

*City of Worcester  
Massachusetts*

***Green Hill Park  
Master Plan Update  
1997***

*Final Draft Submittal to the Commonwealth of Massachusetts  
Executive Office of Environmental Affairs - Division of Conservation Services  
August 4, 1997*



*View Down Lover's Walk Near Crown Hill - ca. 1912*

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# GREEN HILL PARK MASTER PLAN UPDATE - 1997

## TABLE OF CONTENTS

Notice to Readers	Page i
Historic Photo Sheet	
Prologue	Page 1
Acknowledgments	Page 2
Division of Conservation Services Criteria	Page 3
Locus Map	
<b>Part I - Introduction</b>	<b>Page 5</b>
Historic Photo Sheet	
<b>Part II - Existing Conditions and Analysis</b>	<b>Page 7</b>
Green Hill Park in 1997	Page 7
Aerial Photograph	
General Goals for Park Enhancement	Page 10
Existing Conditions and Analysis	Page 11
Existing Conditions Narratives - Manmade Features	Page 12
Recreation Facilities and Other Elements	
Recreation Facilities Map	
Existing Conditions Narratives -Manmade Features	Page 18
Roadways and Park Entrances	
Roadways and Park Entrances Map	
Parking Areas	Page 21
Existing Conditions Narratives - Natural Features	Page 23
Natural Features Map	
Existing Conditions Photo Sheets	Ph-1 to Ph-26
<b>Part III - Recommendations</b>	<b>Page 28</b>
A. General	Page 28
B. Community Meeting Process	Page 29
C. Specific Recommendations	Page 31
1. Circulation and Access	Page 31
2. Parking	Page 33
3. Pedestrian Access	Page 33
4. Recreation Improvements - Passive and Active	Page 33
5. Recreation Programming	Page 34
6. Restrooms and Other Support Buildings	Page 34
7. Park Utility Services	Page 34
8. Landfill Capping	Page 35
D. Recommended Park Improvement Programs	Page 36
Improvement Zones Map	
E. Specific Scope of Park Improvement Programs	Page 40
Concept Plans A, B, C and D	
<b>Part IV - Maintenance Management</b>	<b>Page 46</b>

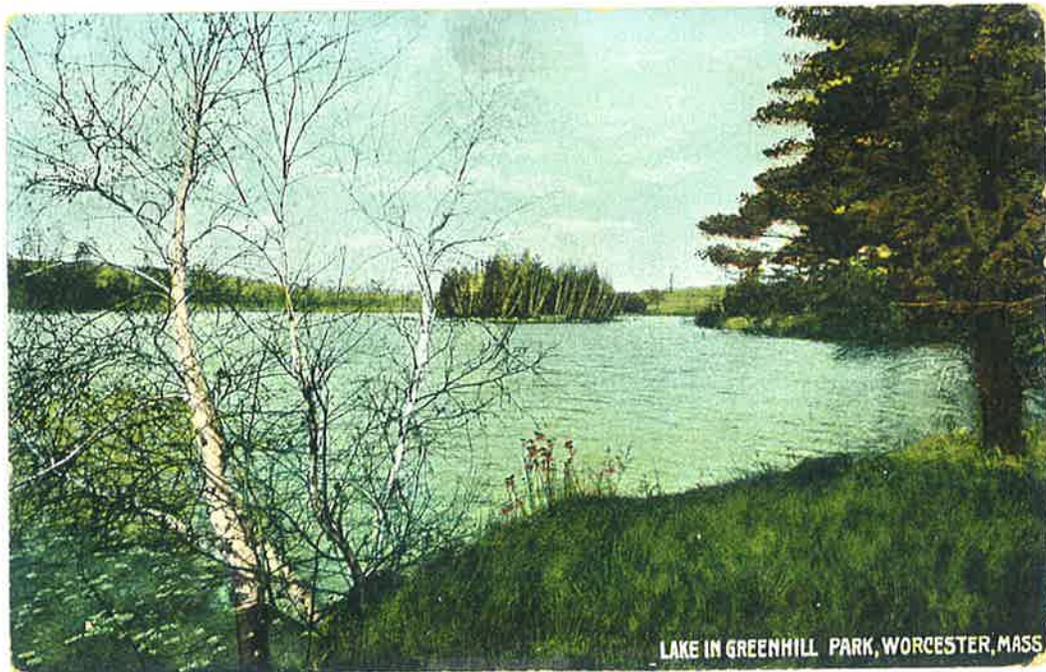
Notice To Readers  
August 4, 1997

This document represents a Final DRAFT of the Green Hill Park Master Plan Update. The document is intended to be reviewed by representatives of the Division of Conservation Services. The printing quality of various aspects of the report relates to a Draft Submittal, and as such contains limited color graphics and medium quality reproduction.

The analysis and recommendations contained in the Master Plan Update have been prepared by the Consultant based on sound park, recreation and open space planning and design practices as influenced by the specific needs and desires expressed by so many within the Worcester Community.

The tone of the Master Plan Update is not intended to be overly critical, but rather constructive. Green Hill Park is already an enormously valuable resource in which citizens can take a great deal of pride. The Master Plan outlines a course of action that if taken will make the facility a source of even greater pride.

Eugene R. Bolinger, L.A., Principal  
Levy, Eldredge & Wagner Associates, Inc.



Top: Green Hill Pond Edge - Ca. 1911  
Bottom: Green Hill Pond - Ca. 1909

**GREEN HILL PARK**  
**Master Plan Update - 1997**

**Prologue**

During June of 1996 the City Manager recommended the funding and implementation of this Master Plan Update due to the obvious need for improvements to the Park and also due to stipulations established by the Massachusetts Executive Office of Environmental Affairs - Division of Conservation Services for funding these improvements. A consultant was selected shortly there after to lead the Master Planning efforts.

Commencing in early September a series of public meetings and workshops were held to disseminate analysis and considerations and receive comment from the citizenry. In early January, 1997 the Administration assembled an advisory committee which represented a cross section of the larger groups attending earlier meetings. The purpose of the advisory committee was to assist in defining and refining the approach to improving the park in a manner which reflected to the greatest degree the needs, hopes and desires of the community as a whole.

The input received from the committee and the public at large was reviewed, analyzed, and weighed in with the consultant's and Administration's technical expertise to produce a Draft Update. The Update was presented to the community through the Park's Commission, City Council's Committee on Youth, Parks and Recreation and the City Council public meeting format. The extensive public participation process involved more than twenty meetings at a variety of venues ensuring that the public had sufficient opportunity to review, comment and effect the Draft Master Plan Update.

## Acknowledgments

This Master Plan Update was completed between September, 1996 and July 1997, for the City of Worcester, Massachusetts. The Update would not have been possible without the great contributions of the citizens of Worcester, especially the 32 members of the Green Hill Park advisory committee, many of whom attended up to 20 meetings over a 10 month period. As actual capital programs are undertaken and park management practices are implemented it is critical that this citizen participation continue in order to periodically refine this Update and subsequent design development phases. Each participant in the public planning process, with credit to the former advisory committee members, has shown the extent for which they care for this great City Park through their active involvement.

The City of Worcester's State House Delegation; City Manager, City Council, City Council Committee on Youth, Parks and Recreation, Parks Commission, other department heads, Parks, Recreation and Cemetery staff, members of civic organizations, youth leagues and concerned citizens were all instrumental in this development of the Plan. All of these individuals helped establish the direction of the study and influenced recommendations for future improvements through the generous lending of their time, opinions and ideas at numerous public meetings.

Stephen F. O'Neil, Director of the Office of Planning and Community Development and Michael V. O'Brien, Deputy Commissioner of the Parks, Recreation and Cemetery Department provided great efforts and initiative to ensure the completion of this Update.

Finally, the great generosity, foresight and wisdom of Andrew Green and the Green Family in bequeathing the magnificent lands that make up Green Hill Park should be acknowledged by all current and future Worcester residents.

## Division of Conservation Services Criteria

The Commonwealth of Massachusetts, Division of Conservation Services (DCS) has influenced the development of this Master Plan Update from the outset. DCS is an agency which funds parks, recreation and open space acquisitions and reconstructions throughout the State, including many past improvement projects at Green Hill Park.

Representatives of DCS expressed concern about a number of issues pertaining to the operation and management of the park and a strong desire to have these issues adequately addressed during the master planning process. The issues are summarized below:

1. Improve park access, control and security.
2. Eliminate golf course preferred tee times thus allowing greater public access.
3. Relocate the compost processing operation to another City property.
4. Propose modifications to the Enterprise Fund for Green Hill Park to allow use of revenues from the golf course to support improvements to the entire park.
5. Complete an Update to the 1979 Master Plan for Green Hill Park and receive approval of the Update by DCS.

In response to DCS concerns the City Administration and the Master Plan Update recommends the following:

1. **Park access and security:** The Rodney Street vehicle entrance is removed (pedestrian entrance only). Two vehicle entrances will remain; Belmont Street and Green Hill Parkway. These two entrances will be gated and locked outside the hours of operation. Both Belmont Street and Green Hill Parkway will end at a shared parking lot in the heart of the park (no through traffic). Security will be improved by limiting vehicle connections, improving pedestrian pathways and connections, installation of street lighting and through the implementation of a park ranger program.
2. **Elimination of all preferred tee times:** The first year of a three year implementation of the phasing out of preferred tee times has been a success based on both revenues and participation. The next two years shall continue with the implementation of this DCS approved plan until the final result is achieved: complete and equal public access to Green Hill Municipal Golf Course.

3. **Relocation of the compost processing operation:** The area currently housing the compost processing operation is slated to become the “Phase C: The Family Recreation Area”. This is an approved phase of the Update. The Department of Public Works has publicly committed to move this facility within two years to the approval of the Update and is currently researching new locations. This site shall be available once Phase C is set for construction.
4. **Enterprise Account:** On July 8, 1997, the City Council authorized use of substantial earnings from the golf to be utilized on an annual basis for improvement to the Park. City attorney’s are presently preparing documentation to amend the Enterprise Account to allow the future transfer of revenues.
5. **Master Plan Update:** Submitted to the DCS on August 4, 1997 for review and approval.

Items 1 and 3 above are discussed throughout the Master Plan Update. Items 2 and 4 are policy decisions enacted by the City Administration and City Council relative to the overall maintenance and management of Green Hill Park, which, though not detailed at great length in this document, are considered to be part and parcel of the Update.



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**SECTION I**  
Introduction

This map identifies the Green Hill Park location within the Worcester North Quadrangle published by the United States Geodetic Survey.

Locus Map - USGS  
Quadsheet

**GREEN HILL PARK**  
1996-97 MASTER PLAN UPDATE

## **PART I - Introduction**

The purpose of this document is to update (not replace) the 1979 Master Plan and offer a realistic time table for implementing a wide range of community supported improvements at Worcester's largest park property. The updated plan establishes ambitious yet achievable goals, examines existing park conditions, analyzes new possibilities and recommends a series of capital improvement programs to be undertaken during the next decade.

The plan identifies budget costs associated with the recommended, prioritized capital programs and also presents guidelines for the implementation of enhanced maintenance services.

### **"A Master Plan for Green Hill Park" by Carol Johnson and Associates, Inc.**

Completed in 1979, this thoughtful document was comprehensive in the presentation of the park's history, existing conditions and natural features (climate, soils, slopes, vegetation etc.). The document accurately identified many problems which persist today, 18 years later. Most of the major recommendations identified in the original plan have yet to be realized. (The one notable exception is the Barnyard Zoo which was constructed at the current location shortly after the plan was completed).

General recommendations such as improving pedestrian safety and enhancing the overall visual quality of the park have yet to be realized and still warrant our attention.. However, many specific recommendations are no longer deemed appropriate. Creation of a "Tennis Center" at the existing leaf composting area, new Amphitheatre at the quarry, new entry road via Lucy's Lane, and acquisition of the former Salvation Army site are examples of specific recommendations that are no longer feasible for reasons of economics, practicality, constructability and changing public attitudes toward recreation. Other recommendations which might still be deemed feasible or desirable fell victim to Proposition 2-1/2 and the budget crises of 1991-1992.

The current Master Plan Update therefore incorporates by reference the still applicable sections of the 1979 plan including the History and Site Information Sections. The Historical Report is especially well done and chronicles the site's evolution since first settled in 1713, various generations of Green Family ownership and stewardship, and the evolution of the site as a public park since 1905.

The major emphasis of the 1997 Master Plan Update is therefore to address and present the following key subjects/components:

<b><u>Goals</u></b>	Restatement of a contemporary set of goals for future enhancement and stewardship of the park.
<b><u>Existing Conditions</u></b>	Examination of the existing conditions of all major park features, natural and manmade.
<b><u>Capital Improvements</u></b>	Recommendations for a future course of action through a series of prioritized capital improvement programs including related budget estimates for phased 10 year program.
<b><u>Maintenance Management</u></b>	Development of an enhanced maintenance management program to improve the day to day appearance of the park.

This plan focuses primarily on Green Hill Park proper, and does not study Chandler Hill Park (Bell Pond) or Holland Rink as the 1979 study did. It is important to note, however, these facilities are well used and are the focus of Departmental resources as evident in the recent improvements to Bell Pond including the construction of a beach area and bathhouse for summer use. Also this study does not analyze the specific physical condition of any park building or structure.

Green Hill Park, Worcester, Mass.



Green Hill Park, Worcester, Mass.



Top: The Pond Edge Near the Dam - Ca 1925

Bottom: Looking East from the Homestead Site - Ca. 1916

## **PART II - Existing Conditions and Analysis**

### **Green Hill Park in 1997**

Green Hill Park occupies 482 acres of diverse terrain and is located a short distance northeast of downtown Worcester. The park contains the second and third highest elevations within a “City of Hills” and offers dramatic views from many vantage points to downtown Worcester, Mr. Wachusett, Shrewsbury and many other areas both near and far.

The site is the largest of all Worcester parks and provides a wide range of passive and active recreation facilities across a varied landscape. The 31 acre Green Hill Pond lays at the recognized, if not geographical, center of the park. An outdoor amphitheatre is home to the Forum Theatre Group, a Barnyard Zoo entertains visitors of all ages and an 18 hole golf course accommodates over 50,000 rounds of golf per year. Other built facilities and diverse natural features attract thousands of visitors to Green Hill Park.

Table II.a. and II.b. present a summary of major land use types and a listing of the most prominent park features.

**Table II.a.**  
**Summary of Major Land Use Types**

	<u>Acreage</u>	<u>% of Total</u>
Green Hill Park	482	
Woodlands, Wetlands/ Generally Undeveloped	242	50.2
18 Hole Golf Course	117	24.3
Open Lawns/Meadows	32.5	6.8
Ponds	33	6.9
Non-Park Related Uses (1)	32.6	6.8
All other Features	24.9	5.1

(1) Includes Landfill, Composting Facility, Air National Guard, Water Tanks and Communication Towers

**Table II.b.**  
**Size in Areas of Select Park Features (1.)**

	<b>Total Park (2)</b>	482 Acres
•	Golf Course	117 Acres
•	Green Hill Parkway, Rodney Street Skyline Drive (1.95 Miles)	9.4 Acres
•	Parking Area	1.3 Acres
•	Woodlands/Wetland/Generally Undeveloped	242 Acres
•	Green Hill Pond	31 Acres
•	Duck Pond	1 Acre
•	Hermitage Pond	1 Acre
•	Sports Fields (L.L. - 1 Acre)	1Acre
•	Playlots/Courts	1.8 Acres
•	Barnyard Zoo	7.0 Acres
•	Open Lawns/Meadows	32.5 Acres
•	Air National Guard	7.4 Acres
•	Park Headquarters	4.4 Acres
•	Landfill (Includes 6.4 Acres of Fields)	16.2 Acres
•	Composting Facility	7.5 Acres
•	Water Tanks/Communications Tower	1.5 Acres

(1.) Estimated by scaling facilities from the two hundred scale aerial photography, dated January 27, 1997. All areas are approximate.

(2.) From 1979 Master Plan Report, Current City-wide GIS Mapping

Clearly, Green Hill Park is a tremendous resource to the City and region. This resource, however, needs an infusion of capital improvements and improved maintenance services in order to regain the luster lost decades ago. The park today barely resembles the oasis for public enjoyment envisioned by Andrew Green and his five heirs.

In general, the park (excluding the golf course which is self-sustaining) suffers from a lack of public investment which dates back at least two decades, and a loss of park lands since the 1940's to non-park related uses which today includes the former landfill, national guard armory, compost processing operation, water supply tanks and communications tower.

With periodic budget crises monies allocated to the park's upkeep have obviously been meager. In viewing the park, it is apparent that maintenance funds are expended only for grass mowings, trash removals and emergency repairs to facilities and that little or no capital dollars have been expended in recent years. Most built facilities have been removed and not replaced or are in a deteriorated state. Natural features also suffer from uncontrolled access and the accumulation of dumpings and other debris. The park infrastructure, (ie. roads, parking areas, and utilities systems for instance), is in complete disrepair.

Green Hill Park, like all of the City's Parks, has been adversely impacted by Proposition 2-1/2 and the budget cuts of 1990-1991, which decimated the staff from one hundred and eighty in 1976 to an all time low of thirty in 1991. The Department lost all dedicated caretakers for the Parks, which included Green Hill. The Department currently maximizes all available personnel and financial resources to meet the demands of a growing number of facilities and users. The need to stretch these resources out over 50+ Park facilities, roadway medians and traffic islands and other facilities factors into the overall impression of a compromised facility at Green Hill.

It is hoped that the outgrowth of this Master Plan Update process is the slow but steady rebirth of Green Hill Park through reinvestment towards the realization of many of the goals which appear on the following page.



Photo: Copyright by Col-East, Inc. - North Adams, Mass.

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**SECTION II**  
**Existing Conditions**  
**& Analysis**

The Aerial Photograph was taken on 27 January 1997. Note the ice on Green Hill Pond near the center of the photograph.

Aerial Photograph  
Park & Vicinity

**GREEN HILL PARK**  
**1996-97 MASTER PLAN UPDATE**

## **General Goals for Park Enhancement**

Above all else, the goals related to the restoration and preservation of Green Hill Park must be realistic and achievable. A summary of the most basic goals is as follows:

- **Maintenance** - Improve the delivery of maintenance services at Green Hill Park through the allocation of increased funds for manpower, equipment and materials.
- **Capital Improvements** - Develop a community supported plan for refurbishing/replacing existing features or creating new features to provide a wide range of passive and active recreation opportunities.
- **Revenue Enhancement** - Explore opportunities for increasing revenue from existing sources and the potential for creating new sources of revenue. Increased revenue will allow the park to move toward a self-sustaining condition and become less dependent on the dynamics of the annual City budget process, and City tax-levy funds.
- **User Safety** - Improve the safety and security of park users through the design of separate and distinct pedestrian, bike and vehicular ways; implementation of a comprehensive park-wide signage system; installation of a park lighting system for select areas; and deployment of a more visible park security force, including the newly implemented Park Ranger Program. There is also potential to expand the Ranger's hours of operation, responsibilities and powers to issue tickets and enforce park safety regulations.
- **Park Advocacy** - Encourage existing groups such as Massachusetts Audubon, Park Spirit, Brittan Square Neighborhood Group, Worcester Garden Club and Preservation Worcester to assist in garnering support for various initiatives, fundraising, community sponsored cleanups or other projects, and park programming. "Adopt-A-Park" is a public/private partnering concept employed by many Cities and Towns throughout the country to improve park settings.
- **Environmental Protection** - Preserve and enhance prominent environmental features including Green Hill Pond, Duck Pond, Hermitage Pond and other unnamed ponds; streams, wetlands and woodlands.
- **Expansion of Park Lands** - As opportunities arise, explore the potential for returning former park lands to new park uses and adding adjacent open space lands to the park proper where appropriate from the area surrounding the park.

## **Existing Conditions and Analysis**

Field visits were undertaken on more than a dozen occasions beginning in September 1996 and concluding with an intensive inspection of all park features during June 1997 in order to present the most up-to-date findings. Obvious manmade features such as the Barnyard Zoo and Forum Theatre were examined, as were little known and remote natural features as Coal Mine Brook and the grassy meadow to the north of the golf course.

The following pages include narrative analysis of the park's major features. Following the narratives, more than two (2) dozen photo pages are included. The photographs document the existing conditions which were encountered throughout the park, with additional commentary on each sheet.

The following tables present a summary of the passive and recreation facilities frequently thought to be offered at Green Hill Park, plus a listing of ways in which the park was being utilized by patrons on a beautiful day in June of 1997. It is interesting to note that the public is often creative in their use of open space as the list of activities actually observed is more extensive than the range of recreation opportunities generally thought to be offered.

**Table II.c.**  
**Summary of Existing Recreation Opportunities at Green Hill Park**

<b><u>Active (Formal Park Facility Required)</u></b>	Little League Baseball Youth Soccer Handball Golf Children's Playstructure Children's Swings Sledding
<b><u>Active (No Specific Park Facility Provided)</u></b>	Cross Country Running Jogging Hiking Cross Country Skiing Flying Kite/Tossing Frisbee Pick-up Ball Games Fishing Bocce/Lawn Bowling
<b><u>Passive (Facility Required)</u></b>	Community Gardens

**Passive (No Facility)**

Sitting, Reading or  
Socializing etc.  
Sunbathing  
Picnicking

**Cultural**

Theater  
Barnyard Zoo  
Festivals, Shows, Concerts

**Table II.d.**

**Summary of Activities Observed During a June 16, 1997 Site Visit**

Walking	Picnicking near the pond
Hiking	School children on an outing
Jogging	planting flowers
Exercising (calisthenics etc.)	Reading
Gardening at Barnyard Zoo	Sleeping
Viewing animals at the Barnyard Zoo	Biking
Fishing	Rollerblading
Golfing	Playing on play equipment, swings
Sunbathing/listening to music	Pick-up baseball at Little League field

**Existing Conditions Narratives - Manmade Features**

**Recreation Facilities and Other Elements**

**Refectory (Picnic Pavilion)**

The Refectory or (Picnic Pavilion) was built in 1911 and is an attractive stone, wood and steel structure listed on the National Register of Historic Places. The setting commands beautiful views of Green Hill Pond. Shade and cool breezes offer a much needed respite from the summer heat. Recent renovations to the Refectory were undertaken. These improvements included the repointing of the masonry, the reroofing of the entire facility, and the removal of the unsightly concession stand area. This was funded through private donations and through a Massachusetts Historical Commission grant.

- Six wooden picnic tables are in fair condition.
- An aggregate concrete walk at the perimeter is in fair condition.
- The concrete floor of the pavilion is in fair condition.
- Floodlights and wiring have been destroyed by vandals.
- The facility is not handicapped accessible.
- A cluster of spindly maple trees are located to one side of the structure.



## **Playlot**

Located just a few paces from the National Register Refectory, the playlot consists of a large, overbearing structure located on a flat area with commanding views to Green Hill Pond and the golf course.

- The structure is unsafe and should be replaced as soon as feasible. Deck heights are greater than recommended, rail systems are inadequate, and obsolete safety surfacing will not suitably soften a fall.
- The equipment is not posted for age appropriateness.
- Concrete footings are exposed, creating hazards for users.
- Wood edging surrounding the play structure is in poor condition with extensive splitting and splintering.
- In general, the playlot does not conform to most requirements of the Consumer Products Safety Commission (C.P.S.C.), American Society for Testing and Materials (ASTM) or Americans with Disabilities Act (A.D.A.).
- Due to the proximity with primarily passive recreational uses, the area currently occupied by the playlot may be better suited for passive recreation uses.

## **Picnic Facilities**

Picnic tables, stone fireplaces and trash barrels are provided for picnickers in close proximity to the pond edge and just downslope from the pavilion. The views to the golf course, pond and slopes adjacent to the former mansion site are very pleasant.

- Tables, barrels and fireplaces are in poor condition. Without footings, the equipment is periodically thrown into the pond by vandals.
- There are no pathways to, from or within the picnicking area.
- Ground surfaces are badly worn, eroding and poorly graded throughout the area.
- Significant portions of the pond edge is also in a seriously deteriorated condition due to uncontrolled pedestrian access.
- Mature trees are in need of pruning, extensive weed vegetation requires removal, and shade is somewhat limited throughout the area.
- Single picnic tables are also located adjacent to the Little League field, handball courts, and Duck Pond.

### **Little League Field**

The Little League field is located in a pleasant, somewhat protected hollow located to the southwest of the dam. The field is slightly undersized (180' to outfield fencing vs. 200' little league standard) and most built facilities are in poor or fair condition, as summarized below. Steep terrain, nearby wetlands and mature pine trees surround the field making expansion of the facility problematic.

- The infield consists of stonedust with a moderate amount of turf grass. The outfield consists primarily of weeds.
- Extensive roots, a manhole cover and hard packed soil make play in the outfield somewhat hazardous.
- Fences, backstop, players benches, and bleachers are in poor condition.
- The concession building looks to be in poor condition with the exception of the roof. (The building formerly served as a security post for all of Green Hill Park.)
- Overhead wires and a utility pole located to the rear of the backstop provide electric service to the field.

### **Swings at Little League Field**

There are four bucket swings and three belt swings located in a pleasantly shaded area adjacent to the Little League Field.

- The swingsets (three total) are very old and do not meet any of the current codes relating to playgrounds and play equipment.
- Safety zones surrounding the swingsets and safety surfaces below the swings are completely inadequate.
- The facilities are not handicapped accessible.

### **Handball Courts (2)** ( Dedicated to James “Mac” McSweeney in 1976)

The two handball courts are located at the 90 degree turn in the entry drive (Green Hill Parkway). The concrete backstops are massive and unattractive. The facility is in generally poor condition as described below, so if improvements are sought, a less prominent park location or improved screening should be considered.

- The massive concrete block backstop exhibits significant cracking and is painted an unappealing green color.
- The bituminous concrete and concrete pavement are failing badly at several locations. Game court markings are badly worn.
- There are no paved pathways connecting to the facility and lawn areas surrounding are in poor condition and badly eroded
- “Jersey” barriers utilized at the adjacent sharp turn in the entrance drive are unsightly, especially considering the prominent location near the park entrance. The barriers are erected by a promoter of an annual car show at Green Hill Park and are typically removed after the show is over.

### **Forum Theatre**

The Forum Theatre is located on the steep east facing slope of Crown Hill at the midway point between the top and the little league field at the base. The facility hosts summer evening performances (attended by 40,000 persons in 1996). Recent improvements completed by this performance troupe were constructed with limited funds and donated labor/materials and are already showing the signs of wear. Since more improvements are being considered a more comprehensive design program should be planned utilizing the construction and bidding expertise of appropriate City departments.

- Brick pavements have settled or heaved and are weed infested.
- Wood edging at walkways is broken or missing at many locations.
- The six foot wide flagstone walk is deteriorated and is unsafe especially for many elderly or disabled theatre patrons. The limited amount of lighting available throughout the area makes night time use of the walk particularly difficult, although nearby sledding lights have been adjusted to improve the situation.
- Planting beds are overgrown and weed infested.
- The stage area is overgrown with weeds.
- Wood slats at seats and stairs are warped, broken or missing at certain locations.
- Crushed stone which has been utilized as a ground cover material has been thrown throughout the complex by vandals.
- The temporary trailer has been seriously vandalized and is due to be removed during September 1997.
- The railings along the actors walk to the stage have also been vandalized.

## **Former Landfill**

The upper terrace of the former landfill encompasses approximately 6.4 acres. The wide open, wind swept area offers commanding views north to Mt. Wachusset in Princeton. Due to field shortages city-wide, the area is utilized by Worcester Youth Soccer even though the facility was never designed for this use. The limited capping undertaken two decades ago does not meet the current standards for landfill closings established by the Massachusetts Department of Environmental Protection.

- Turf cover is in poor or fair condition with large quantities of rocks and glass exposed at the surface.
- In many locations, the field areas are poorly graded and rutted.
- The two water tanks and the communications tower and support building are non-park related uses within this park vicinity.
- Much of the vegetative screening planted in conjunction with the most recent water tower construction has not survived.
- Poorly draining areas occur at the perimeter since much of the field complex is crowned at the center and pitched toward the edges.
- The edges of Skyline Driveway nearby are badly deteriorated due to the uncontrolled access and parking by hundreds of vehicles during weekend soccer events.

## **Barnyard Zoo (Green Hill Farm and Nature Area)**

The Barnyard Zoo at Green Hill Park is a modest operation with limited capital equipment, limited manpower (1 full time employee), limited exhibits and animals, poor or undersized utility services and minimal funding, due to the constraints of Proposition 2-1/2, the budget crises of 1991-1992 and other shortfalls.

The Barnyard Zoo is in desperate need of funds for capital expansion, new exhibits, additional animals and more funded positions to become a more viable operation. An enhanced and expanded facility would allow for the eventual charging of a modest fee and help to offset operating costs.

Capron Park, Attleboro; Roger Williams Park, Providence; Forest Park, Springfield; and Franklin Park, Boston have all undertaken major expansion and restoration projects in recent years that have significantly boosted attendance. The zoos at these sites offer valuable recreational opportunities within large regional urban parks, and have positively influenced the image of the respective parks.

The primary deficiencies at the Green Hill Park Barnyard Zoo are summarized below:

- The fence surrounding the Zoo is unsightly and in poor condition.
- Handicapped access to upper areas within the Zoo is problematic.
- There is no parking dedicated strictly to the Zoo.
- Utility arrangements at the Zoo (water, sewer, electricity) are inadequate.
- The settings for animal exhibits are urban and manmade and do not take advantage of the natural settings which surround much of the Zoo.
- Interpretive signage and exhibits are limited.
- Landscape and pedestrian/visitor amenities within the Zoo are limited. (i.e. tree and shrub plantings, gardens, seating areas, refreshments).

### **Non-Park Related Uses**

A number of facilities at Green Hill Park are considered to be non-park related uses. Clearly, Green Hill Park would be enhanced if any of the uses were discontinued and the land was turned back for park use.

The **Air National Guard Armory** occupies 7.4 acres near Millstone Hill and was taken from the City by eminent domain in 1957 for the purposes of air defense. With similar facilities closing throughout the Commonwealth, the possibility that the Green Hill facility may one day again be dedicated to park uses is quite real.

The **Compost Processing Facility** encompasses over 7 acres of extremely visible property adjacent to Green Hill Parkway. The award winning, environmentally successful program is commendable for the reuse of natural resources. The setting however, which includes extensive chain link fencing, steel guardrail, institutional signage and thousands of yards of stockpiled compost and other debris, negatively impacts the visual qualities and character of Green Hill Park.

The **former landfill** encompasses 16.2 acres near the center of the site including the entire youth soccer complex. The landfill, although closed for more than two decades, has never been properly capped. The **water tanks and communications tower** located adjacent to the soccer field are also highly visible features within the park landscape. All of these features are considered intrusions, as the use and appearance of each, contradicts the public perception of parkland.

## **Existing Conditions Narratives - Manmade Features** **Roadways and Park Entrances**

Green Hill Park contains four motor vehicle entrances. Three entrances serve the park proper while one entrance serves the golf course. There is no vehicular connection between the golf course and the park proper. A previous connection was available via a now abandoned length of Skyline Drive. The road surface, although deteriorated, is still in place and runs from the hairpin turn at Skyline Drive/Green Hill Parkway to the parking lot at the golf course. The former roadway is approximately 1,600 feet in length and divides the 18th golf hole and 10th and 17th golf holes.

### **Entrances**

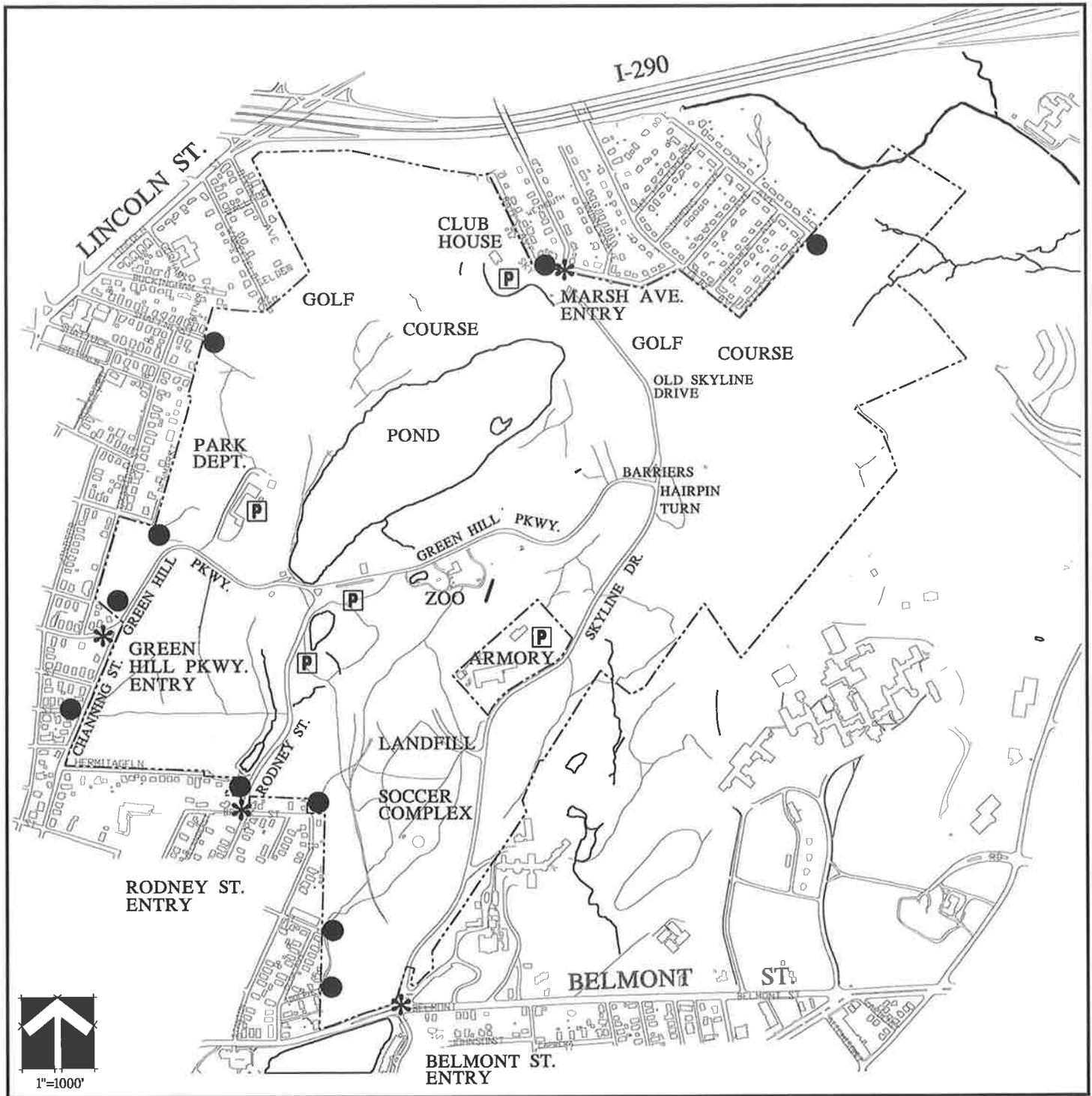
Following is a presentation of the primary characteristics of the three main park entrances.

#### **A. Belmont Street Entrance**

The entrance considered by most to be the primary entrance to Green Hill Park is a signalized intersection located across from Bell Pond near a crest in Belmont Street (Rte. 9). The entrance drive is fairly prominent, sufficiently wide and with the exception of the section that passes the National Guard Armory, mostly park-like. The entrance contains the following deficiencies.

#### **Belmont Street Entrance - Deficiencies**

1. Pedestrian amenities such as ramps, crosswalks, sidewalks and a pedestrian phase of traffic signals are lacking.
2. Infrastructure such as storm drainage systems, pavements and curbs are in poor condition.
3. Utilities are located above ground (telephone, electric etc.).
4. Traffic islands, and a dangerous one-way entrance into the Worcester Technical High School, create a confusing situation for drivers arriving at Green Hill Park.
5. Signage and park-like amenities are completely lacking at this potentially attractive and highly visible entrance.



Levy, Eldredge & Wagner Associates, Inc.

**SECTION II**  
**Existing Conditions**  
**& Analysis**

This Map was generated from the City Geographic Information System and is intended to identify general locations of Park features.

**Plan Key**

- P** Parking Location
- \*** Vehicular/Bike Entry
- Pedestrian Entry

Roadways & Park Entrances

**GREEN HILL PARK**  
**1996-97 MASTER PLAN UPDATE**

## **B. Green Hill Parkway Entrance**

In many ways this entrance is the most park-like as one enters the property through two attractive stone columns with granite plaques serving as the gateway to Green Hill Park. Closely spaced and mature Red Pines grace both sides of the entry drive for several hundred linear feet. Views to hills northwest of the park are apparent upon entering. However, this entrance is also deficient in many ways as summarized below.

### **Green Hill Parkway Entrance - Deficiencies**

1. Beyond (or before) the park limits, Green Hill Parkway connects to Lincoln Street through a densely developed neighborhood of mostly multi-family homes. The street is excessively steep, making pedestrian or bike access nearly impossible.
2. Due to the excessive slopes, a very dangerous condition exists at the park entrance where Channing Street and Green Hill Parkway intersect. It is impossible to see vehicles approaching the Park while driving up Green Hill Parkway.
3. Upon entering the park, built facilities (road surfaces, edging, storm drainage and pedestrian amenities) are in poor condition.
4. The intersection of Green Hill Parkway and Lincoln Street is not signalized making an exit on to Lincoln Street difficult at certain times of the day.

## **C. Rodney Street Entrance**

In many ways the Rodney Street entrance to the park is the least desirable from a safety and visibility standpoint. Based on observations, the entrance receives far less traffic as compared to the other two entrances. Following is a summary of the major deficiencies.

### **Rodney Street Entrance - Deficiencies**

1. The narrow roadway passes through a densely developed neighborhood within a very narrow right-of-way. The intersection with Belmont Street is not signalized and is extremely dangerous due to limited sight distances and severe grades (slopes).
2. The Rodney Street Park entrance and drive, although an important pedestrian link for the heavily populated neighborhood surrounding, contains no signage, walkways or lighting.
3. Due to the rather remote, heavily wooded and infrequently traveled nature of the Rodney Street Park entrance, user safety and uncontrolled dumping of refuse into the nearby Bear Brook Ditch and Hermitage Ponds are serious problems.

The Recommendations Section of the Master Plan Update identifies potential treatments at the three park entrances described above.

### **D. Marsh Avenue Entrance**

The entrance to the golf course is via Marsh Avenue, a residential street which connects to Lincoln Street (Route 70). Since the entrance serves only the golf course, with no access to the Park proper, traffic is extremely light. The entrance is gated and locked whenever the golf course is closed. The entrance serves the golf course and clubhouse well and no changes have been recommended in the Master Plan Update.

### **Roadways and Circulation**

The three main roadways encompass approximately 10,200 L.F. or 1.95 miles of the property and generally provide access to the center of the park and various facilities from the three entrances to the park proper. Although conditions of the road system vary slightly from location to location, the following summary presents typical deficiencies found throughout the roadway/circulation system.

#### **Roadway System Deficiencies**

1. Variable width bituminous concrete surfaces are riddled with patches, potholes, and are generally badly deteriorated throughout the park.
2. Edge materials (bituminous concrete, concrete, granite) and configurations (rolled, sloped, vertical etc.) vary greatly but are mostly in poor condition.
3. At many locations edging is not present allowing drivers to cause extensive damage to park features which are located close to road surfaces.
4. The storm drainage control system is intermittent (large sections of roadways contain no storm drainage provisions), and are non-functioning or deteriorated. The lack of adequate storm drainage system increases erosion, pavement deterioration and sedimentation/pollution of landscaped areas and wetland resources areas (ponds, streams, wetlands).
5. A general lack of amenities often associated with a park setting including, separate and distinct pedestrian walkways and zones, speed controls, signage, ramps, crosswalks, lighting, benches and other features.

**Skyline Drive** runs approximately 4,500 L.F. from a signalized intersection at Belmont Street (also serving an apartment complex adjacent to Bell Pond and the Worcester Technical School) to a “hairpin” turn at the intersection with Green Hill Parkway. A 1,600 L.F. section of Skyline Drive that previously connected to the golf clubhouse was discontinued many years ago.

Facilities that are located off of Skyline Drive include the Soccer Complex/Former Landfill and the Air National Guard Armory. Numerous woodland trails and the historic path “Lucy’s Lane” also intersect with Skyline Drive.

In many ways the roadway character is park-like with the exception of the institutional look of the Armory edge and presence of the deteriorated concrete “jersey” highway barriers utilized to close the former link to the golf course.

**Rodney Street** also connects to Belmont Street and ends at the parking lot and dam at Green Hill Pond. Upon entering the park, dense deciduous woods, ledge outcroppings and Bear Brook Ditch/Hermitage Pond resource area surround the 1,600 L.F. road. Due to a lack of traffic (vehicular, pedestrian and bikers), the area seems secluded and isolated and has been badly impacted by enormous amounts of illegal dumping. A worn, unofficial dirt parking area is the only park facility with access exclusively from Rodney Street. This area, adjacent to Duck Pond is utilized by park visitors playing bocce. Hiking and cross country trails also intersect with the road at several locations.

Within the confines of Green Park, **Green Hill Parkway** is perhaps the most heavily traveled park roadway which connects to Channing Street at the park entrance and Lincoln Street nearby. The Parkway provides access to the handball courts, Park Administration and Maintenance Complex, Memorial Grove and Forum Theatre, Connie Mack Little League, Green Hill Pond, Main Parking Lot, Barnyard Zoo, Refectory, Picnic areas, and Composting Facility.

In many ways, the Parkway is truly a park-like road with a formal entrance, allee of red pine trees, sweeping and rolling lawns adjacent, attractive views and vistas and a winding alignment. In places, dedicated pedestrian walkways are also established. Rock out-croppings, benches and attractive tree groupings enhance the roadway setting. Although the conditions of the road surfaces and edges are deteriorated, Green Hill Parkway possesses great potential. The largest visual intrusions include the concrete handball backboards and nearby “jersey” barriers, the park maintenance buildings and the deteriorated restroom facility adjacent to the dam at Green Hill Pond.

### Parking Areas

Green Hill park contains a number of poorly defined parking lots for a variety of uses.

<u>Parking Location</u>	<u>Capacity (1.)</u>	<u>Use</u>
Park Center	120	Park Visitors
Duck Pond (unpaved)	10	Park Visitors
Park Department Facility	50-60	Employees, City Vehicles Equipment, Park Department Visitors
Golf Course	150-160	Golfers, Employees
National Guard Armory	250-300	Military Personnel, Government Vehicles, Visitors

(1.) All capacities are estimated since few facilities are actually striped (marked out).

Although poorly and inconsistently signed, parallel parking is available along certain sections of park roadways. The precise number of spaces is difficult to estimate. Severe damage has occurred adjacent to many lengths of roadway, apparently through uncontrolled use where parking is at least informally permitted. "No Parking" signs staked into shade trees along many road edges are infrequent and are generally reused signage with improper designations (no parking/no trespassing etc.). Park restrictions are poorly enforced due to a lack of manpower and enforcement powers.

Major park features which contain no formal parking facilities include Forum Theatre, Barnyard Zoo, Connie Mack Little League, and various playlots, and other park features.

In general, parking areas suffer from the same general deficiencies identified for roadways. The primary parking lot for all park users is located at the center of the site near the pond. Although fairly conveniently situated, the lot is far too obvious and prominent, poorly and inefficiently laid out, oversized, and lacking in every type of park-like amenity including landscaping, edging, drainage, sidewalks, lighting and signage.

A delicate balance must be reached in regard to parking at Green Hill Park. It is essential that strategically situated, well designed, secure and maintainable parking areas be developed in order to provide safe and convenient use of existing and planned park facilities. The challenge is in creating new parking opportunities while reducing adverse visual impacts to the park, a challenge which is explored later in this document.

### **Circulation - Summary**

In summation, poorly designed and extremely deteriorated roadways, walkways, parking areas and park entrances adversely impact the appearance of the park and the experience of park users. With a severe lack of roadway edging, dedicated pathways, signage, speed controls and vehicular controls in general there is far too great an emphasis on the driver and vehicle at Green Hill Park and far too little emphasis on the safety and convenience of park users, especially the elderly, children and the disabled. The prevailing conditions of roads, drives and parking areas also detracts greatly from the potentially pleasant setting, character and qualities of Green Hill Park that have yet to be fully realized.

## **Exiting Conditions Narratives - Natural Features**

### **Green Hill Pond**

Green Hill Pond encompasses approximately 31 acres in the north central portion of Green Hill Park. The pond was created in 1878 when a member of the park's founding family erected a dam at the southwestern end of Bear Brook Valley. A spillway at the dam is the primary outlet for water. The land adjacent to the pond is either developed (golf course, and picnic areas to the northeast and northwest of the dam) or undeveloped (remaining areas). Even where undeveloped, worn trails and debris can be found a short distance from the pond edge.

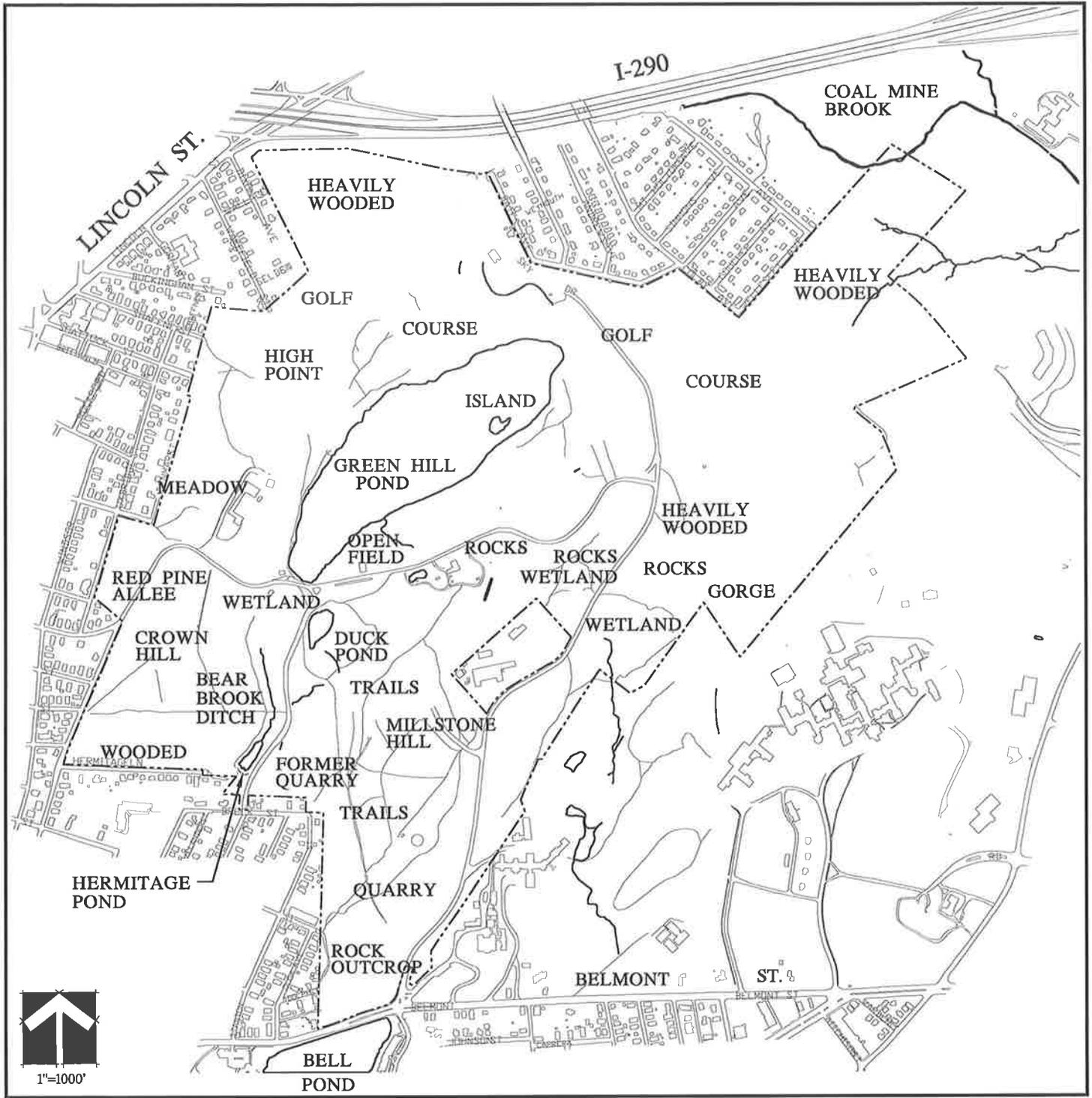
The depth of Green Hill Pond at the deepest points is between 10-12 feet. The pond water level remains at or above the elevation of the dam spillway throughout much of the year with the general exception being the warmer and often drier summer months. Because of the rapid runoff of stormwater from the steep terrain surrounding the pond. The water elevation can rise rapidly as the result of a heavy rainfall or thundershower.

Historically boating, fishing and swimming were the primary recreation uses of Green Hill Pond. Swimming was discontinued at about the time the previous Master Plan was completed (1979) due to high pollution levels. Only fishing is presently undertaken at the pond.

During December of 1995 the water quality was tested and found to meet the state's minimum standards for drinking water. The reason for this very favorable water quality report may be due in part to the following factors:

- During this time of year, the pond water level is often above the dam elevation and is continuously being flushed by springs from below the pond and surface stormwater flowing into the pond.
- Fertilizers are not being applied to the golf course at this time.
- By practicing an integrated pest management program at the golf course in recent years, the overall application of chemicals is only on an as-needed basis rather than at more frequent, regular intervals.

To determine water quality during the lower flow summer months, additional water quality tests should be performed.



Levy, Eldredge & Wagner Associates, Inc.

**SECTION II**  
**Existing Conditions**  
**& Analysis**

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Natural Features

**GREEN HILL PARK**  
**1996-97 MASTER PLAN UPDATE**

A second outlet of water is located at the northeast end of the pond. The outlet structure and stormwater main (buried up to 75' below the 18th and 10th golf holes) links to the City stormwater system, to Coal Mine Brook, and eventually to Lake Quinsigamond. This outlet has been assessed by the DPW and it has been determined to be functioning at a small percentage of its design parameters. Its function may have been comprised well before the development of the neighborhood along the northeastern edge of the Park. As such more investigation and testing must occur before the outlet is cleaned of all debris to prevent possible downstream flooding in times of high water.

The dam spillway connects to a storm drain pipe which runs below the Little League Field and outlets in a small wetland area at the head of "Bear Brook Ditch". The outlet of the dam appears to be functioning in a limited capacity. The dam itself was the subject of several studies during the 1970's and was found to be in need of repairs, none of which have been performed to date. Please refer to excerpts from a Corps of Engineers Study in 1978, contained in the Appendix.

### **Pond Edges**

Pond edges are generally developed to the northeast and northwest of the dam and adjacent to the golf course, or, undeveloped throughout most of the remaining area. The developed areas encompass approximately 2,700 linear feet of pond edge compared to the undeveloped area of 3,100 linear feet. Throughout the developed areas all built facilities are in poor condition. Pond edges exhibit serious problems and only the limited number of deciduous (Maple and Oak) and evergreen (White Pine and Fir) trees are in good condition. Shade is limited along the developed pond edges. A summary of the elements encountered adjacent to the developed portions of the Green Hill Pond edge (excluding the golf course) is as follows:

#### **Developed Pond Edge - Existing Conditions/Features**

- Eroding banks
- Irregular grass edges, little or no wetlands vegetation
- Tree trunks, stumps, branches
- Living trees laying parallel to the water surface
- Debris of almost every type
- Silt, Sand, Gravels
- Rocks
- Shelter foundation remnants
- Scattered picnic facilities
- One badly deteriorated shelter structure
- Several deteriorated park benches
- Worn pathways, utility poles and overhead wires
- Badly deteriorated comfort station

- Deteriorated dam fencing
- Badly deteriorated roadway pavement adjacent to the dam
- A colony of ducks and Canadian Geese

### **Duck Pond**

Duck Pond is spring fed and also receives water from nearby catch basins and overland storm water runoff. The pond encompasses less than one acre in area and is the site of the proposed State-wide Vietnam Veterans Memorial. The pond has been adversely impacted over the years by uncontrolled or poorly controlled stormwater runoff from upland areas including the parking lot. Oil, gasoline and large quantities of silt were directed to Duck Pond through a storm drainage system which functions poorly. Water is very shallow at Duck Pond due to sediment build-up. There is no formal outlet at Duck Pond although during peak storm events, water overflows the banks of the pond and enters a catch basin at Rodney Street. The pond sediments contain TPC's which can be remediated on site after dredging and stockpiling through frequent turning over (exposure to oxygen) and the application of lime.

A design for the Memorial has been selected and includes a series of three major spaces referred to as the "Place of Names", "Place of Words" and "Place of Flags". The project is expected to cost between 1.2 and 1.6 million dollars and is awaiting funding authorization from the State Legislature.

Extensive environmental permitting has been completed for the project and is on file with the Worcester Conservation Commission. Environmental work will include the dredging of the pond, remediation of TPC's contained in the soil and elimination of untreated parking lot stormwater drainage connections.

### **Other Ponds**

**Hermitage Pond** is located to the south of Green Hill Pond near the park edge at Rodney Street. The Bear Brook which feeds the pond was dammed in the 1800's and the resulting water source served the State Asylum (later to become Worcester State Hospital), located to the east of Millstone Hill (landfill site).

Today, Hermitage Pond suffers from dumping of all types of debris and siltation resulting from erosion into Bear Brook Ditch upstream. Recent curb and catch basin installations along Rodney street and a community clean up day have helped to partially improve the deteriorated condition of this interesting resource area.

At Hermitage Pond, the overflow originating at Green Hill Pond exits the park into a storm drainage system connecting below a massive granite block dam structure. Water eventually is treated at a sewage facility prior to emptying into the Blackstone River.

A **water-filled former quarry**, less than a half acre in size, is located adjacent to a southern park boundary, east of Rodney Street and visible from the historic trail, Lucy's Lane. Steep, heavily wooded slopes surround this potentially attractive feature. An enormous amount of dumping has occurred within this remote area, as debris of every kind surrounds the pond.

To the north of the armory and visible from Skyline Drive a small (less than a half acre), **pond and wetland area** is located. This attractive area contains water throughout the year. Massive rock outcroppings occur within and surrounding the Pond and associated wetland. Dumping has not adversely impacted the area, perhaps due to the proximity to Skyline Drive greater visibility.

### **Wetlands**

Although relatively limited in size (relative to the park as a whole) wetland resource areas are scattered throughout Green Hill Park. Wetlands of various widths and types line the edges of all of the water bodies described on the preceding pages and Bear Brook Ditch, Coal Mine Brook and other intermittent and perennial drainage ways.

At Green Hill Pond, the surrounding resource area is very limited, or non-existent, due to the fact that the pond edge is predominantly a manmade bank (placed boulders) surrounded by upland soils and vegetation.

Perhaps the most interesting and diverse wetland areas are located to either side of Skyline Drive, north of the armory. Flat topography, underlying ledge, extensive rock outcroppings and densely forested (deciduous) surroundings typify these areas. Worn trails pass through and around these wetland resource areas.

### **The Hills of Green Hill Park**

**Crown Hill** (elevation 752 feet above sea level) is located adjacent to the park entrance at Green Hill Parkway and Channing Street and serves as the backdrop to Forum Theatre and the Little League Field. The top of Crown Hill and much of the surrounding hillsides are mowed periodically and free of extensive vegetation. During winter months the eastern slopes are popular for sledding although the fencing at the ballfield presents an obstruction at the end of the "run". Views especially to downtown Worcester (south-westerly) and Green Hill Pond (north-easterly) are spectacular.

Located on the eastern slopes of Crown Hill is Memorial Grove. This grove of sugar maple trees was planted in rows in memory of the Worcester residents who died in World War I. There are few mature trees remaining and it is apparent due to the variable sizes of surviving trees that numerous efforts have been made to re-establish the Grove.

**Millstone Hill** (elevation 779 feet) former/landfill and current youth soccer complex. Views (northerly) to Mount Wachusett are also spectacular.

The **hill at the second golf hole** teeing area (elevation 780 feet) while inaccessible to non-golfers during certain times, offers beautiful views to Green Hill Pond and surrounding park areas. A small reservoir was located at this high point until it was filled during the mid 1900's. Dozens of springs break out of the steep hillsides which lead down to Green Hill Pond.

### **Woodlands**

Woodlands encompass approximately 50% of the land area (242 acres) of Green Hill Park. The largest, uninterrupted tracts of woodlands are located to the south and east of Green Hill Pond with smaller tracts located on steeply sloping terrain to the north of the golf course.

Woodlands are primarily deciduous with dominant species of maple, oak, beach and smaller amounts of birch. Minor evergreen plantings occur in close proximity to the pond and include pine, hemlock and firs. A small grove of hemlocks is also located adjacent to the composting area.

The woodlands of Green Hill Park offer respite from the urban life surrounding. Passing along one of the many beaten trails through the scenic and varied woodland environment one could easily imagine an escape to a far more rural New England setting. Pathways are narrow or wide, steeply sloping or flat, rutted and worn and with frequent obstructions from a fallen limb or rock outcropping. Pathways are used by hikers, joggers, mountain bikers and cross country running programs.

Woodlands also support wildlife in addition to the recreating public. Dramatic elevational changes cause certain areas to be quite remote (especially near the eastern property lines which abut other undeveloped lands) and therefore more attractive to various wildlife types.

### **Photo Sheets**

The Photo Sheets, which follow, have been organized sequentially to match the order of the Existing Conditions narratives contained in this section as indicated below:

Photo Sheets	1-13	Recreation Facilities and Other Elements
Photo Sheets	14-18	Entrances, Roadways, Parking
Photo Sheets	19-26	Natural Features

**EXISTING  
CONDITIONS  
PHOTO SHEET**

TOP AND BOTTOM PHOTOS: The Refectory was constructed in 1911 and is currently utilized as an open-air picnic pavilion. The structure itself was refurbished during the 1980's. The grounds surrounding the Refectory are severely worn with few amenities. The front of the structure is situated dangerously close to the park road without protection from errant drivers/vehicles.

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**SITE FEATURE: REFECTORY (NATIONAL REGISTER OF HISTORIC PLACES)**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP AND BOTTOM PHOTOS:** The playlot is in close proximity to the Refectory and across Green Hill Parkway from the main parking area. The equipment is outdated and unsafe and should be replaced. Excessive heights of certain features, inappropriate surface materials and inadequate railings are among the equipment's deficiencies. The structure is designed for older children although a message concerning age appropriateness is not available.

---

**SITE FEATURE: PLAYLOT**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP AND BOTTOM PHOTOS:** Picnic facilities are scattered along a short section of the Green Hill Pond shoreline. Only limited quantities of furnishings are available and these are badly deteriorated. The proximity to the pond and overhanging Pines and other deciduous trees create a pleasant setting for the picnicing use.

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**SITE FEATURE: PICNIC FACILITIES**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP AND BOTTOM PHOTOS:** Little League organizers reportedly expend considerable labor and funds to upgrade the field each Spring. Without a more comprehensive capital improvement program, certain conditions will be difficult to correct including; the poorly graded and draining outfield, dimensions to fencing and poor quality furnishings (benches, spectator seating, backstop, etc.). Overhead electric service must be placed below ground to satisfy state grant requirements.

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**SITE FEATURE: CONNIE MACK LITTLE LEAGUE FIELD**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP AND BOTTOM PHOTOS:** Swingsets are in poor condition and do not comply with current guidelines established by the consumer Product Safety Commission and American Society of Testing and Materials. Exposed concrete footings and inappropriate surface material are two of the most apparent deficiencies. Provisions for handicapped accessibility is also lacking.

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**SITE FEATURE: SWINGS AT LITTLE LEAGUE FIELD**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP PHOTO:** The handball courts are reportedly used although the asphalt surface and concrete backstop are in poor condition.

**BOTTOM PHOTO:** A court complex located near Stanton Street along the southern park border has been abandoned for over twenty years. If desired, the area could be reprogrammed for recreation.

---

**SITE FEATURE: COURT FACILITIES**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP PHOTO:** New (left) and old water tanks are located near a high point in the park adjacent to the "upper" landfill. The field areas are in generally poor condition although utilized by up to 600 youth soccer players per day in season.  
**BOTTOM PHOTO:** The "lower" landfill is located to the north of the "upper" landfill/soccer complex and was never properly graded or capped. Irregularly shaped mounds of debris and weed vegetation (sumac, ailanthus) encompass much of the area. Both levels of the landfill are required to be properly closed and capped by the Department of Environmental Protection.

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**SITE FEATURE: FORMER LANDFILL (SOCCER FIELDS)**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

TOP AND BOTTOM PHOTOS: Barnyard Zoo is a modest, but attractive complex with a range of farm animals and deer. The facility has received Division of Conservation Services grant assistance in the past and is currently sustained in large part by private donors.

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**SITE FEATURE: BARNYARD ZOO (GREENHILL FARM)**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP AND BOTTOM PHOTOS:** The Park Department Administrative and Maintenance Facility is located on the site of the former Green Homestead, a sprawling compound a beautiful and historic buildings that graced the park until the 1950's. The present structures are uninspiring architecturally and detract from the surrounding park in part due to the prominent and highly visible location.

---

**SITE FEATURE: PARK DEPARTMENT COMPLEX**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP PHOTO:** A beautiful, serpentine stone wall forms the southern edge of the park maintenance complex. Scattered vehicles, equipment and materials detract from this attractive park feature.

**BOTTOM PHOTO:** This structure is identified as a blacksmith shop on historical plans of the park and as the "Red Barn" in the 1979 Master Plan. The teeing area for the 5th golf hole is in the foreground.

---

**SITE FEATURE: PARK DEPARTMENT COMPLEX**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP AND BOTTOM PHOTOS:** The composting facility is operated by DPW and has received high marks for the successful mulching of large quantities of organic lawn and yard waste to produce a rich topsoil type material. While the program is heavily supported, many community representatives have requested that the City seek alternative sites (outside of Green Hill Park) to reduce traffic and noise and to return the area to other potential park uses.

---

**SITE FEATURE: COMPOSTING FACILITY**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP AND BOTTOM PHOTOS:** Highly visible chain-link fencing, steel guardrails, barriers, chains, signage, utility poles and stockpiled debris negatively impact the overall park appearance.

---

**SITE FEATURE: COMPOSTING FACILITY EDGES**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP PHOTO:** A visually unappealing comfort station is located close to the banks of Green Hill Pond and has been closed for many years.

**BOTTOM PHOTO:** A snack bar serves the Little League field and appears to be in poor condition. Overhead electrical lines and a roof-mounted scoreboard negatively impact the appearance of the structure. There are no provisions for handicapped accessibility.

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**SITE FEATURE: SUPPORT BUILDINGS**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

TOP AND BOTTOM PHOTOS: Stone gates, signage, and graceful Red Pine trees lining both sides of the road signal to visitor's that something significant lays beyond. This "sense of arrival" is lacking at other entrance locations. The entrance is accessible by vehicle via the steeply sloping Green Hill Parkway (from Lincoln Street) or Channing Street (from Belmont Street).

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**SITE FEATURE: PARK ENTRANCES - GREEN HILL PARKWAY**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP PHOTO:** Vehicular access along Rodney Street has badly impacted Bear Brook Ditch, Hermitage Pond and associated wetlands through uncontrolled dumping by polluters.

**BOTTOM PHOTO:** Traffic islands and dirveways to the Technical School make the Park Entrance at Belmont Street confusing and unsafe for drivers, bikers, and walkers. Park amenities are lacking at this major park entrance.

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**SITE FEATURE: PARK ENTRANCES - BELMONT STREET AND RODNEY STREET**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP AND BOTTOM PHOTOS:** Roadways throughout Green Hill Park are in generally poor condition. Inadequate roadway edging allows drivers to leave the road surface causing serious damage to adjacent park areas. With Capital Improvements, certain sections of restored drives will greatly enhance the park setting and one's overall impression of the site.

---

**SITE FEATURE: ROADWAYS**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP AND BOTTOM PHOTOS:** Deteriorating and visually obtrusive barriers were placed many years ago as a temporary measure to close the Skyline Drive link to the golf course clubhouse. A more satisfying, permanent solution should be undertaken. The 90 degree turn at this location requires improvement to create a smoother, safer transition between the two park roads.

---

**SITE FEATURE: SKYLINE DRIVE**



## EXISTING CONDITIONS PHOTO SHEET

**TOP AND BOTTOM PHOTOS:** The only formal parking area provided for general park use is inefficiently configured and blends into the park entry drive from Rodney Street. Located at the core of the park, the deteriorated and overly prominent parking area badly impacts the character of surrounding pond, woodlands and open fields. While better suited for large scale special events, the area serves poorly every day park users.

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### SITE FEATURE: PARKING LOT



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### EXISTING CONDITIONS ASSESSMENT

GREEN HILL PARK 1996-97 MASTER PLAN UPDATE

**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP AND BOTTOM PHOTOS:** The 31 Acres Green Hill Pond is the park's dominant "natural" feature and focal point. The pond was actually created when a swampy area was dredged and the dam constructed by the Green family in 1878. The pond is 10-12 feet deep near the middle and the shoreline perimeter encompasses 2.1 miles.

---

**SITE FEATURE: GREEN HILL POND**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP PHOTO:** Utility poles, deteriorated concrete slabs, eroded ground surfaces and pond edges and inaccessible benches mar the visual qualities of the southwestern portion of the pond. The closed restroom facility (to the left-out of view) also detracts from the area.

**BOTTOM PHOTO:** The dam at Green Hill Parkway requires improvements according to a Corps of Engineers' Report. Improvements to the fencing and the surrounding area should also be considered in conjunction with work on the dam. Water from the pond flows into a granite chamber and via culverts below the parkway eventually outletting near Bear Brook Ditch.

---

**SITE FEATURE: GREEN HILL POND EDGES**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP PHOTO:** Vegetation adjacent to the pond edge has reduced or eliminated the extent of wear and erosion caused by foot traffic.

**BOTTOM PHOTO:** Badly deteriorated concrete slabs are remnants of an earlier era when formal shelters and piers afforded park users an opportunity to experience the pond close-up, without damaging the fragile pond banks and edges.

---

**SITE FEATURE: GREEN HILL POND EDGES**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**PHOTO AT LEFT:** Overflow from Green Hill Pond and Duck Pond combines with storm drainage from certain paved areas before outflowing to the south of the little league field and forming Bear Brook Ditch. Large quantities of trash have been thrown down slopes adjacent to Rodney Street toward the banks of the stream.

**PHOTO AT RIGHT:** Bear Brook Ditch flows in to Hermitage Pond adjacent to Rodney Street at the southern edge of Green Hill Park. A massive granite block wall forms the downstream edge of Hermitage Pond. The littered, granite enclosure serves as the outlet of water into a below ground, combined storm/sewer drain system.

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**SITE FEATURE: BEAR BROOK DITCH AND HERMITAGE POND**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

**TOP PHOTO:** Golden grasses and clusters of birch trees make up the foreground in this view toward rolling hillsides northwest of the park. Worn trails pass through this area connecting to nearby neighborhoods.

**BOTTOM PHOTO:** The southern slopes of Crown Hill afford opportunities for viewing across Hermitage Lane toward downtown Worcester. (Tall buildings are masked by fog in photo.) Crown Hill is especially popular during winter months for sledding.

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**SITE FEATURE: VIEWS/VISTAS**



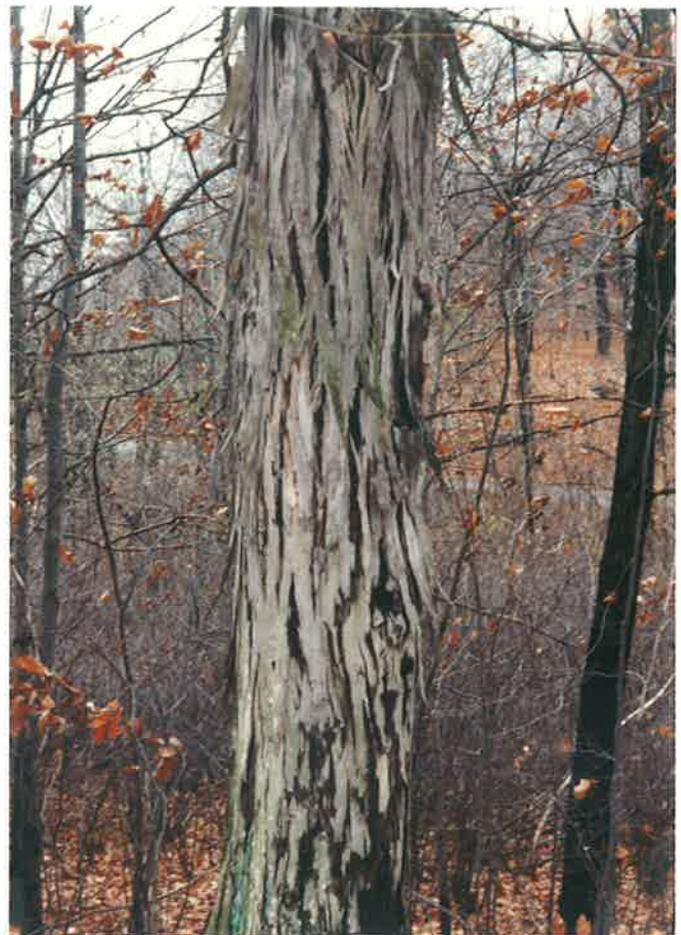
**EXISTING  
CONDITIONS  
PHOTO SHEET**

**PHOTO AT LEFT:** Mature Red Pines line enclosed the entry drive at Green Hill Parkway and frame a view to a church steeple north of the park.

**PHOTO AT RIGHT:** A Shagbark Hickory tree is located near an informal path east of Crown Hill. Interesting trees such as the Hickory could be highlighted as part of an interpretive environmental awareness program.

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**SITE FEATURE: VEGETATION**



**EXISTING  
CONDITIONS  
PHOTO SHEET**

PHOTO AT LEFT: A pathway passes through a predominantly Birch wooded area to the north of the third and fourth golf holes.

PHOTO AT RIGHT: Red Oak provides the canopy along a portion of "Lucy's Lane" which runs approximately 4,800 linear feet from the park entrance at Belmont Street to the gravel parking area near Duck Pond. There is enormous potential for the sensitive development of paths and trails throughout Green Hill Park.

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**SITE FEATURE: WOODLAND PATHS**



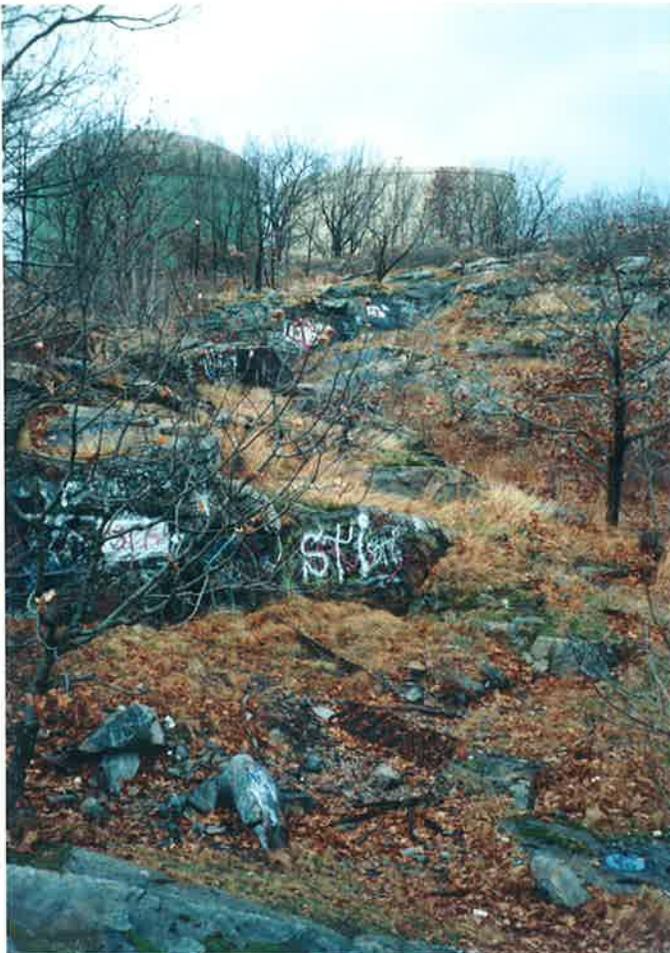
**EXISTING  
CONDITIONS  
PHOTO SHEET**

PHOTO AT LEFT: Massive rock outcroppings form the walls of an interesting enclosure where an amphitheatre was proposed by an earlier master plan. Today, graffiti covers the rocks and trash/debris cover the ground surface.

PHOTO AT RIGHT: Stone walls form portions of the eastern park perimeter in close proximity to an offsite water tower which probably served the former Community College and State Hospital. There is a dramatic 100 foot change in elevation in this vicinity.

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**SITE FEATURE: UNIQUE LANDFORMS**



## PART III - Recommendations

### A. General

It is the intention of this Update to keep the recommendations for the restoration of Green Hill Park simple and straightforward. The challenge of achieving a refurbished park is enormous but the solutions are well within reach should we choose to act. **The realization of a restored park is directly tied to one primary assumption - that the park will receive an adequate and uninterrupted infusion of funding.** Without critical funding, Green Hill Park will continue to exhibit the unsatisfactory conditions that prevail today. A few simple facts pertaining to the allocation of funds are as follows:

- Adequate funding is essential if meaningful capital improvements are to be undertaken to correct the deteriorating conditions of nearly all park facilities.
- Adequate funding is essential if a realistic maintenance staff and program is to be established in order to enhance existing features and facilities, protect new improvements and undertake minor park projects such as bench installations, tree and shrub plantings, placement of signage etc.
- It is unrealistic to assume that the City can achieve a park renaissance at Green Hill only through the help of volunteers and periodic donations of labor and materials. It is important to note, however, the Parks, Recreation, and Cemetery Department is well versed in accomplishing minor facility development projects through cooperative/volunteer efforts and donated materials and in organizing such activities. Due to the nature of the intensive infrastructure investment necessary at Green Hill, such activity shall be better suited for various minor projects such as ornamental garden installation, trail improvements, interpretive signage, etc., to complement intensive program developments as they are accomplished.

The recommendations set forth on the following pages are directly related to the goals identified at the front of this document; the existing conditions described throughout Part II which require corrective action to remedy, and in response to the need to embark on a basic, methodical redevelopment of park features and facilities as suggested and identified by the elected officials, the Administration, general public, advisory committee, City representatives and the consultant.

Other regional parks in New England have more grandiose master plans with elaborate planned facilities and capital expenditures. However, the deteriorated state of Green Hill Park requires an approach that is far more basic - restoring or replacing park and recreation features which have been lost at this site, but which are taken for granted at other similar sized parks located throughout the region and state. In a sense, we will be starting from ground zero in order to provide ordinary park amenities that include items such as benches and picnic tables, walkways and lights, tree plantings, access roads and parking lots, playlots and ballfields.

In general, major recommendation themes which recur throughout the remainder of this document are summarized as follows:

- Through the development of an enhanced maintenance delivery services system, improve the appearance of the existing park landscape, (lawn mowing, tree pruning, debris removal etc.).
- Utilizing new maintenance capabilities, paint, repair or replace basic park furnishings such as benches, picnic tables, drinking fountains, cross-walks, signage, tree plantings etc.
- Through the development of major capital projects, undertake a mix of infrastructure (roads, walks, utilities) and recreation (passive and active) improvements at appropriate locations.
- Develop an improved circulation system which provides safe, convenient access to the site, and circulation within the site, for drivers, bikers and walkers while preserving and enhancing the visual quality and character of Worcester's largest public open space.
- Protect, preserve and enhance the vast natural resources of Green Hill Park and provide improved opportunities for the use, understanding and appreciation of these resources.

### **B. Community Meeting Process**

The City of Worcester, through the City Manager's Office of Planning and Community Development and the Parks, Recreation and Cemetery Department sponsored an intensive series of public meetings and workshops during the fall/winter of 1996 and the winter/spring/summer of 1997.

Three major public meetings were held in the fall, one each in September, October and November. The October session was a Saturday workshop, a less formal "brainstorming" gathering, where a wide range of ideas and concerns were discussed.

During January, 1997, an advisory committee was established and officers were elected. There were 32 members of the advisory committee, all residents of the City of Worcester. The majority of members live in the neighborhoods which surround Green Hill Park. Several elected officials were also included in the group. Other representatives were drawn from environmental groups, cultural groups and sports leagues in order to represent a cross section of the City as a whole. City department heads were available to advise the committee, but did not participate in the actual formulation of recommendations. Meetings were moderated by the Chairmen, with frequent presentations on a wide variety of issues made by the consultant and other City officials.

In general, meetings were extremely well attended by up to 90% of the advisory committee members and 20-40 other individuals; mostly residents of the Green Hill Park area.

At weekly meetings held through May of 1997, the advisory committee and other residents contributed greatly to the Master Planning process and helped establish the range and potential phasing of improvements at Green Hill Park during the course of the next decade. During June and July residents continued to attend Parks Commission, City Council Committee on Youth, Parks and Recreation and full City Council meetings concluding on July 8, 1997 with the approval of the Master Plan Update.

Highlights of the major recommendations established through the public meeting process are summarized below:

#### **Public Meeting Process Recommendations - Major Issues**

- While recognizing the importance and enormous success of the composting programs, the citizens wished to remove the compost operation from the park in order to remove traffic, noise, dust and adverse visual impacts.
- Recommended to properly cap the former landfill (located adjacent to the Armory) and return the area to park, and recreation uses at the earliest possible date.
- Preferred the closing of Rodney Street (or the possible conversion to one-way), and the closing of the park after dusk except for special events.
- Opposed the establishment of an entrance fee.
- Unanimously supported the City's plan to establish a Park Ranger program at Green Hill Park.
- Supported an early phase reconstruction of the Park's infrastructure, including placement of overhead utility services below ground.
- Overwhelmingly supported the preservation, restoration and enhancement of the Park's natural and scenic features and woodlands.
- While generally supporting golf course improvements to increase revenue (to the benefit of the Park as a whole), opposed any expansion of the golf course beyond the existing limits.
- Opposed the development of a pool complex, skating rink or other large recreation feature at Green Hill Park.

Please refer to the complete list of advisory committee members and results of the advisory committee survey contained in the appendix.

## **C. Specific Recommendations**

The following recommendations address major park issues of vehicular and pedestrian circulation and access, parking, and potential recreation improvements, and other specific issues. Recommendations are made by the consultant based on current parks, recreation and open space planning and design standards, tailored to improve specific deficiencies at Green Hill Park and the needs expressed by many entities within the Worcester Community throughout the master planning process. The improvements recommended in this document must ultimately be accomplished per all applicable codes and standards including the Americans With Disabilities Act, Consumer Product Safety Commission and American Society of Testing and Materials, which govern many types of Parks and Recreation developments.

### **1. Circulation and Access**

The manner in which park visitors drive, bike or walk to the park, and how they move about within the park was the subject of a great deal of analysis and discussion. At the end of the process two major modifications to the park circulation system were recommended as summarized below:

a. **Close Rodney Street Vehicular Entrance**

In order to reduce the extent of cut-through traffic at the park, and eliminate other deficiencies previously described, the closing of the Rodney Street park entrance is recommended. The closing of the entrance to vehicles will allow for the development of greatly enhanced pedestrian amenities. The entrance will be gated and available for emergency and maintenance traffic only. A wide, meandering pathway will be developed for walkers, bikers, joggers etc. Lighting, signage, seating and other amenities typical of a park setting will be provided. The improvements would be accomplished under Improvement Program A. Refer to the program description and Concept Plans A and C which appear later in this section.

b. **Eliminate Skyline Drive and Green Hill Parkway Connection**

In an effort to further enhance the Green Hill Park setting and reinforce the site as a pedestrian and not a vehicular domain, the connection between the two remaining park roadways is proposed to be eliminated. The removal of the vehicular connection will occur in the vicinity of the Barnyard Zoo and will disallow cut-through traffic from within the park confines connecting Belmont Street and Lincoln Street.

Under this scenario, most of the Green Hill Parkway/Skyline Drive road limits will be retained, with a short link redesigned to permit emergency and maintenance vehicle access only. Access to the park center (Refectory, Barnyard Zoo, Green Hill Pond) will still be possible from both the Belmont Street and Green Hill Parkway entrances.

Many other options related to circulation and access were considered during the planning process, some of which are summarized below. Complete descriptions and diagrams of many of the options considered are included in the appendix. Most options were discounted due to the excessive costs associated with accomplishing the changes, or to community opposition from a programmatic, safety or security standpoint.

### **Circulation Options Considered But Not Recommended**

- Retain all park roadways in the current configuration.
- Change Rodney Street to one-way circulation but no exiting or entering the park, with trip returns via Channing or Catherine Street.
- Retain Rodney Street with two-way circulation but no connection to Green Hill Parkway at the dam. Under this scenario, a turn-a-round loop would have been developed to the south of Duck Pond and the proposed Vietnam Veterans' Memorial.
- Retain the Green Hill Parkway - Skyline Drive connection, but discourage through traffic by the use of speed controls and a circuitous connection at the park center.

In addition to the modifications to the park circulation system, it is proposed to construct gates at the two remaining park entry points. (The golf course entrance is currently gated). Gates will be open during the normal park operating hours and for special events that extend beyond normal hours. At other times the gates will be closed and the park secured from late night vehicular use.

In order to direct people along the safest and most direct routes to Green Hill Park erect directional signage should be erected along Route 9, downtown and throughout this section of the City. To discourage traffic on Green Hill Parkway from Lincoln Street (unsignalized intersection; steep gradients, dangerous merge with Channing Street at Park gates), erect signage at Catherine and Lincoln Streets to promote access via Channing Street. Beautify all access points to Green Hill Park.

The upgrading of the Belmont Street intersection is also recommended in order to make the intersection safer for pedestrians and drivers and to dramatically enhance this highly visible setting. Refer to Recommendation Program D and Conceptual Plan D for other potential improvements at this park location.

## **2. Parking**

Through the implementation of various improvement programs, parking considerations must be given a high priority. New parking facilities must be developed which are appropriately located and sized. If successfully designed, parking lots should blend into the surrounding park fabric and not stand out. Landscaping, edging, storm drainage controls, fencing, lighting, pedestrian walks and zones, traffic markings are elements that should be incorporated into parking lot designs.

Parking lots should be designed in a manner which allows safe, convenient connections to various park features. More specifically, parking lot considerations should include the following:

- The construction of a centrally located but unobtrusive parking lot at the park core to serve the dam/pond vicinity.
- A separate parking lot designed to serve the Barnyard Zoo and Refectory vicinity.
- Other small, inconspicuous parking lots to serve new or refurbished facilities including the Family Recreation Area and refurbished Youth Soccer Complex/former Landfill site.
- Designate parallel parking zones along park roadways at select locations. Expand pavement widths and modify curb alignments at these locations.

## **3. Pedestrian Access**

A major goal of all of the proposed improvement programs is to upgrade pedestrian access into and within the park. The lack of pedestrian amenities is well documented in Section II of the Master Plan. It is therefore recommended that the installation of walkways, crosswalks and other pedestrian enhancements be included in the development of all major capital programs as well as in other modest improvement efforts.

## **4. Recreation Improvements - Passive and Active**

The most important aspect of the various Park Improvement Programs is the provision of expanded, safe and pleasant, active and passive recreation resources. Specifically, recreation improvements include the following:

### **Major Park Recreation Improvements**

- Development of new, appropriately sited playground facilities for young children. Playgrounds or playlots often include swingsets, playstructures, other play equipment, resilient surfacing, edging, walkways, seating areas and other amenities.
- Develop new facilities for field based sports (Little League Baseball, Soccer etc.) to replace and expand existing deficient facilities.

- Continue to explore the potential for appropriately sized and situated court based sports activities (Baseball, Handball, Tennis) to provide new or improved opportunities for neighborhood children.
- Provide improve facilities at the pond perimeter for park users seeking picnicking, walking, jogging or other passive pursuits in the vicinity of the parks most scenic and prominent features.
- Develop a comprehensive system of pathways providing pedestrian connections to various park facilities with provisions for handicapped accessibility.
- Develop a comprehensive trail system for hikers, walkers, bikers, cross country runners and joggers with clear signage and nodes which might include seating, interpretive signage or other amenities.
- Refurbish/expand existing park facilities including the Barnyard Zoo and Forum Theatre to improve user experience and attract greater attention.

## **5. Recreation Programming**

The City must continue to develop and offer appropriate recreation programming at Green Hill Park including daily summer activities for neighborhood children. In addition, cooperative recreation programming should continue to be undertaken and expanded as opportunities arise.

Connie Mack Little League and Worcester Youth Soccer currently utilize active recreation facilities within the site that are in need of upgrading. Many other entities have expressed strong interest in developing educational, environmental, and cultural programming at the park including Worcester Schools, Massachusetts Audubon, Worcester Garden Club and numerous other groups. In many cases, expenditures to support the development of passive recreation programming as desired by many civic minded groups can be quite modest and include the technical review of proposals and installation of limited site features that might include interpretive signage.

## **6. Restrooms and Other Support Buildings**

Clean, safe, convenient and vandal-resistant restroom facilities are essential components within modern day regional parks. As discussed in earlier sections, the existing restrooms at the Barnyard Zoo and edge of the pond are inadequate. New facilities should be constructed at strategic locations to support both existing and future uses. Potential locations include the park center in the vicinity of the dam and main parking lot, proposed Family Recreation Area and restored landfill site.

The existing restroom facility at the edge of the pond is utilitarian and uninspiring in appearance. It is desirable to construct new facilities utilizing contemporary design techniques and materials, with a more traditional, late Victorian appearance, appropriate to the origin and scale of Green Hill Park.

The restroom planned for the park center could be incorporated into a larger structure that serves as a Welcoming/Information Center. If desired, other uses could be programmed within the building including Park Ranger Station, Community Meeting Room(s), Senior Citizens or Children's Activity Rooms and Concessions. One possible location for such a facility is identified on Concept Plan A.

## **7. Park Utility Services**

As park improvements are undertaken, utility upgrades must also be planned and provided. As previously documented, the two public restroom facilities have poor water pressure, questionable sewer connections and overhead electric service. A prerequisite for future grant funds from the Division of Conservation Services is the removal of overhead utility services to below ground.

Improved water service is essential to many of the planned facilities where drinking water and irrigation needs must be accommodated.

## **8. Landfill Capping**

The proper capping of the landfill, and reuse of the reclaimed lands for recreational purposes is an essential recommendation of the Master Plan Update. The City Department of Public Works has identified four potential approaches to the landfill issue with an option that includes leaving the site in the current state. The three options that call for capping the landfill are summarized below. (Refer to the Appendix for the complete Public Works Department Memorandum which presents and evaluates all of the landfill capping options).

**Option 2** Build one (1) soccer field twelve (12) months from the date of approval. Begin capping the site three (3) years from now. Cap the entire landfill site at the conclusion of the three (3) year period. During the three (3) years of capping operations, provide \$500,000 per year for use of park enhancements. After capping the site, disposal of public works waste will be at a facility outside the city.

**Option 3** Build one (1) soccer field twelve (12) months from the date of approval. Begin capping the site three (3) years from now and conduct capping operations for a six (6) year period. At the conclusion of all capping operations, construct a 2nd soccer field, one (1) basketball court, a parking lot for 100 cars, and a concession stand (total value = \$700,000). At the conclusion of the (6) year period, dispose of wastes at a facility outside the City.

**Option 4** Build one (1) soccer field and concession stand within twelve (12) months from date of approval. Begin capping the site three (3) years from now and conduct capping operations for a twelve (12) year period. Build 2nd soccer field and half of 200 space parking lot after six (6) years of capping operations. Build 3rd soccer field, basketball court and remainder of parking lot at conclusion of twelve (12) year period.

(Note - Option 1 involves leaving the site in its current condition)

The City Administration will determine which option to pursue after a period of public comment. The Master Plan Update assumes that the landfill will be appropriately capped within the useful life of this document, and that valuable recreation space will be available for programming with several of the potential opportunities summarized below:

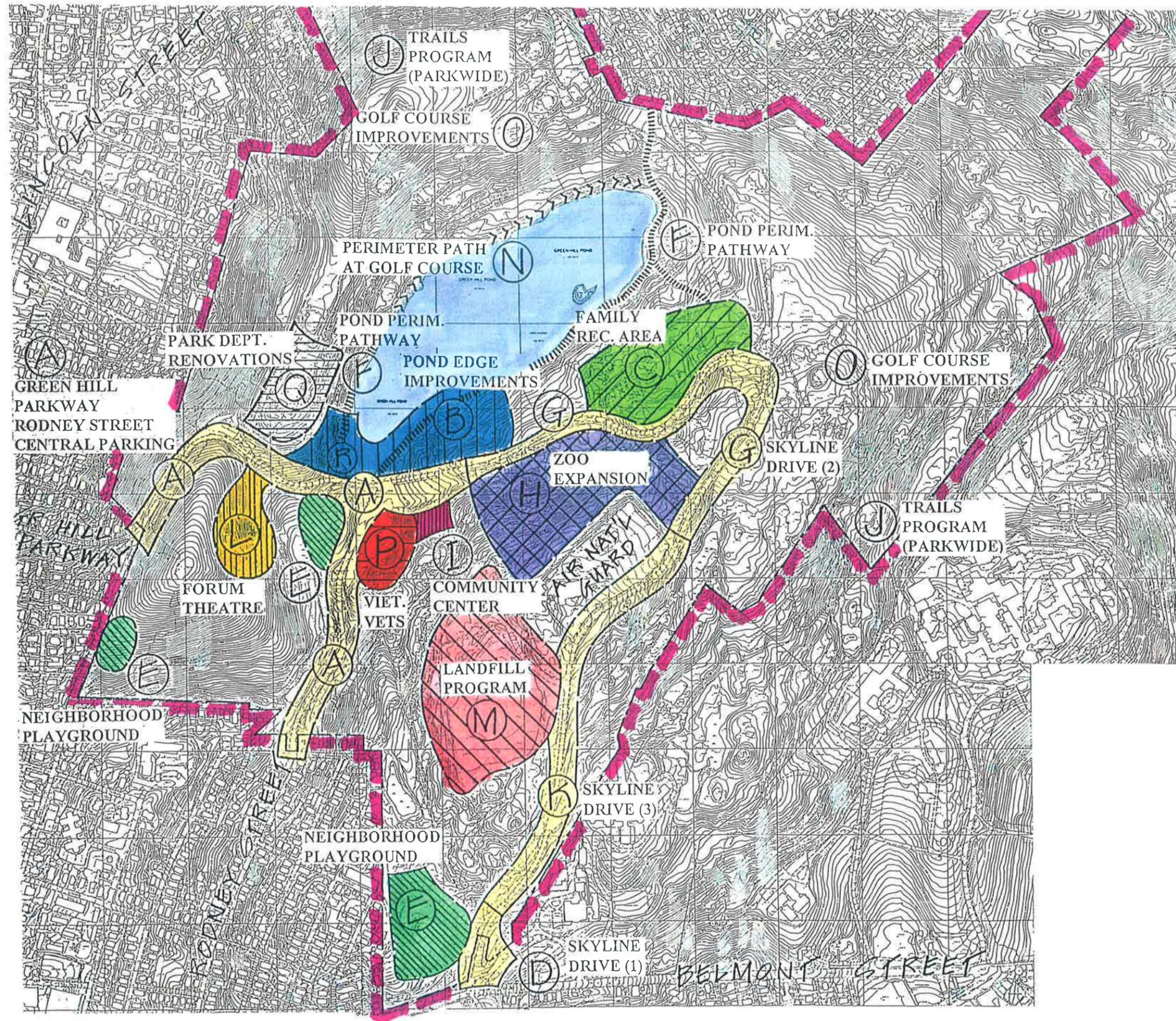
- The flat, open nature of the future landfill cap lends itself to field based sports activities. Opportunities for this type of use elsewhere within the park are limited due to rugged terrain or unsuitable soil conditions.
- Parking facilities can be located within the area without adversely impacting the scenic qualities of Skyline Drive nearby.
- The large and open nature of the resulting landfill cap will be well suited for concerts, festivals and other special events.
- A restroom/concession building could be easily accommodated within the expansive areas.
- Playlots and court facilities could also be easily incorporated in to any improvement program.

#### **D. Recommended Park Improvement Programs**

The following potential programs incorporate the vast majority of park improvements as recommended by citizens throughout the public meeting process. The programs have been established based on park geography, work type, and potential funding availability.

Based on all the input gathered throughout the public meeting process, the consultant has recommended that Program A be the first project accomplished, and that the remaining projects be undertaken in the order listed. The ordering of projects can be altered at the discretion of City Representatives should priorities change or conditions warrant either earlier or later attention.

The first three park programs propose a mix of infrastructure (roads, walks, utilities) and recreation (passive and active) improvements at highly visible and heavily utilized park areas. The scopes of the projects were selected to provide maximum positive impacts in a short time frame, and to send a clear message that the restoration of Green Hill Park is well underway.



SECTION III  
Recommendations



Recommended Park  
Improvement  
Program Zones

This Conceptual Plan identifies the approximate locations of Recommended Park Improvement Programs A through R.

More precise limits of the individual projects will be determined during future design development and construction implementation phases of various Park Improvement Programs.

The potential scopes of the Programs are described in Part III - Recommendations of the Master Plan Update.

Conceptual designs for parts of many of the Programs are also presented in Part III of the Update.

**Programs A through K** are to be accomplished utilizing City funds, matched with state or federal monies to the greatest extent possible. **Programs L, M, O and P** shall be funded and constructed by others, although the Parks Department will play an active role in particular projects during all phases of development. **Program N** is identified because it was considered, but is not recommended due to the high costs associated with its development and due to environmental impacts. **Program R** is a feasibility study of the Dam at Green Hill Pond to be undertaken concurrently with **Program A**.

**Chart III.a.**

<u>Phase</u>	<u>Program</u>	<u>Year Accomplished</u>	<u>Minimum Budget</u>
A.	Green Hill Parkway, Rodney Street, Central Parking Area	1	\$714,000.
B.	Pond Edge Improvements Including Refectory Vicinity	2	\$714,000.
C.	Family Recreation Area at Compost Facility	3	\$714,000.
D.	Skyline Drive (1) Belmont Street Entrance Improvements	3	\$250,000.
E.	Neighborhood Playground Improvements - Multiple Locations	4	\$714,000.
F.	Pond Perimeter Pathway (Partial)	5	\$300,000.
G.	Skyline Drive (2), Road Reconstruction From the Barnyard Zoo to the Air National Guard Entrance	5	\$500,000.
H.	Barnyard Zoo Expansion	6	\$1,000,000

I.	Community Building, Actual Uses to be Programed later	8	\$800,000.
J.	Trail Improvement Program - Parkwide	9	\$714,000.
K.	Skyline Drive (3), Road Reconstruction from near Belmont Street to the Air National Guard Entrance	10	\$500,000.
L.	Forum Theatre Improvements Including Memorial Grove	BY OTHERS	\$350,000.+/-
M.	Landfill Cap, Recreation Improvements	BY OTHERS	\$1,000,000.+/-
N.	Pond Perimeter Pathway At Golf Course	NOT RECOMMENDED	\$500,000.
O.	Golf Course Improvements - Clubhouse, Other Renovations	BY OTHERS	\$1,000,000.+/-
P.	Vietnam Veteran's Memorial	BY OTHERS	\$1,000,000.+/-
Q.	Park Department Renovations to Improve Building(s) and Grounds	BY OTHERS	\$300,000.
R.	Dam Feasibility Study	1	N/A

The Improvement Programs listed in Chart II.a. are described in further detail on the following pages and below are intended to be flexible and further refined during future design development phases. The scope of particular projects may also vary based on the actual amount of available funding, a better understanding of specific existing conditions and Community priorities that can not be known during the master planning phase.

In addition to the listing of project scopes, a number of the potential park improvement programs have been explored (at least partially), in plan form as indicated in the following chart.

**Chart III.b.**  
**Related Concept Plans**

<u>Phase</u>	<u>Program</u>	<u>Concept Plan</u>
A.	Green Hill Parkway, Rodney Street, Central Parking Area	A, C
B.	Pond Edge Improvements Including Refectory Vicinity	A
C.	Family Recreation Area at Compost Facility	B
D.	Skyline Drive (1) Belmont Street Entrance Improvements	D
E.	Neighborhood Playground Improvements - Multiple Locations	A, B
G.	Skyline Drive (2), Road Reconstruction From the Barnyard Zoo to the Air National Guard Entrance	B
H.	Barnyard Zoo Expansion	C
I.	Community Building, Actual Uses to be Programed later	A
K.	Skyline Drive (3), Road Reconstruction from near Belmont Street to the Air National Guard Entrance	B
P.	Vietnam Veterans' Memorial	C
R.	Dam Feasibility Study	A

## **E. Specific Scope of Park Improvement Programs**

### **A. Green Hill Parkway, Rodney Street and Central Parking Lot (\$714,000.)**

- Renovation of the stone gates at park entrance
- Complete roadway reconstruction
- Elimination of Rodney Street as vehicular entrance
- Installation of curbing
- Installation of wood rail fencing
- Installation of parallel parking spaces at select locations
- Installation of lighting (decorative)
- Installation of walkways for multiple uses and pedestrian connections
- Installation of benches, tables, bike racks and other suitable furnishings
- Installation of park signage (information and regulations), historical markers, environmental information
- Renovation of the main parking lot and surrounding areas
- Installation of tree plantings and landscaping
- Placement of utilities below the roadway (water, sewer, electric, etc.)
- Installation of gates at Green Hill Parkway
- Optional ballfield and playlot improvements

### **B. Pond Edge Improvements (\$714,000.)**

- Additional restoration to the Refectory
- Demolish comfort station and other structure remnants
- Remove deteriorated furnishings (benches, tables)
- Install pathways from parking area(s) to all new facilities, connect to park wide circulation system (other paths, walks, trails, etc.)
- Install landscaping throughout, designate/program areas to receive ornamental gardens and extensive shade tree plantings. Solicit groups such as garden clubs for donations and to volunteer time and materials for garden maintenance
- Install benches, picnic tables, drinking fountains and other furnishings and amenities
- Install gazebos, shelters, boardwalks and decks as desired near the pond edge
- Restore the worn and badly eroding pond edges
- Install decorative lighting and fencing in the vicinity of the dam
- Provide opportunities for bocce, horseshoes, volleyball and other activities as desired
- Optional concession/restroom/community facility (see also Program I)

**C. Family Recreation Area (at Existing Compost Facility Location) (\$714,000.)**

- Baseball field (Little league)
- Soccer field(s)
- Open fields
- Tennis courts
- Basketball court(s) optional
- Playlot for various aged children
- Concession/restroom facility
- Picnic grounds
- Connections to trails/park circulation system
- Parking
- Landscaping
- Benches, tables, drinking fountains, etc.
- Horseshoes
- Volleyball courts
- Accessible loop pathway (1/4, 1/2 or 1 mile in length)

**D. Skyline Drive (1), Belmont Street Entrance Improvements (\$250,000.)**  
**(Also - Short Term Improvements to Road Surfaces by others)**

- Upgrade circulation/access at the main park entrance
- Eliminate confusing and dangerous traffic islands
- Construct new entrance to Worcester Technical School
- Pedestrian amenities
- Improved lighting
- Park signage and landscaping
- Refurbished road surfaces, new curbing
- Drainage improvements

**E. Neighborhood Playground(s) (\$714,000.)**  
**(Multiple Locations Possible)**

- Playstructure(s)
- Swings
- Other play equipment
- Benches, tables, drinking fountains
- 1/2 Court or full court basketball (optional)
- Handball courts (2+)
- Landscaping, lighting, fencing
- Signage
- Pathways connecting to other park facilities
- Utilities as required
- Optional parking spaces - limited in number

**F. Pond Perimeter Pathway - 3,500 L.F. (\$300,000.)**

- Level, accessible pathway around 3,500 linear feet of the pond perimeter
- Signage
- Benches
- Picnic cluster(s)
- Exercise stations (optional)
- Connections to other trails and pathways
- Excludes pathway link at golf course
- Connection to Marsh Avenue
- Observation decks at pond (optional)

**G. Skyline Drive (2) (\$500,000.)**

- Complete roadway reconstruction from the Barnyard Zoo to the National Guard Armory
- Redesign of connection to Green Hill Parkway
- Improvements to the National Guard edges
- Installation of curbing
- Installation of wood rail fencing
- Installation of parallel parking spaces at select locations
- Installation of lighting (decorative)
- Installation of walkways for multiple uses and pedestrian connections
- Installation of benches, tables, bike racks and other suitable furnishings if appropriate
- Installation of park signage (information and regulations), historical markers, environmental information
- Installation of tree plantings and landscaping
- Placement of utilities below the roadway (water, sewer, electric, etc.)

**H. Barnyard Zoo Expansion (\$1,000,000.)**

- Building improvements
- Exhibit expansions
- Trail expansion
- New furnishings (benches, tables, paved seating areas, fencing, etc.)
- Gardens
- Upgraded utilities
- Parking/access improvements
- Landscaping
- New, attractive perimeter fence

(Note - Please refer to Harry Carr's Report "The Zoo as a Component of the Master Plan-Size, Scope and Mission", which is included in the Appendix.

### **I. Community Building (\$800,000.)**

- Potential uses include
  - Park Ranger Station
  - Public Meeting Space
  - Park Administration Space
  - Restrooms
  - Concession
  - Indoor recreation space/day care
- Bocce courts
- Shuffleboard courts
- Horseshoe pits
- Outdoor seating areas
- Lighting, landscaping
- Connections (accessible) to other park features and parking areas

### **J. Trail Improvement Program - Parkwide (\$714,000.)**

- Trail installations for walking/hiking, jogging, biking, etc.
- Connections to currently planned hiking trails
- Interpretive signage, markers
- Benches at certain locations
- Pedestrian bridges at stream crossings
- Gravel parking areas (8 or 10 spaces) at key locations (optional)
- Connections to other park pathways

### **K. Skyline Drive (3) (\$714,000.)**

- Complete roadway reconstruction from the limits of the Belmont Street park entrance to the Air National Guard Armory
- Installation of curbing
- Installation of wood rail fencing
- Installation of parallel parking spaces at select locations
- Installation of lighting (decorative)
- Renovation of storm drainage system
- Installation of walkways for multiple uses and pedestrian connections
- Installation of benches, tables, bike racks and other suitable furnishings if appropriate
- Installation of park signage (information and regulations), historical markers, environmental information
- Renovation of surrounding areas
- Installation of tree plantings and landscaping
- Placement of utilities below the roadway (water, sewer, electric, etc.)

**L. Forum Theatre (\$350,000.)**

- Walkway/accessibility improvements
- Building facilities to include New England Diner Car, restrooms, storage, actor's changing areas, etc.
- Landscaping
- Lighting
- Outdoor patio/terrace gathering spaces
- Utility upgrades (water, sewer, electric)
- Memorial Grove improvements
- Signage

**M. Landfill Program (\$1,000,000.)**

- Soccer fields
- Parking
- Utility services
- Other elements as determined by the Community

(Note - Please refer to the Program Description produced by the DPW contained in the appendix)

**N. Pond Perimeter Pathway at Golf Course (\$500,000.)**

- Level, accessible, pathway set back from pond along existing 9th golf hole
- Redesign of multiple golf holes

**O. Golf Course Improvements (\$1,000,000 +/-)**

- Clubhouse
- Other improvements

(Note - Please refer to the golf course business plan and improvements to be funded with golf course revenues contained in the Appendix)

**P. Vietnam Veterans' Memorial (\$1,000,000 +/-)**

- Commemorative Memorial Sculpture Garden surrounding Duck Pond.

(Note - Please refer to the Memorial Improvement Program Description contained in the Appendix. Funding for this project is pending in the state legislature.)

**Q. Park Department Renovations (\$300,000.)**

- Landscaping
- Fencing (decorative)
- Parking lot and drive improvements
- Exterior building renovations
- Other improvements as deemed suitable

(Note - This program is deleted if a new location for the Park Department is determined.)

**R. Dam Feasibility Study**

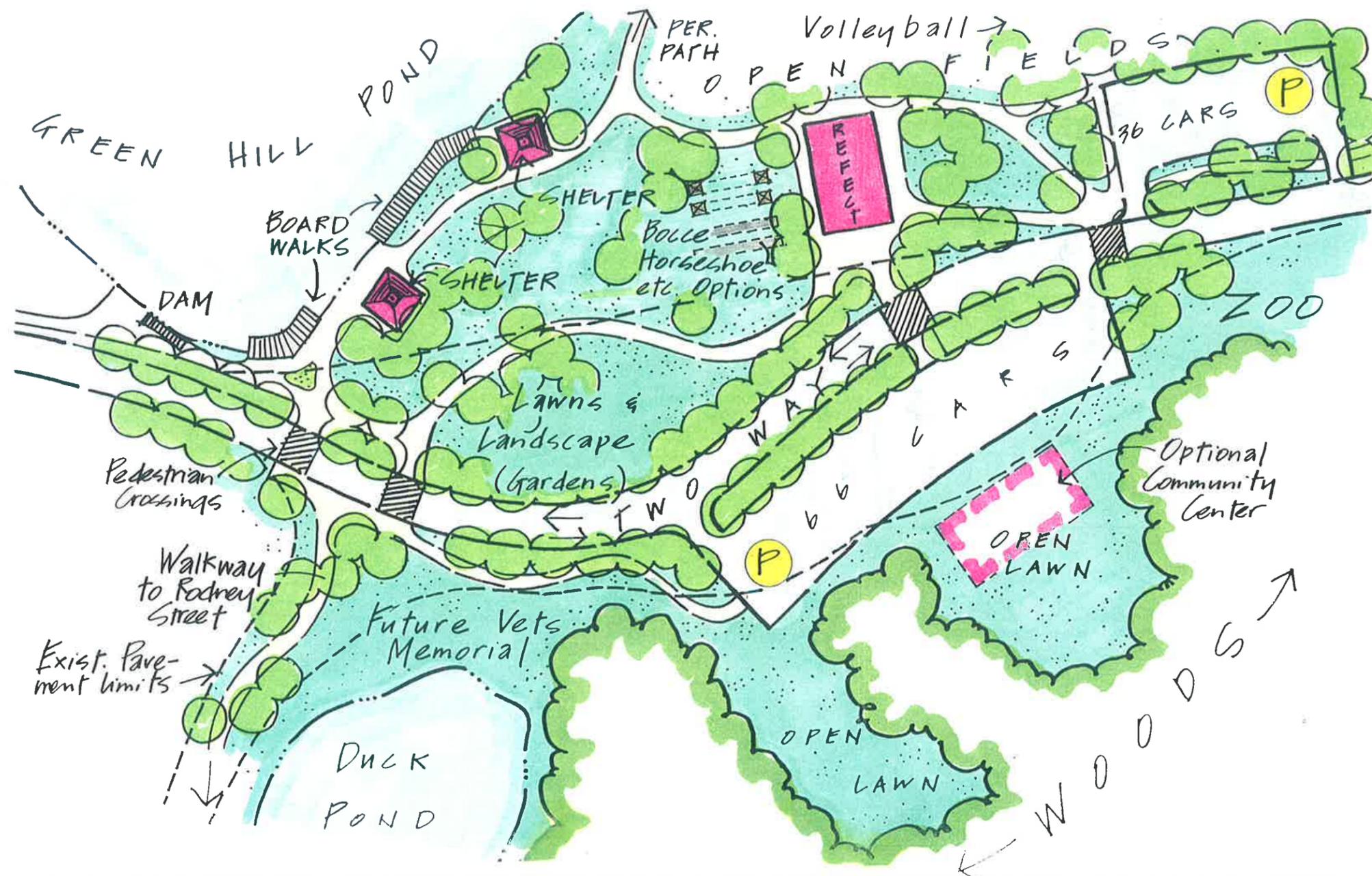
- A consultant shall be retained to assess the existing condition of the dam at the outlet of Green Hill Pond and establish a budget estimate for repairs/construction.

SECTION III  
Recommendations



New Park Center

Concept Plan **A**



The potential improvements identified on this plan involve many of the phased programs described in Section III - Recommendations. The obvious intent is to create an attractive, inviting and exciting activity center at the core of the park. Designs must be in keeping with the passive nature of the beautiful pond and elegant Refectory.

The area will serve as the park's focal point and primary destination point for daily park users. Redesigned roadways, parking areas, pedestrian connections, extensive amenities along the pond edge and appropriate landscape treatments will help recreate the ambiance understood and envisioned by Andrew Green and his heirs.

The restoration work shown on this plan will be accomplished primarily through Park Improvement Programs A, B, F, I and P.

**GREEN HILL PARK**  
1996-97 MASTER PLAN UPDATE

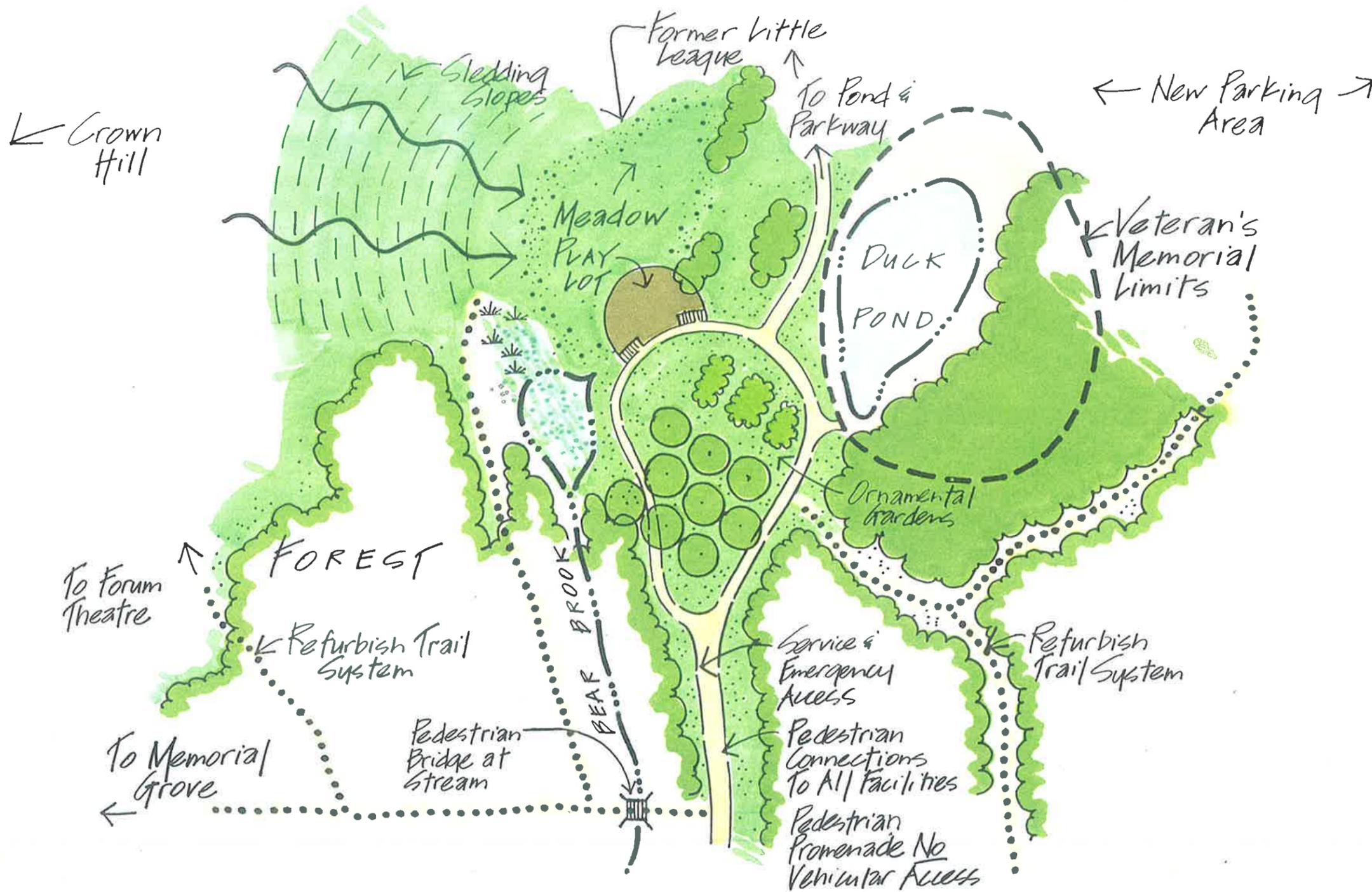
SECTION III  
Recommendations



Rodney Street Park  
Access Improvements  
Concept Plan **B**

The Master Plan Update recommends that the Rodney Street Park Entrance be closed to vehicular traffic. This, along with other planned improvements will discourage cut-through traffic and allow the park to become more of a pedestrian domain. The elimination of vehicle traffic on Rodney Street will allow for the creation of a wide, tree lined and meandering entrance way which caters to walkers, bikers, joggers and especially children entering the park from the Rodney Street neighborhood. The rather fragile and somewhat abused Hermitage Pond/Bear Brook resource area will be dramatically improved through the removal of autos from this park vicinity.

The restoration work shown on this plan will be accomplished primarily through Park Improvement Programs A, E, J and P.



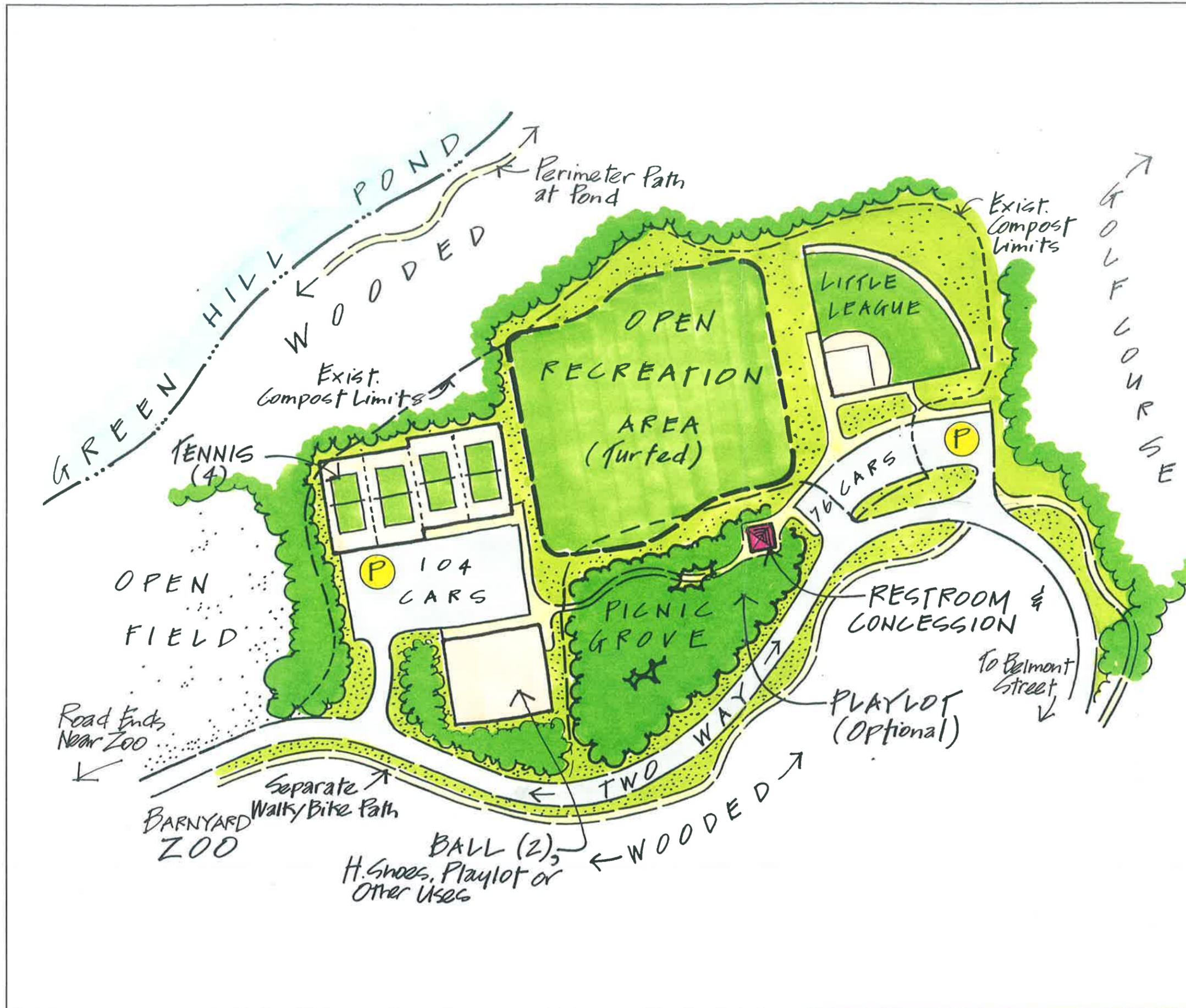
SECTION III  
Recommendations



New Family  
Recreation Area  
Concept Plan **C**

The development of a New Family Recreation Area at the former compost processing operation is potentially the most beneficial of all the Park Improvement Programs as elimination of a non-park conforming use is achieved and approximately 7 acres of land is captured for recreational purposes. The improvements under consideration include field and court based athletic facilities, picnic pavilions and groves, playlot(s), trails, restroom and concessions building, parking and extensive landscaping to support and complement the expanded Barnyard Zoo located across Green Hill Parkway. With beautiful evergreen and deciduous tree stands and the pond nearby, the area could become one of the park's primary destinations.

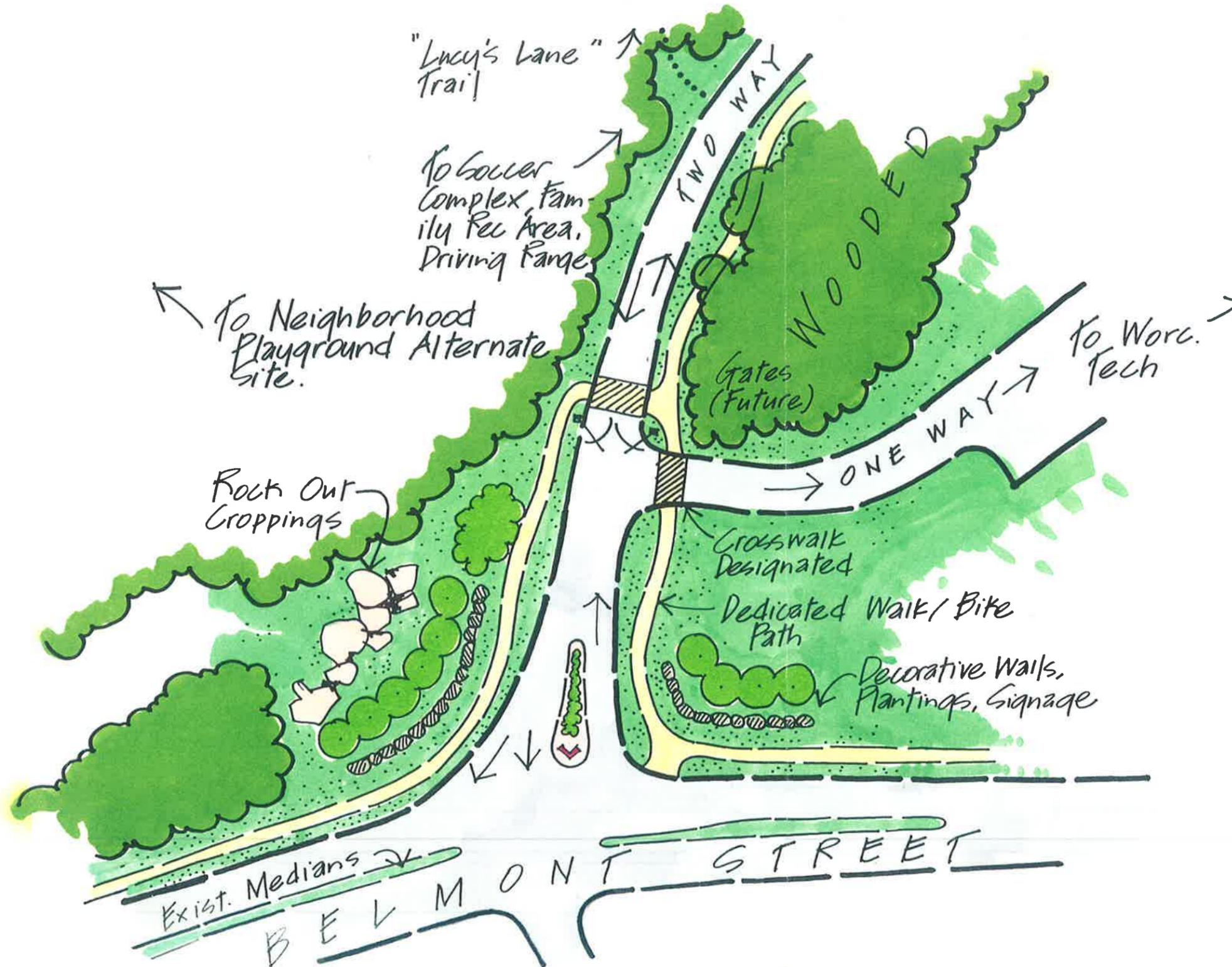
The restoration work shown on this plan will be accomplished primarily through Park Improvement Programs C, F, and G.



SECTION III  
Recommendations



Belmont Street Park  
Access Improvements  
Concept Plan **D**



The Master Plan Update recommends that a series of improvements be undertaken at the Belmont Street Park Entrance to improve the image of the park at this prominent and highly visible location. Recommendations include installation of a dedicated pedestrian phase within the overall traffic signal phasing, construction of new crosswalks, access ramps, sidewalks and reconstruction of the entrance to the Technical High School approximately 100 feet further up Skyline Drive. There is also ample opportunity to develop attractive signage, flower beds, fencing and other amenities to improve the dramatic setting which includes surrounding rock outcroppings.

The restoration work shown on this plan will be accomplished primarily through Park Improvement Programs D, E and J.

## **PART IV - Maintenance Management**

### **Introduction**

Based upon our review of site conditions and the level of maintenance observed at Green Hill Park, and our review of the DeLeuw Cather "Park Maintenance Management System" study of 1987, we offer the following commentary and recommendations to recapture the quality of the park.

### **General**

With a park setting of some 482 acres containing a 117 acre golf course, a Zoo, an extensive water body, and major vehicular circulation systems, it is evident that there is a need for a separate management work force to be dedicated specifically to Green Hill Park.

Although the work force may occasionally be called upon to visit other City-wide facilities, its specific duties must be to regularly attack maintenance repair and minor capital improvement programs within Green Hill Park.

In general, parks of this magnitude in cities other than the likes of Boston, Hartford, Providence and New York are beginning to undertake fee charges, even to residents, in order to become self-sufficient. These fees have been instituted in Look Park, Northampton and Forest Park, Springfield because attitudes at the time of annual budget hearings rarely recognize that parks and recreation is an essential public service of high priority. Therefore, parks and recreation in most communities is operated on the basis of crisis management, almost as a non-essential public service. Since Worcester has decided not to pursue the establishment of a fee system at this time the City must allocate tax levy money or other funding sources if meaningful change is to occur.

It is assumed that the 117 acre golf course facility will be operated and maintained through an on-going franchise agreement with private contractors. This arrangement is the most amenable to ensuring quality golf facilities at a reasonable cost to the public, without overburdening the City.

### **Specific**

As stated in the DeLeuw Cather Report, July 1987, a comprehensive manual with a list of facilities, with each facility, function, use and/or special event detailed, with a separate description of service delivered, activities, maintenance needs (regular and infrequent), and estimated equipment and manpower needs must be assembled to formulate a manual of operation. (Refer to the example shown).

For example, basic maintenance tasks to be undertaken at a typical frequency are:

<u>Tasks</u>	<u>Performance Frequency</u>
Grass Mowing (Passive Areas)	Weekly
Trash Barrel Emptying	2 or 3 Times/Week and Events/Games Daily
Litter Pick-up	2 or 3 Times/Week and Events/Games Daily
Watering	Weekly During Drought
Tree Pruning	Annually
Weeding	Monthly
Liming	Annually
Fertilizing	1 or 2 Times/Year
Herbicides, Pesticides	Only As Needed
Vegetation removal at Pond Edges	Annually
Repairs to Furnishings (Benches, Trash Receptacles, Etc.)	As Needed/On Inspection Basis
Infield Grooming	Daily (In Season)
Field Lining	Daily (In Season)
Grass Mowing (Fields)	2 or 3 Times/Week
Aeration (Fields)	1 or 2 Times/Year

The list above does not include special events or entertainment features that should be required to be undertaken by the event applicant (or by special budget or outside contractor if the City sponsors the event).

From this manual listing the physical plant and infrastructure, extent of activities or use, frequency of various maintenance activities (and occasional capital improvement replacements or rebuilds) one can establish a structure for what would appear to be the need for a dedicated Green Hill Park work force and a manager. This does not include any provision for “recreation programs, and operations” which deserves an entirely separate and otherwise qualified work force.

Utilizing the manual similar to what is presented in the appendix of the DeLeuw Cather Report “Performance Guideline”, and adding to that the extent of facilities for each work activity, i.e. number of courts, acres of fields, number of play structures and furnishings, etc. one is automatically forced into a programmatic plan of action which is no more complicated than a punch list.

The National Park and Recreation Association through its National Society for Park Resources and the American Park and Recreation Society, publish “Park Maintenance Standards” and make available publications, software and professional contacts to aid municipalities in developing specific programs, training and budget analyses.

However, the maintenance program is only a “shelf” document unless the City dedicates budget to the work force. Unfortunately, in order to “catch up” to a basic level of quality maintenance, the City will be forced to invest in capital improvements (replacements, rebuild, and new facilities), new equipment, and an expanded work force (permanent and seasonal).

### **Summary**

As an update to the previously completed DeLeuw Cather Report and The Johnson Master Plan, this document is intended to reinforce the recommendations of the prior consultants, the Green Hill Park Master Plan Update meeting participants and concerned citizens who clearly support the need for more maintenance resources and dedicated management and work forces.

The City must make a commitment to budget these resources on a moderate level annually, not in a reactionary way; to seek means of generating revenues by offering specific use fees; to seek public/private partnerships and corporate sponsorships; to seek out individuals and groups to maintain areas for select activities; and to establish and maintain a high visibility of Green Hill Park.

Assuming that a quality management system and work force can be established given the proper funding, our collective problem is to find sufficient monies for the capital and the on-going needs of the park.

Other than budgeting through taxation of the citizens, we offer the following examples of revenue generating operations at other parks for which we have created Master Plans:

### **Frank N. Look Memorial Park, Northampton, MA**

125 acre Family Recreation - 1920's dedication. Fees are generated by:

1. Vehicle Entry Fee - Resident/Non Resident - Daily and Seasonal (Pedestrians/Bikes - Free)
2. Picnic Table and Pavilion Reservations Fees
3. Picnic Supplies; Firewood sale;
4. Miniature Golf and Bumper Boat Pool - Fees
5. Paddle-boat - Fee
6. Zoo and Miniature Train Ride - Fees
7. Special Events - Entertainment, Sports Santa's Workshop, Child Bicycle Safety
8. Alcohol Permits; Food Concessions
9. Holiday Lights Displays - higher entry fees

Look Park has a dedicated Park Ranger Park Police force and full-time maintenance force with a seasonal visitation of 250,000 from Memorial to Labor Day. The golf activity has now extended the “revenue-producing months” from April to November.

### **Forest Park - Springfield**

A 750 acre woodland and lakes system formed into a park setting in the mid-1800's in the Olmstedian tradition.

Fees are generated by:

1. Vehicle Entry Fee - as at Look Park
2. Boating/Canoeing Concessions
3. Food/Picnic Concessions
4. Petting/Farm Animal Zoo
5. Holiday Lights Displays
6. Field Lights Charges
7. Sports Events/Concerts
8. Special Tours and Recreation Programs

Forest Park has a volunteer Park Ranger force, initiated by retired policemen and interested citizens, with “no-trespass order” authority.

### **Medfield Athletic Complex**

A 20 acre field complex with construction and maintenance sponsored by the “Sports Boosters Club”; supported by golf tournaments, Air National Guard volunteer units, volunteer contractor labor and materials, volunteer citizens. A policing arrangement is in place such that the Medfield State Hospital Security Police regularly drive thru and inspect the facilities.

Further, the Parks and Recreation Department has been successful in soliciting Corporate sponsorships for the care of high visibility areas and should encourage even more involvement if possible.

The resources available to create revenues are extensive; the opportunities to raise monies abound. If the maintenance program is not to be regularly funded on an annual basis at a moderate to high level, then the need for “fees”, concessions, franchises, etc. will become more and more evident.

**GREEN HILL PARK**  
**Master Plan Update - 1997**

**Appendix**  
**Table of Contents**

City Manager's Letter to the City Council, July 8, 1997	2 Pages
City Council Approval (Order) of the Master Plan Update with Attachment From the Deputy Commissioner of Parks, Recreation and Cemetery Department	5 Pages
Parks Commission Vote on the Master Plan Update	1 Page
Green Hill Park Advisory Committee Members List	1 Page
Summary of Public Meeting Dates, Speakers and General Topics of Discussion	4 Pages
Revised Advisory Committee Report	4 Pages
Park Maintenance Standards Excerpt	3 Pages
Sample Pages from DeLeuw Cather Park Maintenance Management Manual for Worcester Parks	3 Pages
Early Circulation Studies	7 Pages
Evaluation of Options Relative to the Capping of the Former Landfill at Green Hill Park (6/27/97)	12 Pages
Earlier Landfill Capping Proposal (2/97)	4 Pages
The Zoo as a Component of the Master Plan	4 Pages
Statewide Vietnam Veterans Memorial Proposal	2 Pages
Forum Theatre Capital Campaign	2 Pages
Phase I Inspection Report - Green Hill Pond Dam (Excepts)	14 Pages

THOMAS R. HOOVER  
CITY MANAGER



#18 D

CITY OF WORCESTER

July 8, 1997

TO THE WORCESTER CITY COUNCIL

COUNCILORS:

In recent weeks, I have worked closely with our State House delegation to clarify the Executive Office of Environmental Affairs (EOEA) criteria for award of the \$500,000.00 preselected Urban Self Help grant for Green Hill Park Improvements. This clarification was necessary because of EOEA's contradictory decision first to extend the submission deadline of the Green Hill Park Master Plan Update until July 30, 1997, and then to rescind this preselected grant on June 9, 1997.

These efforts culminated with a meeting on Wednesday, June 25, 1997 in the Senate Reading Room of the State House attended by the following individuals and organizations: State Senator Robert Bernstein, State Senator Matthew Amorello, State Representative William McManus, State Representative Vincent Pedone, officials of the Executive Office of Environmental Affairs, officials of the Massachusetts Department of Environmental Protection, Commissioner Robert L. Moylan, Deputy Commissioner Michael V. O'Brien, and myself. Members of the newly formed coalition for Green Hill Park and former advisory committee were also in attendance.

I took this opportunity to present to the EOEA and to those in attendance my position on the overall progress of the Master Plan Update and to discuss the options available relative to the two items of controversy contained in this Update, specifically the driving range proposal and the landfill capping proposal.

In our discussions, it was very clear the EOEA shall still require a definitive source of revenue within the Park to be allocated for improvements to the Park. I informed them the driving range proposal, though clearly a defined and proven source of revenue shall not be pursued at this time due to City Council and community opposition to further encroachment on the existing woodlands. All the alternative sites for the driving range presented by the Administration to date involve the removal of existing woodlands. This includes the alternative to locate the driving range on the golf course, between the seventeenth and eighteenth holes.

OFFICE OF THE CITY MANAGER, CITY HALL, WORCESTER, MASSACHUSETTS 01608  
TELEPHONE (508) 799-1175 FAX (508) 799-1208  
OFFICE OF THE CITY MANAGER, CITY HALL, WORCESTER, MASSACHUSETTS 01608  
TELEPHONE (508) 799-1175 FAX (508) 799-1208

For this reason, I presented my draft proposal to dedicate a \$100,000.00 capital improvement line item within the FY1999 Golf Course Enterprise Budget as the revenue source to satisfy EOEAs grant award criteria. This allocation shall also be included in succeeding fiscal year Golf Course budget submissions and shall be dedicated to continued capital improvements within the Park, above and beyond any State grants, grant matches, and/ or other sources. Current revenues from the golf course operations, as well as projections for next fiscal year, shall be sufficient to cover this overall budget increase, to continue to operate the Golf Course professionally and competitively, and to continue to reinvest in golf course capital improvements. The financial mechanism to transfer this sum on a fiscal year basis from the Golf Course enterprise account to the City is currently under review by the Law Department. It is important to note I presented this proposal as a draft requiring City Council review and approval prior to inclusion in the Master Plan Update.

EOEA clarified its position on the landfill capping program by simply stating the Update must include the proper capping as a program for completion during implementation of this 10-12 year master plan, and this capping must be done according to all applicable law, standards, and codes. The options to finance the capping of this existing landfill, as well as the timelines for each option, must also be included in the final Update submission. Definitive means and methods shall not be a requirement of final State approval of the Master Plan. These options for the capping of the landfill shall be forwarded to your attention under a separate cover.

EOEA further clarified their position relative to the landfill capping and the revenue source proposal. They view both of these issues as "local" to be resolved through cooperative and legal means on a local level. The final approved means, methods, and timelines must be included in the Update, but these shall not be dictated as criteria for withholding the State grant.

I want to recognize the members of our legislative delegation for their hard work in restoring this grant and for their support to clarify these remaining issues. Upon final completion of the discussions on this issue, I am hopeful this Update, as well as these addenda, can be approved at the July 8, 1997 scheduled meeting of the City Council. This approval shall insure the final draft of the Update is forwarded to the EOEAs well before the required deadline of July 30, 1997.

Please advise if there are any questions.

Respectfully submitted,



Thomas R. Hoover  
City Manager

# City of Worcester

Ordered: That the City Council be and hereby approves of the Master Plan for Green Hill Park as follows:

A. Green Hill Parkway, Rodney Street and Central Parking Lot (\$714,000.00)

Elimination of all "through" traffic within the Park  
Renovation of the main park entrance  
Elimination of the Rodney St. vehicular entrance  
(pedestrian entrance only)  
Complete roadway construction  
Installation of curbing  
Installation of wood rail fencing  
Installation of parallel parking spaces at select locations  
Installation of lighting (decorative)  
Installation of walkways for multiple uses and pedestrian connections  
Installation of benches, tables, bike racks and other suitable furnishings  
Installation of park signage (information and regulations), historical markers, environmental information  
Renovation of the main parking lot and surrounding areas  
Installation of tree plantings and landscaping  
Placement of utilities below the roadway (water, sewer, electric etc.)  
Installation of gates at Green Hill Parkway and Skyline Drive at the Armory  
Optional ballfield and playlot improvements  
To move forward with priorities as listed in A

B. Pond Edge Improvements (\$714,000.00)

Restore the Refectory  
Demolish comfort station and other structure remnants  
Remove deteriorated furnishings (benches, tables)  
Install pathways from parking area(s) to all new facilities, connect to park wide circulation system (other paths, walks, trails, etc.)  
Install landscaping throughout, designate areas to receive ornamental gardens, extensive shade tree planting should be undertaken  
Install benches, picnic tables, drinking fountains and other furnishings and amenities  
Install gazebos, shelters, boardwalks and decks as desired near the pond edge  
Restore the worn and badly eroding pond edges  
Install decorative lighting and fencing in the vicinity of the dam  
Provide opportunities for bocce, horseshoes, volleyball and other activities as desired  
Optional concession/restroom/community facility (see also Program I)

- C. Family Recreation Area (at Existing Compost Facility Location)  
(\$714,000.00)

Baseball field (Little League)  
Soccer field(s)  
Open fields  
Tennis Courts  
Basketball court(s) optional  
Playlot for various aged children  
Concession/restroom facility  
Picnic grounds  
Connection to trails/park circulation system  
Parking  
Landscaping  
Benches, tables, drinking fountains, etc.  
Horseshoes  
Volleyball courts  
Accessible loop pathway (1/4, 1/2 or 1 mile in length)

- D. Skyline Drive (1), Belmont Street Entrance Improvements  
(\$250,000.00) (Also - Short Term Improvements to Road  
Surfaces by others)

Upgrade circulation/access at the main entrance  
Eliminate confusing and dangerous traffic islands  
Construct new entrance to Worcester Technical School  
Pedestrian amenities  
Improved lighting  
Park signage and landscaping  
Refurbished road surfaces, new curbing  
Drainage improvements

- E. Neighborhood Playground(s) (\$714,000.00) (Multiple Locations  
Possible)

Playstructure(s)  
Swings  
Other play equipment  
Benches, tables, drinking fountains  
1/2 Court or full court basketball (optional)

- F. Pond Perimeter Pathway - 3,500 L.F. (\$300,000.00)

- G. Skyline Drive (2) (\$500,000.00)

- H. Zoo Expansion (\$1,000,000.00)

- I. Community Building (\$800,000.00)

- J. Trail Improvement Program - Parkwide (\$714,000.00)

Items K & L funded by other sources

K. Skyline Drive (3) (\$714,000.00)

L. Forum Theatre (\$350,000.00)

P. Vietnam Veterans' Memorial (\$1,000,000.00 +/-)

Commemorative Memorial Sculpture Garden surrounding Duck Pond

The Phases shall proceed as detailed by the Administration, with Phase A as the first to be implemented (including the dam study).

Phases L, M, O, P shall be funded and constructed by others. As always, the City shall retain all rights to review and to approve all work by others within the Park.

The proposal to dedicate a \$100,000.00 capital improvement line item within the FY 1998 Golf Course Enterprise Budget. This allocation shall also be included in succeeding fiscal year Golf Course budget submissions and shall be dedicated to continued capital improvements within the Park, above and beyond any State grants, grant matches, and/or other sources. Current revenues from the golf course operations, as well as projections for next fiscal year, shall be sufficient to cover this overall budget increase, to continue to operate the Golf Course professionally and competitively, and to continue to reinvest in golf course capital improvements.

The Master Plan Update shall include the proper capping as a program for completion during implementation of this 10-12 year master plan, and this capping must be done according to all applicable law, standards and codes. The options to finance the capping of this existing landfill, as well as the timelines for each option, must also be included in the final Update. Definitive means and methods shall not be a requirement of final State approval of the Master Plan.

Be it further ordered that the driving range not be constructed at the location detailed in the Green Hill Park Master Plan.

**In City Council**

**July 8, 1997**

**Order Adopted.**

**A Copy. Attest:**

**Robert J. O'Keefe, Clerk**

  
**City Clerk**

# Memorandum

City of Worcester  
Parks, Recreation, and Cemetery Department

**Date:** July 6, 1997  
**To:** Thomas W. Taylor, Commissioner  
**From:** Michael V. O'Brien, Deputy Commissioner   
**Subject:** Green Hill Park Master Plan - City Council Meeting 7/8/97

As per our previous conversation, there are several addenda which must be part and parcel of the final City Council adoption of the Green Hill Park Master Plan Update on July 8, 1997. These addenda include:

- The specifics of the Administration's Master Plan which were overlooked in the final motion for adoption by the Youth, Parks, and Recreation Committee on May 31, 1997.
  1. Elimination of all "through" traffic within the Park.
  2. Elimination of the Rodney Street vehicular entrance (pedestrian entrance only).
  3. The Phases shall proceed as detailed by the Administration, with Phase A as the first to be implemented (including the dam study).
  4. Phases L,M,O,P shall be funded and constructed by Others. As always, the City shall retain all rights to review and to approve all work by Others within the Park.
- The City Manager's proposal to adhere to the State EOEA's requirement for a revenue source within the Park.

The proposal to dedicate a \$100,000.00 capital improvement line item within the FY1998 Golf Course Enterprise Budget. This allocation shall also be included in succeeding fiscal year Golf Course budget submissions and shall be dedicated to continued capital improvements within the Park, above and beyond any State grants, grant matches, and/ or other sources. Current revenues from the golf course operations, as well as projections for next fiscal year, shall be sufficient to cover this overall budget increase, to continue to operate the Golf Course professionally and competitively, and to continue to reinvest in golf course capital improvements.

- The State EOEAs requirements for the Master Plan Update relative to the closeout (capping) of the existing landfill.

The Master Plan Update shall include the proper capping as a program for completion during implementation of this 10-12 year master plan, and this capping must be done according to all applicable law, standards, and codes. The options to finance the capping of this existing landfill, as well as the timelines for each option, must also be included in the final Update. Definitive means and methods shall not be a requirement of final State approval of the Master Plan.

It is very important these items are included in the final adopted version to insure adherence to each of the State grant award criteria and to insure the first phase of implementation, Phase A, can begin design development as early as August 1997.

Please advise if there are any questions.

COMMISSIONERS:

JOSEPH M. CAPONE  
Chairman

DOUGLAS J. HANNAM  
Vice Chairman

ELIZABETH A. PROKO  
Secretary

JAMES T. BUTCHER  
PAUL F. CANTIANI  
WILLIAM F. MONROE, SR.  
JOSEPH A. SACCO



PARKS, RECREATION AND CEMETERY DEPARTMENT

125 Green Hill Parkway  
Worcester, Massachusetts 01605-2515  
Parks & Recreation Tel. 799-1190 Fax. 797-9126  
Cemetery Tel. 799-1531 Fax. 799-1253

DEPARTMENT:

THOMAS W. TAYLOR  
Commissioner

MICHAEL V. O'BRIEN  
Deputy Commissioner

JOSEPH B. GLEASON, JR.  
Maint. Supervisor

LAWRENCE M. BLAIR  
Maint. Supv. Forestry/Cemetery

JENNIFER TODD-WHITSON  
Recreation Supervisor

"Pride in Our Parks"

1 May 1997

TO: Michael O'Brien  
Deputy Commissioner of Parks

FROM: Beth Proko  
Parks Commission Secretary

Below please find the motions made at tonight's Special Meeting of the Parks Commission. If you have any questions, please feel free to call as early as you need to tomorrow at 856-9598.

Motion made by Commissioner Capone, seconded by Commissioner Butcher:

To amend the Administration's recommendation for the Master Plan in that the dumping of street sweepings to cap the landfill is reviewed after six years with an optional six year extension.

Voted: 7 aye 0 nay

Motion made by Commissioner Cantiani, seconded by Commissioner Hannam:

To amend the Administration's recommendation for the Green Hill Park Master Plan in that the driving range be built adjacent to the thirteenth fairway.

Voted: 7 aye 0 nay

Motion made by Commissioner Cantiani, seconded by Commissioner Butcher:

To amend the Administration's recommendation for the Green Hill Park Master Plan in that Rodney Street not be considered as an entrance to the park due to already existing congestion on this street and public safety concerns.

Voted: 7 aye 0 nay

Motion made by Commissioner Capone, seconded by Commissioner Cantiani:

To accept the Administration's recommendation for the Green Hill Park Master Plan with the amendments as indicated.

Voted: 7 aye 0 nay

Motion made by Commissioner Cantiani, seconded by Commissioner Butcher:

To accept the Administration's recommendation for the Green Hill Park Master Plan in concept.

Voted: 7 aye 0 nay

Motion made by Commissioner Hannam, seconded by Commissioner Cantiani:

To accept Phase 1 of the Administration's recommendation for the Green Hill Park Master Plan.

Voted: 7 aye 0 nay

1997 Members  
of  
The Greenhill Park Advisory Committee

Co-chairperson  
Mr. Lee Bartlett

Co-chairperson  
Mr. Brian McCarthy

Secretary  
Ms. Edith Morgan, School Committee

Stephen Patton, City Councilor

Philip Palmeiri

Michael Perroto, City Councilor

Frederick Poland

Vincent Pedone, Representative

Ray DeStratis

Robert McManus, Representative

Richard Lane

Matthew Amorello, Senator

Paul Cantiani

Robert Bernstein, Senator

Gary Dusoe

Margaret Bowler

Timothy O'Brien

David Carney

Mindy Carpinelli

Randall Ormo

Brian Tivnan

Harry Carr

Robert Wedgwood

Linda McCarthy

Gail Howe

Joseph Capone

Michael Troiano

Elizabeth Dean

Daniel Hartwell

Frank Akerson

Carolyn Packard

William O'Brien

Margaret Bartley

Rosamond Rockwell

Robert Howland

**GREEN HILL PARK**  
**MASTER PLAN UPDATE - 1997**

**Summary of Public Meeting Dates,  
Speakers, and General Topics of Discussion**

**September 19, 1996 - Wawekus School**

Steve O'Neil, (Director, Office of Planning and Community Development)  
Gene Bolinger (Principal of Levy, Eldredge & Wagner Assoc., Inc.)

- Kick of Meeting
- Community Participation, Advisory Committee
- Master Plan Process and Schedule
- Master Plan Report and Plans
- Community Questions and Comments

**October 19, 1996 - Worcester Vocational School**

Mike O'Brien, (Deputy Commissioner of Worcester Parks Department),  
Gene Bolinger, Steve O'Neil

- Existing Conditions Presentation
- 1979 Master Plan Summary
- Summary of Division of Conservation Services Concerns
- Needs Assessment Discussions - Facilities and Programs
- Community Responses

**November 18, 1996 - Mt. Carmel Community Center**

Steve O'Neil, Gene Bolinger, Mike O'Brien

- Three Park-wide Concept Plans Presented
- Circulation, Parking and Access Alternatives Identified
- Potential Recreation Facility Development Zones Identified  
(new as well as existing to be refurbished)
- Community Questions and Comments

**January 21, 1997 - Belmont Hill Community School**

Mike O'Brien, Gene Bolinger, Steve O'Neil

- Master Plan Update
- Existing Conditions Analysis and Inventory Results
- Needs Assessment Data
- Aerial Photography of Park Being Obtained for Use at Future Meetings
- Advisory Committee Establishment - Potential Members and Protocol
- Community Responses

### **February 6, 1997 - Lake Park Community Building**

Mike O'Brien, Robert Moylan (DPW Commissioner), Gene Bolinger

- Advisory Committee Members Announced
- DPW Landfill Closing (state mandated) Program Described
- Potential Youth Soccer Complex Proposal (at landfill) Described
- Community Responses

### **February 20, 1997 - Belmont Hill Community School**

Robert Moylan, Mike O'Brien, Marvin Armstrong (Golf Course Architect), Paul Cantiani (Parks Commission - Golf Course Sub Committee)

- DPW Landfill Closing Described
- Youth Soccer Complex Described
- Golf Course Feasibility Study Presentation - Alternative Schemes for Driving Range Construction, Clubhouse Relocation and Golf Hole Alignment Identified
- Advisory Committee Chairmen Selected

### **February 24, 1997 - Belmont Hill Community School**

Steve O'Neil, Mike O'Brien, Gene Bolinger

- Sample Costs for Various Types of Park Improvements were Distributed
- Lengths of Park Roadways Requiring Reconstruction (if desired) were Identified
- Potential Active and Passive Recreation Facilities were Described and Discussed
- Residents Identified the Facilities to be Programmed in Continuing Master Plan Studies

### **March 3, 1997 - City View School**

Steve O'Neil, Mike O'Brien, Gene Bolinger

- Schematic Plans were Presented for Potential Improvement Programs at "Park Center" and Existing Composting Facility Location
- The Need and Desire for Potential Park Support Buildings was Discussed and Approved for Further Study
- Desired Facilities will Include Welcome Center, Meeting Rooms, Restrooms, Concessions, etc.

### **March 10, 1997 - City View School**

Steve O'Neil, Mike O'Brien, Gene Bolinger

- Previous Citizen's Questions were Addressed
- Diagrams Showing the Relative Proximity of Various Proposed Improvement Programs Distributed
- Color Rendered "Park Center" Schematic Plan was Discussed

**May 1, 1997 - City View School, Formal Parks Commission Meeting**

Steve O'Neil, Mike O'Brien, Gene Boligner

- Final Presentation of Recommended Park Improvement Projects by the Consultant
- Budget and Estimates Outlined
- Rendered Conceptual Plans for Four Park Locations Encompassing Many of the Improvement Programs was Presented
- Public Comment was Received
- Parks Commission Approved the Master Plan (Refer to Summary of Motions to Adopt the Master Plan Contained Elsewhere in the Appendix)

**May 12, 1997 - Burncoat Middle School**

City Council Committee for Youth, Parks and Recreation

- Public Comment Received Pertaining to Master Plan Adoption

**Various Dates/Locations - City Council Hearings**

- This Information to be Provided

**July 8, 1997 - City Council Chambers, City Hall**

- Public Testimony Received by the City Council President Pertaining to the Adoption of Green Hill Park Master Plan Update
- City Council Approves the Green Hill Park Master Plan Update (Refer to the Order Contained Elsewhere in the Appendix)

- Parking Lot Costs were Identified
- Circulation Diagrams were Discussed
- Many of the Park's Prominent Environmental/Natural Features were Identified/Discussed
- Harry Carr Discussed Plans for a Major Zoo Expansion

#### March 17, 1997 - City View School

Steve O'Neil, Mike O'Brien, Gene Bolinger

- Vietnam Veterans Memorial Plans were Presented by Ray DeStratis for the Area Surrounding Duck Pond
- Plans for Improvements for the Forum Theatre Complex were Presented by Brian Tivnan
- Plans for Building a Driving Range and New Clubhouse were Presented by Paul Cantiani and Marvin Armstrong
- Landfill Closing Issues were Discussed by Commissioner Moylan

#### March 24, 1997 - City View School

Steve O'Neil, Mike O'Brien, Gene Bolinger

- Golf Course Plans were Discussed by Paul Cantiani
- The Advisory Committee Voted on 77 Questions Relating to the Preservation and Enhancement of Green Hill Park
- A Preliminary Grouping of Potential Park Improvement Projects was Presented and Distributed to those in Attendance for Review and Discussion at a Later Date
- Estimates for Each of the 16 Projects Budget were Also Presented

#### April 2, 1997 - City View School

Steve O'Neil, Mike O'Brien, Gene Bolinger

- Golf Course Plans were Discussed by Paul Cantiani and a Handout was Distributed
- Several Issues which were Tabled the Previous Week were Voted on this Evening
- Results of the Previous Weeks Votes on Various Issues were Discussed by Brian McCarthy

## Greenhill Park vote indexed by score - March 24, and April 2, 1997

RANK	ITEM	QUESTION	ABSTAIN	YES	NO	SCORE
1	4	Properly cap the old landfill	0	28	0	279
2	60	Flower gardens	0	28	0	276
3	61	Hiking and nature	0	28	0	275
4	51	Restrooms	0	28	0	275
5	22	Seats and benches	0	28	0	262
6	67	Park rangers	0	28	0	261
7	32	Cross country ski	0	28	0	261
8	43	Clubhouse, year round use	0	28	0	259
9	71	Woodland preservation	0	27	1	255
10	21	Speed bumps	1	27	0	254
11	54	Vietnam memorial	0	28	0	253
12	50	Forum theater	0	27	1	251
13	23	Gazebos and shelters	1	27	0	250
14	38	Barnyard zoo	2	26	0	249
15	40	Repave Skyline Dr.	2	25	1	243
16	58	Community gardening	1	26	1	241
17	75	Greenhouse	1	26	1	239
18	39	Bury overhead wires	0	26	2	239
19	73	Alternative labor	2	26	0	236
20	64	Environmental features	2	25	1	236
21	14	Lighting on roads, etc.	1	26	1	236
22	63	Historical markers	0	25	3	232
23	26	Picnic clusters	1	25	2	229
24	78	Zero Tolerance- no drugs, no crime	2	23	2	225*
25	68	Preserve quarry	3	24	1	218
26	57	Bocce	3	25	0	218
27	76	Concerts/events	3	24	1	217
28	80	Protect east side trail	4	23	0	216*
29	56	Boats allowed	0	23	4	216*
30	8	Remove composting from the park	0	23	5	214

## Greenhill Park vote indexed by score - March 24, and April 2, 1997

RANK	ITEM	QUESTION	ABSTAIN	YES	NO	SCORE
31	65	Maintenance presence	0	24	4	207
32	49	Concessions encouraged	2	25	1	203
33	24	Paved walkways	1	25	2	199
34	13	Gates closed at dusk	0	21	7	197
35	10	Auto traffic, through	0	21	7	196
36	74	Partial path around pond	2	21	5	194
37	36	Playland at compost site	0	22	6	193
38	31	Cross country racing	0	25	3	191
39	44	Community Center, Welcome Center	0	24	4	189
40	5	New soccer fields at the old landfill area	2	22	4	186
41	66	Meeting rooms	0	23	5	180
42	45	Warming hut	1	25	2	180
43	55	Bike trails	2	23	3	179
44	15	Parking areas, small	1	21	6	175
45	70	Volleyball	0	23	5	173
46	42	Remove Park headquarters from park	0	20	8	169
47	9	Recreation area at present site of compost	0	22	6	166
48	27	Baseball at compost site	0	18	10	159
49	69	Shuffleboard	1	23	4	157
50	30	Basketball at Lucy Lane	1	18	8	157
51	6	Have a single recreational area at the old landfill	1	20	7	157
52	34	Swimming in pond	0	22	6	155
53	20	Shuttle bus	0	21	7	154
54	35	Tennis at compost site	0	19	9	148

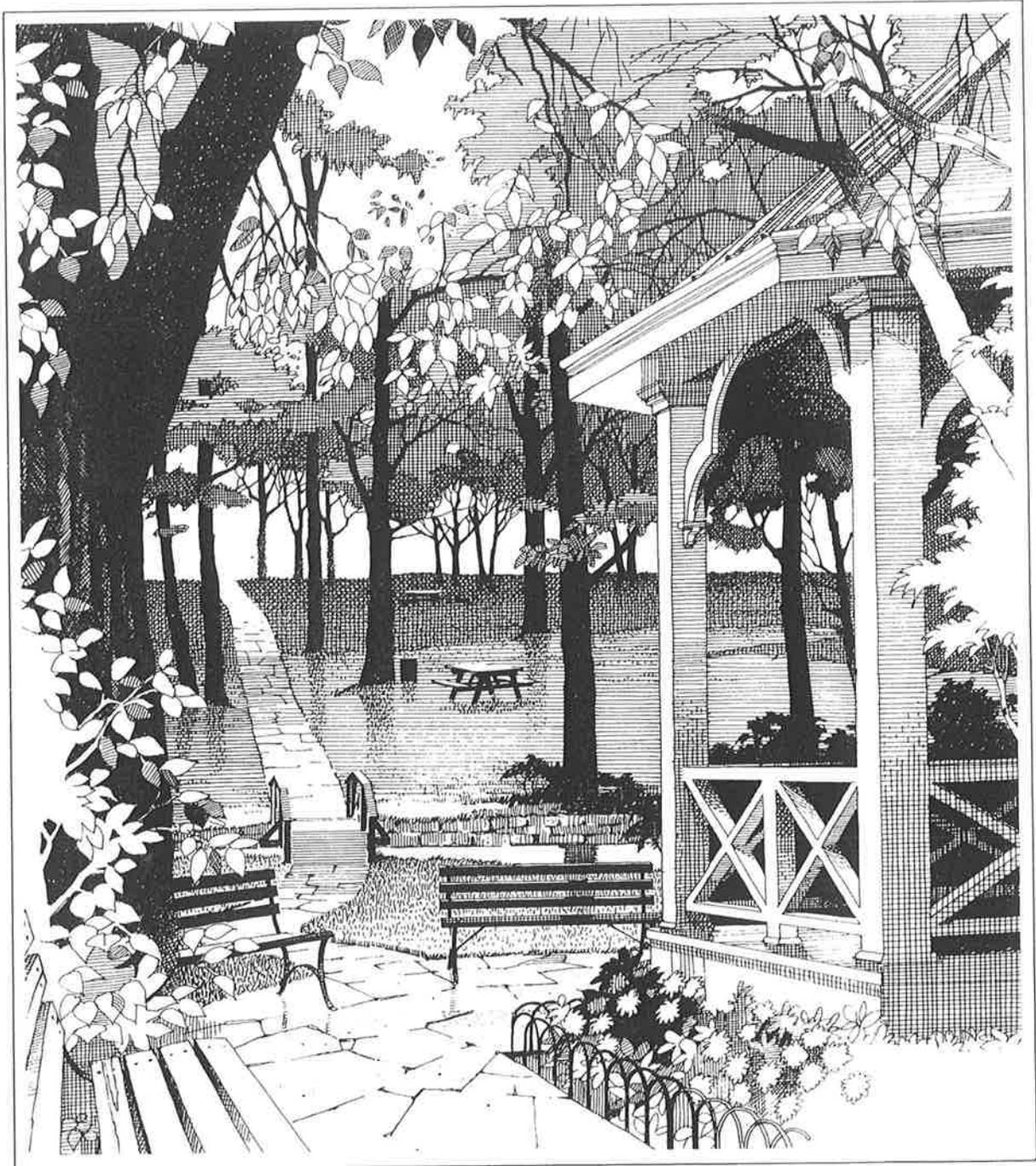
## Greenhill Park vote indexed by score - March 24, and April 2, 1997

RANK	ITEM	QUESTION	ABSTAIN	YES	NO	SCORE
55	25	Walkway around entire pond	0	16	12	143
56	52	Senior center	0	18	10	130
57	41	Beautify park headquarters	2	16	10	128
58	19	Rodney St. closed	2	15	11	128
59	29	Basketball at soccer field area	4	14	10	125
60	37	Playland at present baseball field	1	16	11	124
61	77	Green space at the compost site	2	15	11	114
62	62	1/4 mile track	0	15	13	112
63	79	Driving range within present boundaries of the golf course	8	14	5	111*
64	17	Rodney St. 1 way	3	12	13	110
65	1	Allow street Sweepings at the soccer field now	0	13	15	105
66	11	Auto traffic, no through traffic allowed	2	12	14	103
67	7	Remove composting from the present area	3	14	11	101
68	48	New driving range near the 13th hole	0	11	16	101*
69	28	Basketball at compost site	1	14	13	96
70	72	Horseback riding	3	17	8	93
71	33	Street hockey	1	16	11	86
72	47	New clubhouse	0	9	18	85*
73	53	Skating rink	0	12	16	74
74	12	Entrance fee	1	9	18	72
75	16	Parking areas, large	0	10	18	71
76	3	Allow street sweepings at soccer field area (6 yr. plan).	4	9	15	69
77	59	Dog run area	0	10	18	68

Greenhill Park vote indexed by score - March 24, and April 2, 1997

RANK	ITEM	QUESTION	ABSTAIN	YES	NO	SCORE
78	18	Rodney St. 2 way	3	8	17	67
		Allow street sweepings at soccer field area (12 yr. plan).				
79	2		1	8	19	63
80	46	Pool complex	1	6	21	42
*Voted on by 27						

# PARK MAINTENANCE STANDARDS



A cooperative project of  
the American Park and Recreation Society  
and  
the National Society for Park Resources,  
professional branches of  
the National Recreation and Park Association.

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# Mode II

High level maintenance—associated with well developed park areas with reasonably high visitation.

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1. *Turf care* — Grass cut once every five working days. Aeration as required but not less than two times per year. Reseeding or sodding when bare spots are present. Weed control practiced when weeds present visible problem or when weeds represent 5 percent of the turf surface. Some pre-emergent products may be utilized at this level.

2. *Fertilizer* — Adequate fertilizer level to ensure that all plant materials are healthy and growing vigorously. Amounts depend on species, length of growing season, soils and rainfall. Rates should correspond to the lowest recommended rates shown on the chart on page 14. Distribution should ensure an even supply of nutrients for the entire year. Nitrogen, phosphorus and potassium percentage should follow local recommendations from the County Extension Service. Trees, shrubs and flowers should receive fertilizer levels to ensure optimum growth.

3. *Irrigation* — Some type of irrigation system available. Frequency of use follows rainfall, temperature, seasonal length, and demands of plant material.

4. *Litter control* — Minimum of once per day, five days a week. Off-site movement of trash dependent on size of containers and use by the public. High use may dictate once per day cleaning or more. Containers are serviced.

5. *Pruning* — Usually done at least once per season unless species planted dictate more frequent attention. Sculptured hedges or high growth species may dictate a more frequent requirement than most trees and shrubs in natural growth style plantings.

6. *Diseases and disease control* — Usually done when disease or insects are inflicting noticeable damage, reducing vigor of plant materials or could be considered a bother to the public. Some

preventative measures may be utilized such as systemic chemical treatments. Cultural prevention of disease problems can reduce time spent in this category. Some minor problems may be tolerated at this level.

7. *Snow removal* — Snow removed by noon the day following snowfall. Gravel or snow melt may be utilized to reduce ice accumulation.

8. *Lighting* — Replacement or repair of fixtures when observed or reported as not working.

9. *Surfaces* — Should be cleaned, repaired, repainted or replaced when appearance has noticeably deteriorated.

10. *Repairs* — Should be done whenever safety, function, or bad appearance is in question.

11. *Inspection* — Inspection by some staff member at least once a day when regular staff is scheduled.

12. *Floral planting* — Some sort of floral plantings present. Normally no more complex than two rotations of bloom per year. Care cycle usually at least once per week except watering may be more frequent. Health and vigor dictate cycle of fertilization and disease control. Beds essentially kept weed free.

13. *Rest rooms* — When present should be maintained at least once per day as long as they are open to public use. High use may dictate two servicings or more per day. Servicing period should ensure an adequate supply of paper and that rest rooms are reasonably clean and free from bad odors.

14. *Special features* — Should be maintained for safety, function and high quality appearance as per established design.

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# Mode III

Moderate level maintenance—associated with locations with moderate to low levels of development, moderate to low levels of visitation or with agencies that because of budget restrictions can't afford a higher intensity of maintenance.

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1. *Turf care* — Cut once every 10 working days. Normally not aerated unless turf quality indicates a need or in anticipation of an application of fertilizer. Reseeding or resodding done only when major bare spots appear. Weed control measures normally used when 50 percent of small areas is weed infested or general turf quality low in 15 percent or more of the surface area.

2. *Fertilizer* — Applied only when turf vigor seems to be low. Low level application done on a once per year basis. Rate suggested is one-half the level recommended on page 14 for species and variety.

3. *Irrigation* — Dependent on climate. Rainfall locations above 25 inches a year usually rely on natural rainfall with the possible addition of portable irrigation during periods of drought. Dry climates below 25 inches normally have some form of supplemental irrigation. When irrigation is automatic a demand schedule is programmed. Where manual servicing is required two to three times per week operation would be the norm.

4. *Litter control* — Minimum service of two to three times per week. High use may dictate higher levels during warm season.

5. *Pruning* — When required for health or reasonable appearance. With most tree and shrub species this would not be more frequent than once every two or three years.

6. *Disease and Insect Control* — Done only on epidemic or serious complaint basis. Control measures may be put into effect when the health or survival of the plant material is threatened or where public's comfort is concerned.

7. *Snow removal* — Snow removal done based on local law requirements but generally accomplished by the day following snowfall. Some crosswalks or surfaces may not be cleared at all.

8. *Lighting* — Replacement or repair of fixtures when report filed or when noticed by employees.

9. *Surfaces* — Cleaned on complaint basis. Repaired or replaced as budget allows.

10. *Repairs* — Should be done whenever safety or function is in question.

11. *Inspections* — Once per week.

12. *Floral planting* — Only perennials or flowering trees or shrubs.

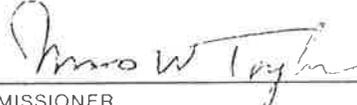
13. *Rest rooms* — When present, serviced a minimum of 5 times per week. Seldom more than once each day.

14. *Special features* — Minimum allowable maintenance for features present with function and safety in mind.



**Performance Guideline**  
**Maintenance Management System**  
**Parks and Recreation Department**

<b>WORK ACTIVITY</b>	Special Mowing and Pruning											<b>CODE</b>	1150
<b>DESCRIPTION</b>	Special mowing and/or pruning as assigned by the Maintenance Supervisor in areas that require immediate attention and areas that are too small for the "Trim and Prune" crew. Areas include squares, medians, islands, etc. Activity includes general cleanup of area to preserve its aesthetic value.												
<b>PERFORMANCE CRITERIA</b>	<b>JAN</b>	<b>FEB</b>	<b>MAR</b>	<b>APR</b>	<b>MAY</b>	<b>JUN</b>	<b>JUL</b>	<b>AUG</b>	<b>SEP</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>	
	L	L	L	M	H	H	H	H	H	M	L	L	
Schedule activity as needed, usually when a request for mowing/pruning is received that cannot wait until regularly scheduled crew can perform work.													

<b>CREW SIZE</b>	<b>QUANTITY</b>	<b>WORK METHOD</b>
Laborer	1 1	
<b>EQUIPMENT</b>	<b>QUANTITY</b>	
Rotary 21" Mower/or Riding Mower	1 1	
Hand Tools		
<b>MATERIALS</b>		
None		
<b>AVERAGE DAILY PRODUCTION</b>	<b>APPROVED BY:</b>	
1 Acre	 _____ COMMISSIONER	
	<b>EFFECTIVE</b>	8/1/85
	<b>SUPERSEDES</b>	



## Performance Guideline

### Maintenance Management System Parks and Recreation Department

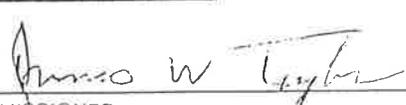
<b>WORK ACTIVITY</b>	Leaf Raking	<b>CODE</b>	1160									
<b>DESCRIPTION</b>	Periodic mechanical and hand raking of fallen leaves in City parks and other parks department maintained areas to improve appearance, prevent damage to turf areas and reduce fire hazard. Leaves should be piled for easy pickup and removal by the leaf vacuum and crew. (Activity 1170)											
<b>PERFORMANCE CRITERIA</b>	<b>JAN.</b>	<b>FEB.</b>	<b>MAR.</b>	<b>APR.</b>	<b>MAY.</b>	<b>JUN.</b>	<b>JUL.</b>	<b>AUG.</b>	<b>SEP.</b>	<b>OCT.</b>	<b>NOV.</b>	<b>DEC.</b>
			L							L	M	M
Leaf raking is to be performed in the fall and winter months.												

<b>CREW SIZE</b>	<b>QUANTITY</b>	<b>WORK METHOD</b>
Foreman	1	<ol style="list-style-type: none"> <li>1. Rake leaves into windrows or piles for leaf vacuum to pick up.</li> <li>2. When using leaf blowers, be alert for litter or debris that may cause damage or injury.</li> <li>3. Do not place leaf piles so as to cause obstacle or obstruction to traffic.</li> </ol>
Caretaker	1	
Laborers	2	
	TOTAL 4	
<b>EQUIPMENT</b>	<b>QUANTITY</b>	
Crew Cap Truck	1	
Leaf Blowers	2	
Hand Tools		
<b>MATERIALS</b>		
None		
<b>AVERAGE DAILY PRODUCTION</b>	<b>APPROVED BY</b>	
Activity is measured in number of Manhours used.		
	COMMISSIONER	
<b>EFFECTIVE</b>	8/1/85	<b>SUPERSEDES</b>



**Performance Guideline**  
**Maintenance Management System**  
**Parks and Recreation Department**

<b>WORK ACTIVITY</b>	Leaf Removal										<b>CODE</b>	1170
<b>DESCRIPTION</b>	Periodic removal of leaves piled by work crews during the Fall months to maintain satisfactory appearance of Park Department maintained property and keep leaves out of street gutters and drains.											
<b>PERFORMANCE CRITERIA</b>	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
			L							L	M	M
Leaf removal is to be performed on a daily basis during the Fall and Winter months when leaf drop is greatest.												

<b>CREW SIZE</b>	<b>QUANTITY</b>	<b>WORK METHOD</b>		
Foreman	1			
Caretaker (MEO)	2			
Laborer	1			
<b>TOTAL</b>	<b>4</b>			
<b>EQUIPMENT</b>	<b>QUANTITY</b>	<ol style="list-style-type: none"> <li>Gather leaves into windrows or piles for pickup by the leaf vacuum or loader.</li> <li>When using blower, be alert for litter or debris that may cause damage or injury to equipment or persons in the area.</li> <li>Load leaves and dispose at designated dumping site.</li> <li>Check and clean equipment after use.</li> <li>Report Work Accomplishment.</li> </ol>		
Dump Truck	1			
Leaf Vacuum	1			
Front-end Loader	1			
Leaf Blowers	2			
Hand Tools				
<b>MATERIALS</b>				
None				
<b>AVERAGE DAILY PRODUCTION</b>	<b>APPROVED BY</b>			
3 to 4 Loads removed	 _____ COMMISSIONER			
	<b>EFFECTIVE</b>	8/1/85	<b>SUPERSEDES</b>	

**GREEN HILL PARK**  
**MASTER PLAN UPDATE**  
**CIRCULATION DIAGRAMS**

**Diagram A** (Eliminates Through-Traffic)

Skyline Drive remains open through THE Air Force National Guard Property.

"Spurs" to Soccer Complex (former landfill) and potentially to a new development of neighborhood recreation facilities near Belmont Street.

Green Hill Parkway remains open through a new family recreation development at the existing compost facility.

Rodney Street remains open to a new parking facility to be located just south of Duck Pond and the little league field.

Pedestrian, bike, and service/emergency connect Skyline Drive to Green Hill Parkway and Rodney Street to Green Hill Parkway.

**Diagram B** (Maintains one Through-Way)

Same as Circulation Diagram A except that Skyline Drive and Green Hill Parkway remain connected.

Reconstruct the "hairpin" turn at the former intersection of Green Hill Parkway and Skyline Drive.

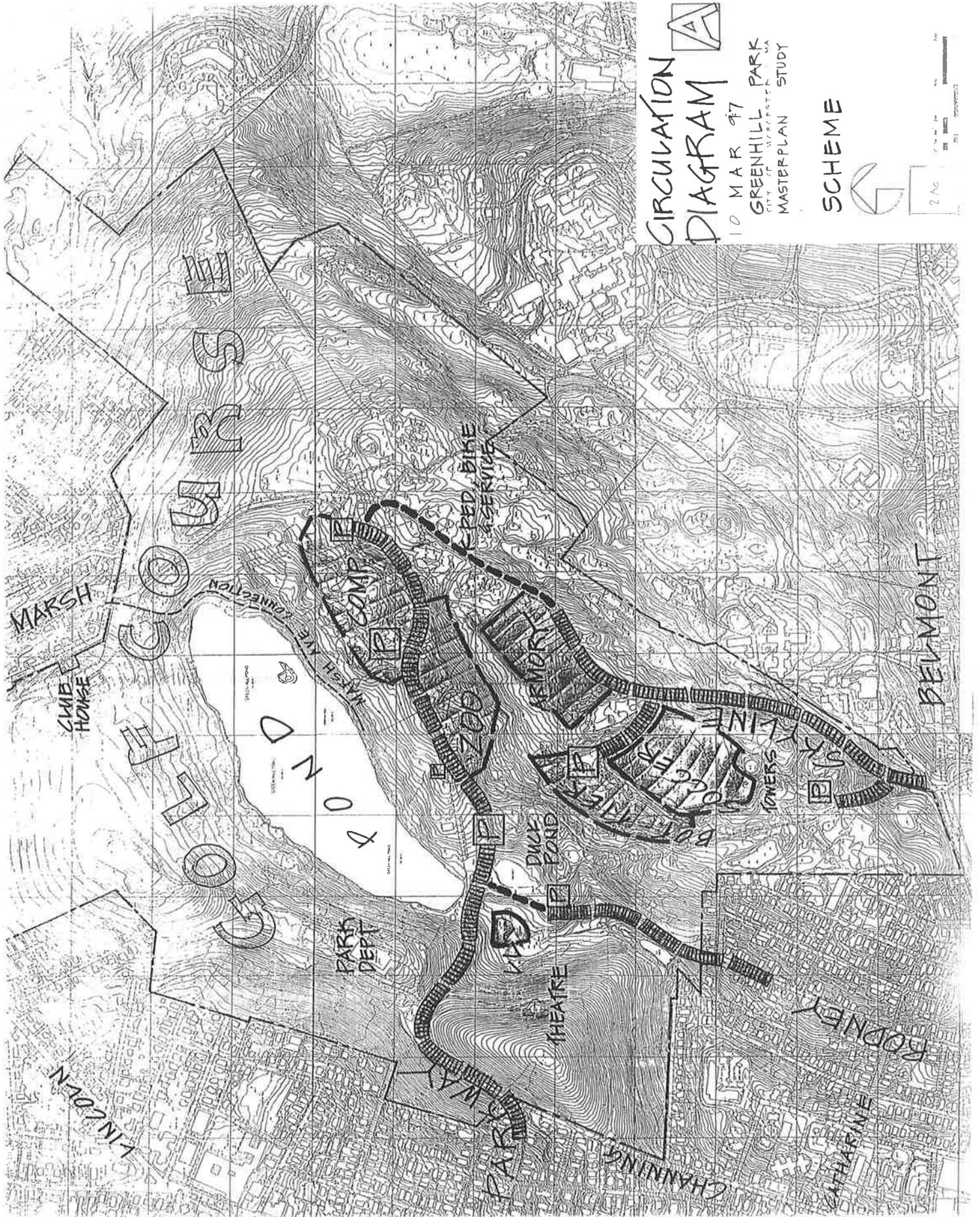
**Diagram C** (Maintains all Through-Ways)

Same as Circulation A except that the changes described under B are maintained and the Rodney Street Park entrance remains connected to Green Hill Parkway.

As an alternative to Diagram C, make the Rodney Street park entrance a one-way into the park. This will allow for greatly improved pedestrian access. Rodney Street area residents would return via Channing Street and Catherine Street.

**Sample Roadway Improvement Recommendations (Regardless of Which Circulation Diagram is Preferred)**

- Reconstruct all park road surfaces.
- Install suitable storm drainage provisions.
- Install appropriate curbing and edging to direct storm drainage flow and strictly control vehicular movements.
- Install appropriate signage (park information and regulations).
- Wherever possible, develop separate pedestrian pathways adjacent to drives.
- Include parallel parking spaces where desired.
- Install speed control bumps if desired at key locations.
- Install clearly marked pedestrian crosswalks with handicapped accessibility features.
- Install utility features during road reconstruction programs (water lines, conduit for electric service, etc.).

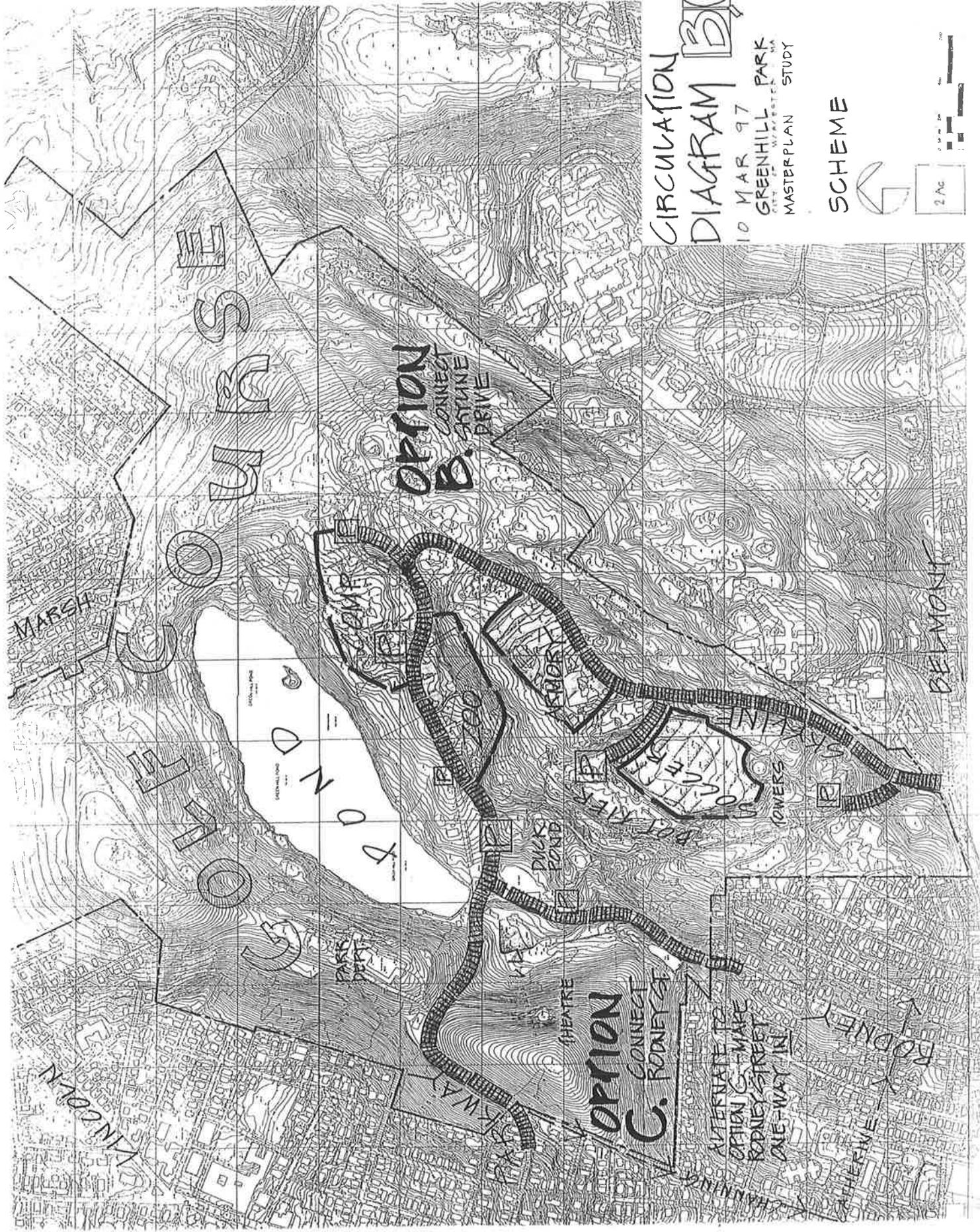


CIRCULATION  
DIAGRAM **A**

10 MAR 97  
GREENHILL PARK  
CITY OF ALBERTA, CANADA  
MASTERPLAN STUDY

SCHEME





CIRCULATION  
 DIAGRAM **BC**

10 MAR 97  
 GREENHILL PARK  
 CITY OF WESTERLY MA  
 MASTER PLAN STUDY

SCHEME

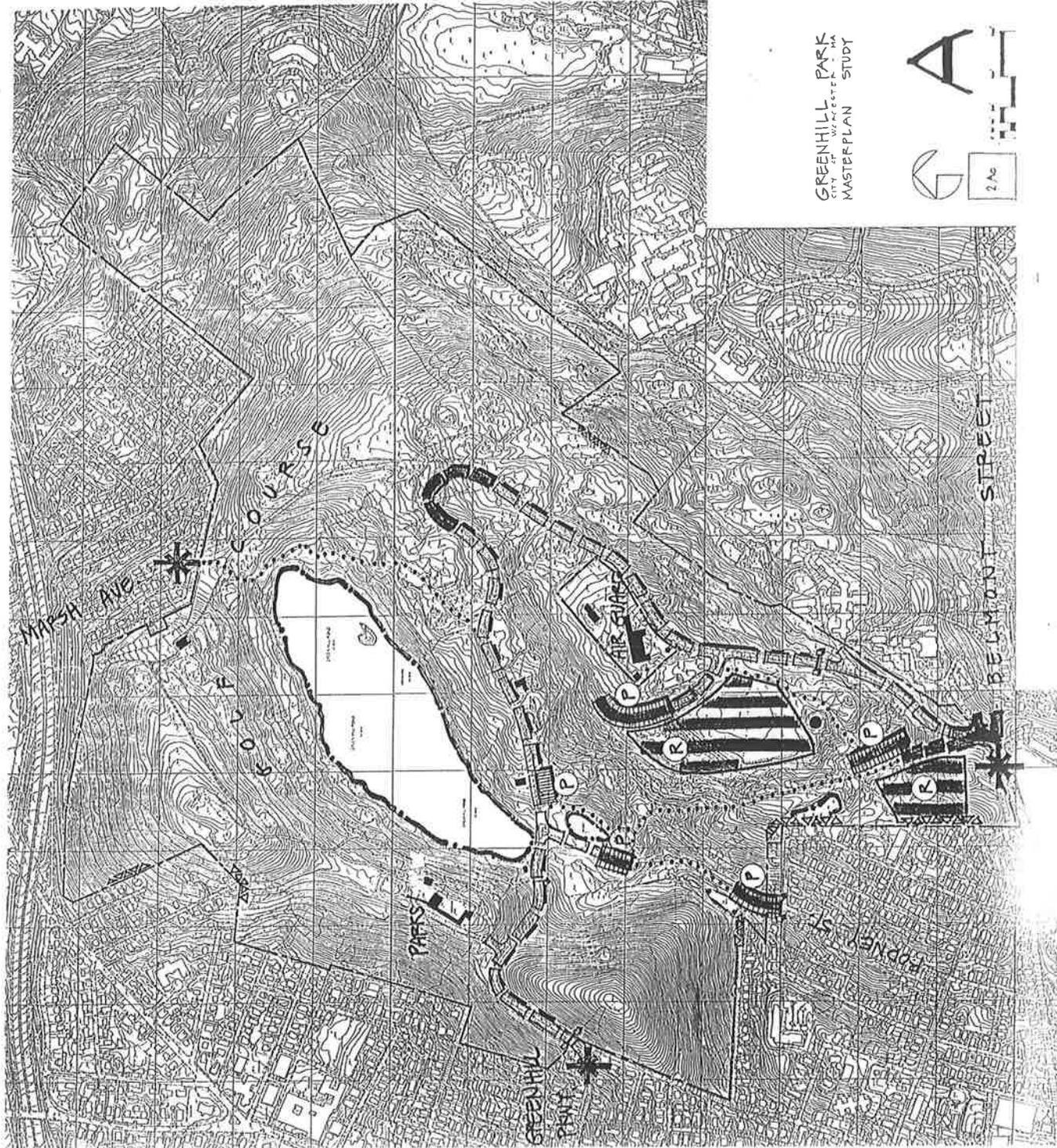


**GREEN HILL PARK MASTER PLAN UPDATE**  
**CONCEPT PLAN A**

The intent of this preliminary drawing is to identify general concepts (based on community input received at previous meetings) to further public comment and to begin defining the direction of future improvements at Green Hill Park. **ALL INFORMATION IS PRELIMINARY AND CONCEPTUAL IN NATURE.**

Concept Plan A identifies potential modifications to the park including:

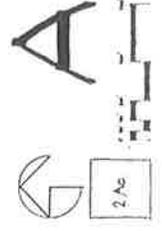
- Close Rodney Street, construct parking and pedestrian connections.
- Realign Skyline Drive near the golf course.
- Install road spurs/parking lots at the field complex, proposed Vietnam Vets Memorial, and area to be developed at the southwest corner of park.



**LEGEND**

- HIKING TRAILS
- - - - - PEDESTRIAN-BICYCLE-SHIFTER PAVED PATH
- UNPAVED PATH
- ▭ EXISTING PARKING (PAVED)
- ▭ NEW PARKING (PAVED)
- ▭ GRAVEL OFF PATH (UNPAVED)
- ☹️ (with 'P' in circle) PARKING
- ☹️ (with 'R' in circle) RESTROOMS
- ☹️ (with 'M' in circle) MOTOR ACCESS/BIKES POINT
- ☹️ (with 'A' in circle) AVE POINT
- ☹️ (with 'B' in circle) BOUNDARY RESTRICTIONS

GREENHILL PARK  
 CITY OF GREENSBORO  
 MASTER PLAN STUDY



**GREEN HILL PARK MASTER PLAN UPDATE**  
**CONCEPT PLAN B**

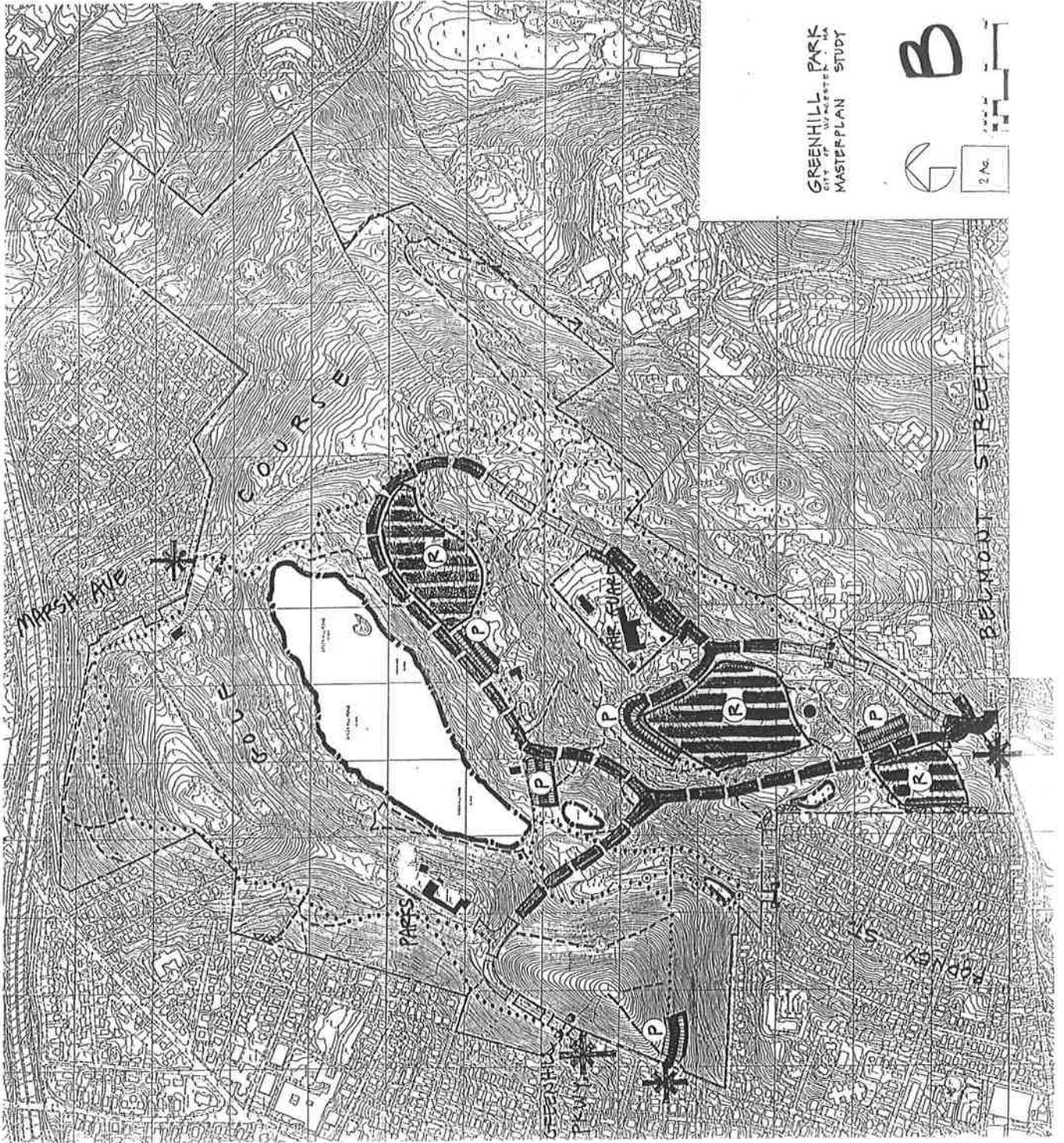
The intent of this preliminary drawing is to identify general concepts (based on community input received at previous meetings) to further public comment and to begin defining the direction of future improvements at Green Hill Park. **ALL INFORMATION IS PRELIMINARY AND CONCEPTUAL IN NATURE.**

Concept Plan B identifies potential modifications to the park including:

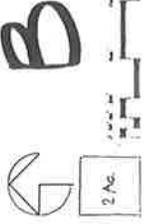
- Close Rodney Street.
- Realign Skyline Drive at park entrance. Construct new drive to adjacent School property.
- Realign Skyline Drive from the field complex past the National Guard Armory, creating a new buffer between road and Armory.
- Install spur to the field complex, develop new parking facility.
- Realign Circuit Drive and Green Hill Parkway from the golf course to the main parking lot.
- Realign the park drive from the main parking lot to a point near the Little League concession stand.
- Develop a new one-way exit from the main parking lot to the park entrance at Belmont Street via Lucy's Lane.
- Expand recreation opportunities in the vicinity of the compost operation.
- Develop a "pocket" parking area adjacent to Channing Street near Forbes Street.
- Develop parking and new recreation opportunities in the southwest corner of the park.
- Develop a hierarchy of hiking, biking, walking and jogging trails throughout the park.
- Develop a pedestrian connection between Marsh Avenue/golf course parking lot and the park proper.

**LEGEND**

- HIKING TRAILS
- PERESTIMAN BICYCLE + SKATEBOARD PAVED PATH
- UNPAVED PATH
- EXISTING POND/ASO (PAVED)
- NEW POND ASO (PAVED)
- GRAVEL CRAFT PATH (UNPAVED)
- (PAVED) PARKING
- (UNPAVED) PARKING
- RECREATIONAL
- MAJOR ACCESS / EGRESS POINT
- GATED A/E POINT
- BARRIERS / BOUNDARY PENETRATIONS



GREENHILL PARK  
 CITY OF WASHINGTON  
 MASTERPLAN STUDY

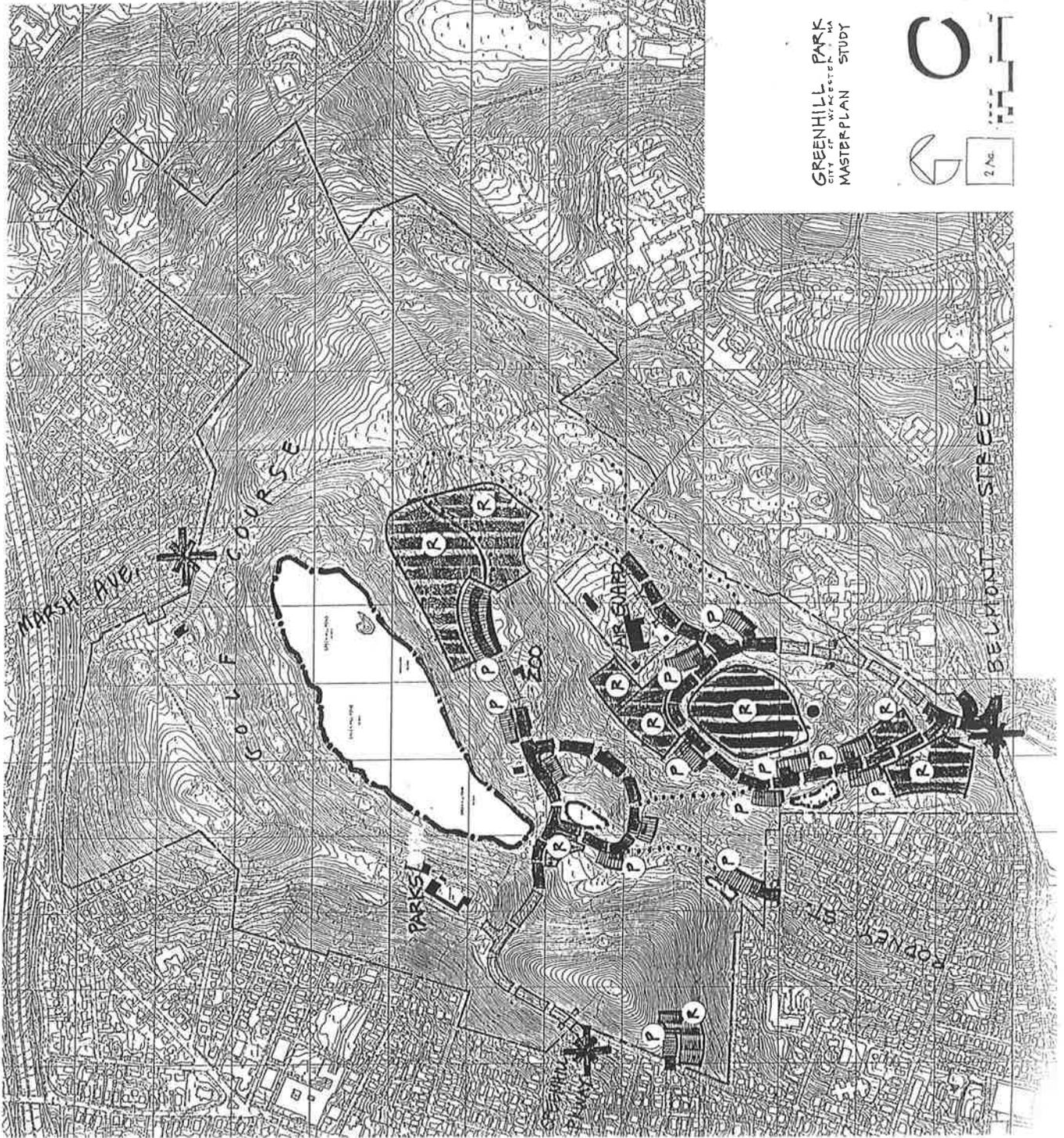


**GREEN HILL PARK MASTER PLAN UPDATE**  
**CONCEPT PLAN C**

The intent of this preliminary drawing is to identify general concepts (based on community input received at previous meetings) to further public comment and to begin defining the direction of future improvements at Green Hill Park. **ALL INFORMATION IS PRELIMINARY AND CONCEPTUAL IN NATURE.**

Concept Plan C identifies potential modifications to the park including:

- Close Rodney Street.
- Develop a one-way circulation loop through the southern portion of the park property.
- Develop "nicker" parking lots for new and existing recreation sites located off of the new southern loop road.
- Develop a two-way road to the park's center (lake, dam, zoo, compost area, etc.) with strategic parking at new and existing recreation sites.
- Connect separate southern loop drive and central park drives via a new signage only drive along a portion of Lucy's Lane.
- Develop neighborhood scale recreation facilities at Channing Forbes Street and near Adolph Street and Olga Avenue in the southwest portion of the park.



**LEGEND**

- HIKING TRAILS
- PEDESTRIAN BICYCLE - STARTER PAVED PATH
- UNPAVED PATH
- EXISTING PARKING (PAVED)
- NEW PARKING (PAVED)
- GRAVEL ONE PATH (UNPAVED)
- PARKING
- RECREATION SITES
- WATER ACCESS/BAKES POINT
- GATED A/E POINT
- PARKERS @ BOUNDARY

GREENHILL PARK  
 CITY OF WASHINGTON  
 MASTER PLAN STUDY





Department of Public Works

20 East Worcester Street

Worcester, MA 01604

*Mike L. Gorman*  
MEMORANDUM

**DPW**

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**DATE:** *June 27, 1997*

**TO:** *THOMAS R. HOOVER, City Manager*

**FROM:** *ROBERT L. MOYLAN, JR., Commissioner of Public Works*

**SUBJECT:** *EVALUATION OF OPTIONS RELATIVE TO THE  
CAPPING OF FORMER LANDFILL AT GREEN HILL  
PARK*

*There has been a great deal of discussion concerning the capping of the former landfill on Skyline Drive at Green Hill Park using street sweepings and catch basin cleanings. While there have been questions raised relative to the propriety of using public works waste at this site, there is consensus to cap the landfill and wide support to construct a recreational complex there. Differing opinions however have been voiced on how best to achieve the desired cap and the length of time allowed to construct the cap. A variety of site use options have been suggested including the 12 year plan recommended by DPW. The purpose of this report is to discuss the issue more fully than previous memoranda. The report will evaluate the costs of four (4) distinctly different options and then select an option and site use based on a balance of economic, environmental, park and community considerations.*

**BACKGROUND**

*The four (4) options that will be evaluated are:*

**Option 1** *Do nothing at the landfill site. Disposal of public works wastes (i.e. catch basin cleanings and street sweepings ) will be made*

at a facility outside the city beginning three (3) years from now after the Ballard St. site is capped. This option will require the siting of a transfer station within the city. No landfill cap or recreational facilities will be provided under this option. Disposal at an outside facility is estimated at \$1,000,000/yr.

**Option 2** Build one (1) soccer field 12 months from the date of approval. Begin capping the site three (3) years from now. Cap the entire landfill site at the conclusion of the three (3) year period. During the three (3) years of capping operations, provide \$500,000 per year for use of park enhancements. After capping the site, disposal of public works waste will be at a facility outside the city.

**Option 3** Build one (1) soccer field 12 months from date of approval. Begin capping the site three (3) years from now and conduct capping operations for a six (6) year period. At the conclusion of all capping operations, construct a 2nd soccer field, one (1) basketball court, a parking lot for 100 cars, and a concession stand (total value = \$700,000). At the conclusion of the 6 year period, dispose of wastes at a facility outside the city.

**Option 4** Build one (1) soccer field and concession stand within 12 months from date of approval. Begin capping the site three (3) years from now and conduct capping operations for a twelve (12) year period. Build 2nd soccer field and half of 200 space parking lot after six (6) years of capping operations. Build 3rd soccer field, basketball court and remainder of parking lot at conclusion of 12 year period.

Before evaluating the four (4) options, some discussion may be worthwhile to explain why DPW is proposing use of the Skyline Drive site at all. The reuse of landfills for passive or active recreation is being done nationwide. As land becomes more valuable, reuse of abandoned or derelict lands, including former landfills is becoming more widespread. Although landfills are usually viewed as a liability, closed landfills can provide communities with unique

*reclamation opportunities as long as special monitoring and design considerations are established and followed, and reuse is done in a way that avoids public health or safety concerns. There are unique advantages to landfill reuse including funding and revenue opportunities and potential economic spinoffs.*

*There are many landfill reuse examples nationwide. From passive open space to active redevelopment for shopping centers, office parks and university buildings. Examples of communities reusing landfills abound more today than ever before - in Florida a nature center; in New Hampshire and Virginia a ski and sledding slope; a sculpture garden in New York; botanical gardens in an empty theatre in California; active sport fields in Massachusetts and North Carolina.*

*Our proposal to reuse this site is based on the success others have had reusing old landfills including our own experience at the Ballard Street site. It is also based on three unavoidable realities. First, it is a low cost solution for the disposal of street sweepings and catch basin cleanings. Disposal of catch basin cleanings and street sweepings will be a real problem that the city will need to address in the next three (3) years. All other disposal options for this waste will be significantly more costly than its use as fill in conjunction with a capping plan.*

*Secondly, by avoiding more costly disposal alternatives, it provides the city with funds that can be used for recreational facilities and other associated amenities in Green Hill Park. The value of the park improvements included in the master plan to date is approximately \$12,000,000. Allocating funds to construct the desired physical improvements adopted in the master plan and expected by the community will require a financial plan. The absence of improvements made after the last master plan was completed in 1979 underscores the need for a financial plan. Sharing avoided costs to provide certain recreational facilities is a practical and fiscally prudent way to achieve components of the master plan.*

*The third reality is that it resolves the looming obligation to cap the former landfill at Skyline Drive. All indications to date are that this uncapped landfill poses minimal environmental concerns. However, it is an uncapped landfill and at some point in time, it should be capped and it is likely to be ordered capped by the Department of Environmental Protection (DEP). By using public works*

wastes to achieve the desired shape of the site, the cost to cap and provide recreational benefits can be minimized by the avoided costs of alternative disposable methods. The capping plan, therefore becomes a financing vehicle to enhance the park and add to its value and should not be viewed as a liability or detriment to the park.

The extent of the cap and its encroachment into the tree line is dictated by the extent of buried refuse, topography of surrounding land and requirements of DEP. All should know that DPW does not look to expand the cap more than is required. Nor does it seek to encroach into the tree line more than required to conform to and obtain DEP approval. Minimizing the footprint of the cap is a common goal of both DPW and those who have opposed this proposal.

I have attached to this memorandum an article reprinted from Civil Engineering, August 1991 concerning the Mayor Thomas W. Kanehy Park in Cambridge, MA. This 50 acre recreational facility was built on the site of the former city landfill. The landfill was closed after active dumping in the early 1970's. The city subsequently reclaimed what would have been a wasteland and turned it into a community resource. I've also attached a proposal by the Town of Yarmouth on the reuse of their former landfill for recreational facilities. Their proposal was endorsed by the town and improvements are underway.

### Cost Evaluation of the Options

A cost analysis was performed on the four (4) options. The summary of the evaluation is shown in the table below. The evaluation was based on the present worth method of comparing various options. The present worth value is the more frequently used measure of comparing economic merit of various cost options. Total cost of the various options was also analyzed as was average annual costs of the four (4) options. The present worth comparison is in our view, the more legitimate method of comparing the economic merit of each. On this basis, Option 4, the option previously recommended by DPW is clearly the most economical alternative of the four (4) options considered. Option 3 - the six (6) year proposal is a distant second best choice. Options 1 and 2 are distinctly economically inferior to Options 3 and 4. The table also shows the effect of each

option on the sewer rate in the year of 2000. Here again, Option 4 is the clear, best choice.

*In calculating the present worth and total cost of each option, assumptions were made relative to the cost of the cap, the cost of the recreational benefits to be provided if any, and the cost of the disposal of public works wastes at a facility outside the city. These costs estimates were held common to each of the options considered. The purpose of the cost evaluation is to give sense as to the relative cost involved in each option and more importantly, to distinguish by order of magnitude the difference between each option. On the basis of our cost comparisons, Option 4 is clearly the best choice and Option 3 eligible for consideration if other factors so warrant. On the basis of cost, Options 1&2 are eliminated.*

OPTION	PRESENT WORTH	TOTAL COST	AVERAGE ANNUAL COST	EFFECT ON SEWER RATE IN YEAR 2000
1	7,039,400	12,000,000	1,000,000 <sup>1</sup>	14¢
2	7,870,930	12,950,000	1,079,167 <sup>1</sup>	15¢
3	4,924,730	8,700,000	580,000 <sup>2</sup>	8¢
4	2,001,755	3,000,000	200,000 <sup>2</sup>	3¢

1. Based on 12 year period  
 2. Based on 15 year period

## Conclusion and Recommendations

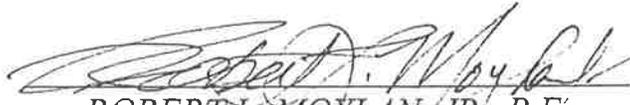
*The idea of reusing landfills for recreational purposes requires that the public “create a vision” for the project and the site. It is hard for people to visualize the “old dump” as anything else, yet if the project is to be successful, we must be able to look beyond the current use to the site’s potential. Reuse of this site is an opportunity for the city that should not be squandered. Reuse of the site is an innovative, imaginative, practical, and environmentally beneficial way to resolve three (3) disparate problems that will face the city within the near future.*

- *It provides a low cost solution for the disposal of street sweepings and catch basin cleanings.*
- *It provides the city with needed recreational facilities and other associated amenities in Green Hill Park.*
- *It resolves the looming obligation to cap the landfill at Skyline Drive that will be a distinct benefit and environmental benefit to the park.*

*Based on the evaluation, Option 4 - use of the site for twelve (12) year period is the clearly preferred option. Because of opposition to this alternative by some in the community, DPW would accept Option 3 - use of the site for a six (6) year period as a concession. This is the **second best** choice from an economic and park enhancement perspective. This alternative leaves the site with a logical final geometry or footprint that would consist of two (2) recreational fields built on the upper plateau and a lower plateau that could be developed for other uses after the site is capped.*

*Option 3 is a concession to the concerns raised by some in the community. The plan can be accomplished inconspicuously without disruption to neighbors and without disruption to the users of the park. The plan can be an asset to the park by providing benefits that might otherwise never materialize. Besides providing the benefits that I have outlined in this report, it more importantly gives DPW the opportunity to succeed.*

*I am confident that if we are given that opportunity, we can dispel the misplaced fears and concerns of those who have opposed the proposal. Worcester can take advantage of this unique opportunity, much the way other communities across the country have used former landfills, and take a "scar" on the urban landscape and transform it into a recreational jewel.*



ROBERT L. MOYLAN, JR., P.E.  
Commissioner of Public Works

*RLM/jar*

*Attachments*

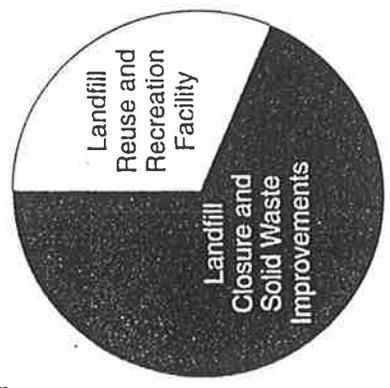
*{OPTIONS}*

- Must maintain solid waste management facilities
- Landfill closure/capping is a significant, costly and state mandated action
- 57 acre site has limited reuse potential after closure - actual landfill area not suitable for structures
- Significant cost savings and benefits of integrated closure and reuse
- Golf course revenues utilized to offset part of project costs
- State grants utilized to offset portion of project costs

## Approaches to Cost Containment and Savings

- Projected longterm positive income flow from golf/recreation fees
- Landfilling of non-SEMMASS waste to obtain required grades and generate revenue
- Leveraging other closure funding if available
- Use of synthetic capping material
- DPW manufacturing of topsoil for final cover
- Recycle treated sewage effluent for irrigation
- Multiple use of recreation fields and potential use permit fees
- Use of existing clubhouse and maintenance buildings modified for additional 9 holes

## Project Cost



## Financing

- Project phasing to spread out project and reduce impacts on tax rate
- Project approach to seek town meeting appropriation for actual (competitive) bids and improvements
- \$1M recreation grant-state of Massachusetts
- Landfill income - project offset of \$800,000
- Seeking Interest free loans and/or additional grants
- Golf course expansion as revenue source to partially fund project

## Landfill Closure and Reuse Schedule

- Phase I capping completed - Fall 1996
- Project construction bids received - March 1997
- Town meeting appropriation - April 1997
- Construction start - May 1997
- Landfill cap completed - December 1997
- Golf course and park construction completed - Fall 1998
- All projects completed, turf established and open to public - Fall of 1999

## 1997 Town Meeting

- Entire project: landfill closure and reuse as golf course with bike path and townwide multiple-use recreation facility with revenue potential, estimated total cost \$17.5 million to be reduced by potential state grants and loans

# Yarmouth, Massachusetts

## Landfill Closure and Proposed Reuse

Town Meeting

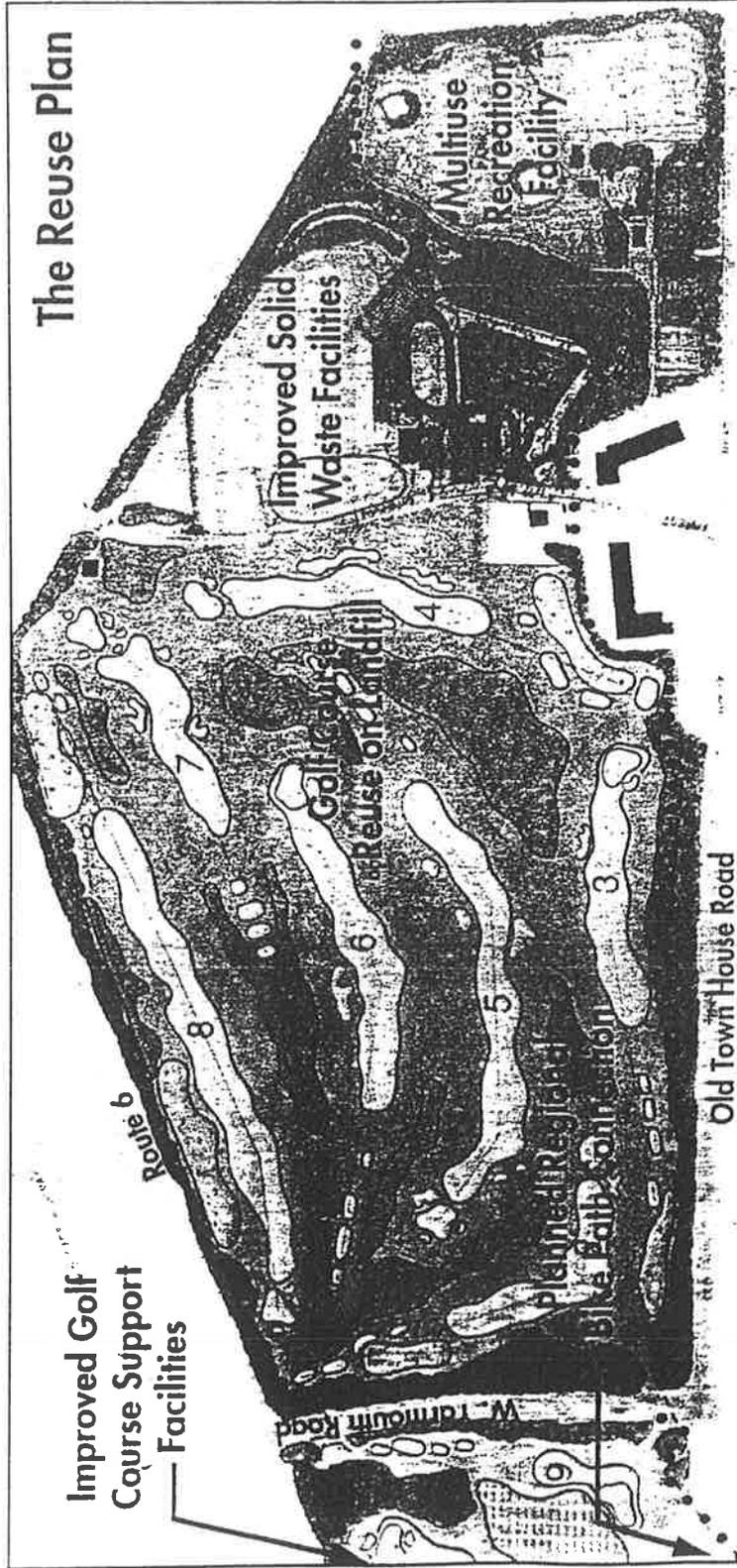
April 1997



“Investing in Yarmouth’s Future by Creating a Community Asset”

## Landfill Closure and Reuse Alternatives

1. Landfill closure and combination golf course, bike path and town-wide multiple use recreation facility
2. Capped landfill with annual monitoring and maintenance, no reuse or park



## Yarmouth's Landfill

- 57 acre site located on Old Town House Road
- Operated since early 1950's as municipal landfill
- Replaced in 1991 with regional transfer station and disposal to SEMASS
- Located in Yarmouth's water supply aquifer
- Residential drop off area improvements

## Need for the Project

- Landfill capping required by 1990 Federal and State Regulations
- Needed to protect Town water supply -- landfill identified by State as a "significant threat" -- landfill has groundwater contamination

## Proposed Recreation Facilities

1. Concession and restroom facility
2. Basketball courts (lighted)
3. Soccer fields (lighted)
4. Softball (lighted)
5. Little league/girls softball field (lighted)
6. Bocce court and horseshoe pits
7. Picnic areas
8. Bike/walking paths/exercise center
9. Children's play area
10. Planned regional bikeway connection
11. Parking for 100+ vehicles

## Proposed Golf Course Improvements

- 9 hole expansion to Bayberry Hills with 7 holes on landfill
- Club house renovation and access improvements
- Additional golf course parking and pathway improvements
- Maintenance building and cart barn expansions to support course and park uses
- Gravel parking for golf overflow and bike path users

# LANDFILL PARK: FROM EYESORE TO ASSET

JOHN KISSIDA  
NANCY K. BEATON

*A landfill is usually something to be hidden away, a scar on the landscape, filled with useless garbage. But government leaders in Cambridge, Mass. transformed a closed landfill from a problem into a solution. By reclaiming the 50 acre site as a recreational area, the city increased its open space by 20%.*

Newcomers to Cambridge, Mass. probably won't realize that Mayor Thomas W. Danehy Park sits on more than 40 ft of garbage. The park includes three softball and three soccer fields, one multisport field, two children's play areas, horseshoe pits, bocce courts and more than 2.5 mi of trails for jogging, walking and biking. About 20 acres of slopes planted with wildflowers, more than 800 trees, a 2 acre wetland/meadow for storm-water control, restroom and garage facilities and parking for 300 cars complete the park.

Cambridge is densely populated, with 91,000 residents living within 6.26 sq mi. With 67 existing parks totaling only 248 acres, the city's recreational facilities were stretched beyond capacity. The city and its consultants monitored the site for a decade, deciding to develop the former landfill into a public park.

Our firm, Camp Dresser & McKee Inc. (CDM), Cambridge, and Haley & Aldrich, also of Cambridge, monitored the site starting in the early 1980s to evaluate site conditions, development possibilities and potential public health risks. The team investigated settlement, combustible gas



THE PARK IS A SUCCESS, SAYS THIS EXPERT.

migration and generation, landfill cover thickness, air and ground-water quality, radioactivity, storm-water drainage and revegetation.

In an agreement with the city, the Massachusetts Bay Transportation Authority (MBTA) had placed fill from a subway project over the closed landfill site between 1977 and 1982. The entire site was covered with 4-40 ft of fill. The over 2 million cu yd of fill was the basis for the landfill's final cap. To ensure that methane gas from the landfill would not migrate to the basements of adjacent structures, MBTA built a crushed-stone vent trench along the site perimeter in 1982.

The trench reaches 2 ft below the ground-water elevation and is filled with compacted crushed stone. The stone allows gases, moving laterally because of increased pressure from the additional layers of fill, to rise vertically through the trench to the ground surface and vent to the atmosphere.

Starting in 1982, we worked with sub-consultants to install and monitor gas observation wells along both sides of the vent trench. These wells have shown that

the gas is predominantly methane, that gas generation has decreased over the years, and that the vent trench has been effective. We also analyzed the nonmethane component of the gas to ensure that no public health threat existed.

Ground-water observation wells installed around the site help track ground-water flow and water quality. Ground-water monitoring is especially important for three reasons: (1) the landfill is contained by pre-existing clay walls (no synthetic liner); (2) the refuse is located predominantly below the ground-water table; and (3) the landfill is located approximately 2,000 ft from Fresh Pond, one of the city's reservoirs.

Monitoring has shown that ground-water flow is predominantly away from the reservoir, which is maintained at a higher elevation than the water table. Contaminant levels in the area ground water have been very low and show no significant leachate contamination.

Settlement has been monitored at the site since the MBTA filling operation. We did the monitoring with settlement platforms, each consisting of a plywood base

and pipe riser section on a sand foundation. Pipe sections were added or removed as necessary to accommodate increasing depths of fill. We periodically surveyed and plotted the platform-top elevations to help predict settlement rates relative to fill depths.

Haley & Aldrich determined that settlement was most closely related to the depth of the underlying refuse rather than the MBTA fill, and that the rate of settlement with time was logarithmic. This means that approximately 50% of the settlement anticipated over a 20-year period will occur in the first five years. In some instances the deep fill created early settlement much faster than normal—25–30% of anticipated settlement within six months of placement.

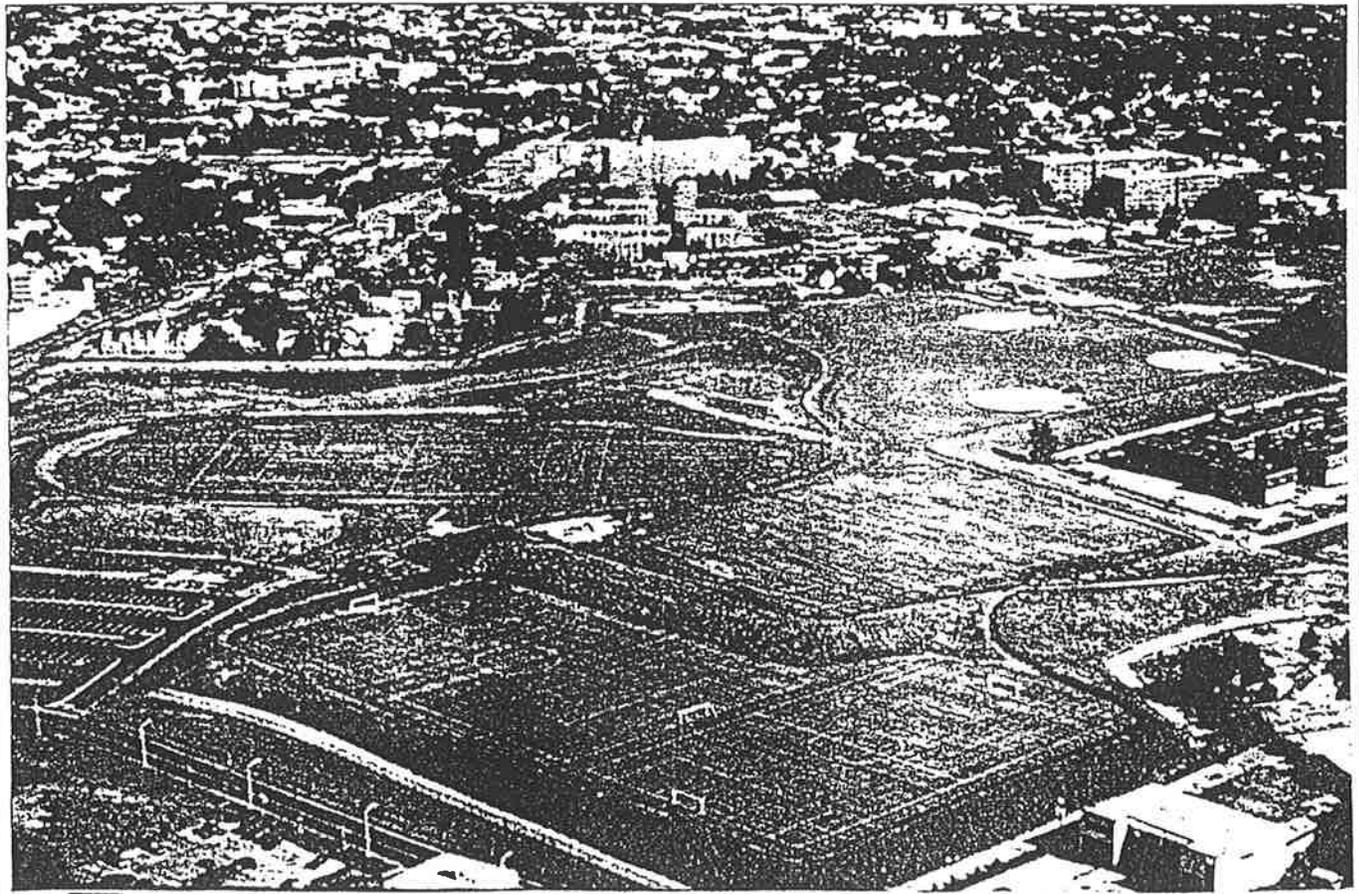
During site redevelopment we preloaded the deep fill areas (greater than 3 ft) with 25% extra material and allowed it to settle for six to 12 months before final grading. Granite markers, installed as part of the park development, serve as permanent settlement platforms and field layout markers. We surveyed these markers periodically to help us time future improvements with periods of reduced settlement.

The landfill site had originally been graded to shed runoff to the perimeter. Along with the inadequate drainage system in this part of the city, this resulted in nearby storm drains and combined sewers flooding low areas around the site, even during minor storms. In 1985 the city directed MBTA to regrade the site, diverting runoff toward an existing 1.7 acre resource area and creating depressions for temporary storm-water storage.

We eventually decided to incorporate the 1.7 acre area into a 6 acre detention basin. However, the existing 1.7 acres were directly above refuse fill, creating a possible path for transport of contaminants to the surface water. To prevent this, we filled the resource area, capped it with a bentonite liner and replaced it with a 2 acre meadow/marsh detention area located directly above the resource area.

The retention area is a 12 in. deep basin with 9–12 in. of loam placed in it. It is designed to retain runoff from normal rainfall, keeping the area moist enough to support the wetlands plantings. "Agrosoke" crystals added to the loam also help retain moisture. The buffered crystals absorb

CAN YOU SPOT THE LANDFILL IN THIS PICTURE?



water equal to 40 times their weight when hydrated. During drought periods, plant roots attach to the crystals and draw water from them.

The larger detention area surrounding the retention area was designed to flood for short periods during larger storms. It is sized to hold runoff from a 50-year storm, with a depth no greater than 2.5 ft for safety reasons. The runoff is discharged to the combined sewer system, slowly but within 24 hours. The detention area is grass-covered, making it open lawn space under normal conditions.

In reality, both the retention and detention areas are larger than designed; the underlying refuse layer has settled due to the weight of the fill material placed above it. Unlike the other deep-fill areas on-site, the resource area and the surrounding area could not be preloaded to accelerate settlement because the area was needed for storm-water control during the construction period. Consequently, the retention portion is deeper and holds more water, and the detention portion is flatter, than planned. This has apparently diminished the growth of the wetland wildflowers but has created a fine habitat for wildlife.

#### PLANTING THE PARK

Former landfills present problems for revegetation. Methane gas can create anaerobic conditions toxic to plant growth. Steep slopes with differing sun exposures limit vegetation development to varying degrees. The high mounds that typify landfills also offer no protection from high winds and potentially arid conditions. Surface slopes of 3–5% are required to ensure minimum infiltration, but they also limit potential turf development. Additional destruction of vegetation is expected at sites redeveloped as playing fields.

However, the soil over the refuse at the Danehy Park site made it a fine candidate for redevelopment. The deep cover allowed additional site grading and reasonable grade transitions, as well as plantings and utility installations without digging into the refuse layers below.

The cover materials were extremely variable, containing unsorted trap rock, clays and tills placed during several years of subway excavation. This variability created site drainage problems and made uniform grading difficult.

During final park development, we placed a 6–18 in. sand-gravel drainage-and-leveling layer and subsequent sandy loam layer to achieve the finished grades. Sandy loam 4–6 in. thick was placed as the final site surface. The Department of Environmental Protection (DEP) determined that the 4–40 ft of dense MBTA fill, and the added gravel and loam layers, were an adequate substitute for the 2 ft cap normally required for landfill closure.

Approximately 18 acres of sod cover the playing fields. The sod includes a blue-grass/fescue mix to increase the drought tolerance of the turf. Additional turf slice seeding with fescue and perennial ryegrass is planned as part of the one-year maintenance program included in the construction contract.

Wildflowers and plantings mitigate erosion and provide seasonal interest with minimal maintenance. We hydroseeded the side slopes with approximately 20 different aggressive wildflower species. A sledding slope was seeded with a K-31 tall fescue. The wildflower and fescue choices

**The deep cover allowed  
us to plant trees  
that wouldn't have grown  
on normal landfill covers.**

were based on test plots that were established on-site, after site preparation and before the subsequent work. It is too early to evaluate the long-term success of the wildflowers, but so far the perennials have done well except in areas of unexpected pedestrian traffic. Supplementary seeding in the maintenance program will ensure adequate vegetation.

Trees placed strategically throughout the park provide shade and protection from prevailing winds. The site's high winds meant that the trees had to be heavily staked. Plantings around the perimeter of the site buffer noise from playing fields and maintain the privacy of neighbors. More than 800 trees of 20 different species were planted; we selected the species based on consultation with landfill revegetation specialists at Rutgers University.

The deep cover allowed us to plant trees that wouldn't have grown on normal (2 ft minimum) landfill covers. We monitored the survival rates of trees to determine the effectiveness of enlarged tree pits

along with the use of agrosoke crystals in the backfill mixtures; one year after planting, only 3% had been lost.

We constructed an on-site restroom, office and garage facility to support the park. The location was determined by considerations such as underlying refuse thickness and proximity to utility services. The building contains an active venting system and a foundation that prevents gas from entering the structure. A spread footing and lightweight construction materials have reduced settlement as well as the cost of construction, which was completed in September 1990.

#### DEVELOPMENT PLAN

We planned the work for three phases. Phase I, completed in September 1990, is the redevelopment of the landfill as Danehy Park. Phase II is the renovation of an adjacent park, to be completed by the fall of 1991. Future phases over the next 10–15 years may include tennis courts, a running track, spectator stands and a locker facility. These are all dependent on settlement conditions, however.

Funds for the \$10 million project have come in roughly equal parts from the city's bond program and from outside sources. The city obtained a \$3 million grant from MBTA in exchange for using the site as a staging area and landfill for its subway line extension. An additional \$2 million came from the state's Urban Self-Help Program, as well as a \$500,000 landfill-capping grant from DEP. The city's finance director also plans to develop a trust fund for long-term maintenance, monitoring and capital improvements.

The project benefited from a great deal of community participation and agency involvement. In developing design criteria for the park, the city sought input from several neighborhood associations, area schools, local environmental groups and state agencies. The meetings helped the city and its consultants solve two problems—closing a landfill in an environmentally sound manner and developing a much-needed recreational space in an urban setting. In the end, they arrived at a solution that satisfies diverse interests and serves as a model for other communities. ♡

*John Kissida is a vice president and project manager at Camp Dresser & McKee Inc. (CDM), Cambridge, Mass. Nancy K. Beaton is a project engineer at CDM.*

**Skyline Drive Ballfields**

**Proposal for Use as a  
DPW Street Waste Depository and  
Recreation Facility**

by  
**Worcester Department of Public Works**

Site Usage Summary

February 1997

## REQUEST

- Extend the use of the Skyline Drive site as a DPW Street Waste Landfill to facilitate development of the recreational use expansion.

## GOAL

- Creation of a recreational complex that maximizes the public benefit while minimizing the City expenditure to improve the environment by capping this former solid waste landfill..

## PROPOSAL

- Within 12 months reconstruct the existing neighborhood recreational soccer fields to create one first class quality soccer field. Develop an off street parking area to relieve on-street parking concerns.
- Deposit DPW street waste until the site is filled to elevations that allow expanded use of the former landfill site as an active recreational facility.
- Cover the entire former landfill area under a phased closure program with an environmentally designed capping system which satisfies current Department of Environmental Protection standards.
- Construct two additional first class soccer fields, a formalized parking lot and a new concession / fieldhouse building with restroom facilities and storage for park equipment.

# Skyline Drive DPW Landfill and Recreation Facility

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## **BENEFITS**

- ✓ During the first year of implementation of this proposal, the existing poor quality soccer field will be replaced with a new, full size, first class soccer field along with an off street parking area.
- ✓ The neighborhood would ultimately get a greatly improved recreational site (A \$720,000 savings for the Parks Department) including:
  - A lighted, first class turf grass soccer field
  - 200 space off street parking area
  - Concession stand / storage building
  - Two additional soccer fields that are drained and irrigated
- ✓ DPW makes best use of the available volume at this former landfill site.
- ✓ The former landfill site will be capped with an environmentally superior impermeable cap system meeting the current DEP Landfill Closure Standards.

## BENEFITS (Continued)

- ✓ Improvement to surface and groundwater quality and provide mitigation to downstream stormwater runoff resulting from the new landfill cap system and improved drainage system.
- ✓ Avoid the costly purchase of material to bring the existing site to the required closure grades.
- ✓ City avoids additional disposal cost to send street waste outside the City to a privately owned and operated disposal site.
- ✓ City avoids the need to site and construct transfer stations for handling street waste.

# Skyline Drive DPW Landfill and Recreation Facility

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## NEIGHBORHOOD CONSIDERATIONS

### ◆ Traffic

Truck traffic to the site will be restricted to access via Belmont Street to Skyline Drive, thus avoiding neighborhoods and surrounding park land.

### ◆ Environmental Concerns:

Noise levels and sightline impacts are to be mitigated by installing earth berms, fencing and retaining a tree buffer between this site and houses on side street.

Street waste has been tested and found to be mostly sand and dirt and generally acceptable for deposit as fill material at former landfills.

The street waste is not susceptible to generation of wind blown litter or attracting vectors. A layer of sand cover will be placed over newly deposited materials when needed to ensure a clean environment.

## SUMMARY

- Benefit to the City and neighborhood youths.
- City wide cost savings of \$1,000,000 per year by not having to dispose of street waste at a private site.
- Best use of available landfill capacity.

The Zoo as a Component of the Master Plan  
Size, Scope and Mission

1.

SIZE

- A. The size of the Zoo area should allow for the phased addition of exhibits and retain as much natural wildlife areas as possible. Incorporating natural areas makes for a more attractive facility and provide opportunities for wildlife education. Currently, natural areas immediately surrounding the Zoo area are excluded with the visitors confined to viewing man made structures and pathways.
- B. The Zoo, nature trails, gardens etc. should be **BUFFERED** from any road or major noise producing activity ie: basketball and other distractions. The majority of park visitors are seeking a refuge from the urban environment rather than an extension of it. This is why, I feel we should take the **ZONE** approach to combine compatible activities. The alternative is likely to result in a park made up of disjointed structures and activities, disturbing more areas, and further complicating maintenance.
- C. Two immediate major concerns at the Zoo are security and the condition of fencing. For example, the perimeter fencing on the South side of Zoo the area was old **20 years ago!** The fence has since suffered from vandalism, falling trees, and general deterioration. I propose that the Southern side of the Zoo area extend to and possibly partially surround the Armory. This would increase security and be directly adjacent to the Armory complex should it become a park facility in the future.
- D. Associated areas such as the "NEW FAMILY RECREATION AREA" proposed at the March 3 advisory meeting would be better suited to a combination playground, picnic, concession, restroom and parking area. These facilities would be the **MOST** utilized features of the park (along with the Zoo) on a **DAILY BASIS** by **FAMILIES**. There is a natural linkage with the Zoo and this area which would justify leaving Skyline Drive as the primary access. Skyline Drive could terminate at a logical destination point, servicing both the Zoo and a truly **FAMILY** recreation area (refer to page 5). Skyline drive is **CLEARLY** the **most rational, user friendly and attractive** entrance for the most daily utilized features of this park.

## SCOPE

2.

- A. Exhibits should be a reasonably diverse collection of wild and domestic animals. The types of exhibits depends upon the level of funding allocated to the zoo. Is this city committed to the concept? The city should accept the idea of entrance fees which would both help sustain the facility and control access. The Zoo would, of course, have to be large enough in terms of exhibits to justify a fee.
- B. Staffing would have to be increased as would capital equipment. This facility currently operates with a staff of one full-time city employee and possesses almost nothing in the way of usable capital maintenance equipment. It is doubtful that the Zoo can continue to be maintained in this manner. It should be pointed out that the Zoo is closed two days a week due to lack of manpower. The Zoo has been a virtual afterthought in the budget process and therefore does not allow for planning. I would propose that the Zoo, due to its unique needs and technical aspects, become an actual Division of the Parks system.
- C. A zoo facility at least of the scope of Springfield's (refer to page 4) is certainly within the capabilities of Worcester. As "New England's second largest city", the public deserves a "First Class Zoo".

## MISSION

- A. Recreation - Zoos are a feature in virtually every major city in the U.S.. There is NO zoo (in the true sense of the word) in Worcester. There are zoos in several smaller New England cities. A zoo is not a new concept; but rather a proven asset to cities nation wide. The appeal of a zoo as a recreational facility should be obvious.
- B. Education - The Zoo should be perceived as an educational resource for all age groups. There are numerous colleges and organizations in addition to the public schools which could join in cooperative programs. The end result would be a utilization of Worcester's strengths and hopefully foster a greater sense of community.

C. **The Future of Worcester** -A moderate size state of the art zoo would make this city a destination for families from all over central MA and beyond. The leadership of this city should be looking for ways to bring people into this city as well as improving the quality of life for its residents. We have a golden opportunity now, with the State's assistance, to reclaim and preserve Green Hill Park for the purpose it was intended. I would remind everyone that we are the stewards of this park and the environment as a whole. Let us reverse the neglect and abuse that has taken place for more than a generation.

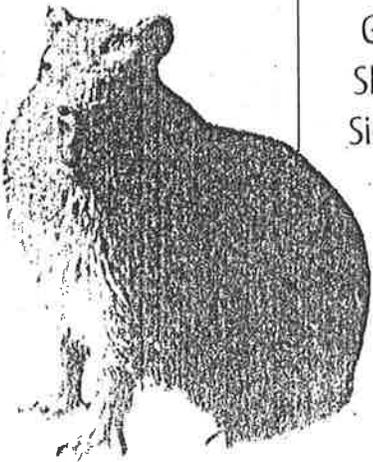
# FROM THE ZOO IN FOREST PARK

SPRINGFIELD MASSACHUSETTS

Black Bear  
South American  
Cougar



Capybara  
Lemur  
Llama  
Wallaby



Arctic Fox  
Bobcat  
Coyote  
Deer  
Emu  
Golden Eagle  
Shetland Pony  
Sicilian Donkey  
Iguana



African Pygmy Goat  
Boa Constrictor  
Chinchilla  
Calf  
Cow  
Miniature Deer  
Ferret  
Hedgehog  
Great Horned Owl  
Screech Owl  
Squirrel Monkey  
Peacock  
Pig

Bullfrog  
Crow  
Goat  
4-Horn Sheep  
Quail  
Rabbit  
Sheep  
Turkey Vulture  
Turtle  
Tarantula



*The Commonwealth of Massachusetts  
Vietnam Veterans Memorial Trust, Inc.*

MASSACHUSETTS LOST APPROXIMATELY 1,325 MEN AND ONE WOMAN DURING THE SEVENTEEN YEAR WAR. EXACTLY 232,987 MEN & WOMEN OF THE COMMONWEALTH SERVED IN THE ARMED FORCES OF THE UNITED STATES OF AMERICA DURING THE VIETNAM WAR ERA.

MASSACHUSETTS HAS SEVERAL SIGNIFICANT DISTINCTIONS THAT SET US APART FROM MANY OTHER STATES:

- \* MASSACHUSETTS HAS THE FIRST VIETNAM VETERANS. IN 1845 THE U.S.S. CONSTITUTION, UNDER CAPTAIN JOHN "MAD JACK" PERCIVAL, SAILED INTO TURON BAY (NOW DA NANG HARBOR) AT THE REQUEST OF THE FRENCH GOVERNMENT. THE CONSTITUTION STAYED 16 DAYS TRYING TO WIN THE RELEASE OF A KIDNAPPED FRENCH BISHOP. THE SHIP RETURNED TO BOSTON WHEN A FRENCH WARSHIP ARRIVED IN DA NANG HARBOR AND TOOK OVER. THE BISHOP WAS EVENTUALLY FREED.
  
- \* EIGHT NURSES DIED IN VIETNAM; ONE OF THEM, PAMELA DOROTHY DONOVAN, A 1ST LT. WITH THE ARMY CORPS OF NURSES, OUT OF THE 85TH EVAC. HOSPITAL IN CHU LAI CAME FROM BRIGHTON, MASS. THE IRONY BEHIND PAM'S DEATH IS THAT SHE DIDN'T HAVE TO SERVE; SHE WAS AN IRISH CITIZEN.
  
- \* ONLY TWELVE GENERALS DIED IN ACTION DURING THE VIETNAM WAR; ONE, MAJOR GENERAL GEORGE CASEY, WAS AN ALLSTON NATIVE.

*The Commonwealth of Massachusetts  
Vietnam Veterans Memorial Trust, Inc.*

Description of State Memorial

FOR THE MEMORIAL THIS PLACE IS A "SANCTUARY"

WITHIN THE "SANCTUARY" ARE PATHS PAVED WITH STONEDUST, GRANITE BENCHES, AS WELL AS A FEW LARGE DECIDUOUS TREES AND SEVERAL CLUSTERS OF WHITE BIRCHES: AND THE "PLACE OF NAMES". HERE THE NAMES OF THE APPROXIMATELY 1325 KILLED AND MISSING ARE INSCRIBED, BY TOWN OR CITY, ON THE FACES OF A CIRCLE OF VERY LARGE SLABS OF GRANITE. EACH SLAB IS FIVE FEET SQUARE AND EIGHTEEN FEET HIGH AND WEIGHS APPROXIMATELY FORTY TONS. AN OUTER CIRCLE OF GRANITE BENCHES, OF MILSTONE GRANITE, SURROUND THE CIRCLE OF STONES, AND TWO HALF CYLINDERS OF POLISHED BLACK ONYX GRANITE MARK ITS CENTER. INCANDESCENT LIGHTS ILLUMINATE THE GRANITE SLABS.

BY THE DUCK POND IS THE "GATHERING FIELD". ITS NORTHERN EXTREMITY IS THE "PLACE OF FLAGS", WHERE A FLAGPOLE CARRYING THE UNITED STATES, MASSACHUSETTS AND POW/MIA FLAGS IS SET INTO A 6' DIAMETER CYLINDER OF MILLSTONE GRANITE. THIS CYLINDER CARRIES THE SEAL OF THE COMMONWEALTH OF MASSACHUSETTS. A MAP OF THE MEMORIAL SITE, DATE OF CONSTRUCTION, AND A BRIEF STATEMENT FROM THE VIETNAM VETERANS MEMORIAL TRUST IS INSCRIBED IN ITS SIDES. SPOT LIGHTS ILLUMINATE THE THREE FLAGS.

POISED AT THE POND EDGE ARE THE TALL GRANITE PILLARS OF THE "PLACE OF WORDS". INSCRIBED ON THESE PILLARS ARE WORDS EXCERPTED FROM LETTERS AND JOURNALS WRITTEN BY THOSE WHO SERVED IN VIETNAM FROM MASSACHUSETTS. THESE PILLARS EMBRACE THE VISITOR, AND THIS EMBRACE DIRECTS THE VISITOR'S VIEW TO THE SOUTH, ACROSS THE DUCK POND, TO THE "PLACE OF NAMES".

LINKING THE "PLACE OF FLAGS" AND THE "PLACE OF WORDS" IS A GRANITE PAVED WALK LINED WITH AN ALLEE OF LOCUST TREES WHICH IS ILLUMINATED AT NIGHT. ACROSS THE DUCK POND THIS WALK CONTINUES ON THE NORTH-SOUTH AXIS. FOR THE ENTIRE LENGTH OF THIS AXIS, RUNNING ON THE CENTER-LINE OF THE GRANITE PATH, IS A FOUR INCH WIDE STRIP OF BLACK ONYX GRANITE.

IT IS HOPED THAT VISITORS USE THE POLISHED TOPS OF THE TWO BLACK ONYX HALF CYLINDERS AT THE "PLACE OF NAMES" FOR LEAVING LIGHTED CANDLES IN MEMORY OF THE DEAD AND MISSING, AND THAT VISITORS "PLANT" IN THE SAND FILLED SPACES BETWEEN THE BLOCK PAVING STONES FLOWERS AND FLAGS, AS TOKENS OF THEIR VISIT.

## WORCESTER FORUM THEATRE

### CAPITAL CAMPAIGN FOR GREEN HILL PARK MEMORIAL GROVE AMPHITHEATRE Phase 3: Frances Herron Memorial Pavilion

In the two years since spring 1994, and with the generous support of the Worcester community, Forum Theatre has transformed Memorial Grove at Green Hill Park into an exceptional outdoor performance space featuring a 400-500 seat Greek-style amphitheatre built into the hillside; electrical service and lighting towers for theatrical productions; restored flagstone walkways and stonework; new ramps and walkways backstage and front of house; stone, timber and planted retaining structures to prevent erosion of the site.

During this period Forum Theatre has presented two summer seasons of two shows each; the productions have operated out of temporary trailers and containers for actor dressing rooms and production storage. The practical and aesthetic limitations of this approach have been tolerated by actors, crew and audiences alike because the site was under development. However, a permanent structure to house the operation has become essential.

Forum Theatre therefore proposes the construction of a simple building at the Memorial Grove Amphitheatre site which will also incorporate the presence of the Cultural Information Diner, an original New England Diner Car restored by the Heritage Preservation Society and owned by the City of Worcester. The design for this building will reflect the park's landscape as well as the park's community-oriented recreation function. A 25' x 40' bunker will be carved into the hillside adjacent to the site's power source; this underground shell will be partitioned within to provide discreet areas for green room, dressing areas, and production storage. The roof of the bunker will serve as an outdoor picnic terrace with the Diner as its centerpiece at walkway level, serving as a box office and concession area for front of house operations.

The Diner terrace will feature hardy, attractive plantings to create a pleasant garden/picnic area. New stonework will extend the existing walkways to the Pavilion, including stairs to the lower level. The Diner will be re-painted and undergo minor repairs; it will be fitted with security gates and doors to protect it against vandalism. Until such time as the City can provide a water and sewer line to the site, we will continue to rent portable toilets and truck in water to the facility.

A design for the Frances Herron Memorial Pavilion is attached, along with budget projections.

#### Budget

Construction	\$46,850
(see Itemized Budget submitted by Herron & Carlson, Architects)	
Terrace Installation and Landscaping	\$ 8,500
(itemized budget, Perrault Nurseries sent under separate cover)	
Security Gates)	\$ 4,485
(see Proposal submitted by Lashua Door Co)	
<b>Total:</b>	<b>\$59,835</b>

## MEMORIAL GROVE / FORUM AMPHITHEATER.

Four years ago, Forum Theater built a 4-500 seat Greek amphitheater in the abandoned and neglected part of Memorial Grove. \$40,000 was raised privately to excavate and install bench seating, install electricity, and restore and extend the 500 foot slate pathway, and included some base landscaping.

Forum Theater has brought the theater as far as it can, and asks that the City administration and Parks department help transform the theater into a first class performing facility. We believe that this is achievable with modest expenditure.

Ideally, we would like the city to construct a bunker style outbuilding into the hill which would house a storage area, bathrooms and a changing area. On top we would create an outdoor cafe with surrounding flower beds. A rendering exists ,(without bathrooms), with the Parks department. A diner that we purchased would sit along the cafe.

Secondly, water should be brought to the site. We have tried to find out if a main already exists but the water department has not been clear about the possibility.

Electricity should be bolstered and hardwired throughout the area. Lighting should be increased in the area to insure safety.

Landscaping should be completed to insure safety and beauty.

This space could be rendered first class with about \$150000.

NATIONAL DAM INSPECTION  
PROGRAM

PHASE I INSPECTION REPORT

BRIEF ASSESSMENT

Identification No.: MA00149

Name of Dam: Green Hill Pond

Town: Worcester

County and State: Worcester County, Massachusetts

Stream: Hermitage Brook - Tributary of the Blackstone  
River

Date of Inspection: July 31, 1978

Green Hill Pond Dam, which was originally built around 1850, was reconstructed about 1881. The dam is an earthfill embankment 200 feet long and 20 feet high with a stone masonry core wall 17 feet high. The spillway is an ungated overflow weir with a vertical discharge shaft which is located near the midpoint of the dam. The weir is 23.6 feet long with an elevation (El) of 651.0 at the crest. The ungated outlet conduit from the spillway is 573 feet long. It consists of an 18-inch diameter reinforced concrete pipe which connects to a 30-inch diameter reinforced concrete pipe. - There is an overflow diversion structure located at the northeast end of the pond. The outlet conduit for the overflow is 30-inch diameter reinforced concrete pipe. The inlet to the diversion has an elevation of 650.9. Due to downstream pipe sizes and slopes, the overflow diversion could be inoperative during peak storms.

Green Hill Pond Dam was neither designed nor constructed according to current state-of-the-art procedures. There are areas of concern which must be corrected to assure the continued performance of this dam. This conclusion is based upon the visual inspection at the site, the limited engineering data, and limited evidence of operational and maintenance procedures. Generally,

the dam is in good condition although the outlets to the spillway and overflow diversion are in poor condition. Green Hill has been classified in the "high" hazard category.

The following are visible signs of distress which indicate a potential hazard at the site: blockage of the shaft of the spillway, blockage of the overflow diversion, leakage through the walls of the spillway, misalignment of the stone block forming the western half of the spillway, siltation of the outlet conduit at 121 feet and 573 feet downstream of the dam, erosion and lack of riprap on the upstream face of the dam, erosion due to surface runoff on the downstream face of the dam, accumulation of surface runoff in the playground area at the toe of the dam, and erosion of the trash gate and the concrete on the intake box of the diversion conduit.

Hydraulic analyses indicate that the spillway at the dam can discharge a flow of 33 cfs at El 653 which is the average elevation of the crest of the dam. An inflow test flood of 280 cfs will overtop the main dam by an average of 0.2 feet. These calculations are based on an unobstructed flow through the spillway and do not consider overflow through the diversion. In the event of overtopping, complete failure of the dam is unlikely to occur. However, erosion of the dam could occur resulting in a breach and partial failure of the dam.

It is recommended that the Owner accomplish the following: remove debris from the shaft of the spillway and from the overflow diversion, install a trash rack on the spillway and repair the trash rack on the overflow diversion, construct an overflow spillway, construct a gated outlet, repair leakage and the misaligned slab at the weir of the spillway, clean accumulated silt out of the outlet conduit, repair erosion on the upstream face of the dam and protect the slope with riprap, construct a swale to prevent surface runoff from eroding the downstream face of the dam and collecting in the area at the toe of the dam, and repair the concrete on the intake of the diversion conduit. The Owner should also implement a systematic program of inspection and maintenance.

The debris in the spillway and in the overflow diversion should be removed within 30 days. The remaining recommendations and remedial measures outlined above and in Section 7 should be implemented

by the Owner within a period of 2 years after receipt of this Phase I Inspection Report. An alternative to these recommendations would be to drain the pond and breach or remove the dam.



A handwritten signature in cursive script, appearing to read "Edward M. Greco".

Edward M. Greco, P.E.  
Project Manager  
Metcalf & Eddy, Inc.

Connecticut Registration  
No. 08365

Approved by:

A handwritten signature in cursive script, appearing to read "Stephen L. Bishop".

Stephen L. Bishop, P.E.  
Vice President  
Metcalf & Eddy, Inc.

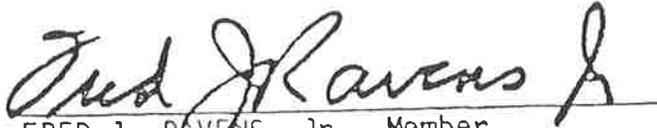
Massachusetts Registration  
No. 19703



This Phase I Inspection Report on Green Hill Pond Dam has been reviewed by the undersigned Review Board members. In our opinion, the reported findings, conclusions, and recommendations are consistent with the Recommended Guidelines for Safety Inspection of Dams, and with good engineering judgment and practice, and is hereby submitted for approval.



CHARLES G. TIERSCH, Chairman  
Chief, Foundation and Materials Branch  
Engineering Division

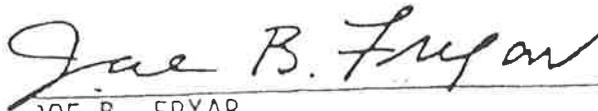


FRED J. RAVENS, Jr., Member  
Chief, Design Branch  
Engineering Division



SAUL COOPER, Member  
Chief, Water Control Branch  
Engineering Division

APPROVAL RECOMMENDED:



JOE B. FRYAR  
Chief, Engineering Division

## PREFACE

This report is prepared under guidance contained in Recommended Guidelines for Safety Inspection of Dams, for a Phase I Investigation. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through continued care and inspection can there be any chance that unsafe conditions be detected.

Phase I inspections are not intended to provide detailed hydrology and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aid in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general conditions and the downstream damage potential.

NATIONAL DAM INSPECTION  
PROGRAM

PHASE I INSPECTION REPORT

GREEN HILL POND

SECTION 1

PROJECT INFORMATION

1.1 General

a. Authority. Public Law 92-367, August 8, 1972, authorized the Secretary of the Army, through the Corps of Engineers, to initiate a national program of dam inspection throughout the United States. The New England Division of the Corps of Engineers has been assigned the responsibility of supervising the inspection of dams within the New England Region. Metcalf & Eddy, Inc. has been retained by the New England Division to inspect and report on selected dams in the State of Massachusetts. Authorization and notice to proceed was issued to Metcalf & Eddy, Inc. under a letter of May 3, 1978, from Ralph T. Garver, Colonel, Corps of Engineers. Contract No. DACW 33-78-C-0306 has been assigned by the Corps of Engineers for this work.

b. Purpose

- (1) Perform technical inspection and evaluation of non-Federal dams to identify conditions which threaten the public safety and thus permit correction in a timely manner by non-Federal interests.
- (2) Encourage and assist the States to initiate quickly effective dam safety programs for non-Federal dams.
- (3) To update, verify and complete the National Inventory of Dams.

## 1.2 Description of Project

- a. Location. The dam is located on the headwaters of Hermitage Brook, a tributary of the Blackstone River, in the City of Worcester, Worcester County, Massachusetts (see Location Map).
- b. Description of Dam and Appurtenances. Green Hill Pond dam is an earth fill dam about 200 feet long with a maximum height of 20 feet (see Plan of Dam and Sections, Figures B-1 and B-2). The embankment is founded on bedrock and is constructed of a stone masonry core wall 5 feet thick at the bottom, 2 feet thick at the top, and 17 feet high (see Figure B-4). The remainder of the embankment is earth fill. The crest of the dam is generally about 30 feet wide but increases to about 100 feet wide at the west abutment. The elevation (El) of the crest varies from 652.5 to 654.0. A paved road, Green Hill Parkway, is located on the crest. The upstream slope is 7:1 and is a sandy beach. The downstream slope is 5:1 and is covered with grass.

A vertical shaft spillway is located near the midpoint of the dam. It consists of a 23.6 feet long (side to side) granite overflow weir and a 3.6 by 25.6 foot (inside dimensions) vertical stone shaft with 2.7 foot thick walls. The crest of the spillway is at El 651.0. The shaft descends about 17.4 feet to an invert at El 633.6 and connects with the outlet conduit which is perpendicular to the dam (see Figure B-3). A stone headwall which was part of the original dam may still be located below the ground surface downstream of the spillway (see Figure B-4).

Water over the spillway discharges about 573 feet downstream of the upstream face of the dam. Manholes are located 121 feet, 306 feet, and 424 feet along the outlet conduit from the spillway (see Figure B-2). At the upstream end of the first manhole, the conduit is 18-inch diameter reinforced concrete pipe. From the downstream end of the first manhole to the

outlet, the conduit is 30-inch diameter reinforced concrete pipe. The size of the outlet from the spillway to the 18-inch diameter pipe is unknown. Drawings (Figures B-3 and B-4) indicate that there is a 38-foot-long approach channel on the bottom of the pond which leads to a 1.3-foot-wide by 4.5-foot-high opening at the base of the stone shaft of the spillway. This opening leads to a box conduit which passes beneath the shaft and the wall of the old dam and enters a 3.8-foot-wide by 7-foot-high stone horseshoe-shaped tunnel. The transition from this old conduit to the 18-inch diameter reinforced concrete pipe is unknown. The invert of the 18-inch pipe is at El 636.6 at the first manhole. The invert of the 30-inch pipe is El 633.0 at the outlet.

An overflow diversion structure is located at the northeast end of Green Hill Pond (See Location Map). Flow from this diversion is to Coal Mine Brook, about 0.4 miles to the northeast (see Figure B-5). The diversion conduit is a 30-inch diameter concrete pipe which leads to a 48-inch diameter tunnel beneath Green Hill, discharging to various smaller pipes downstream. The inlet to the conduit is a concrete box with a 1.6-foot-high by 12-foot-long opening on the upstream face. The overflow weir to the conduit is at El 650.9.

- c. Size Classification. Green Hill Pond Dam is classified in the "small" category since it has a maximum height of 20 feet and a maximum storage capacity of 300 acre-feet.
- d. Hazard Classification. Immediately downstream of the dam is a public park and playground. Thickly developed commercial and residential areas of Worcester are located in the downstream valley about 0.3 miles from the dam. Memorial Hospital is also located 0.7 miles downstream in the valley. In the event of dam failure, more than a few lives could be lost and extensive property damage could occur.

A 12-foot-high, abandoned dam located 1,300 feet below Green Hill Pond may impede some flood flows. However, the condition and stability of that dam is unknown. Accordingly, Green Hill Pond Dam has been classified in the "high" hazard category. A 1973 inspection report by the Massachusetts Department of Public Works indicates there is no risk to life and property.

- e. Ownership. The dam is presently owned by the Worcester Department of Public Works, 30 E. Worcester Street, Worcester, Massachusetts 01604. Mr. F. Worth Landers, Commissioner (617-798-8151) granted permission to enter the property and inspect the dam.
- f. Operator. There are no known operators of the dam since there are no operational features.
- g. Purpose of Dam. The dam was originally constructed by the Green family at their estate for recreational and aesthetic purposes. In about 1905, the estate was given to the City of Worcester. The pond was used for swimming until about 1955. After that time records indicate the water became polluted from the cesspool for the bathhouse and from livestock grazed nearby. Since 1955, the pond has not been suitable for swimming. The adjoining land is utilized for a playground, picnic area, and a golf course.
- h. Design and Construction History. The original dam, shown on the 1881 drawings as the "old dam" (see Figure B-3), was probably built around 1850 and is presumably still in place below the ground surface. Drawings indicate it consists of a 14.5 foot high, 10.5 foot thick vertical stone wall with an outlet conduit at the base which lead to a 3.8 foot wide by 7 foot high (inside dimensions) stone horseshoe-shaped tunnel (see Figures B-3 and B-4).

About 1881, Martin Green designed changes to the dam which presumably were built a short time later. These changes included construction of the vertical shaft spillway, reconstruction of the embankment with a stone core

wall, and extension of the outlet conduit upstream, including a slide gate and an approach channel. About 1905, the dam and part of the Green family estate were given to the City of Worcester.

An inspection report written in 1938 stated that the slide gate to the outlet was broken and inoperable and a fish screen was on the spillway weir. After the 1936 floods, the overflow diversion was constructed by the City of Worcester. Also, some time between 1955 and 1965, the area below the toe of the dam was filled in to make a playground, and the outlet conduit was extended to its present location.

1. Normal Operational Procedures. There are no normal operating procedures at this dam. There is no apparent outlet control, and it appears that the approach to the outlet conduit is filled with sand. However, a flow of 5 to 10 gallons per minute is discharging from the downstream end of the conduit.

The spillway for Green Hill Pond is ungated and flows are unrestricted, although the vertical shaft is blocked with debris.

The overflow diversion is also uncontrolled, and the opening to the 30-inch conduit is filled with debris.

### 1.3 Pertinent Data

- a. Drainage Area. The approximately 136-acre (0.21 square mile) drainage area above the dam consists of a park and golf course. The land is sparsely developed, mostly grassed, and has moderate slopes. Discharge is to Hermitage Brook, which flows to a 12 foot high abandoned dam located about 1,300 feet downstream of Green Hill Pond. Some flow appears to enter a 2.6 foot high by 5.3 foot wide box conduit at the dam and could not be detected further downstream. Residential areas are situated 150 feet downstream of the abandoned dam, and the valley continues approximately along Hooper Street into downtown Worcester.

- b. Discharge at Dam Site. Water discharges from the pond through an 18-inch and a 30-inch diameter, reinforced concrete outlet conduit. Drawings indicate that flow into the conduit is through the 25.6-foot by 3.6-foot vertical shaft of the spillway and from a 1.3 foot by 4.5-foot slide gate opening at the bottom of the upstream wall of the shaft. Presently, debris is blocking the shaft, and sand has accumulated upstream of the gate opening. Both the spillway and the opening are uncontrolled. The outlet conduit discharges 573 feet downstream, at an invert elevation of 633.0. The lower 452 feet of conduit has a 0.2 to 1.3 percent slope.

The pond can also overflow through a 30-inch diameter diversion conduit located at the opposite end of the pond from the dam. The conduit has a 1.6-foot by 12-foot intake opening with an overflow elevation of 650.9. The conduit has a slope of about 0.4 percent.

Hydraulic analyses indicated that the spillway can discharge an estimated 33 cfs at El 653 which is an average elevation of the crest of the dam. An inflow test flood of 280 cfs (half of the probable maximum flood) will overtop the main dam by an average of 0.2 feet. These calculations do not take into consideration the discharge into the overflow diversion which is presently blocked with debris. Due to downstream pipe sites and slopes, the overflow diversion could be inoperative during peak storms even after the debris is cleared.

The maximum flood at the dam site is unknown; but personnel at the Worcester Parks Department recall the dam being overtopped with flow over Green Hill Parkway.

- c. Elevation (feet above Mean Sea Level (MSL)). A benchmark at El 651.0 was established at the spillway crest. The elevation was estimated from a U.S.G.S. topographical map.

- (1) Top dam 652.5 to 654.0
- (2) Test flood pool: 653.2
- (3) Design surcharge (original design):  
unknown
- (4) Full flood control pool: Not Applicable  
(N/A)
- (5) Recreation pool: 650.9 overflow diversion  
651.0 spillway crest
- (6) Spillway crest (ungated): 651.0
- (7) Upstream portal invert diversion tunnel:  
650.9
- (8) Stream bed at centerline of dam: 633.9
- (9) Maximum tailwater: None

d. Reservoir

- (1) Length of maximum pool: 2,400 feet
- (2) Length of recreation pool: 2,400 feet
- (3) Length of flood control pool: N/A

e. Storage (acre feet)

- (1) Test flood surcharge: 60 at El 653.9
- (2) Top of dam: 300
- (3) Flood control pool: N/A
- (4) Recreation pool: 250 (Approximate)
- (5) Spillway Crest: 250

f. Reservoir Surface (acres)

- \*(1) Top dam: 27
- \*(2) Maximum pool: 27
- (3) Flood-control pool: N/A
- (4) Recreation pool: 27
- (5) Spillway crest: 27

g. Dam

- (1) Type - earthfill
- (2) Length - 200 feet
- (3) Height - maximum 20 feet
- (4) Top width: 30 to 100 feet
- (5) Side slopes - upstream 7:1; downstream 5:1
- (6) Zoning: Unknown
- (7) Impervious core: Stone masonry core wall
- (8) Cutoff: Unknown, bedrock foundation
- (9) Grout curtain: Unknown

i. Spillway

- (1) Type: overflow weir with vertical shaft
- (2) Length of weir: 23.6 feet
- (3) Crest elevation: 651 MSL (assumed benchmark)
- (4) Gates: None

\*Based on the assumption that the surface area will not significantly increase with changes in reservoir elevation from 651.0 to 653.0.

(5) Upstream Channel: None

(6) Downstream Channel: 25.6 feet by 3.6 feet  
vertical stone shaft to outlet conduit

- j. Regulating Outlets. The regulating outlet at the dam is an 18-inch and a 30-inch diameter reinforced concrete pipe which are ungated.

Discharge is presently flowing at 5 to 10 gpm from the downstream end of the pipe. The source of this flow is unknown, but could be from the shaft of the spillway and/or from the intake of the conduit. There is no apparent control of this outlet.

The pond level is also regulated by a side inlet box spillway which discharges to a 30-inch diameter diversion conduit located at the northeast end of the pond. This inlet is not controlled. The pond level is below the overflow level at the present time.