

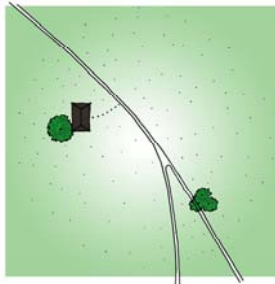
## 6. MAINTENANCE

Hillsboro's park system contains a wide diversity of parks and facilities. This includes parks that are fully developed, fully natural, as well as those containing a mix of developed and natural areas. Generally, Hillsboro Parks & Recreation has focused on the maintenance of the developed areas, and has been an effective and efficient service provider. However, as the park system has increased, the complexity of maintaining the parks, facilities, and trails has also increased.

This chapter is organized into four sections, each addressing a specific area of the park system. The first section recommends implementation of a maintenance classification scheme to assist in management of the expanded, diversified park system. The second section addresses traditional park maintenance. The third discusses natural area management and coordinating with the maintenance management program. The last section addresses maintenance of trails.

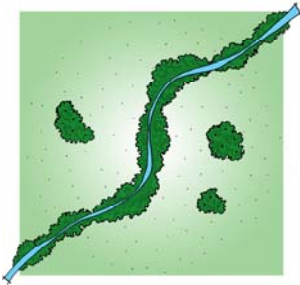
### MAINTENANCE CLASSIFICATION

Hillsboro's parks are classified by type (neighborhood, community, etc.) to reflect their function and purpose within the park system. Within the park system, Hillsboro's approach to park development has been a contextual, site-specific response to the unique qualities of each park. As a result, each park has its own character and defining elements, even while fitting into the overall functional classification scheme. Because of the many natural resources present in Hillsboro, a new approach to allocating maintenance resources efficiently is described below. This approach is based on viewing the mix of natural areas and developed park land as a spectrum, with five types of maintenance classifications.



#### A. Fully Developed Park

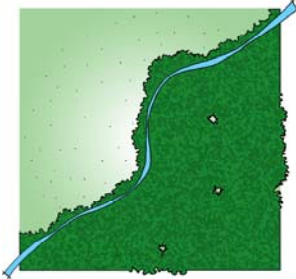
These parks are fully developed, such as Hondo Dog Park and Fairgrounds Sports Complex.



### **B. Primarily Developed Park**

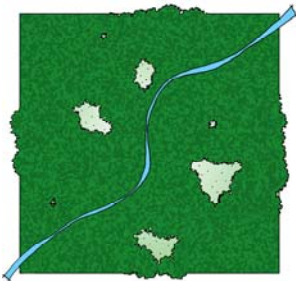
These parks are primarily developed, but have some remnant natural resources, such as stands of native trees or a creek or wetland.

Bicentennial Park and Shadywood Park are examples of primarily developed parks.



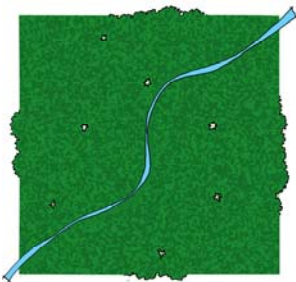
### **C. Integrated Developed Areas and Natural Resources**

These parks have a mix of natural areas and developed areas. Orchard, Rood Bridge, and Dairy Creek parks fit this model.



### **D. Primarily Natural Resource Park**

These parks are primarily natural areas, but have small developed areas within them such as Noble Woods Park.



### **E. Natural Resource Park**

These parks are natural areas, and while they may contain trails, they often have no facilities at all.

Hillsboro Parks & Recreation should implement the maintenance classification system as follows:

- Assign each park to a maintenance classification.
  - Adjust maintenance protocols, identifying maintenance tasks and levels for each maintenance category to reflect its needs.
- Incorporate recommendations on enhancing natural resource management contained later in this chapter.

## TRADITIONAL PARK MAINTENANCE

Hillsboro has a very well-developed and efficient system in place for conducting traditional park maintenance activities. The cost of providing maintenance is about average for the Northwest, but the parks are in above average condition throughout the system. The current level of maintenance satisfies the public who report very high levels of satisfaction with Hillsboro Parks & Recreation and the condition of the City's parks.

Traditional park maintenance includes trash removal, mowing, fertilizing, overseeding, flower bed maintenance, mulching, edging, restroom cleaning, and pavement maintenance. Playground safety inspections and other monitoring of park features also are traditional park maintenance activities.

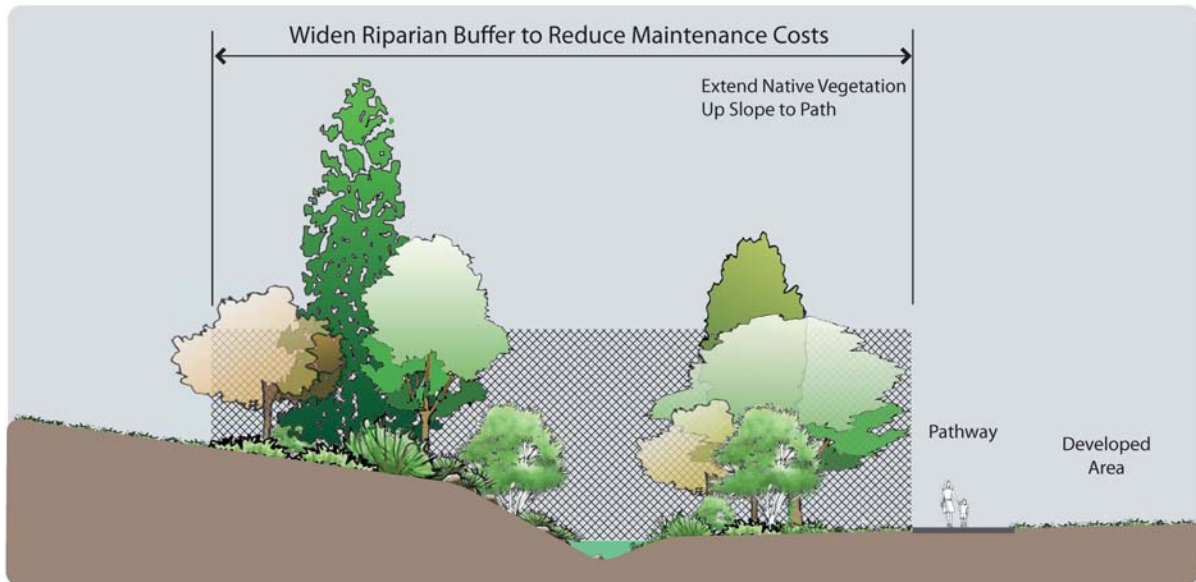
The department should continue to provide traditional park maintenance at the current level. This level of maintenance provides for the long term stewardship of Hillsboro's park assets and meets the needs of the public who reported very high levels of satisfaction with the department and the parks in the community.

Hillsboro should continue to develop parks to the high level of quality demonstrated in the past ten years of park development. Committing capital funds to build quality parks reduces the overall maintenance burden. In addition, there are three initiatives that Hillsboro Parks & Recreation should consider to improve stewardship of the park system. The consideration of these three initiatives will provide a holistic, long-term approach that will protect and provide maintenance for the features that help define the distinct character of Hillsboro's established parks.

- **Tree Health Monitoring** – Establish a tree health monitoring protocol throughout the park system and develop tree replacement plans for existing parks. The tree canopy is a defining characteristic of many Hillsboro parks. Shute Park and Bicentennial Park have mature stands of Douglas firs that have been part of these parks since they were established. At these sites and others in the system, the canopy is single age with no natural regeneration. The absence of an active tree monitoring program may see a major change in canopy character if the canopy declines gradually or in a single event.
- **Adjacent Riparian Edge Treatments** – Develop and implement edge treatments for Types B and C parks to improve the management of the areas where traditional park features intersect with natural areas. For example, turf grass grown on slopes or wet areas on the edge of a forest or wetland create difficulty in maintaining the lawn and unnecessarily limit habitat. An identified

transitional edge zone from lawn to native grassland or shrubs, then to native forest or wetlands (where lawn is not needed for recreation purposes) will improve natural habitats, facilitate maintenance, and reduce overall maintenance costs in the medium to longer term. The following illustrations provide examples of edge treatments.

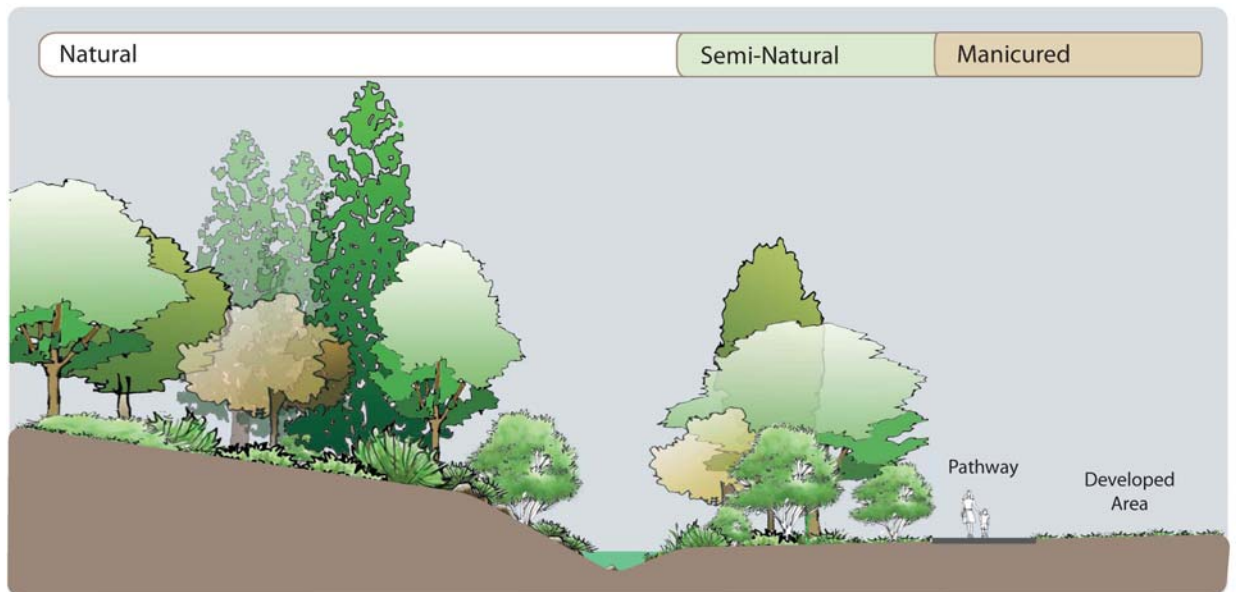
FIGURE 6.1: DEVELOPED PARK WITH NATURAL FEATURES



**Suggested Management:**

- Widen riparian area into park;
- Monitor for invasive species;
- Prevent erosion or chemical pollution; and
- Add wood to creek for habitat enhancement.

FIGURE 6.2: INTEGRATED DEVELOPED AREAS AND NATURAL RESOURCES



#### Suggested Management:

- Place rustic facilities within natural area;
  - Monitor and manage invasive species; and
  - Transition from a manicured area to a semi-natural edge.
- **Natural Resource Management** – Develop and implement natural resource management protocols throughout the park system aimed at stabilizing and gradually improving natural areas. Hillsboro’s park system has many important natural resource areas. The traditional view of maintaining these areas is to provide no maintenance or only to mitigate hazards. However, natural resource management in urban settings is critical to maintaining ecological integrity and controlling invasive species. Specific natural resource management recommendations are described in the next section.

## NATURAL AREAS

Hillsboro Parks & Recreation excels at providing traditional park maintenance, but the maintenance staff doesn't currently have natural resource management expertise. This expertise is a necessity for the department to develop and implement a natural resource management program. The department should continue to diversify the maintenance staff skill set, providing onsite resources to increase natural resource management expertise.

### *Natural Resource Management Concepts*

Table 6.1 shows a matrix of natural resource management concepts and associated issues and actions for each concept. Each concept addresses management based on several issues common to natural areas. These are:

- Safety & Fire Mitigation;
- Wildlife;
- Invasive Species;
- Native Species Composition & Structure;
- Restoration Practices & Opportunities; and
- Monitoring and Adaptive Management.

Each concept, defined below, describes levels of effort and intervention for maintenance of natural areas and stewardship of Hillsboro's valuable natural resources. Expansion—an additional approach included in the list—may present a win-win situation at some sites, both increasing the total natural resource areas and lowering the maintenance costs.

- **Current Practice** – This level of natural resource management describes what Hillsboro currently does, including minimal or occasional management of hazard trees, invasive species, homeless camps, and brush. There is no regular monitoring. Under this scenario, natural areas will continue to degrade.
- **Stabilize** – In this level of resource management, natural plant communities and habitats are managed to prevent further deterioration or degradation. The primary focus would be on invasive species, including regular monitoring and intervention to prevent further spread or establishment of new populations. Some brush and conifer removal near oaks would prevent over-topping or excessive competition. Erosion into creeks is prevented.
- **Improve** – Invasive species extent is reduced. Native plant communities and habitats are enlarged, more complex, and have better function. Water quality—temperature, nutrients, bacteria—gets better than at present.
- **Restore** – Natural areas are substantially free of invasive species and are on a normal trajectory of change. Oak woodlands are free of

competing species (particularly Douglas fir). The historic diversity of plants (and most animals) is in place. Water quality is high, similar to that found in non-urban natural areas.

- **Maintained System** – Similar to ‘Restore’, but with less direct intervention needed. Focus is shifted to monitoring and occasional actions to eliminate new invasive populations. Prescribed burning might be used in some small areas (oak woodlands and prairies).
- **Expansion** – In some places, it might be desirable to expand natural vegetation patches outward into currently developed parks. This helps improve their function by reducing edge effects, and could reduce maintenance costs, since natural areas cost less to maintain.

TABLE 6.1: NATURAL RESOURCE MANAGEMENT CONCEPTS

Management Concepts for Hillsboro Parks & Natural Areas

Investment Over Time Continuum	\$	\$\$	\$\$\$	\$\$\$\$	\$\$
		<b>Stabilize</b>	<b>Improve</b>	<b>Restore</b>	<b>Maintain Restored System</b>
<b>Issue:</b>					
<b>Safety &amp; Fire Mitigation</b>	<ul style="list-style-type: none"> <li>Hazard trees management</li> </ul>	<ul style="list-style-type: none"> <li>Mow fire breaks at edges</li> <li>Reduce fuels at edges nearest homes</li> </ul>	<ul style="list-style-type: none"> <li>Thin fuels within coniferous woodlands</li> </ul>	<ul style="list-style-type: none"> <li>Prescribed burn oak woodlands</li> </ul>	<ul style="list-style-type: none"> <li>Continue prescribed burning and/or periodic fuel reduction</li> </ul>
<b>Wildlife</b>	<ul style="list-style-type: none"> <li>Common species present</li> </ul>	<ul style="list-style-type: none"> <li>Common species present</li> </ul>	<ul style="list-style-type: none"> <li>Partially implements Oregon conservation strategy (OCS) by improving oak woodland and aquatic habitats</li> </ul>	<ul style="list-style-type: none"> <li>Further implement OCS by enlarging oak habitat</li> <li>Could attract or reintroduce additional listed species</li> </ul>	<ul style="list-style-type: none"> <li>Continue OCS</li> </ul>
<b>Invasive Species</b>	<ul style="list-style-type: none"> <li>Occasional weed removal</li> <li>Invasion &amp; spread of exotic species continues</li> </ul>	<ul style="list-style-type: none"> <li>Monitor regularly</li> <li>Prevent spread of existing and new invasions</li> </ul>	<ul style="list-style-type: none"> <li>Implement Prevention / Early Detection Rapid Response program (*PEDRR) 50% of sites</li> </ul>	<ul style="list-style-type: none"> <li>Expand PEDRR* to 100% of sites</li> <li>Remove existing weed population</li> <li>Expand practice to 100% of sites.</li> </ul>	<ul style="list-style-type: none"> <li>Continue PEDRR* and treat new populations</li> </ul>
<b>Native Species Composition &amp; Structure</b>	<ul style="list-style-type: none"> <li>Some opportunistic planting projects</li> <li>Native species out-competed by exotic grasses, brush, and invasive exotic weeds</li> </ul>	<ul style="list-style-type: none"> <li>Protect best native patches</li> <li>Reduce nonnative species</li> <li>Plant native understory species in cleared areas</li> <li>Mow weeds and brush annually</li> <li>Under-plant park groves</li> </ul>	<ul style="list-style-type: none"> <li>Enrich 50% of woodland understory by planting</li> <li>Convert reed canary wetlands to native emergent or scrub-shrub</li> </ul>	<ul style="list-style-type: none"> <li>Expand practice to 100% of sites.</li> </ul>	<ul style="list-style-type: none"> <li>Continue PEDRR*</li> <li>Occasional mowing and brush removal</li> </ul>
<b>Restoration Practices &amp; Opportunities</b>	<ul style="list-style-type: none"> <li>Opportunistic projects</li> </ul>	<ul style="list-style-type: none"> <li>Remove firs that crowd oaks</li> <li>Mow reed canary patches to prevent seed development</li> <li>Remove ivy from trees</li> </ul>	<ul style="list-style-type: none"> <li>Enhance best oak patches</li> <li>Thin oak edges</li> <li>Convert reed canary wetlands to native shrub-scrub</li> <li>Invasive reduction</li> <li>Expand natural edges within developed parks</li> </ul>	<ul style="list-style-type: none"> <li>Continue and expand improvements</li> </ul>	<ul style="list-style-type: none"> <li>Regular monitoring &amp; weeding</li> <li>Occasional mowing &amp; brush removal</li> <li>Possible periodic prescribed burn</li> <li>Continue PEDRR*</li> </ul>
<b>Monitoring And Adaptive Management</b>	<ul style="list-style-type: none"> <li>None</li> </ul>	<ul style="list-style-type: none"> <li>Monitor for soil erosion</li> <li>Monitor for invasive species (PEDRR*)</li> <li>Monitor for tree/shrub encroachment on oaks</li> </ul>	<ul style="list-style-type: none"> <li>Monitor and adapt practices</li> </ul>	<ul style="list-style-type: none"> <li>Monitor and adapt practices</li> <li>Design field experiments</li> <li>Urban Ecology Research Consortium (UERC)</li> </ul>	<ul style="list-style-type: none"> <li>Monitor and adapt maintenance practices</li> <li>Participate in UERC</li> </ul>

\*Prevention/Early Detection Rapid Response program (PEDRR)

\*\*Note that initial mowing of the brush patches is more expensive than subsequent mowing of grass/forb vegetation. Prescribed burning can be less expensive than mowing.

## *Recommendations*

The following recommendations are designed to improve natural area management.

- **Assign an individual to natural resource stewardship.** This role could be filled by a staff member (existing or new), a contractor or a partner agency or organization. This person would be responsible for initiating and overseeing implementation of the following five recommendations.
- **Implement an annual natural resource area inspection and monitoring program.** This program should be conducted in spring each year. The main purpose is to determine whether resources are declining, remaining steady, or are improving. A key outcome of an inspection and monitoring program is identifying natural resource maintenance and management needs for the coming fiscal year, including identification of where noxious weed abatement is most needed. Inspection and monitoring could be conducted by in-house or contract/partner staff resources, using protocols, tools, and techniques already developed by other natural resource area managers (THPRD, Metro, Portland Parks).
- **Implement the natural resource management level system.** The matrix presented in Table 6.1 has been developed to illustrate several levels of natural resource management. The matrix highlights the levels ‘Stabilize’ and ‘Restore’ as target levels for most of the Hillsboro park system. There are areas that will require a higher level of natural resource management due to the on-site resources. For example, there is significant potential for wetland restoration/mitigation work at Jackson Bottom Wetlands Preserve.
- **Manage first for high priority resources types.** Highest priorities should include those habitat types that are regionally important, including oak trees and woodlands, riparian woodlands, mature upland forests, wetlands, and aquatic areas. Since intervention methods can be intrusive—including mature tree cutting and herbicide use—public outreach/education process is highly recommended.
- **Enhance partnerships with agencies and individual volunteers through increased outreach to the public.** Many communities have extensive natural resource volunteer opportunities, which enhance natural areas, provide recreation value, and increase ownership of the park system. Further develop Hillsboro’s natural resource volunteer and partnership opportunities. Hillsboro should expand its natural resource volunteer opportunities and partnerships to assist with the enhanced natural resource management program recommended in this plan.
- **Pursue grants to help manage natural resources.** Many grants for natural resource enhancement and restoration are

available, including regional, state, federal, and private foundation sources. Some programs, like Metro and City of Portland, bring in hundreds of thousands to millions of dollars a year in these types of grants.

## TRAILS

The trail network in Hillsboro includes pedestrian paths and bikeways located in parks, providing City and regional connections. Most of the bicycle and pedestrian paths are paved, with the occasional unpaved trail found in a park. The conditions of the existing trails are generally good and will require minimal maintenance duties.

Based on these trail conditions, the following pedestrian path and bikeway maintenance guidelines are suitable for Hillsboro Parks & Recreation. These are derived from the U.S. Department of Transportation Federal Highway Administration's recommendations for bicycle facility maintenance.<sup>1</sup>

### *Trail Maintenance Strategies*

#### 6.1 Maintain trails and bikeways to a relatively hazard-free standard.

- Patch surfaces as smoothly as possible.
- Make sure pavement overlay projects feather the new surface into the existing one or otherwise do not create new linear joints.
- Patch potholes quickly, as soon after they are reported as possible.
- Routinely cut back all encroaching vegetation, making regional routes the highest priority.

#### 6.2 Encourage users to report maintenance problems and hazards.

- Develop a pedestrian and bicycle spot improvement form and distribute copies throughout the community. Also make it available on line.
- Make sure returned forms are acted on in a timely fashion. Set a goal for response time and evaluate performance.

#### 6.3 Design and build new paths and bikeways to reduce the potential for accumulating debris.

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<sup>1</sup> U.S. Department of Transportation Federal Highway Administration. Bicycle Facility Maintenance recommendations (<http://www.tfhr.gov/safety/pedbike/pubs/05085/chapt16.htm>)

- Use edge treatments, shoulder surfaces, and access controls that reduce the potential for accumulation of debris.
  - Use materials and construction techniques that increase the longevity of new trail surfaces.
- 6.4 Include maintenance costs and clearly spelled-out maintenance procedures in all bicycle facility projects.
- Include reasonable estimates of the maintenance costs in the project budget.
  - Establish clear maintenance responsibilities in advance of construction.

### *Maintenance Concerns*

The following are typical surface, vegetation, and signage problems found with paved trails. Actions to remedy the problems are included for each problem.

#### Surface Problems

- **Potholes and other surface irregularities** – Patch to a high standard, paying particular attention to problems near bicyclists' typical travel alignments. Require other agencies and companies to patch to a similarly high standard; if repairs fail within a year, require remedial action.
- **Debris on the pathways** – Pay particular attention to locations such as underpasses, where changes in lighting conditions can blind bicyclists to surface hazards.
- **Ridges or cracks** – These should be filled or ground down as needed to reduce the chance of a bicyclist catching a front wheel and crashing. Pay particular attention to ridges or cracks that run parallel to the direction of travel.

#### Encroaching Vegetation

- **Shrubs and tree branches adjacent to trail edges** – Trim vegetation back to allow at least a 2-ft clearance between the edge of the pavement and the vegetation.
- **Grasses adjacent to trail edges** – Tall grasses should be mowed regularly to expose any potential hazards that might otherwise be hidden from a pedestrian or cyclist's view. In addition, vegetation should be prevented from breaking up the edge of pavement and encroaching on the trail surface.

#### Signing and Marking

- **Trail signing** – Trail signs may be subjected to frequent theft or vandalism. Regular inspections should be conducted to ensure that

signs are still in place and in good condition; this is particularly true of regulatory and warning signs.

- **Trail markings** - Generally, trails have a few simple markings (e.g., a center line, pavement markings); however, these should be repainted when necessary.