for drain dips. The angle of the water bar should be between 15° and 40° to the run of the slope dependent on the grade of the trail section. Water bars should be built to emphasize the natural drainage pattern. They must be designed so as not to preclude use by bicyclists or persons in wheelchairs. Where water bars are used, rock or log barriers may be needed beside the structure to keep bicyclists on the trail.

**Advantages/Disadvantages.** They are inexpensive to install but breakdown over time and must be rebuilt every year. Unless care is taken in constructing these structures, they can preclude use by persons in wheelchairs.

Refer to *Figure 14 – Earthen Water Bars* for guidelines on constructing water bars.
Earthen waterbar; extend minimum 12" into adjacent slope. Skew 45° to 60° across trail.

Provide waterbars to direct minor rivulets across trail tread.

Slope trench 2% or greater as needed to direct all water to outlet.

Fan Shaped Rock Energy Dissipater w/ geotechnical fabric underneath rock

**PLAN**

**SECTION 'B'**

Earthen water bar

**EARTHEN WATER BAR**

**SCALE: 1/4" = 1'-0"**

FIGURE 14
Collector Ditches Paralleling the Trail

Definition. Collector ditches are drainage structures designed to intercept water flowing toward a trail. These drainage structures are typically located along the inside edge of the trail.

Construction Guidelines. Collector ditches consist of an excavated depression that runs parallel to the trail tread. It must be wide enough to carry the anticipated volume of water and maintain a ditch bank slope of 1:1. The trail water is usually channeled from the ditch through a culvert underneath the trail. In some cases water can be conveyed across the trail using water bars placed at approximately 25 foot intervals. Where soils are highly erosive, the ditch should be lined with rock or check dams. For a ditch to work effectively, it needs to drop at a rate of 3% or greater. The water flowing in a ditch needs to maintain its speed at all times to prevent it from dropping the solid matter it is carrying and filling the ditch. To maintain the effectiveness of these ditches, keep ditches short and discharge the accumulated water away from the trail at frequent intervals and correctly size culverts or water bars to accommodate flows.

Advantages/Disadvantages.
Collector ditches can cause problems in that they are designed to accumulated water instead of disperse it, thereby greatly increasing the potential for erosion. Additionally, all culverts must be cleaned out at least annually before the winter storm season to maintain the structural integrity of the trail.

Refer to Figure 1 – Hardened Trail Tread and Figure - 4 Trail Structure Terminology for recommendations on parallel ditches.

Culverts

Definition. Culverts are sub-grade structures placed under and generally perpendicular to the trail bed. They serve as passageways for conveying water under the trail. Culverts can be made of plastic, concrete, metal, stone or other materials that can be made to support the trail and provide a non-erosive passageway. The most common culverts are corrugated metal pipes.

Construction Guidelines. In selecting the appropriate culvert for a site, the two most critical elements are diameter, which governs the volume of flow and the length. Culverts should be installed to follow the natural watercourse to allow for an unobstructed water flow. The minimum culvert slope is 2%. Culverts should be installed with an inlet and an outlet with a splash apron or rock energy dissipater that extends from the pipe a minimum distance equal to the diameter of the culvert.
When sizing the culvert the following factors should be taken into consideration: water flow and debris load of watershed area.

Advantages/Disadvantages. If culverts are installed correctly they will work well to move large quantities of water. They can serve to redirect water and divert it to the downhill slope to join natural surface flows. They can also be used to intercept subterranean springs. Culverts must be sized correctly to work effectively and they must be cleaned out at least annually before the winter storm season to maintain the structural integrity of the trail. If culverts are located in a watershed area containing a lot of debris and sediment, they will require even more frequent maintenance. Any culvert that crosses a natural stream channel may require a Stream Alternation Agreement with the Department of Fish and Game.

Refer to Figure 15 – Culvert Cross Section for recommendations on culverts.
Reinforce downstream spillway with rocks or native vegetation

SECTION/ ELEVATION

Culvert crossings of small streams and drainages.

Geotextile fabric beneath rocks

Note:
*Culvert Design*: Size appropriately to avoid failure. Size of culvert, slope, bedding material and cover should all be reviewed and certified by a registered civil, soils, or hydraulics engineer to match site specific conditions. Factors to be considered will include: water flow and debris load of watershed area.

For maintenance trails where utility vehicles will cross provide 1’ minimum cover for culvert or 1/2 the diameter of the pipe.
7.5 Vegetation Management

Brushing and Clearing Defined
Brushing and clearing constitutes the removal of vegetative materials as required to provide adequate vertical and horizontal clearance for safe passage along a trail.

Techniques for Maintaining a Clear Passageway
Vegetation on the south sides of the trail should be pruned to allow passage, but should be preserved, as much as possible, to protect the aesthetic quality of the trail. Typically vegetation is cleared to a height of 10 feet and 2 to 3 feet to either side of the trail edge to accommodate equestrian use. A minimum sight distance of 100 feet should be maintained, where feasible to facilitate safe shared use of the trail system.

Good pruning practices should be followed, including cutting branches almost flush with the limb, and cutting stumps at ground level or below. Large limbs should be pruned almost flush with the trunk. Dead and dying limbs and snags, which may fall on the trail, should be removed. Typically ground cover plants and low shrubs should not be removed except on the actual trail tread.

Where specific trail segments (Refer to Section 6) recommend controlling invasive, non-native plants, the Arastradero Preserve Management Plan management strategies should be used. This means that vegetation management adjacent to the trails should be performed in a way that maximizes the safety of the users and minimizes adverse environmental impacts. Appropriate management techniques include in order of preference, control with “beneficial insects”, where they have been determined through study not to have detrimental environmental impacts, removal by hand pulling, or pruning with weed whips or (as a last choice) with chemicals. When weed whips are employed, a 2-inch minimum cover should be retained to minimize exposure of bare earth and resulting impacts from splash erosion and gullying. Herbicides should only be used as approved by the Open Space Division Superintendent. In addition, the chemicals must be applied in accordance with California Stare law and must adhere to the conditions set forth in the City’s “Integrated Pest Management Plan” to ensure the safety of staff, visitors and wildlife and to reduce or eliminate chemicals from entering the creek.

Where a trail is located on a side slope, the vegetation on the uphill side will be more invasive and should be cut back more severely than on the downhill side.
Low growing vegetation should be allowed to return to cut slopes to increase soil stability. Replant areas with vegetation indigenous to those areas or compatible with plantings already in place.

Overhanging limbs should be cut back flush with the tree trunk, brush should be grubbed out and disposed of out of sight of the trail and scattered not stacked. Excess rock should be disposed of in the same manner as brush and limbs. All loose roots protruding over one inch above the trail tread should be cut out to at least 4 inches beyond the margins of the tread and to a depth of 4 inches below tread level and removed from the travelway. Holes resulting from root removal should be filled and compacted with mineral soil and or rock, not exceeding 2 inches in diameter.

Advance warning of all vegetation management activities in the Preserve shall be given to the Superintendent of the Open Space Division at least one week in advance of the work.

Refer to *Figure 16 - Trail Clearing and Brushing Limits* for recommendations on maintaining a clear passageway.
**SECTION / ELEVATION**

<table>
<thead>
<tr>
<th>Brush &amp; Log Removal Limits</th>
<th>Uphill</th>
<th>Downhill</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Maintenance Level</td>
<td>3'</td>
<td>3'</td>
</tr>
<tr>
<td>Moderate Maintenance Level</td>
<td>2'</td>
<td>2'</td>
</tr>
</tbody>
</table>

* Juan Bautista de Anza National Historic Trail tread width = 6'-0", utility trail tread width = 10'-0".

*Cut brush extending into the clearing width flush with main stem at a branch fork or at ground level if no fork at main stem.*

**TRAIL CLEARING & BRUSHING LIMITS**

**SCALE: 1/2" = 1'-0"**
Fuel Management Techniques

Fire prevention methods that should be used at the Preserve include:

- Establishing fire lines on the perimeters of open spaces, leaving the interior areas in their natural condition. Firebreaks should be disked 24 feet wide or 1 1/2 times the fuel height adjacent to the road, structures and where they can be used to compartmentalize an area to reduce the risk of a fire igniting and/or spreading.
- Firebreaks should be eliminated where they are not providing any benefit to fire prevention or suppression. If new activities/developments occur inside or adjacent to the Preserve perimeters, then the location of the disk lines should be reevaluated and expanded as appropriate.
- Disking fire lines and mowing fuel reduction zones to compartmentalize the Preserve for fire suppression in the event of a fire. Ideally disk management should be performed twice a year, first in late spring and then when the disk lines have “cured”
- Using herbicides as approved by the Superintendent of the Open Division, where appropriate in implementing the wildland fire prevention plan

In addition, though not currently used, an option should be maintained for the Fire Department to perform controlled burns in the future as part of their overall fire prevention plan.

Refer to Map 4 Fire Protection & Emergency & Maintenance Access for disk lines and areas that are to be mowed annually to maintain emergency vehicle access through the Preserve. This map also indicates those sensitive resource areas in the Preserve that should not be accessed by heavy vehicles.

Revegetation Defined

Revegetation as it pertains to this handbook is the reestablishment of native habitat as it is associated with the immediate trail area for the purpose of:

- Repairing a former trail site to its natural condition
- Enhancing existing habitat adjacent to a trail
- Providing erosion control on trail sides lopes
- Mitigating impacts caused by constructing a trail in a sensitive habitat area

Revegetation Techniques to Restore and Enhance Trail Edges and Former Trail Alignments

Revegetation guidelines contained within this handbook are oriented towards restoration of sites associated with new trail construction, maintenance of existing trails and restoration of former trail routes designated for closure. Therefore, the
focus of these guidelines is on repairing the trail tread and associated side slopes where any existing environmental degradation could fester and cause major problems in the future.

**New Trail Construction**

When preparing a new site for trail construction the following procedures should be undertaken:

- Once the trail alignment has been flagged, conduct a pre-construction biological survey for sensitive species to ensure compliance with state and federal law (California Environmental Quality Act, California Department of Fish and Game Code, Migratory Bird Treaty Act, state and federal Endangered Species Acts).

- If any sensitive plant species are found, look at alternative routes to avoid these plants.

- Once an environmentally superior route has been flagged, prior to commencing construction work:
  - Verify with the California Department of Fish and Game whether a streambed alteration agreement is necessary for specific restoration activities that affect the bed or bank of the stream. These environmental regulatory permits will regulate the timing of construction and may direct building/restoration techniques.
  - Flag any rare plants in the area and fence to protect from impact during construction.
  - Hand collect seed from sensitive plants if appropriate, or use other methods recommended by a botanist with expertise in revegetation of the species.
  - Store collected seed from native seeds plants from the immediate area for later use.

- During trail construction:
  - Stockpile native topsoil for reuse in revegetating areas adjacent to the trail tread.
  - Conduct the construction prep work and trail construction work under permits from the United States Fish and Wildlife Service or the California Department of Fish and Game, if required. Where construction will take place in streambed areas the construction period is typically April 15 to October 15 when flow is low. If rare species are present, the construction period should be modified as recommended by a biologist with expertise in the habits of the species. This may limit construction to the post-nesting season, typically late summer or fall.
  - Do not perform restorative work while any sensitive species are nesting or breeding in a location where they could be directly impacted by the restoration work.
- Incorporate National Pollutant Discharge Elimination System (NPDES), a provision of the Clean Water Act “Best Management Practices” when constructing a trail to prevent soils and other pollutants from entering creeks, ponds, lakes and springs and degrading water quality. “Best Management Practices” may include techniques relating to storage (detention), filtration and infiltration practices. Determination of the most appropriate techniques will be dependent on the specific conditions of each situation. Typical construction measures used to prevent soils from entering creeks, ponds, lakes and springs and degrading water quality include: the placement of hay bales or siltation fences between the construction site and the water body (stream, seasonal drainage or pond) or diverting the creek water when actually working within the creek bed. NPDES permits may be required to perform restoration work.

- After trail construction has been completed:
  - Scarify the area immediately adjacent to the trail to break up the compacted soils and seed with native plants to enlarge the native plant population and protect soils from eroding.
  - Complete seeding of native plants prior to and before the start of the winter rainy season (preferably between September 15th and October 15th) to provide proper germination.
  - Native seed mix should be applied in a sweeping motion to form a uniform mat. If areas are hand-seeded, rake seed lightly into soil. Once seed has been applied, power blow a straw mulch over the seeded area and then apply a hydroseeding fiber, water and tackifier to form a uniform cover over straw. This three-step technique will help to hold the native seeds in place thereby promoting germination and to controlling erosion of areas disturbed during trail construction.
  - Individual trees and shrubs should be planted from starts established in D-pots. When transplanting into the ground, provide a protective guard around the plant above and below grade to protect the plants from deer and rodents. Hand water seedlings once a week during the first season until the rains are occurring frequently enough to maintain moist soil conditions. Remove protective plant guards once the plants have become established.
  - Block area restored area from further use and install signs stating “Area Closed: Habitat Restoration” at the junctions of trails leading into the restoration area.

Correcting Eroded Slopes when Performing Routine Maintenance or when Preparing Trails for Closure

Typically the work required to correct an eroded trail tread and/or side slope will include the following procedures:
Correct water problems caused by water flowing into and down the trail by:

- Filling in ruts and gullies with local soils and gravel
- Further stabilizing the slope using rocks, erosion cloth, net or other biodegradable covering agents (e.g. erosion control mats typically contain a layer of straw or excelsior sandwiched between photo-degradable netting stakes to impede the speed of water and inhibit gullying and rilling). This material should then be laid and secured with biodegradable, as directed by an erosion control specialist
- Grading the trail bed and adjacent area to return the surface to its original shape and contour

- Scarify the trail to break up the compacted soils and allow new vegetation to grow
- Reestablish vegetation with native species appropriate to the specific site
- Block area from further use and install signs stating “Area Closed: Habitat Restoration” at trail junctions leading into the restoration area. In some cases it may also be prudent to construct some type of temporary fencing to prevent access.

Preparing Trails for Closure in Riparian or Wetland Areas

Typically the work required to prepare a site for abandonment in riparian or wetland areas will include the following procedures:

- Conduct a pre-construction biological survey for sensitive species to ensure compliance with state and federal law (California Environmental Quality Act, California Department of Fish and Game Code, Migratory Bird Treaty Act, state and federal Endangered Species Acts). In streambed areas the construction period is typically April 15 to October 15 when flow is low. If rare species are present, the construction period should be modified as recommended by a biologist with expertise in the habits of the species. This may limit construction to the post-nesting season, typically late summer or fall.

- Verify with the California Department of Fish and Game whether a streambed alteration agreement is necessary for specific restoration activities that affect the bed or bank of the stream. These environmental regulatory permits will regulate the timing of construction and may direct building/restoration techniques.

- Do not perform restorative work while any sensitive species are nesting or breeding in a location where they could be directly impacted by the restoration work

- Incorporate National Pollutant Discharge Elimination System (NPDES), a provision of the Clean Water Act “Best Management Practices” when closing a trail to prevent soils and other pollutants from entering creeks, ponds, lakes and springs and degrading water quality. “Best Management Practices” may include techniques relating to storage (detention), filtration and infiltration practices.
Determination of the most appropriate techniques will be dependent on the specific conditions of each situation. Typical construction measures used to prevent soils from entering creeks, ponds, lakes and springs and degrading water quality include: the placement of hay bales or siltation fences between the construction site and the water body (stream, seasonal drainage or pond) or diverting the creek water when actually working within the creek bed. NPDES permits may be required to perform restoration work.

- Scarify the trail to break up the compacted soils and allow new vegetation to grow
- Reestablish vegetation with native species appropriate to the specific site
- Block area from further use and install signs stating “Area Closed: Habitat Restoration” at trail junctions leading into the restoration area. In some cases it may also be prudent to construct some type of temporary fencing to prevent access.

Preparing Trails for Closure in Serpentine Areas

Typically the work required to prepare a site for abandonment in serpentine areas will include the following procedures:

- Conduct a pre-construction biological survey for sensitive species to ensure compliance with state and federal law (California Environmental Quality Act, California Department of Fish and Game Code, Migratory Bird Treaty Act, state and federal Endangered Species Acts) prior to commencing restorative work
- Flag rare plants and route trails to avoid area
- Prior to commencing restorative construction work, hand collect seed from sensitive plants if appropriate, or use other methods recommended by a restoration expert or botanist with expertise in revegetation of the species. Conduct the work under permits from the United States Fish and Wildlife Service or the California Department of Fish and Game, if required.
- Store collected seed from native seeds plants from the immediate area for later use
- During trail construction, stockpile native topsoil for reuse in revegetating areas within and adjacent to the trail tread
- Scarify the trail to break up the compacted soils and reseed to enlarge population of sensitive plants
- Block area from further use and install signs stating “Area Closed: Habitat Restoration” at trail junctions leading into the restoration area. In some cases it may also be prudent to construct some type of temporary fencing to prevent access.
Timing

Pruning and Mowing
Annual pruning and mowing projects should be timed to avoid interfering with nesting birds. To ensure that sensitive species will not be impacted, a biological survey should be conducted annually in habitat areas where there is a potential for sensitive species to nest or forage prior to performing annual vegetative clearing and brushing. Rare and unusual native plants and grasses should be given special consideration when brushing and clearing the trail area. Every effort should be made to avoid their removal.

Revegetation
Restoration work should be performed during a time period approved by the environmental regulatory agencies. Restorative work should not be performed while any sensitive animal species are nesting or breeding in a location where they could be directly impacted by the construction work. Typically this period extends from April 15 to October 15. If rare species are present, the construction period should be modified as recommended by a biologist with expertise in the habits of the species. This may limit construction to the post-nesting season, typically late summer or fall.

In streambed areas the construction period is typically April 15 to October 15 when flow is low. If rare species are present the construction period could be as short as June 1 to Oct 15 to avoid disturbing nesting, breeding, or migration activities. Prior to initiating any restoration work in a streambed area, verify with the California Department of Fish and Game whether a streambed alteration agreement is necessary for specific restoration activities that affect the bed or bank of the stream. These environmental regulatory permits will regulate the timing of construction and may direct building/restoration techniques.

Watering
Hand water seedlings and tree and shrub starts once a week during the first season until rains are occurring frequently enough to maintain moist soil conditions. Do not water native plants after the first season unless there is a drought. During drought conditions, plants may be watered up to the third season. Watering after that time will tend to weaken the plant, shorten its life and make it vulnerable to disease.

7.6 Trail Signing & Mapping

Trail Signage Program
Currently there is very little signage in the Preserve to inform or direct Preserve visitors. While the public’s desire and the Preserve’s Mission are to maintain the
Preserve in a natural condition, there is still a need for some signage in the Preserve. Following are recommendations for a trail signage program that will inform and direct visitors to the Preserve without being too intrusive.

The Preserve sign program should address the following types of conditions:
- Trail Identity
- Resource Protection
- Trail Accessibility/Difficulty
- Regulatory, Warning and Educational Signs

**Trail Identify Signs**
The primary access to the 609-acre Preserve is by trails. The provision of a unified signing system will help inform and direct trail use. Trail signing is particularly important in directing trail users to the all-weather trail network during the winter months, and in clarifying trail routes that may serve as a part of a regional trail system.

A new trail identity sign program is being developed by the City of Palo Alto. It will generally follow the trail signage program developed for Pogonip Park in the City of Santa Cruz. These trail identity signs are being designed to be unobtrusive fitting with the natural character of the park. The identity signs should be placed at appropriate points along the entire length of the trail system in such a manner as to be easily read. Appropriate locations for placing these signs include the access points into the Preserve and at junctions with other trails. Identity information should be printed in white on a brown background on steel metal plates. The plates will be sized to fit on 6" by 6" posts. The identity signs should provide the following information:
- The trail name
- Whether the trail is opened year-round or seasonally
- Trail mileage
- Trail difficulty/accessibility rating

Refer to *Figure 17- Trail Marker Post* for a prototypical trail identity sign.
Continuous chamfer @ top edge of post

6"x12" Arastradero metal trail marker; sign to include trail name, directional arrow and trail destination; inset sign flush w/ post face, glue, and screw into place; brown background with white lettering.

"Arastradero Preserve," green background with white lettering

6"x6" Metal user identification marker inset face flush w/ post face, glue, and screw into place.

Locate inside edge of sign post 1'-0" from outside edge of trail tread

6" x 6" Redwood post

Undisturbed soil

Concrete footing

TRAIL MARKER POST

SCALE: 2" = 1'-0"

FIGURE 17
Resource Protection Signs

Permanent Closure

As part of each trail closure and/or restoration process, signs should be installed stating “Area Closed: Habitat Restoration” at trail junctions leading into the restoration area. These signs and any protective fencing that was installed to protect a restoration site should be removed when the vegetation has successfully reestablished and any remnants of the former trail are no longer visible.

Refer to Figure 18 - Prototypical Education Sign for guidelines on constructing trail education signs.
Continuous chamfer @ top edge of post

15"x15" Prototypical educational sign

Metal plate sign, brown background with white lettering

4"x4" Redwood post

Locate inside edge of sign 1'-0" min. from outside edge of trail tread

Undisturbed soil

Concrete footing

**PROTOTYPICAL EDUCATIONAL SIGN**

**SCALE: 2" = 1'-0"**
Trail System Map/Brochure
It is vitally important for trail users to have current accurate and informative travel information about the Preserve. New trails added or old trails eliminated from the trail inventory should be appropriately indicated and accurately located. Guidelines for accessibility should be included to guide all users including hikers, equestrians and bicyclists, as well as those people with limited skill or mobility levels and those visitors seeking a challenge. Maps should describe seasonal use patterns that are unique to the Preserve. It should also advise people that this Preserve is a shared use trail system and provide trail etiquette guidelines for sharing the trail so that all visitors can have a pleasurable experience. Etiquette guidelines should address:
- Yielding patterns
- Keeping dogs on leash and cleaning up after dogs
- Techniques for warning other visitors of their approach

Regulatory, Warning and Educational Signs
Regulatory, warning and educational signs should be erected along the trail where necessary to ensure the safety of the user and the protection of the resources.

Regulatory Traffic Signs that are to be placed in locations where access to the Preserve crosses Astrastradero Road, need to comply with Caltrans Chapter 1000 Bikeway Planning and Design, topic 1004 – Uniform Signs, markings and Traffic Control Devices, California Department of Transportation. They must also comply with any additional City policies and regulations. These will include the new City policy on the design and placement of mid-block crossings.

Educational signs that are to be provided as resource protection tools to guide the use of the Preserve should be uniform in style. They should provide simple concise information letting the visitor know what uses are permitted and why a restriction is being placed on the use. Examples of educational signs include:
- Seasonal Use & Accessibility signs (An example of a trail accessibility limitation may be steep, erosive soils) When closing a trail for the season, bollards with seasonal closure signs should be placed at the junctions of year-round and seasonal use trails.
- Resource Protection Signs (For example: dogs may not be allowed in Astrastradero Lake because of potential disturbance to red-legged frog habitat)

Refer to Figure 19 - Removable Metal Bollard for a prototypical design for seasonal closure markers.
Pipe bollard

Lock

Concrete footing

PLAN

Pipe bollard
Reflective tape

15" x 15" Metal plate sign, brown background with white lettering. Prototypical trail closure notification.

Sign text: "Trail closed for winter season. Call for information on timing of trail opening."

Create recess in concrete footing for lock
Concrete footing w/#4 rebar. top of footing flush with adj. paving. slope 2% away from post

Adjacent trail

Removable bollard insert
Post footing sleeve
Compacted aggregate base. see spec.

SECTION

2'-0"

2'-0"

Note: Provide a cover plate for opening when bollards are removed.

REMovable METAL BOLLARD

Scale: 1/2" = 1'-0"

Final
Arastradero Preserve Trails Management Plan
Trail Maintenance Techniques and Tools

March 2001
7-50
<table>
<thead>
<tr>
<th>Surface Material</th>
<th>Product Description</th>
<th>Typical Uses</th>
<th>Proposed Applications</th>
<th>Installation Costs</th>
<th>Long-term Maintenance Costs</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asphalt Permeable</td>
<td></td>
<td>Where trail use is shared by hikers and wheeled modes of travel (e.g. bikes, strollers, wheelchairs), degree of accessibility is defined as high and level of maintenance is established as high - best used for short stretches to solve a “wet” soils problem on a trail otherwise considered as part of the “all-weather trail system.”</td>
<td><strong>Tread Surface</strong>. None Recommended. Use of asphalt should be avoided where it would present a visual intrusion or impact the “natural setting” of the Preserve. If use of asphalt is determined to be appropriate, an area should be tested by equestrians to ensure adequate traction before proceeding with surfacing a long section.</td>
<td>High installation cost</td>
<td>Low-long term maintenance cost 20 year life span</td>
<td>All-weather, hard surface most suitable to walking and wheel types of use, does not erode.</td>
<td>Costly to repair, not natural looking, requires access by construction equipment, may not be suitable in highly sensitive environmental areas where asphalt materials could leach into the water or where soils are subject to settling. Not a suitable surface for horses.</td>
</tr>
<tr>
<td>Compacted Aggregate Base</td>
<td>Base. Compacted aggregate base shall be 34” to 1-1/2” base rock maximum size with 95% compaction. May be used as the finished surface, as a sub-base for asphalt, concrete, or paved &amp; as a base which is mixed with a polymer emulsion. Where slopes are &lt;10%, trail use is shared by hikers, equestrians, wheeled modes of travel (e.g. bikes, strollers, wheelchairs), degree of accessibility is defined as high and level of maintenance is established as high.</td>
<td><strong>Tread Surface</strong>, PP1, Me1, W01 With Emulsion Ac1, Arc2, Arc3, JB2, JB5, Under Pavers Arc1</td>
<td>Moderate</td>
<td>May require annual grading and or replacement of fines in rutted areas to maximize accessibility.</td>
<td>Surface is permeable - Soft but firm surface will accommodate multiple use - one of the best permeable “all-weather” surfaces.</td>
<td>Surface can rut or erode with heavy rainfall, especially if trail is used by heavy maintenance vehicles when it is saturated. If surface becomes rutted or surface gravels are loose, material may not be suitable for wheeled recreation travel vehicles (e.g. bikes, strollers, wheelchairs) esp. on steep slopes. Loose gravel can also be damaging to horses' feet.</td>
<td></td>
</tr>
<tr>
<td>Concrete</td>
<td>Type I Portland cement is typically sufficient for most trail work. Specifications for bridge work must be developed by a licensed engineer on a case by case basis. Where trail use is shared by hikers and wheeled modes of travel (e.g. bikes, strollers, wheelchairs), degree of accessibility is defined as high and level of maintenance is established as high - best used for short stretches to solve a “wet” soils problem on a trail otherwise considered as part of the “all-weather trail system” - common uses in “natural environments” are the construction of low flow stream crossings, bridge sills and bridge abutments.</td>
<td><strong>Tread Surface</strong>. None Recommended. Use of concrete should be avoided where it would present a visual intrusion or impact the “natural setting” of the Preserve. If use of concrete is determined to be appropriate, an area should be tested by equestrians to ensure adequate traction before proceeding with surfacing a long section.</td>
<td>High installation cost</td>
<td>Low-long term maintenance</td>
<td>All-weather, hard surface most suitable to walking and wheel types of use, does not erode.</td>
<td>Costly to repair - not natural looking - requires access by construction equipment-may not be suitable where soils are subject to settling. Not a suitable surface for horses. Potential ripping hazard if contiguous trail sections are not maintained flush at concrete edge.</td>
<td></td>
</tr>
<tr>
<td>Geotextiles</td>
<td>Semi-impervious fabric used to provide a stable base for soil or gravel. Typically used a part of the sub-base in conjunction with other surface materials. Use with segments using compacted aggregate, polymer emulsion, concrete pavers, drainage solutions in wet areas. Principal uses include “turnspikes” - elevating the trailbed through low areas, crossing over exposed roots “drainage banners” - a soil-free rock surface designed to promote drainage under the trailbed; retaining walls, and as a sub-base for other paving options (e.g. compacted aggregate, polymer emulsions, concrete pavers).</td>
<td><strong>Compacted Aggregate PP1</strong>, Me1, W01 With Emulsion Ac1, Arc2, Arc3, JB2, JB5, Under Pavers Arc1 Drainage Solutions BV</td>
<td>Will enhance the life &amp; usability of the surface tread.</td>
<td>Installation of a geotextile fabric should be done under the guidance of an erosion control specialist or expert installer to ensure it is installed correctly and that the surface materials will have minimal impacts on creek and wetland areas.</td>
<td>March 2001</td>
<td>7 - 51</td>
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<tr>
<td>Surface Material</td>
<td>Product Description</td>
<td>Typical Uses</td>
<td>Proposed Applications</td>
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<tr>
<td>Granite Fines</td>
<td>Stabilized Decomposed Granite Paving: California gold as supplied by Felton Quarry (408) 335-0459 and distributed by American Soil Products (510) 863-7203 California Gold Path Fines and California 3/8&quot; Gold Gravel. Color: Tan or Buff. Gradation Specifications Percent Passing Sieve Size Track Fines</td>
<td>Where slopes are &lt;5%, trail use is shared by hikers, equestrians, wheelchair modes of travel (e.g. bikes, strollers, wheelchairs), degree of accessibility is defined as high and level of maintenance is established as high. Can be used in lieu of compacted aggregate on recreation trails and / or as a base under benches.</td>
<td>None Proposed</td>
<td>Moderate</td>
<td>High - Will require annual grading to maximize accessibility - replenishing fines will be a long term expense.</td>
<td>Surface is permeable - Soft but firm surface will accommodate multiple use.</td>
<td>Surface rutting during rainy weather where there is any slope. Requires installation of headers to deline and hold tread in place.</td>
</tr>
<tr>
<td>Native Soils</td>
<td>Natural material-existing on-site soils</td>
<td>Where slopes are &lt;10%, degree of accessibility is defined as moderate to expert, and level of maintenance is established as moderate</td>
<td>Treat Surface. Ac2, Ac3, BaL1, BaL2, BV, CM1(compacted Eng. 'll), CM2,Ga1, Ga2 (+ prefabricated bridge), P, JB1(+ prefabricated bridge), J63, J64, JB6, Me1.2, NP, Os, PP1 (+ prefabricated bridge), SP, Wo2 Soil hardeners /or seasonal use limitations may be req. for the following soil types: Av1, Ld2, LoE, LoE (refer to Map 6).</td>
<td>Lowest cost</td>
<td>May require annual grading to maximize accessibility.</td>
<td>Surface is permeable - Easiest for volunteers to build and maintain - Use of on-site native resources can reduce project material and labor costs and minimize visual impact of the trails.</td>
<td>Many of the soils on the Preserve are moderately to highly erodible - surface may become rutted in wet weather - Surface highly susceptible to erosion where soils exceed 10% - In summer months trails can be dusty.</td>
</tr>
<tr>
<td>Paver Blocks</td>
<td>Open concrete block which can be filled with a permeable aggregate material</td>
<td>Where slopes are &lt;5%, trail use is shared by hikers, equestrians, wheelchair modes of travel (e.g. bikes, strollers, wheelchair), degree of accessibility is defined as high and level of maintenance is established as high</td>
<td>Treat Surface. ArC1</td>
<td>Expensive</td>
<td>High - Will require annual monitoring of pavers &amp; replenishment of top dressing to retain a stable, accessible surface.</td>
<td>Suitable for small, wet areas where the tread is fairly level.</td>
<td>Not suitable for unstable soils where side slopes are steep. Top dressing over blocks critical in maintaining accessibility &amp; safety. Potential tripping hazard if pavers become exposed and uneven.</td>
</tr>
<tr>
<td>Surface Material</td>
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<tr>
<td><strong>Polymer Emulsion / Latex Based Solution Soil Hardening Agent</strong></td>
<td>Non-water soluble, high bonding strength, emulsified binder that is combined with decomposed granite fines or aggregate base rock. Max size of aggregate 1/2&quot;. Aggregate quality req. Plasticity index of not greater than 4, a min. sand equivalent of 35 and min. of 65% crushed faces. Installation can either be batch mixed (like concrete and hauled in or it can be mixed on site, by mixing with the top 3-5 inches of road base and spreading and compacting with paving machines without disturbing other areas. Trade names include: &quot;Road Cyl&quot;, &quot;Soil Sement&quot;, &quot;Poly Pavement&quot;.</td>
<td>Where slopes are &lt;5%, trail use is shared by hikers, equestrians, wheeled modes of travel (e.g. bikes, strollers, wheelchairs), degree of accessibility is defined as high and level of maintenance is established as high. Can also be used in drilled form for dust and erosion control.</td>
<td>Treat Surface. Ac1, ArC2, ArC3, JB2, JB5 Prior to surfacing a long section with this material, an area should be tested by equestrians to ensure adequate traction. Any hardening agents that are used on the Preserve should be assessed for potential impacts to water quality and no agent shall be used which could result in physical or reproductive harm to humans, domestic animals (e.g. dogs, horses) or wildlife. In addition, product must provide surface traction for bikes, horses, hikers and vehicles.</td>
<td>Expensive - high cost comparable to asphalt.</td>
<td>Hardeners do not provide a one time fix. May require annual grading and or replacement of fines in rutted areas to maximize accessibility.</td>
<td>Hardeners will work to make the roadway more of an all season surface by providing a firm &amp; stable surface year round in wet &amp; dry conditions. Should be able to be applied so that the hardeners highlight without obliterating the natural coloration of the aggregate base. Lends up to 20 years. Manufacturers claim material to be suitable for environmentally sensitive areas.</td>
<td>Some of these emulsions may contain materials that could have an adverse impact on water quality. More research is needed to look for surface hardeners with a &quot;natural appearing&quot; surface that will perform the functions designated in this table. An erosion control specialist should be req. to review any trail construction site where trial hardeners are to be employed to ensure that erosion is minimized.</td>
</tr>
<tr>
<td><strong>Soil Cement</strong></td>
<td>Native soil mixed with gravel, sand &amp; cement</td>
<td>Where slopes are &lt;5%, trail use is shared by hikers, equestrians, wheeled modes of travel (e.g. bikes, strollers, wheelchairs), degree of accessibility is defined as high and level of maintenance is established as high.</td>
<td>None Proposed</td>
<td>Expensive - high cost comparable to concrete.</td>
<td>Requires regular maintenance</td>
<td>Provides a firm &amp; stable surface year round, blends into the natural environment.</td>
<td>Applicability limited to relatively level, recreation trails.</td>
</tr>
<tr>
<td><strong>Soil Stabilizers</strong></td>
<td>Uses chemical additives to &quot;cement&quot; native soils by decreasing placticity, increasing workability, reducing swelling and increasing strength - Also used to fill channels in trail beds to produce intended drainage. Additives may include lime, cement, fly ash - Selection of additives should be based on soil type as determined through soil testing.</td>
<td>Where slopes are &lt;5%, trail use is shared by hikers, equestrians, wheeled modes of travel (e.g. bikes, strollers, wheelchairs), degree of accessibility is defined as high and level of maintenance is established as high. Also used during construction to enable work to continue during the wet season.</td>
<td>None Proposed</td>
<td>Low cost</td>
<td>Requires regular maintenance</td>
<td>More durable than native soils, smoother surface.</td>
<td>Surface wears unevenly, not suitable as a stable all-weather surface, will erode where surface is not relatively level, difficult to achieve correct mix</td>
</tr>
<tr>
<td>Turn-around</td>
<td>Existing Conditions</td>
<td>Recommended Actions</td>
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</table>
| #1
Trail: SP   | Mowed grassland dominated by non-native plants | Mow area near boundary of the Preserve for Type 3 & 4 emergency fire vehicles to turn around. Maintain 2” min. grass cover. |
| #2
Trail: JB2  | Area is nearly flat & already contains hardened surfaces and non-native grassland | Perform minor grading to develop hammerhead turn-around for Type 3 & 4 emergency fire vehicles on west side of bridge in the area that is nearly flat. Avoid nearby riparian habitat and serpentine soils. |
| #3
Trail: Jct. ArC & Ac | Existing hardened surface adjacent to lake & utility booster station. | Maintain the existing vehicle turn-around at booster pump station. No grading or vegetation removal required. |
| #4
Trail: CM2  | Mowed grassland dominated by non-native plants | Mow area at junction of Bay View Trail for Type 3 & 4 emergency fire vehicles to turn around. Maintain 2” min. grass cover. |
| #5
Trail: ArC2 | Grassland dominated by non-native plants on opposite side of utility road from creek & does not affect creek zone | Perform minor grading to develop hammerhead turnaround in area that is nearly flat near junction of Route F (now scheduled for closure) for Type 3 & 4 emergency fire vehicles. Define area with native vegetation in a natural configuration. Avoid nearby riparian habitat. |
| #6
Trail: ArC3 | Existing dirt driveway. No grading or vegetation removal required | Locate at existing gate on the east side of the trail. Move gate back to accommodate Type 3 & 4 emergency fire vehicles. Confine turn-around area to existing graded pad. Minimize annual pruning to area necessary for vehicle access. |
| #7
Trail: MeL1 | Existing drive to old barn site. No grading or vegetation removal req. | Confine turn-around to existing graded pad that formerly served as the driveway for the old barn. |
| #8
Trail: Wo1  | Existing road around the water tank. Tight radius will not accommodate Type 3 & 4 vehicles | Maintain existing, paved vehicular turn-around that encircles water tank for utility vehicles. |
| #9
Trail: Jct. JB 4 & 5 | Flat grassland area at junction of two trails. Minor grading may be necessary | Perform minor grading to develop hammerhead turnaround at the junction Juan Bautista de Anza Trail Segs. 4 & 5. Confined work (to the greatest extend possible) to existing graded area at the trail junction. |
| #10
Trail: JB 4 | Mowed grassland | Mow an area near junction with Portola Pastures Trail to provide room for Type 3 & 4 emergency fire vehicles to turn-around. Maintain 2” min. grass cover. |

For more detailed information refer to Map 4 - Fire, Emergency and Maintenance Vehicle Access, Section 7.2 - Improving Access & Accessibility, Figure 3 - Standard ‘Hammerhead’ Turn-Around & discussions for individual trail segments in Section 6.4- Trail Implementation Programs by Tiered Classification. Final siting of all turn-around to be approved by Open Space Superintendent prior to initiating any grading.
8. Staffing and Funding
8. Staffing and Funding

8.1 Staffing

Park Staffing is to be provided to protect and maintain the park using two dedicated part-time rangers based out of the Foothills Park office. There is seven-day coverage with overlapping shifts of two five-day rangers.

The Park Rangers, with support from other City Departments, are responsible for enforcement of the City’s Municipal Code as it relates to the patrol, monitoring and maintenance of Arastradero Preserve. Their duties include: purchase, inventory, use, training, and repair, of tools, uniforms and supplies; developing and leading outreach and interpretive programs; trail patrol, monitoring (including trail counts) and maintenance; and work with the Bay Area Action -Peninsula Conservation Center on wildlife/resource management projects.

Currently there is one full time equivalent field staff person budgeted to perform all of the maintenance and patrol functions at the Preserve. Two rangers allocate half their time (20 hours per week each) to the Preserve. The remainder of each of these rangers’ time is allocated to duties at Foothills Park. It is recommended that the operational budget for the Preserve provide for at least one additional full-time equivalent staff person (FTE). Additionally, it is recommended that the operational budget for the Preserve also provide for an additional seasonal staff person to provide patrol and maintenance support for the Spring - Summer season when use is high; more mileage is available to trail users; and the majority of the maintenance tasks will need to be performed. This approach for allocating limited staff resources would be cost effective from an operations perspective and would provide a sensitive solution for managing the trail system and the natural resources the City is seeking to protect on the Preserve.

The position of Preserve Steward is staffed by Bay Area Action-Peninsula Conservation Center (BAA+PCCF). BAA+PCCF is a local non-profit, community-based organization, which has entered into a contractual agreement for shared stewardship responsibilities in the Preserve. Working closely with City staff, Bay Area Action is responsible for habitat protection and restoration, removal and control of non-native, invasive weeds, restoring former structure sites with native plants, trail maintenance and repair, educational activities, research, and riparian habitat management. Construction of any new trails or significant upgrades to any existing trails in the Preserve will be done in collaboration with the BAA+PCCF Steward, City staff, and volunteers. The Steward, under the direction of City staff will close designated, informal trails in an effort to restore habitat. Funding for these activities
is the responsibility of the City. Funding may also be provided through donations in cash and in-kind services, volunteer activities, and grants and other sources. The Arastradero Steward Annual Work Plan specifies in greater detail the responsibilities of the Steward on a yearly basis beginning with a July 1st fiscal year.

The Utilities Department is responsible for funding maintenance of the utility infrastructure corridors that run through the Preserve, including the Maintenance Access Trails and the electric, gas, and wastewater facilities located on the Preserve.

Volunteer labor may be used, where appropriate, to reduce the cost of constructing trails and to promote a sense of community pride and ownership in the Preserve. Volunteer labor should not be used where licensed specialists are required to perform trail construction activities to ensure that the trail development will not pose a public safety and/or environmental impact. An example of this type of construction activity will be the design and construction of Arastradero Creek Trail Segments 1, 2, and 3.

8.2 Program Development

Setting Trail Maintenance Priorities
The implementation program set forth in Section 6 provides a breakdown of each trail section and recommendations for trail construction, rerouting, maintenance and restoration work. While this maintenance program is not all inclusive, it does provide a framework for dividing future trail work into essential and non-essential trail work. The information provided in Sections 6.4 and 6.5 should help staff to establish priorities for new construction projects as well as routine maintenance in the near and long-term. Generally, a greater priority should be placed on the High Maintenance trail system which is to be oriented toward year-round use. The exception should be situations where there are essential work tasks that must be completed in the interest of protecting and enhancing the public’s experience and the Preserve resources in order of priority:
- Eliminating hazards and enhancing visitor accessibility
- Maintaining the utility infrastructure
- Protecting sensitive biotic species and habitat
- Correcting eroding or moving slopes that are threatening the structural integrity of the trail investment or the water quality of the creeks, seeps, pond and lake

Based on these prioritization considerations, the following trail segments rank as the highest priority for future construction, maintenance and restorative work:

Safety - Eliminating Hazards and Enhancing Visitor Accessibility
- Gateway Trail Segment 1
- Gateway Trail Segment 2
- Juan Bautista de Anza National Historic Trail Segment 1 (and protecting sensitive biotic species and habitat)
- Arastradero Creek Trail Segment 1 (and protecting sensitive biotic species and habitat and correcting eroding or moving slopes)
- Portola Pastures Segment 1 (and protecting sensitive biotic species and habitat)

Maintaining the Utility Infrastructure - Opportunity to Coordinate with Utility Work already in the Development Stages
- Arastradero Creek Trail Segment 2
- Arastradero Creek Trail Segment 3

Estimating Costs

The costs associated with completing the improvements described in Section 6 of this document should only be considered as an estimate. Costs may vary dramatically depending on the construction techniques and construction materials that are ultimately used. For the purposes of calculating the costs of implementing this plan, the assumption is that 4 to 6 foot wide trail construction and maintenance will be performed by hand, by a non-profit trail building organization such as the Trail Center. For the Maintenance Access Trails, the assumption is that professional contractors will perform the work at union wages. For revegetation work the assumption is that landscaping will consist of hydroseeding native plant materials that reflect the surrounding natural conditions of the Preserve.

The budget estimate was based on the conceptual design solutions provided in Section 7 of this document and the current construction costs. Materials selected for calculating the budget estimates are standard materials that will fulfill the functional requirements of the design. Budget estimates were determined by calculating estimated quantities and then applying unit costs to those quantities. In addition to projected construction costs, the construction subtotal also included allowances on sensitive segment for pre-construction surveys and permitting fees. In addition, a cost estimate was developed for closing and restoring each of the trail segments identified in Section 6 on Map 11 Implementation Program –Trail Routes that are to be Closed or Rerouted to Protect Resources.

Projected Construction Costs

Based on the factors described above, the construction costs for construction and restoration work associated with trail closure for the entire Preserve Trail system are estimated to be between $550,000 and $1,200,000. The lower cost largely depends on the extent to which the City is able to use volunteers and in-house services for tasks such as surveying. Alternately, the higher cost estimate assumes that private contractors will perform most of the work.
This estimate included costs for site preparation, surface improvements (such as polymer hardening additives), bridges, benches, drainage improvements, habitat enhancement (e.g. landscaping) and some signage (an overall cost was not been developed for the trail identity signs). Improvements that are proposed as part of the Gateway structure were not included, even where those improvements would have a direct benefit to trails users and trail staff (e.g. restroom, office).

### 8.3 Funding

**Current funding**

It is the City’s policy to augment staff and contractor development and repair of trails through the use volunteer labor. Financial support may also come from the community in the form of financial contributions for specific projects, and from non-profit organizations which provide groups of volunteers to assist in such activities as trail maintenance and repair, litter removal, implementation of erosion control programs, and habitat restoration.

Much of the funding for planning, development, restoration, staffing, maintenance and operations for the Preserve comes from the City’s Infrastructure Management Fund. Other sources of funding which are currently available for implementation of this plan are described below.

The Capital Improvement Program proposed budget for Project 10001, Park Trails, includes $773,000 in the five year period beginning July 1, 2001, for trail improvements in Foothills Park, the Arastradero Preserve and Baylands Nature Preserve. These funds are intended to provide for the annual clearing of trails, repair of split rail fences and repair of picnic areas. Staff anticipates allocating approximately $100,000 per year for trail improvements within Arastradero Preserve over the next five years.

Capital Improvement Program Project 0118, All Weather Arastradero Road Paving, will provide $275,000 for the stabilization of the utility access trail tread (road surface) that runs along Arastradero Creek between the border of Foothills Park and Arastradero Lake, and between Gate B on Arastradero Road and the Arastradero Lake. This project is fully funded.

In addition, the City was recently awarded $22,000 from the National Park Services for the improvement of the Juan Bautista de Anza Trail within Arastradero Preserve. Additionally, $100,000 was allocated in the California State budget, at the request of Senator Byron Sher, for creating trail connections between Arastradero Preserve and Stanford University as part of the development of the Bay-to-Ridge Trail.
Volunteers and In-kind Donations
City staff should continue to work cooperatively with Bay Area Action-Peninsula Conservation Center Foundation, the Trail Center, and other local agencies to provide volunteers for trail building and maintenance. Since the Bay Area Action-Peninsula Conservation Center Foundation has been contracted for shared stewardship responsibilities in the Preserve over 3,000 hours of volunteer service have been donated annually for trail projects within the Preserve.

Potential Funding Sources
Future financial planning for trail improvements should continue to take into consideration a variety of options to develop the most cost-effective strategies for financing including:

- Seeking grants from local, state, regional and federal programs
- Establishing partnerships with other agencies, most notably the Utility Department, the Fire Department, and the Public Works Department
- Maintaining existing and establishing new partnerships with youth and non-profit organizations (such as Eagle Scouts and the Trail Center)
- Enlisting volunteer support

Grant monies often provide opportunities to fund trail construction. Many of these potential sources are tied to federal, state and regional programs that are competitive, and involve the completion of extensive applications with clear documentation of the project need, costs and benefits as laid out in other sections of this trails management handbook. In looking for grant monies it will be important to look at the overall mission of the Preserve and not limit the search for monies exclusively to “trail monies”. Many resource funds also include opportunities for trail construction, if the trail improvements are tied to resource enhancements. Examples of these types of grant opportunities may include:

- California Fishery Restoration Program (California Department of Fish & Game)
- Habitat Conservation Fund Program (California Department of Parks and Recreation)
- Urban Streams Restoration Program (Department of Water Resources)
- National Park Service Challenge Cost Share Program (U.S. Department of Interior National Park Service Western Region, Rivers Trails, & Conservation Division) – Juan Bautista de Anza Trail
- Park Bond 2000 (California State Department of Parks and Recreation)

This list of potential granting opportunities should serve as a guide and as a source of inspiration as to the variety of financing options that may be available for funding the trail. However, note that grant opportunities come and go as the associated timelines for bills or bonds that created the funding source expire.
9. **Sources**
9. Sources

9.1 Acknowledgements

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10. Appendices
Appendix A
Sample Survey Questionnaire with Compiled Results
ARAISTRADERO PRESERVE
Questionnaire - Stakeholder Interviews

User Profile
22 Yes 0 No

1. Are you generally familiar with ARAISTRADERO Preserve?

3 a 14 b 3 c 3 d

2. How often do you visit ARAISTRADERO Preserve?
   a. daily  b. weekly  c. monthly  d. a few times a year

0 a 18 b 0 c 4 d 9 e 10 f

3. What characteristics best describe the members of the family who use the preserve?
   a. child  b. adult  c. teen  d. senior citizen
   e. male  f. female  g. size of group

1, 2-6, 1-4 g

4. Do you use the trails to:
   a. walk  b. run  c. bicycle  d. horseback ride
   e. access fishing  f. conduct nature study  g. walk dogs

12 a 6 b 8 c 6 d 0 e 4 f 1 g

5. Which trail(s) do you use the most and why?
   6 Acorn Trail 10 Corto Madera 3 Meadowlark 2 Perimeter
   5 Single track 5 All trails 1 Shady Trails 1 Joan Colin Way

Trail Management Practices

1. How do you feel we can best safeguard environmentally sensitive areas in the Preserve from damage by Horses?

11 Seasonal Use to Protect Trail Tread
   No access in muddy conditions (2)
   Seasonal trail closures (but don't tie to a calendar date) (7)
   Provide winter access on hardened trails (2)

9 Enforcement/Education
   Fences/barricades, education, signage & patrols (2)
   Signs "Stay on trails" / Use established trails (5)
   Designate specific trail limits & develop more durable trails (1)
   May have to put up temp. barricades & levy fines for trespassing if resource signs are ignored (1)

3 Resource Protection
   Manure/creek crossings – address water quality issues (2)
   Protect endangered species/habitat from trail users (1)

Bikes?

8 Seasonal Use to Protect Trail Tread
   No access in muddy conditions (2)
   Seasonal trail closures (4)
   Realign single tracks around muddy areas (1)
   Provide winter access on hardened trails (1)
9 Enforcement/Education
   Fences/barricades, education, signage & patrols (1)
   Signs “Stay on trails” / Use established trails (5)
   Designate specific trail limits & develop more durable trails (1)
   May have to put up temp. barricades & levy fines for trespassing if resource signs are ignored (1)
   Too fast, dangerous, courtesy (1)

3 Use Limitations
   Prohibit on all but a few trails (1)
   Provide a “playground” area to concentrate bicycle use to one area (1)

1 Resource Protection
   Protect endangered species/habitat from trail users (1)

Hikers?
5 Seasonal Use to Protect Trail Tread
   Seasonal trail closures (3)
   Realign single tracks around muddy areas (1)
   Provide winter access on hardened trails (1)

11 Enforcement/Education
   Fences/barricades, education, signage & patrols (1)
   Signs “Stay on trails” / Use established trails (7)
   Designate specific trail limits & develop more durable, less muddy trails (2)
   May have to put up temp. barricades & levy fines for trespassing if resource signs are ignored (1)

1 Resource Protection
   Protect endangered species/habitat from trail users (1)

Dogs?
4 Seasonal Use to Protect Trail Tread
   Provide winter access on hardened trails (2)
   Seasonal trail closures (2)

14 Enforcement/Education
   May have to put up temp. barricades & levy fines for trespassing if resource signs are ignored (1)
   Require dogs to be under voice control (1)
   Fences/barricades, education, signage & patrols (1)
   Signs at park entrances that spell out rules (1)
   Keep dogs leashed/Enforce leash laws (6)
   Signs (1)
   Designate specific trail limits & develop more durable trails (1)
   Keep leashed or designate a specific area for off-leash (1)
   Signs “Stay on trails” / Use established trails (1)
   Clean up dog poop (3)

1 Use Limitations
   Prohibit on all but a few trails (1)
1 Resource Protection
Protect endangered species/habitat from trail users (1)

Other
Dogs - Love them (1)
Collect scientific data on “damage” don’t rely on antidotal informati from special interest groups (1)
Consider impacts by nature study & restoration groups who leave trails & inadvertently create
volunteer paths (1)

2. During periods of high fire danger the Preserve the City may need to be closed to protect
park visitors and neighboring properties. How do you suggest that the City notify park users of
these closures?
25 Post signs (@ Parking lot, all entrances, boundaries along Aastradero Rd.
6 Post in local newspaper
5 Post on Web
4 Individualized notices (notify horse users from Stanford (1), neighbors including John
Marten Lane & Los Altos Hills residents (2), Maintain e-mail mailing list (1)
1 Public service radio/TV spots 1
1 Close parking lot
1 Don't close park

3 a 2 b 14 c
3. Do you believe that the existing trail system currently:
a. is over used   b. is under used   c. provides a comfortable user experience

Other - Some parts over used, some under used (1), in wet weather trail system is unsatisfactory (1), some
underutilized areas, woods, southern boundary (1)

0 a 14 b 8 c 2d 6 e
4. Do you believe the current signing in the park is:
a. excessive   b. too little   c. just right   d. informative   e. confusing

5. Is the trail staffing at the Preserve adequate?
1 Y  N

7 a 8 b 10 c 9 d 9 e f
What additional services, if any, do you see needed?
3 none
a. Enforcement through ranger patrol
b. Enforcement through volunteer patrols
c. Interpretive / Educational outreach
d. Additional staff time dedicated to performing trail maintenance
e. Additional volunteer support dedicated to performing trail maintenance
f. Other

Other –
Volunteers a bad idea (1)
Interpretive - link to Foothills Park ,esp. to bicyclists (2), station interpretive staff at parking lot (1)
Manage Star Thistle next to trails (2, unless you enforce trail changes no additional staffing needed (1)
Trail maintenance should be minimized if the right all-weather system is installed (1)
Trails in pretty good shape little is needed 1
Trail Management Issues
1. Rank Trail Management Issues on a scale of 1 - 5
   Circle answer: 1 = being the least or of no concern 5 = Being a big concern

(6) 1  (4) 2  (6) 3  (2) 4  (2) 5 a. Users entering a prohibited area or trail
(4) 1  (5) 2  (4) 3  (5) 4  (4) 5 b. Users going off trail
(3) 1  (10) 2  (6) 3  (1) 4  (1) 5 c. Reckless behavior
(7) 1  (5) 2  (3) 3  (3) 4  (3) 5 d. Disturbance of resource protection areas by trail users (hikers bikers equestrians dogs)
(7) 1  (6) 2  (8) 3  (0) 4  (1) 5 e. Conflict between bikers and hikers
(6) 1  (3) 2  (7) 3  (4) 4  (2) 5 f. Conflict between bikers and equestrians
(7) 1  (6) 2  (5) 3  (1) 4  (0) 5 g. Conflict between equestrians and hikers
(7) 1  (7) 2  (6) 3  (1) 4  (1) 5 h. Conflicts between dog walkers and other users
(4) 1  (6) 2  (3) 3  (5) 4  (3) 5 i. Dogs off leash
(3) 1  (5) 2  (5) 3  (3) 4  (4) 5 j. Excessive speed on trails
(10) 1  (5) 2  (2) 3  (3) 4  (1) 5 k. Personal injury or injury to others

Other
No management problems (1)
Don't assume conflicts without actual statistical data (1)
Lack of education, eg. Riding on wet ground, cyclists speed & impact (1)
People using wet trails (1)

15 Yes  3 No  2. Do you feel safe using the trail?
   If you do not feel safe, what safety issues concern you?
   2 Yes  10 No a. Crime
   1 Yes  10 No b. Fire safety
   6 Yes  5 No c. User conflicts
   11 Yes  2 No d. Crossing Arastradero Road from the parking lot to access the trail system
   3 Yes  6 No e. Natural elements. (EXAMPLES: poison oak, thistle, ticks, rattlesnakes)
   9 Yes  6 No f. Your physical safety with relationship to the trail surface. (EXAMPLES: slipping on
excessive steep slopes, getting bogged down in wet areas, insecure footing
on unevenly surfaced areas)

Trail Routing Criteria
18 a 8 b 13 c 14 d 14 e 9 f 1. What criteria should be used in deciding if a trail should be included Trails
12 g 7 h 5 i in the Preserve Plan?

a. Opportunities for varied and/or specific trail uses
b. Accessibility – ease of unobstructed travel
c. Challenges for trail users with varying skills, modes of travel
d. Type of terrain
e. Environmental setting
f. Interpretive / educational opportunities
g. Vistas overlooks
h. Destinations

Other
Provide longest possible trail without break (1),
Ease & ability to maintain without environmental damage (1)
Logical loops [that people can use all year] (2)
Spur trails to vistas, destinations, quiet moment for the destination (1)
Environmental sensitivity, visual impact (1)

1. What criteria should be used to decide which trails should be designated for all weather, year-round use?

18 Soil/Topographic Constraints
Soil/surface fragility, slope, erosion problems, soil drainage capabilities/wetness limitations (8)
Only trails that resist erosion should remain open to bikes & horses during wet months (7)
Trails with excessive grade should be closed during wet weather months (1)
Close trails after rains if use will cause damage (2)

12 Year-round /Seasonal Use & Construction Techniques
All weather trails should have an enduring surface (but don’t pave) (4)
A backbone all-weather trail(s) are necessary for seasonal closure (1)
Good footing (1)
Construction methods (1)
Not overly steep (1)
Good surfaces for horses (1)
Safety (1)
Meandering grassland trails that may be moved or rotated over years (2)

3 Resource Sensitivity
Environmental sensitivity (3)

8 Connectivity
Access to trails from all points (1)
Long Trails (1)
Connects with something (2)
Access to other trails (2)
Should make a logical loop with varied terrain (1)
Part of a regional link (1)

4 Maintenance /Enforcement
Ease & ability to maintain during rainy season (20% yr-round ok) (3)
Ability to enforce closure (1)

1 Use
Limit horse use when trails are wet (1)

Other
None 1
See Criteria above 1

3. What criteria should be used to decide which trails should be designated for seasonal use only?

10 Soil/Topographic Constraints
Mud, wetness damage by bike & horses (4)
Soils & geology (3)
Wetness (3)

3 Year-round /Seasonal Use & Construction Techniques
May have to close some trails to Protect Preserve (1)
Weather dictated not a strict seasonal calendar (1)
Disapprove of trail closures (1)

2 Resource Sensitivity
Close trails if they cut through bird breeding grounds (1)
Environmental sensitivity (1)

3 Use
Type of Use (e.g. bikes, horse, hikers) (1)
Limit horse use (1)
Amount of use (1)

1 Maintenance /Enforcement
Ease & ability to maintain (1)

Other
None (2)
See above (6)

Design Standards

8 Yes 13 No 1. Has the design of the trail system caused you any problems?
Yes - not well designed (2) (lack of linkages 1)

10 Yes 9 No 2. Are the existing Preserve entry points appropriately located and identified?
No - (add entry to Foothills Park & Corte MaderaLos Trancos Rd. 1) (make Bressler property an entry point 1)

17 a 7 b 11 c 5 d 3. What information would you like to see on trail signs? Examples given below
3 e 2 f 4 g 4 h
a. trail names
e. steepness of trail
b. trail destinations f. obstacles in the trail
c. mileage
g. a rating system like on ski trails: easy, expert

Arestradero Preserve
Questionnaire

6 of 10
11/3/00
Other

Trail signs ok as is (1)
No restrictions on type of use (1)
Uses permitted (1)
Keep signage simple (3)

16 a 1 b 5 c 4. Do you prefer to travel on:
   a. single track, 2 to 4 foot wide trails
   b. double track, 10 to 12 foot wide maintenance roads
   c. both are fine

5. Do you believe that the Preserve trails adequately address accessibility standards for:
   a. visitors of varying skill levels

19 Yes 1 No
   b. visitors with mobility limitations

Yes - wheelchairs can’t handle gravel trails 1
No - Wheelchair access is inappropriate except for area around visitor education center 1

6. Do you have any specific recommendations for trail design standards that you would like to see incorporated into the Preserve Trail system?

21 Trail Design

Provide for technical obstacles to make Mt. biking exp. interesting & challenging (2)
Grade of 10% or less for new trails (2)
Barrier free as appropriate (1)
Reroute seasonal trails to be more environmentally friendly (1)
Factor maintenance into design/construction decisions (1)
Don’t like the sound of gravel underfoot (2)
Make trails smooth as possible (2)
Make entrances to park all weather for horses (1)
Need a professionally designed trail system (1)
Provide all weather loops (1)
More variation in trail grade (2)
Harden heavily used equestrian trails (1)
Log line before after switchbacks to slow bicyclists (1)
Steepness (1)
Limited number of trails on Preserve (now is maxed out) (1)
Be guided by topography, size & number of users (1)

3 Trail Use

Open Meadowlark to bikes (1)
Provide a link to Foothills Park (1)
Ex. trail system provides a good mix of trails (1)
3 Trail Width – Single Track
   Keep single track trails open (1)
   Keep trails as narrow and unobtrusive as possible (1)
   Don’t widen ex. trails to double wide (1)

3 Resource/Education
   Environmentally sensitive design (habitat, erosion) (1)
   Incorporated interpretive opportunities (1)
   Reduce number of ad hoc trails, especially in environmentally sensitive areas (1)

1 Other
   By 10-acre site for Youth Hostel (1)

Other Comments
1. What do you like BEST about Arastradero Preserve?

18 Location
   Convenient Location (11)
   Accessibility (6)
   Proximity to stables (1)

2 Destinations
   Ponds (2)

16 Setting
   Not overly improved (1)
   Childhood memories (1)
   Shaded trails (1)
   Open grasslands with lots of old oaks (3)
   Wildlife observations (1)
   Vistas (2)

   Beauty (1)
   Short evening walks (1)
   Quiet, peaceful, natural (1)
   Size (1)
   Raptors (1)
   Pretty (1)
   The only way to connect to the world (1)

5 Trails
   Blue Rock trails (1)
   Large number of small, windy single track trails (1)
   Horse friendly (1)
   Diversity of trails (1)
   Popular but not overused (1)

1 Restoration efforts

2. What do you like LEAST about Arastradero Preserve?

11 Setting
   Thistles (weeds) (3)
   Winter mud (2)
   Rattle snakes (1)
   Poorly trailed (1)
   House site is a mess and detracts from the Preserve (1)

   Dust (1)
   Too hot in summer (1)
   Parking lot is too small (1)
16 Trail Design/Operations

- Gravel on roads (3)
- Crossing Arastradero Rd (2)
- Extraneous trails (1)
- Trails that follow old ranch roads (1)
- Trails are much too short (1)
- Projects started & left incomplete (1)
- New pavers trail hardening project – not successful (1)
- Lack of all weather loops (1)
- Pock marked trails (1)
- Decrease hardscape, widening trails (1)
- More trails should be closed after a rain, but they need to be reopened when mud dries up (1)
- Recent pavers are nice, but close to becoming too much like sidewalk (1)
- Want more rough surface to make trails safer (1)

10 Users

- Angry /aggressive people who don't acknowledge other trail users (2)
- Unregulated dog, bike & horse use (1)
- Fear of speeding bikes (1)
- Too many horses (1)
- Boom boxes (1)
- Mt. Bikers off trail (1)
- Non-profit groups that feel that they "own" the Preserve (1)
- Some trails are over used in winter (1)
- Volunteer patrol needs to be trained in CPR & First aid (1)

3. What visitor services, if any, would make your visits more enjoyable?

4 Trail Design/Operations

- Less trail maintenance (1)
- Redesign of most trails (1)
- Connections to other parks for long rides (up to 100 miles) (1)
- Weed management (1)

9 Amenities

- Restrooms (2)
- Horse trough (1)
- Better maps (2)
- One sturdy water fountain (1)
- Station for people horses @ barn site (1)
- A few scattered benches (1)
- Shaded area @ parking lot with picnic tables (1)
- Water

5 None

4. What changes, if any, would you like to see made to Arastradero Preserve?

4 Trail Use

- No horses when trails are muddy (1)
- Open Meadowlark Trail to bikes (1)
- More restrictions on horses in winter (1)
- All-weather access for horses to prevent trail damage (1)

3 Amenities

- Gateway Center built (2)
- Better park map (1)
3 Trail Enforcement
   Post signs telling people to stay off conservation areas (1)
   Enforce speed limits on Arastradero Rd. (1)
   More patrol (1)

13 Trail Design
   Don't remove all obstacles on trails (1)
   Do not close trails just because they are to steep or difficult for some people – better to rate trail
   similar to ski runs (1)
   Improve road crossings (1)
   Provide an official crossing from Portola Pastures (1)
   More trails (1)
   Better signage (1)
   Reroute very steep trails to create a gentler grade (1)
   Improve tread of outlying trails (1)
   Eliminate ad hoc trails on fragile soils & hillsides (1)
   All-weather trails that are professionally built (1)
   All trails multiple use (1)
   Minor trails left open but unmarked (1)
   Seasonal closures important (1)

4 Connectivity
   Connect to Foothills Park (water tank trail impassible in winter mud) (2)
   Connect with Stanford trails (1)
   Ability to access other Preserves (1)

8 Conservation/ Education
   Restore Oak tree population (1)
   Spend available money on restoration of degraded areas (1)
   Remove thistle, weeds (2)
   Education (1)
   Educate users to protect environment (1)
   Native species planted (1)
   Volunteer stewards is a good, on-going effort (1)

8 Ok the way it is
1 Other
   Addition of Bressler property 1
Appendix B
Compiled Results from Public Workshop #1
General Comments

Overall

Let’s not neuter the preserve. Its natural layout is enjoyable. Curtain trails need help - but overall. It’s a wonderful resource. Need more signage - distance and yielding to competing use.

1H/1E/ Entering the Preserve

Road Crossing – Give 2-5 words that describe your experience traveling from the parking lot and across Arastradero Road.

Hikers
- Good visibility. Cars too fast - need to slow cars down. Need horse signage and speed bumps.
- Dangerous, traffic, bikers.
- Direction? Traffic, hot, dusty.
- Cut the roadside weeds easier! Sometimes difficult for drivers to see hikers/bikers.
- No shade. Unpleasant sound walking on gravel. Trees would be great.
- Easy, well-marked, good footing.
- Least interesting part of the trail system. If it stays (i.e. Arastradero property is not acquired, suggest planting trees.)
- Bikes, cars, dogs, pedestrians, all x-ing @ same time! Safe, busy, hot, slow cars down?
- Equestrian
  - I learned how to cross streets in elementary school.

Bikers
- Not bad.
- Look left. Look right, go.
- Wish there were a stop sign.
- A bit scary sometimes.

Equestrians
- I learned how to cross streets in elementary school.
- No problem.
- No problem.
- Slightly scary.

Trail Entry – What are your thoughts about accessing the Preserve from the Parking Lot?
Hikers
- Very nice path. Needs a little maintenance.
- Okay, but could have wooden fencing along the road and a pedestrian over crossing - would be great and aesthetic but expensive. Would not put pavement, parking lot on preserve side.
Directions to Preserve are not clear lots of traffic.
A bit narrow for horses.
Would be nice to access directly.
Reasonable.
OK, just void crossing feels dangerous. Log barricades are awkward for both peds and bikes. Gravel is not the best grain size - too course - causing poor footings. (as well as poor, slippery surface for bikes) Would be nice to have more services @ lot (shade, seating, more information. Tree planting/wildflowers along access trail.

**Bikers**

More probably needed - otherwise park page mill to road wide.
Its fine accessing it from the LAH is hazardous. Open trail along road to bikes!
Fine.

**Equestrians**

- Strongly prefer crossing directly from Portola Pastures.
- Acceptable.
- Stressful crossing roads.
- Seems fine.

**Trail Barricades** - What suggestions do you have for the physically disadvantaged wanting to access the Preserve?

**Hikers**

- Probably difficult.
- Need smooth graded trails with no barricades.
- Need their own gate.
- What do other parks do? Could they get a key to the gate?
- Add small gate opposite end from log barricades. Give key code and paved good footing through it.
- Similar to MKOSD - Need a better barricade.
- Has to keep motorists/motorcyles out and let wheelchairs in styles, wheelchair grade?

**Bikers**

- A little bit of a hassle
- Remove all barricades.
- Remove logs.
- Pass ............ Would be better.

**Equestrians**

- ADA Rules
- Build a ramp with a gate that requires a key.

What ideas do you have for discouraging access by unauthorized motorized vehicles (including motorcycles)?
- Citizen police? People can write license plate numbers in suggestion box.
  - Don’t see any - never have.
  - It’s working now.
  - None. Looks good to me here anyway.
  - Probably okay as is with minor mods. (Perimeter trail to boundary needs ...........
  - Current system works except @ P. lot - easy access for mortgagees to East side.

- Bikers
  - Wood logs work.
  - * signs work. It’s not the 70’s anymore and people who own motorcyles know they are not allowed in most parks. (I don’t think you need these barriers anymore.
  - Heavy fines. Open hunting season on motorized vehicles in side park.

- Equestrians
  - I support
  - Current barricade system works fine but may not accommodate handicapped.

- Logs in front of trail. Signs and rangers
- Trail key for disabled.

2H/ Valleys & Hills

This trail offers a range of experiences relating to the terrain. Stop a moment at the base of the hill. Here is an area that is frequently quite boggy. You can see that this has caused the trail to be widened by trail users as they try to avoid this wet area.

Hikers

Bikers
Should install a bridge/puncheon over drainage. Simple solution.

What are your feelings about traveling through boggy areas in the winter months?

Hikers
Totally sucks - bad for horses and dogs and shoes. Don’t neuter the Preserve make it natural Disneyland.

- Yucky, would prefer hot ........it. Any way to put large rocks to.........? Ground?
  - Road ties.
- Hate it - trail needs to be raised and or drained.
- We don’t - it is hard on the horses and tears up the trail.

- Impossible for all users.

- Keep bikers/horses off boggy areas in water. .....areas designated as all weather - and ............. Don’t plan to do it - avoidance

- Seasonal closures, small bridge/elevated walking re-route trail.
- Don’t do it - causes rats bad for trail.
- Seasonal closures, small bridge/elevated walkway re-route trail.
Bikers
I carry my bike - I like winter.
Uncomfortable.
Feel bad.

- **How does the imprint left in the winter affect your summer experience?**
- Difficult to run - pits from horses.
- Trail is rough, especially in late spring.
- By summer the trail smooths out and is a good resting experience.
- Just watch footing.
- Makes me cautious of unstable grounds, twisting an ankle, e.g.
- Roughtails are harder to bike/hike also erosion not appealing.
- Rutted, uneven can be hard for bikers. Deep horse prints are hard on all users - close to horses during winter.

- **Bikers**
- A dip is an enjoyable challenge on otherwise plain terrain.
- Deep ruts make it hard to ride on trail pedals hit side of rut.

*Now begin climbing up the hill towards Stop 3. As you climb, pause along the way to consider your impressions. Does this trail feel steep? (Eq #3)*

- No.
- Yes, especially towards the top.
- Not bad - Good workout for horse.
- No.
- Medium
- Because pitch is short, not too bad.
- Not particularly.

Bikers
Moderately. Trails steps up - ......pot holes - bad curbs.
Not very. My gears are adequate/can stop and start agin fine.
Yes. Challenging.
Moderately, but Z like........

Equestrian
- **no**

*How do you think you would feel if you were traveling by bike or horse?*

- My horse loves it.
- Bike steps .....good workout. Horse - okay.
- Uphill bike: quite a workout. Uphill horse: footing.
- Great!
• No problem - watch out for ruts.
• Getting good/exercise.
• No problem if by horse. Steep, but not bad by bike.
• Okay for all users.

Bikers
Foot okay.
Nice trail, nice workout. nice views.
Fine
Good, moderately challenged.

• Could you and/or would you negotiate this trail if your companion was in a wheelchair, in a stroller or was a young child (under 8) on a bicycle?

• No - but than I would not be in the Preserve. You come here for the experience.
• No - wheelchair
• Not a chance.
• NO
• Wouldn’t use stroller in any park like this would use backpack - young child on a bike probably no.
• No! - All questions. above..
• No.
• No.
• (S........grassland on this hillside? Badly disturbed.)
• Wheelchair - okay for rugged /tough person. Okay for young hikers - maybe
• tough youngsters on bikes.

Bikers
No.
Not appropriate other trails better. The whole world doesn’t have to accommodate the handicapped wheelchairs for trails that are available. Yes - could tow a child in a trailer.
No. Let them take other trails.
Wheelchairs - no. Others - yes. M...........some walking may be ..........

• While you are stopped look across the hill and you can see another trail which parallels the one you are traveling on.
• Not appropriate other trails better. Yes to towing a child in a trailer. The whole world doesn’t have to accommodate the handicapped. Wheel chairs for trails are available.

Does this parallel trail seem to offer similar experiences with regard to the terrain, habitat, views, trail width and grade (trail steepness)?

• Yes.
• Yes to an but grade much less grade.
• When I have traveled these 2 trails they feel totally different.
• This one makes much larger loop.
Workshop #1 Summary
Hike, Bike, Equestrian workbooks

- Yes, but steeper. Some more distance from neighbors.

Bikers
Hard to tell from looking - seemed better.
Yes.
Yes

Given that there is a limited budget and personnel available to manage the Preserve, what would be your preferred trail management strategy in this and similar situations?

Bikers
Pick one trail.

- Route only one trail on this hill in the most environmentally superior location (and restore portions of both of the routes that are no longer to be used)?

- Close the trail that has the most severe environmental constraints during the wet winter season and manage the other for year-round use?

- No and leave both trails. And do what you did to trail by stop. 6 - Between Lake and Bridge - Utility Trail.

- Work with the Preserve staff and Bay Area Action group to find additional community resources to maintain both trails in their current configuration?

Other.

__________

When I traveled these 2 trails, they feel totally different.

- 1st box - Yes (6) No ( )
- 2nd box Yes (5) No ( )
- 3rd box - Yes (3) No ( )
- 4th box - Other Yes. (1) We don't generally ride this trail. Have to keep a stray eye out for bike coming down. They like to dome down FAST! Trail needs improvement for horses - two way nuts.

- More trails would be even better.
- Trail should be regraded to full width, refronted in portions.

- All options could work depending on the money/staff. Could have both and designate one for Lilellord other for bikes.

- Prefer the longer outer loop.
3 Neighbors & Vistas

You have just reached the top of the hill and the junction between two trails. Do you wish you had a place to step off the trail to rest, enjoy the view?

- Yes - A .......would be grand.
- Yes
- Take out the power lines.
- A
- Not at this point, although perhaps somewhere along the trail.
- No, leave it undeveloped.

Bikers
- Yes.
- I do. What a silly question.
- No.
- No.

How does this space feel compared to your previous stop by the lake?

Equestrians
- Not applicable.
- Hilly
- Open

Do you wish you had a place to step off the trail to rest, enjoy the view?

Equestrians
- Not applicable
- Yes.
- Not particularly.

What are your impressions of this property boundary?

Hikers
- From the ground - looks good.
- Beautiful VISTA. You see golfers to the left but not .......of one golf course likely.
- Nice location - nice breeze, up drainage.
- Like the trail to the Los Altos Hills trails system. Hope the golfers don’t slice one into the horses.
- Terrible thistles.
- Looks okay from what I can see.
- Hard to see boundary which is good. Makes place feel bigger.

Bikers
- Yes
Workshop #1 Summary
Hike, Bike, Equestrian workbooks

- Yes

Equestrians
- Okay
- Greener pastures on the other side.

Do you feel that there is an adequate buffer between the adjacent property and the Preserve?

Hikers
- Yes (4)
- More would be.

Bikers
- Yes.
- No. Would prefer not to see golf course.

Equestrians
- Yes.

If you lived next to the trail would your perception be the same?

Hikers
- No
- I think so.
- Yes.
- Yes.
- Yes.
- Yes.

Bikers
- Sure
- Yes
- Yes
- Yes
- Yes

Equestrians
- Yes.
- Yes
- Yes

Now turn and look down the hill towards the homes at the bottom of the hill. There is a neighborhood access point that provides a link to the Los Altos Hills trail system. How important is this type of trail connectivity to neighboring residents?

Hikers
- Probably high.
I don’t know where or what these are so can’t answer but other access sounds good.
- Extremely - keep.
- Important.
- Very important.
- Very important!
- Extremely important.

Bikers
- Very important and convenient.
- Very.
- Very.

Equestrians.
Very good.

Would you like to see connections to:
- The Town of Los Altos Hills trails system?
- The Town of Portola Valley trail system?
- Midpeninsula Regional Open Space Preserves?
- Lands of Stanford?
- Designation of a portion of the Juan Bautista de Anza National Historic Trail through the Preserve?

Other

- Box 1 Yes - (14)  No ( )
- Box 2 Yes - (14)  No ( )
- Box 3 Yes - (14)  No ( )
- Box 4 Yes - (14)  No ( )
- Box 5 Yes (11)  No ( )

Box 6 - Other - Yes ( ) Other - Foothill Park/Sky Line.

Great ideas! If it will help with finding other ......a waste of resources Long range trail connections bay and sea.

More the better - less round .............

- Foothills Park.
Other - Alternatives for cyclists to narrow paved roads with dangerous cars. As many linkages as possible.

Equestrians
- Box no. 1 Yes (1)  No ( )
- Box no. 3 Yes (1)  No ( )
- Box no. 5 Yes (1)  No ( )
- Box no. 2 Yes (1)  No ( )
- Box no. 4 Yes (1)  No ( )
- Box no. 6 - Other -- ( )
Asphalt trail dangerous.

4/3E Trail Conditions
Junction of the narrow trail and the wider boundary trail.

Many of the soils in this Preserve are highly erosive. Look back up the trail that you have just descended and you will see an example of the impact these soils can have on trails over time.

Hikers
• No.

Bikers

Steepness of trail and improper design of drainage contribute to gulling (more than soil type).

Equestrians (Note: Question worded: Did this trail feel steep?)
• No.
• No
• No
• No but it may to the horse.

Did the gulling in the trail surface make your descent difficult?

Hikers
• No - I love this part of the trail!
• Yes.
• Yes - very.
• A bit with horses - take out asphalt and rock. Then no need for
• .....trail - re-align.
• Very - I would not take my horse down this trail.
• Yes.
• Yes, sleepiness more than gulling. Trail needs erosion control features.

Bikers
Yes.
Difficult is not a bad word. Difficult conditions pose challenges that are rewarding to overcome.
Yes.
Yes.

Equestrians.
• No.
Workshop #1 Summary
Hike, Bike, Equestrian workbooks

- No
- No.
- No.

How do you think you would feel if you had climbed this section of trail on foot or bike? (question designed for equestrians)

Equestrians
- Mild
- (I can't hike - don't know).
- Okay
- It's steep.

Could you and/or would you negotiate this trail if your companion was in a wheelchair, on foot pushing a stroller or was a young child (under 8) on a pony? (question designed for equestrians)

Equestrians
- Pick a different trail.
- No
- No.
- No.

What do you think would help improve trail situations like this one? (You may check as many as you find appropriate)

- Reducing the steepness of the slope by realigning the trail so it does not run perpendicular to the slope of the hill?
- Revegetating the area adjacent to the trail?
- Modifying the surface of the trail with hardeners.
- Restricting the type of trail use by providing other trail alternatives?
- Restricting the volume of trail use by providing other trail alternatives?
- Other

- 1st box - Yes. (8) No (1)
- 2nd box Yes. (6) No ( )
- 3rd box - Yes (3) No (1)
- 4th box - Yes. (2) No ( )
- 5th box Yes (1) No (1)
- 6th box Yes (1) Other - See above - take out asphalt and north trail.
- Closing some trails entirely, particularly when alternatives exist closely.
- Prefer dirt to asphalt road surface.
Workshop #1 Summary
Hike, Bike, Equestrian workbooks

Commentaries
1\textsuperscript{st} box
2\textsuperscript{nd} box -
3\textsuperscript{rd} box - In some cases.
4\textsuperscript{th} box - "restricting the type of trail" steps with sand.
5\textsuperscript{th} box -
6\textsuperscript{th} box  Less thistle type vegetation.

Bikers
- 1\textsuperscript{st} box - Yes (1) No ( )
- 2\textsuperscript{nd} box - Yes () No ( )
- 3\textsuperscript{rd} box - Yes ( ) No ( )
- 4\textsuperscript{th} box Yes ( ) No ( )
- 5\textsuperscript{th} box Yes ( ) No ( )
- Other Yes ( ) No ( )

I thought gulleys were due to run off or riding
Judicious use of waterb........would be appropriate.

Comments
- 2\textsuperscript{nd} box - To realign this road would do more damage to the environment than
  leaving it alone and would waste park resources that should be used elsewhere.

Equestrians
1\textsuperscript{st} box Yes () No ( )
2\textsuperscript{nd} box Yes () No ( )
3\textsuperscript{rd} box Yes () No ( )
4\textsuperscript{th} box Yes () No ( )
5\textsuperscript{th} box Yes () No ( )
6\textsuperscript{th} box Yes () No ( )
Other Yes () No ( )
 Comments - By equestrian standards, this is very nominal.

5/ Wetlands & Riparian Corridors

Hikers
Do you feel a change in the temperature from your walk up the hill and across the
ridge?

What do you hear?

Hikers
- Honkings.
- Birds
- Birds - wind in trees.
- Birds and frogs.
- Birds
- Birds, hoof beats, people talking.
Workshop #1 Summary

Hike, Bike, Equestrian workbooks

- Blackbirds and bullfrogs.
- Birds, frogs
- Bikers.
- Pumping station.
- Birds, frogs.

- Equestrians
- People
- Cars and birds.

What do you smell?
- Pond
- Vegetation
- Pond smells.
- Moisture
- Pond.
- Water.

Bikers
- Horse stuff.
- Dry grass. mud.
- Horse stuff, trees.
- Decaying stuff around the .......................

Equestrians
Plants
Mother nature.

Is it important to preserve this area for the animals who live here?

Hikers
- Yes, very.
- Yes, reduce fishermen's impact on lake m....... 
- Very.
- Yes.
- Yes. More important than complete public access.
- Critical

Bikers
- Yes, except for rattlers.
- Is this a loaded question? I'm beginning to feel annoyed.
- Yes.
- Yes.
Equestrians
Absolutely.
Yes.

Would you consider this lake a good destination point on your hike/ride?
Why? Or why not?

Hikers
Okay stop - can’t really see lake - mostly fire road.
- Yes - Variation
- Very nice.
- Yes, nice rest stop.
- No. Too many people.
- Too short - fine for people with kids.
- Yes. Quiet, cooler.
- If not crowded.
- Yes, pretty, cool/shade.

Bikers
Okay stop - can’t really see lake - mostly fire road.
Yes. I like to ride the loop around it counterclockwise to drop downstairs, portage over creek. Make fun turn around Willow and stop under Willow to sit before coming out on the road.
Lake is good, but I would stop further from the junction and the substation.

Equestrians
It is beautiful and shady.

- Is this lake located a comfortable distance from the parking lot to be considered a destination point?
- Does this woodland provide a comfortable respite from the heat in the summer months?
- Does it provide a sense of place inviting you to stay for awhile?

Other

- 1st box - Yes (9) No (1)
- 2nd box - Yes (10) No ( )
- 3rd box - Yes (7) No ( )
4th box - Other -. 

Comments
For kids or disabled.
- Need control and.........removal from pond.
- People leave trash here.
Interesting spot for nature observations

Bikers
- 1st box - Yes ( ) No - too close ( )
- 2nd box - Yes ( ) No ( )
- 3rd box - Not really. Yes ( ) No ( )
- Other - My dog likes to wet her feet and belly in the water and drink. Very important stop for her on her rides.

Equestrians
1st box - Yes (1) No ( )
2nd box - Yes (1) No ( )
3rd box - Yes (1) No (1)
Other 4th box - Yes ( ) No ( )

Comments
1st box - No boring
2nd box - Perhaps
3rd box - Not really.
4th box - Other - Beautiful area.

5E-Bogs
Equestrians

Here is area that is frequently quite boggy. You can see that this has caused the trail to be widened and roughened by trail users as they try to avoid this wet area.

What are your feelings about traveling through boggy areas in the winter months?
- Go very slowly.
- May have to accept temporary closures.
- Difficult to ride.
- I worry about my horse getting injured.

How does the imprint left in the winter affect your summer experience?
- Need to regrade. Lay down bed of rock for drainage.
- It works itself out in most cases.
- More flowers in bloom.
- It usually smooths out after a few weeks of dry weather.

6 Grasslands
Hikers
(Dea gravel - should have been a finer grade. Very unpleasant surface to hiker/biker. Will not/is not staying ........)

How does this place feel compared to your previous stop by the lake?

- Very California.
- Pleasant but weedy - could use ........trees if possible.
- Open Panoramic.
- Open! Love it! Very California experience.
- Beautiful but warmer - no place for kids to play.
- Less sheltered.
- Less of a distraction in summer.
- Hot, dry and open.

Bikers
- Hot - no shelter.
- Very nice area in spring when grasses are green and wildflowers blooming. Warm in winter.
- Open
- Warmer but quieter.

Is the preservation and encouragement of the native grasses important?

Hikers
- Yes
- Yes - Too many invasions now. The thistles are a huge problem.
- Absolutely!
- Yes.
- Yes - but is very resource intensive.
- Yes.
- Yes.
- Very! Displaces invasions.

Bikers
- dud....yes.
- Yes
- Very.

Equestrians
- Yes
- Yes
- Yes
- Yes
- Yes.

Do you have any suggestions for managing trail use to encourage the growth of the native grasses and discourage the growth of non-natives such as thistles?
• Terrific restoration of the creek. Love the Blue Rock.
• Remove invasions along plant trail edges so people will carry less invasive seed.
• Educational displays ……point out.
• Natives/non-natives along the way and ………volunterism.
• All round year trail - wide enough to allow passing without leaving trail path.
• Thanks for the trail work here. This was a big writer………Needs more work at the eastern end to help disabled kids.
• Controlled burn for non-natives.
• Volunteer groups to pull weeds? I don’t know if this is reasonable given the acreage involved.
• Minimum soil disturbance of areas along trail and hillsides. Keep people on trails and be careful in mowing along trails (not too (ow). (Serpentine grass land is nice in Spring. Trail could be a little wider.)
• Awareness (eg. spreading seed via socks/tires/dogs) - stay on trails. More vols. to manage wash bikes, clean boots and dogs.

**Bikers**
• Unless you are certain that trail use contributes to the spreading of non-natives or threatens the health of natives, leave them as they are. I don’t think use is an issue here.
• Kill non native, if easy, and not too expensive or (manually cut thistles of that intrude on trail).
• Prescribed burns!

**Equestrians**
Spray the thistle.

### 7 Junction- Utility Trails & Narrow Trails

Do you have a clear idea of which trail you are on and where this trail will lead you? If not, what would help to orient you?

**Hikers**
No, sign confusing.

• Signs with trail names 
• Better Preserve Maps 
• Signs with destination points
• Other: access included.

**Comments**
• Yes - we are experienced trail users.
• Yes at this spot. But I have a problem with many signs.
- Terrific restoration of the creek. Love the Blue Rock.
- Remove invasions along plant trail edges so people will carry less invasive seed.
- Educational displays - point out.
- Natives/non-natives along the way and volunterism.
- All round year trail - wide enough to allow passing without leaving trail path.
- Thanks for the trail work here. This was a big writer. Needs more work at the eastern end to help disabled kids.
- Controlled burn for non-natives.
- Volunteer groups to pull weeds? I don’t know if this is reasonable given the acreage involved.
- Minimum soil disturbance of areas along trail and hillsides. Keep people on trails and be careful in mowing along trails (not too low). (Serpentine grassland is nice in Spring. Trail could be a little wider.)
- Awareness (eg. spreading seed via socks/tires/dogs) - stay on trails. More vols. to manage wash bikes, clean boots and dogs.

Bikers
- Unless you are certain that trail use contributes to the spreading of non-natives or threatens the health of natives, leave them as they are. I don’t think use is an issue here.
- Kill non native, if easy, and not too expensive or (manually cut thistles of that intrude on trail).
- Prescribed burns!

Equestrians
Spray the thistle.

7 Junction- Utility Trails & Narrow Trails

Do you have a clear idea of which trail you are on and where this trail will lead you? If not, what would help to orient you?

Hikers
No, sign confusing.

- Signs with trail names
- Better Preserve Maps
- Signs with destination points
- Other: access included.

Comments
- Yes - we are experienced trail users.
- Yes at this spot. But I have a problem with many signs.
Workshop #1 Summary
Hike, Bike, Equestrian workbooks

- 1st box - Yes (8)  2nd box - Yes (6)
- 3rd box - Yes (5)  4th box - Other - Signs, are confusing - no bikes at one end - no sign a other end.

UTA designations - either on sign or on map.

Bikers

- 1st box - Yes (3)  No ( )  2nd box Yes (2)  No ( )
- 3rd box Yes (3)  No ( )  4th box Yes ( )  No ( )

5th box - Other - I do not have o have trails laid out like streets. Being lost in a 600 acre park is not a life-threatening issues and should not be a major concern.

Equestrians

1st box Yes (2)  No ( )  2nd box Yes (1)  No ( )
3rd box Yes (2)  No ( )  4th box Other

If both/one of these (narrow)trails were going to the same destination and traveled/routed though the same types of landscape experiences which one would you choose?

1st box - Yes (2)  2nd box - Yes (12)  Varies from day to day.

Comments

1st box  2nd box  No question!

Need signage, back to parking lot.

Hikers, Bikers and Equestrians

- 1st box Yes ( )
- 2nd box Yes (2)

Would you make the same choice if your companion was

- A small child?
- A person in a wheelchair?
- If you were traveling alone?
- Or in a group?

Hikers

- 1st choice Yes. (7)  No - (5)  With distance markers.
Workshop #1 Summary
Hike, Bike, Equestrian workbooks

- 2nd choice - Yes (3) No (7) ....are good utility belts
- 3rd choice - Yes (6) No (1) ....
- 4th choice - Yes (7) No (1) probably .............

Bikers
- 1st choice - Yes (1) No (1)
- 2nd choice - Yes (1) No (1)
- 3rd choice - Yes (2) No ()
- 4th choice - Yes (2) No ()

Equestrians
- 1st choice - Yes (1) No ( )
- 2nd choice - Yes ( ) No ( )
- 3rd choice - Yes (1) No ( )
- 4th choice - Yes (1) No ( )

Comments
1st choice
2nd choice not applicable, no - I'd choose utility
3rd choice
4th choice

Would you choose the same route if you were traveling
- On horse Yes (6) No ( ) neither
- On bike?..Yes (5) No (1) neither

Bikers
- On foot Yes (3 ) No ( )
- On horse Yes (2 ) No ( 1) Don't know.

Equestrians
- On foot. Yes (4 ) No ( )
- On bike. Yes (1 ) No ( 1 )

If the narrow track trail looks more appealing to you, would you still select this trail if the adjacent vegetation were predominately
- Thistle? Yes (7) No (4) Depends on thick/overgrown. If managed,
- Poison Oak? Yes (6) No (4) not a problem for thistle or poison oak.
- Comment
- Not a problem for thistle or poison oak
Workshop #1 Summary
Hike, Bike, Equestrian workbooks

- Maybe
- Neither (Equestrian)

Would you like to see maintenance activities (such as herbicides, mechanical or hand techniques or prescribed burns) used on the Preserve to control invasive, unpleasant plants adjacent to the trail?

Hikers
- Yes (2)
- No (1) and .......yes, .......yes, hand/9.
- Prescribed burns.
- Hand techniques only. Okay - prescribed burns.
- Yes - some is necessary if trails are to be usable.
- No herbicides. Yes, burns, rowing, mechanical hand.

Bikers
Yes.
Yes. Although not for my sake, but to assist native plant populations.
Yes.
Yes, especially prescribed burns.

If the utility trail has more appeal to you, is it because
- The native trail surface has been altered with the addition of gravel base rock?
- The width of the trail can accommodate people traveling side by side?
- The trail has a gentler slope?

Hikers, Bikers and Equestrians
Box no. 1 Yes (1) No ( )
Box no. 2 Yes (4) No ( )
Box no. 3 Yes. (3) No ( )
Respondent added Box no. 4 Leads to alternate park access for horses.

Comments
Box no. 1
Box no. 2
Box no. 3 The realignment was a good idea and well done.

Are there any other reasons why you select one of these trail types over the other?
Hikers
- Like smaller trails and vistas.
- It depends on how wet the ground is and it depends on the presence of other users.
- Utility trail is very ugly and gravel is noisy.
- N/A
- Single track is cooler in summer. (Less reflective surface). Also, more direct contact with nature, varied surface/grade.
Workshop #1 Summary
Hike, Bike, Equestrian workbooks

- **Bikers**
  - Single track is more fun flat or downhill. Wider is better uphill.
  - Single track is more natural, more steep, more fun, more winding with more surprises.

- **Equestrians**
  - Convenient to better trails or quicker return.
  - Low vegetation some base trails are too low.
  - I like both.

**8/2E Bay Area Action Restoration Site**

Has this site been adequately secured and noticed to keep trail users out of the site?

- No. I see evidence of current use.
- Yes, I enjoyed the information though the sign was knocked down at one point
- Yes.
- Okay, could be better.

**Bikers**
No - the little sign can be missed.
Yes, - seems to have worked well. (See note on next page).
- **Equestrians.**
- Excellent work.
- More signs spread along the trail would help.

**Equestrians**
Excellent work.
Yes
Yes...

Do you wish you had more information about the work that is being done?

**Hikers**
- Yes.
- You might add web page for reference.
- Adequate
- Yes.

**Bikers**
- Yes
- Yes
- No
- Yes

**Equestrians.**
- No.
- Yes.
Workshop #1 Summary
Hike, Bike, Equestrian workbooks

- Yes.
- Yes

Would you like to have information on how you could become involved in their restoration work?
Hikers

- Yes.
- Notices should be posted.
- See above.
- Perhaps note to see more information at kiosk in parking lot.
- Yes.
- No, thank you.

Bikers

- Yes
- Yes
- No
- Yes.

Equestrians

- No
- No.
- Not sure.
- Sure

What would be the best way to communicate this information to you?

- Through signing immediately adjacent to the site?
- With signing at the future Gateway features that are to be developed at the existing parking lot?
- By docent led tours?
- Through a guidebook about the Preserve?
- On the City Web page (www.city.palo-alto.ca.us/ross/preserves.html)?
- In a Bay Area Action Newsletter (www.arastradero.org)

1st response - Yes (15) No All would be helpful, would reach different...
2nd response - Yes (9) No
3rd response - Yes (2) No
4th response - Yes (8) No
5th response - Yes (9) No
6th response - Yes (6) No

Comments
- 1st response
- 2nd response
- 3rd response A lot of trouble to coordinate
- 4th response
- 5th response
6th response: What? Most people aren't that involved. Signs on site best. Also spread word via other interested organizations such as ROMP.

9 Parallel Trails

Equestrians

This trail offers a range of experiences relating to the terrain. Stop a moment midway down the hill. While you are stopped look across the hill and you can see another trail which parallels the one you are traveling on.

Does this parallel trail seem to offer similar experiences with regard to the terrain, habitat, views, trail width and grade (trail steepness)?

Mild trail.

- Yes
- Difficult to say.

Given that there is a limited budget and personnel available to manage the Preserve, what would be your preferred trail management strategy in this and similar situations?

Route only one trail on this hill in the most environmentally superior location (and restore portions of both of the routes that are no longer to be used)?

Close the trail that has the most severe environmental constraints during the wet winter season and manage the other for year-round use?

Work with the Preserve staff and Bay Area Action group to find additional community resources to maintain both trails in their current configuration?

1st choice: Yes ( )
2nd choice: Yes (2 )
3rd choice: Yes ( )
4th choice: Other

No ( )
No ( )
No ( )
9 Parallel Trails

Equestrians

This trail offers a range of experiences relating to the terrain. Stop a moment midway down the hill. While you are stopped look across the hill and you can see another trail which parallels the one you are traveling on.

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Route only one trail on this hill in the most environmentally superior location (and restore portions of both of the routes that are no longer to be used)?

Close the trail that has the most severe environmental constraints during the wet winter season and manage the other for year-round use?

Work with the Preserve staff and Bay Area Action group to find additional community resources to maintain both trails in their current configuration?

1st choice  Yes ( )  No ( )
2nd choice  Yes (2)  No ( )
3rd choice  Yes ( )  No ( )
4th choice - Other
April 12, 2001

Greg Betts  
City of Palo Alto  
1451 Middlefield Road  
Palo Alto, CA 94301

Subject: Arastradero Preserve Trails Management Plan  
SCH#: 2001032072

Dear Greg Betts:

The State Clearinghouse submitted the above named Negative Declaration to selected state agencies for review. The review period closed on April 12, 2001, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

[Signature]

Terry Roberts  
Senior Planner, State Clearinghouse
DATE: March 20, 2001

TO: Greg Betts
City of Palo Alto
1451 Middlefield Road
Palo Alto, CA 94301

RE: Arastradero Preserve Trails Management Plan
SCH#: 2001032072

This is to acknowledge that the State Clearinghouse has received your environmental document for state review. The review period assigned by the State Clearinghouse is:

Review Start Date: March 14, 2001
Review End Date: April 12, 2001

We have distributed your document to the following agencies and departments:

California Highway Patrol
Caltrans, District 4
Department of Conservation
Department of Fish and Game, Region 3
Department of Forestry and Fire Protection
Department of Parks and Recreation
Native American Heritage Commission
Office of Historic Preservation
Regional Water Quality Control Board, Region 2
Resources Agency
State Lands Commission

The State Clearinghouse will provide a closing letter with any state agency comments to your attention on the date following the close of the review period.

Thank you for your participation in the State Clearinghouse review process.
Document Details Report
State Clearinghouse Data Base

SCH# 2001032072
Project Title Arastradero Preserve Trails Management Plan
Lead Agency Palo Alto, City of

Type Neg Negative Declaration
Description A Trails Management Plan for an existing informal trails network.

Lead Agency Contact
Name Greg Betts
Agency City of Palo Alto
Phone 650-473-1965
Fax
Email
Address 1451 Middlefield Road
City Palo Alto
State CA Zip 94301

Project Location
County Santa Clara
City Palo Alto
Region
Cross Streets Arastradero between Page Mill and Alpine
Parcel No.
Township 6S
Range 3W
Section
Base UPAQ

Proximity to:
Highways 280
Airports
Railways
Waterways Arastradero Creek, Los Tranches Creek
Schools
Land Use Open space preserve/Public Facility-Open Space/Publicly Owned Conservation Land.

Project Issues Aesthetic/Visual; Archaeologic-Historic; Forest Land/Fire Hazard; Soil Erosion/Compaction/Grading;
Vegetation; Water Quality; Wetland/Riparian; Wildlife

Reviewing Agencies Resources Agency; Department of Conservation; Department of Fish and Game, Region 3;
Department of Forestry and Fire Protection; Office of Historic Preservation; Department of Parks and
Recreation; California Highway Patrol; Caltrans, District 4; Regional Water Quality Control Board,
Region 2; Native American Heritage Commission; State Lands Commission

Date Received 03/14/2001 Start of Review 03/14/2001 End of Review 04/12/2001

Note: Some data fields result from insufficient information provided by lead agency.
CERTIFICATE OF FEE EXEMPTION

Department of Fish and Game de Minimis Impact Finding

To: Office of the County Clerk
    Business Division, Room 104
    191 North First Street
    San Jose, CA 95113

From: Department of Community Services – Open Space
    City of Palo Alto
    1451 Middlefield Road
    Palo Alto, CA 94301

Project Title: Arastradero Preserve Trail Master Plan

Project Applicant (Name & Address):
    City of Palo Alto, Community Services, 1451 Middlefield Road, Palo Alto, CA 94301

Project Location: Arastradero Preserve, Arastradero Road, Palo Alto, Santa Clara County

Project Description: Master plan for trails and roads in the Arastradero Preserve. The plan describes strategies for re-siting steep or inappropriately sited trails, closing trails in environmentally sensitive areas, and restoring the sites of closed trails. Provides for seasonal and year-round access trails for the public.

Findings of Exemption:

1. An initial study has been conducted by this lead agency and a Mitigated Negative Declaration was prepared, which evaluated the potential for this project to cause an adverse effect—either individually or cumulatively—on wildlife resources. For this purpose, wildlife is defined as "all wild animals, birds, plants, fish, amphibians, and related ecological communities, including habitat upon which the wildlife depends for its continued viability." (Section 711.2, Fish and game Code)

2. When considering the Mitigated Negative Declaration for the project and the record as a whole, there is no evidence that the proposed project would have any potential for adverse effect on wildlife resources or the habitat upon which wildlife depends. Rather, the project is intended to reduce negative impacts on habitat and wildlife.

Certification:

I hereby certify that the City of Palo Alto, as lead agency, has made the above findings and that based upon the initial study, the Mitigated Negative Declaration and hearing record, the proposed project will not individually or cumulatively have an adverse effect on wildlife resources, as defined in Section 711.2 of the Fish and Game Code.

[Signature]

[Title]

5-16-01

Date
ARAISTRADERO PRESERVE
TRAILS MANAGEMENT PLAN

INITIAL STUDY

MARCH 9, 2001

Prepared for the
City of Palo Alto
Department of Community Services
Recreation, Open Space & Sciences Division

Prepared by
Thomas Reid Associates
PO Box 880
Palo Alto, California 94301
(650) 327-0429