

MAINTENANCE PLAN

CHAPTER VI

INTRODUCTION

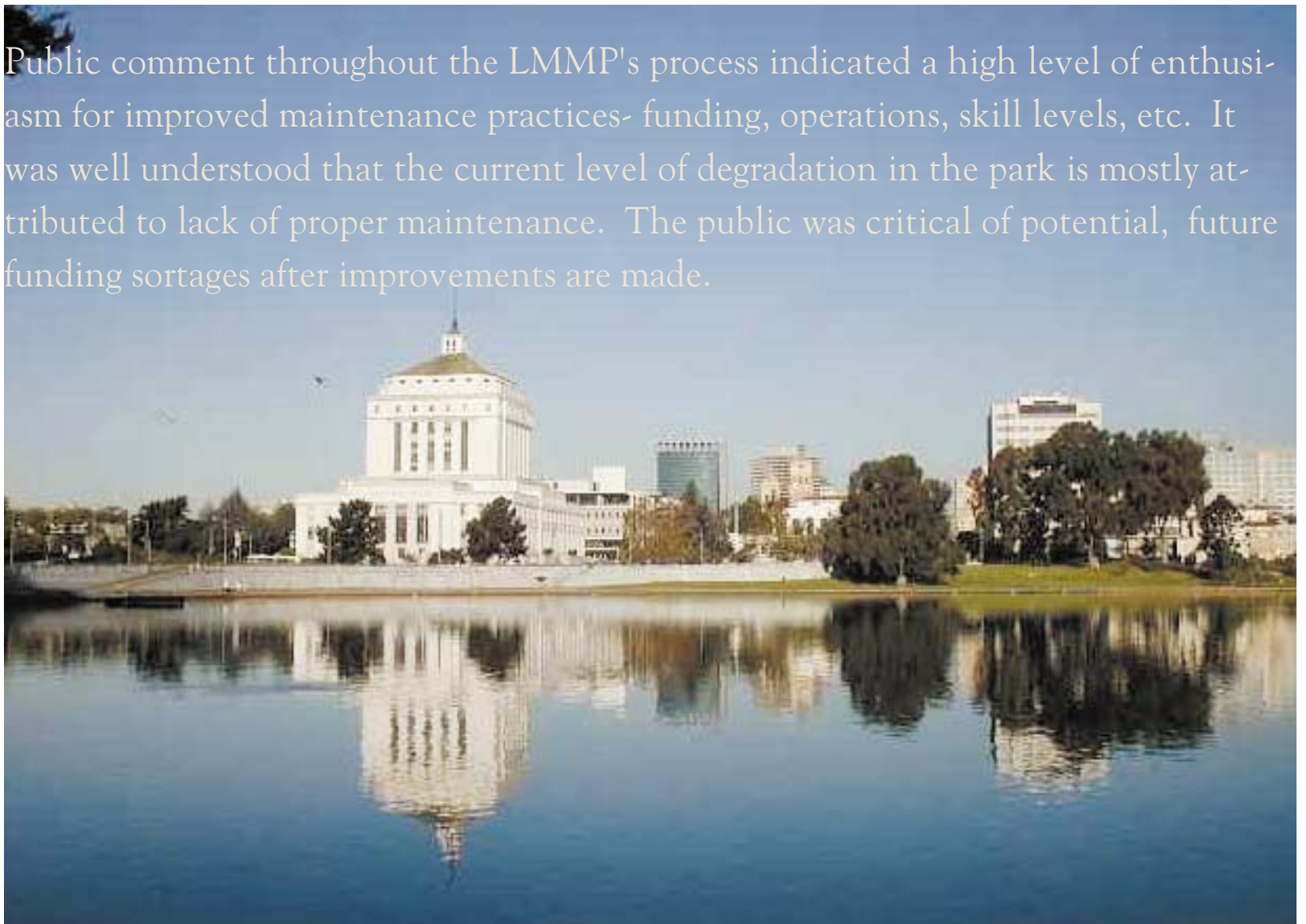
MAINTENANCE REVIEW

GUIDELINES FOR CARE

INTRODUCTION

While the planning and design of a park may paint a picture of beauty, the long term care and durability of a public environment is the realistic factor in its success. The Lake Merritt Master Plan promotes a durable, yet thoughtful design for the park improvements. The standard level of care for the park is provided as a guide for park managers. Maintenance practices and expected life cycle timeline are shown. Expected cost for this level of care is provided to similarly inform the park operations.

Public comment throughout the LMMP's process indicated a high level of enthusiasm for improved maintenance practices- funding, operations, skill levels, etc. It was well understood that the current level of degradation in the park is mostly attributed to lack of proper maintenance. The public was critical of potential, future funding shortages after improvements are made.



Comparative Aspects of Maintenance

Figures from the Trust for Public Land's 2000 "Inside Parks" (Peter Harnik) publication are useful to gauge Oakland open space expenditures against other comparable cities.

In April of 2002, the Oakland Parks Coalition released a report on park maintenance. The document indicates public awareness of maintenance issues effecting Oakland's public parks.

Maintenance Recommendations

The LMMP makes strategic recommendations for improving the quality of maintenance at Lake Merritt Park. Estimates of costs for this standard are included.

Guidelines for Care/Life Cycle

Tables VI.1 and VI.2 describes expected care and life cycle standards for park landscape and furnishings.



Facing Page: Alameda
County Court House
Left: Harvester machine

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Maintenance Facilities

Maintenance and Operations Areas

Maintenance and operations areas within Lake Merritt Park are necessary for efficiency and care of Lake Merritt Park. The Maintenance operations facilities now house maintenance operations for other City of Oakland parks. The other maintenance facilities needs are over taxing the current area where these facilities are housed. Recently, an area formally park forest and grass areas was converted to a parking lot for maintenance vehicles. Maintenance needs for other Oakland parks should be housed at another facility, leaving the maintenance operations area for caring for Lake Merritt Park. Below are recommendations for the site:

- Remove truck parking facility for overall City of Oakland parks to another location.
- Remove large maintenance structure and integrate maintenance staff needs into new educational facility.
- Relocate maintenance equipment (large trucks) needed to maintain Lake Merritt Park to the location recommended in this plan.



Existing trash/recycling receptacle in Lakeside park

Park Management

Park Management and Maintenance

The City of Oakland Parks and Recreation Department has several maintenance groups that work in Lake Merritt Park:

Gardeners

Gardeners have primary responsibility for horticultural and landscape maintenance. Lake Merritt Park is based on a “beat” system with the Park divided into five sections. There is one supervisor who oversees the gardeners who are assigned to beats. This system provides knowledgeable gardeners who can take pride in their section. Some jobs may be more efficiently handled with more gardeners working as a crew. Trash pick-up is an additional responsibility.

Irrigation Division

This division has 3 full time employees who repair irrigation systems for the City of Oakland parks. They design irrigation systems, repair major plumbing such as repairs below the irrigation head (lateral and mainlines) and conduct irrigation inspections.

Tree Division

This division cares for trees, pruning, removal. At present, due to lack of personnel and funding, responds only to crises. The division operates throughout the City of Oakland.

Turf Management

This division maintains the turf areas. There are two people who mow the lawns. They are not dedicated to Lake Merritt Park, but mow turf areas throughout the City of Oakland parks and recreation areas.

Landscape Evaluation

The overall quality of the landscape can be rated as poor. This can be attributed to any number of factors, one of which is landscape maintenance practices, which is addressed here.

Information regarding irrigation controller locations, makes, and models, water meter and backflow locations, mow times, etc. have been provided by staff.

There seems to be no overall plan or strategy for carrying out park maintenance tasks. It appears that the concept of “landscape management” has not been introduced and that day-to-day maintenance tasks are performed on an as-needed basis. An immediate and significant improvement could be achieved in the quality of the park by simply involving the staff in the development of an overall plan for better maintenance practices.

It is unclear what personnel are responsible for various tasks, specifically what those tasks are, and what sort of data is available in carrying out those tasks. For example, while there are apparently five permanent staff members responsible for maintenance tasks, mowing (edging and cleanup?) is done by another crew. Minor irrigation repairs are done by staff, but “other” irrigation work is done by another crew. All tree work is apparently done by others on an emergency, as-needed basis only.

While some staff has worked at the park for a number of years, little appears to be known, documented, or available regarding the park’s inventory: square footage of areas, plant inventory or requirements, or irrigation system components or operational data.

PWA

This division has several crews that are involved with Lake Merritt Park.

- One crew handles widgeon grass harvesting on Lake Merritt six months out of the year utilizing four full time employees.
- Another crew handles site furnishing repair, play structures, water fountains and swings.
- Trash pick-up is another responsibility of DPW crews. This takes place at the Park edges along roadways.

Non-profits

There are many non-profit groups that take care of areas within Lake Merritt Park. One non-profit is Children’s Fairyland, which maintains its gardens aside from tree repair which is handled by the Tree Division. Another non-profit group is the

Lake Merritt Institute, which among other aims, maintains and cleans the watershore edge of Lake Merritt.

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Costs for Maintenance

Current Areas

Annual landscape maintenance cost, excluding forestry and PWA maintenance, was projected to be \$1,125,000. This figure breaks down to an average of \$13,235.00 per year per acre. The work includes gardeners, mowing lawns, edging, keeping pathways clean, attending to plant needs of turf, groundcovers and shrubs, and irrigation maintenance.

No cost basis was available for labor, benefits, materials, equipment, or administrative overhead. An average hourly cost of \$35.00 was used in this first iteration. This rate was averaged to be \$75,000 per year per person labor including overhead. At the calculated costs for proper maintenance, this translates from the schedule to an average of fifteen (15) people required per year at \$1,125,000 per year. At 85 acres in the current park this translates to \$13,235 per acre maintenance costs. The projections of 15 full-time equivalent people is an average, with October, November and December carrying the most persons (24.50) and May requiring the least (9.4). Park managers typically utilize part-time (floating) people relative to the cyclical demands of maintenance.

In addition to the Park landscaped areas are the lake maintenance and watershore edge clean-up. These costs are \$132,000 for Lake Merritt edge clean-up performed by the Lake Merritt Institute and widgeon grass harvesting, performed by four people from PWA for four months per year.

New Park Areas

Estimated costs of maintenance for additional park area is approximately \$300,000 per year (number includes new shoreline park area in the 12th Street/Cultural District). This new park acreage translate to an additional 3.88 persons required.

Annual costs for maintaining wetland and restored upland plantings in the Ecology Zone are estimated at \$12,000 for a 5 acre area. This is recommended to be completed by a contract company specializing in habitat restoration type projects. Maintenance should be considered for inclusion in the contract to install the specialized plantings.

Recommendations

- Involve the staff in the development of an overall plan for better maintenance practices.
- Change lawn mowing heights to four inches instead of one inch and transfer labor to another labor item.
- There is no question that instituting the practice of integrated pest management (IPM), which would include the safe, judicious, and *very limited* use of herbicides, would improve the appearance of the park landscape. The implementation of an IPM program would not reduce labor costs, but would most surely allow for a far more effective use for those costs. Due to the long term establishment of a number of perennial weeds, herbicides might be required, in certain locations only, and in very minimal quantities, for one season. After that, good horticultural and management practices would, to a large extent, nearly eliminate the need for their further use. This is, after all, the basic tenant of *integrated* pest management, the *integration* of a number of tools and management practices in the management of pests.

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- Future gardening staff for Lake Merritt Park hired by the City of Oakland should be technically skilled and have a minimum background/degrees in horticulture, landscape and computer skills.
 - Immediately implement a goose management system that balancing numbers of geese, access to lawns, elimination of unused lawn areas such as in woodland areas and areas surrounding the arboretum.
 - The CAL/FED Bay Delta agreement includes the implementation of a number of “Best Management Practices” (BMP) to conserve water throughout California. EBMUD is signatory to this agreement. BMP#5 pertains to the use of landscape water and requires that landscape water use shall not exceed 100% of the local reference evapotranspiration (ET_o) rate. EBMUD’s target is 80% for turf and 60% for shrub areas.
 - No historical landscape water use data was available at the writing of this report to be able to determine the historical application at the park. Steps should be immediately undertaken to gather all the landscape data required to effectively program the park’s irrigation controllers to meet EBMUD’s goal. Additionally, it is highly recommended that staff begin to record landscape meter readings on a weekly basis to be able to monitor current use.
 - Incorporate the checklist system (Refer to Oakland Park Coalition report, not attached) into evaluating the landscape maintenance on an on-going basis. A checklist specific to Lake Merritt Park should be developed.
 - Prepare a forestry plan using a geographic information system outlining locations of trees and associated data, such as species, condition of tree, heights.
 - Better police enforcement of parking on streets abutting the park. Gardeners can then schedule lawn edging, trimming.
 - Reorganize the interior of Lakeside Park to better monitor and eliminate on-site parking under trees by City of Oakland and Children’s Fairyland employees. These parking restrictions should be enforced.

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Role of Volunteers

Volunteers are becoming a strong constituency that increases the awareness, commits community involvement and provides political support. Volunteers are increasingly playing important roles in the continued maintenance of parks. The Presidio and San Francisco parks systems have viable involvement of community volunteers.

Management and supervision of volunteers is important for meaningful participation and effects of their work. Volunteers can be used to fill maintenance voids that existing staff cannot handle. Using volunteers should be balanced with not threatening jobs of park staff. Sometimes, specialized volunteers can effectively be used for special areas needing special expertise.

Volunteers should work under the supervision of park staff. This may require flexibility to be available on weekends when most volunteers are available.

Landscape Maintenance Estimated Monthly Tasks and Frequency Schedule

The attached annual frequency schedule should be considered a first iteration for establishing a higher level of staff understanding of the park's requirements, with the ultimate goal being an improvement in the overall quality of the park and a higher return for taxpayer invested dollars.

This first iteration has been prepared to establish baseline of those tasks presently being performed and the frequencies that they are performed on weekly, monthly, and annual basis. Hours have been estimated for each task to establish monthly personnel requirements. (Please note that we have not been able to ascertain the present number of "floating" personnel used). Based on the limited data available, the estimate of personnel required is for all tasks and assumes that mowing and tree work is done by other (and therefore is not included).

A number of tasks on the frequency schedule show no frequencies associated with them. It is assumed that these (required or not) are not being performed. Other task frequencies have been assigned as a "best guess." At present, it appears that no such task frequencies exist, or are at least documented.

Note: An urban forestry evaluation was not done. This was out of the scope and no existing maps or counts are known to exist of the conditions of the trees, maturity or heights.

Table VI. 1 Guidelines for Landscape/Life Cycle

Park Landscape							
Planting Type	Annual Maintenance Procedure						
	Winter	Spring	Summer	Fall	At 2 Years	At 5 Years	At 10+ Years
Trees and Shrubs							
Planting	x				Remove tree stakes. Prune lower branches that will form a hazard. <u>Do not prune leader.</u> Prune back woody branches of shrubs where this will improve look of shrub. Do not shear shrubs.	Selectively replace shrubs that have become overly woody. Prune back woody branches of shrubs where this will improve look of shrub. Do not shear shrubs. Remove sections of tree grate that will interfere with tree trunk.	Replace shrubs that have become overly woody.
Fertilization		April	June	Sept.			
Mulch		x					
Pest Control		x	x				
Plant Repair	x	x	x	x			
Pruning	x						
Groundcovers							
Planting	x				In areas where establishment proves unsuccessful, amend soil and re-plant. Where pedestrian traffic is prohibiting groundcover establishment, replant and fence area off during establishment period.		Replace groundcovers in areas where they have become too woody.
Fertilization		April	June	Sept.			
Mulch		x					
Pest Control		x	x				
Trimming	x						
Weed Control	x	x	x	x			
Vines							
Planting	x				Train vines to trellises and prune selectively to direct growth. Prune runners that grow along ground. Protect young vines at base against damage from pedestrians.		
Fertilization		April	June	Sept.			
Mulch		x					
Pest Control		x	x				
Plant Repair	x	x	x	x			
Pruning	x						

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Planting Type	Annual Maintenance Procedure						
	Winter	Spring	Summer	Fall	At 2 Years	At 5 Years	At 10+ Years
Ornamental Grasses							
Planting	x	x			Grasses may be divided.	Replace dead clumps. Remove dead strands.	Replace dead clumps.
Fertilization		April	June	Sept.			
Mulch		x					
Pest Control		x	x				
Trimming				x			
Weed Control		x					
Lawn							
De thatching	x	x			Regrade sections that may have subsided. Remove invasive grass types, clover, etc. (Chamomile may be desirable). Remove lawn from area around trunk.		Complete major renovation of lawn areas designated for more active sports such as those in Lakeside Park, Eastshore Park, 12th Street Shoreline Park, and Snow Park.
Aeration		April	June	Sept.			
Mowing		x					
Re-sodding		x	x				
Re-seeding				x			
Park Naturalized Areas							
Mixed Understory and Marsh Planting							
Planting	x			x	Weeding and landscape management is critical during the first two years of establishment with the goal of minimizing efforts in subsequent years. As a wildlife habitat zone, human intrusion for maintenance purposes should be carefully balanced with nest	Species selection should be modified based on success rate of plant species according to the unique conditions present in soil, salt, wildlife use, water level, maintenance, and irrigation. A major thinning or mowing should occur as required to reduce that	Long term management should consider the habitat quality. Plant species should be further modified to improve foraging, nesting, and aesthetic qualities. Plants should be replaced or reseeded as required due to die-back.
Weed Control	x	x	x	x			

Aquatic Zones							
Planting Type	Annual Maintenance Procedure						
	Winter	Spring	Summer	Fall	At 2 Years	At 5 Years	At 10+ Years
Trash Removal	x	x	x	x	Ongoing removal of trash from windblown, storm drain, and direct sources. Current removal practices benefit highly from volunteer efforts. Organized volunteer activities such as regular lake clean up programs and special lake cleanig events should be promoted in the		
Dredging Operations					The dredging of sediment material from lake arms near the major storm outfalls should be conducted as required or on an ongoing basis if a dredge machine is purchased by the City. Past frequency has been about every 12 years. The next scheduled date is 2009.		
Algae Harvesting		x	x		During the spring and summer months, high nutrient loads coupled with increased sunlight yeilds massive growth of algae. The matts float to the surface. Algae is generall a problem in the shallow and still water within 50 feet of shore. Other water quality programs should also focus on reduction of algae, however direct removal by harvester is required.		
Widgeon Grass Harvesting		x	x		During the spring and summer months, widgeon grass growth is accelerated. The grass roots in the more shallow water. Its blades reach the surface where they lay over and interfer with boating. In areas of boating use, direct removal by harvester is required.		

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Table VI. 2 Guidelines for Furnishings

Landscape Element	Maintenance Procedure	Frequency			
		Bi-Weekly	Monthly	Bi-Annually	Yearly
Park Vehicle Roads Includes Bellevue Ave in Lakeside Park					
Maintenance	Sweep with street sweeper machine. Patch cracks with tar.		x		
Repair	Saw-cut or lift portions to be removed. Replace with matching asphalt or unit pavers. Avoid uneven conditions.				
Replacement	See "Repair"				20 yrs
Concrete sidewalks					
Maintenance	Power wash, remove gum. Check for uneven or lifting sections. Re-caulk expansion joints as required.			x	
Repair	Saw-cut along existing score lines. Replace with matching concrete only. Score new concrete to match				
Replacement	See "Repair"				50 yrs
Decomposed Granite					
Maintenance	Rake surface to smooth any unevenness. Moisten as required.		x		
Repair	See "Maintenance"				
Replacement	Excavate effected area. Re-mix material with binder. Add new material to match as required. Re-compact in place.				15 yrs

Landscape Element	Maintenance Procedure	Frequency			
		Bi-Weekly	Monthly	Bi-Annually	Yearly

Stone Seat Walls

Includes neighborhood nodes

Maintenance	Power wash stone facing and wall caps			x	
	Inspect for and remove marring, graffiti	x			
Repair	Check for loose stones, re-mortar and re-point where necessary.				
	Clean graffiti proof coating per manufacturer's specification. Apply light sand-blast to untreated stone/concrete to remove graffiti when necessary. Do not paint over graffiti unless it is a painted surface.				
Replacement	Replace irreparable art tiles, stones and caps with the same type of material. Match grout color.				

Special Metal Fencing

Includes fencing at botanical garden, Fairyland, etc.

Maintenance	Inspect for rust, dents, and potential security breaches.		x		
Repair	Repaint with matching rust inhibiting paint. Grind rust spots clean and prime before painting.				
Replacement	Replace sections or whole fence as required to match existing or per design direction of City landscape architect.				

Decorative Water Fountains

Includes historic fountains

Maintenance	Remove debris from pool, clean drain of debris, clean tile surfaces	x			
	Empty filter monthly or more often if req'd. (Bi-weekly may be necessary in fall)				
	Ensure proper mechanical function as per manufacturer's instructions.				
Repair	Replace broken elements with tiles with matching tiles/relief, ornament, etc.. Match grout color and technique. Repair fountain mechanical systems per manufacturer's instructions.				
Replacement	See "Repair"				

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Landscape Element	Maintenance Procedure	Frequency			
		Bi-Weekly	Monthly	Bi-Annually	Yearly

Standard Furnishings Includes benches, bollards, bike racks, and trash receptacles.

Maintenance	Clean tables, benches, etc. with water or mild, non-phosphorous soap as required to remove food, gum, graffiti, bird feces, and dirt.	x			
	Inspect for chipped or cracked paint and rust spots			x	
	Re-apply wood treatment on any exposed wood.				x
Repair	Replace fixtures and other components per manufacturer or replace item alltogether. Repaint where necessary with matching color				
Replacement	Replace irreparable furnishings with the same make and models.				

Drinking Fountains

Maintenance	Clean and polish drinking fountain bowls and fixtures	x			
	Check for water pressure and adjust according to manufacturer's instructions			x	
Repair	Repair per manufacturer's instructions				
Replacement	Replace with the same make and model				

Custom Furnishings Includes creek node benches

Maintenance	Inspect all hardware and tighten if necessary. Inspect metal parts for chipped paint and rust spots. Re-galvanize and re-paint as req'd.			x	
	Re-apply wood treatment on arbors and benches.				x
Repair	Replace hardware with same type. Re-weld, re-galvanize and repaint or powdercoat broken custom metal fabrications in shop specializing in metal work.				
Replacement	Replace damaged wooden parts with same type of material, including stone and metal parts.				

Landscape Element	Maintenance Procedure	Frequency			
		Bi-Weekly	Monthly	Bi-Annually	Yearly

Beaches

Includes bandstand and 12th Street shoreline park area.

Maintenance	Remove trash, bird feathers, feces, sticks, and other materials potentially harmful to people and children from sand and wading area.	x			
	Rake sand by hand or with a mechanical tractor to keep friable and free of objects.		x		

Play Areas

Maintenance	Remove graffiti, trash, feces, and other materials potentially harmful to people and children from play structures and area surfacing.	x			
	Check structure for dangerous conditions such as worn equipment, sharp edges, rust, and loose bolts.		x		

Lake Dredging

Maintenance	Remove sediment from lake bottom and dispose per Regional Water Quality Control Board regulation.				10-12 Yrs.
	Remove sediment from lake bottom at Glen Echo and Trestle Glen areas. Dispose per Regional Water Quality Control Board regulation.				2-3 Yrs.