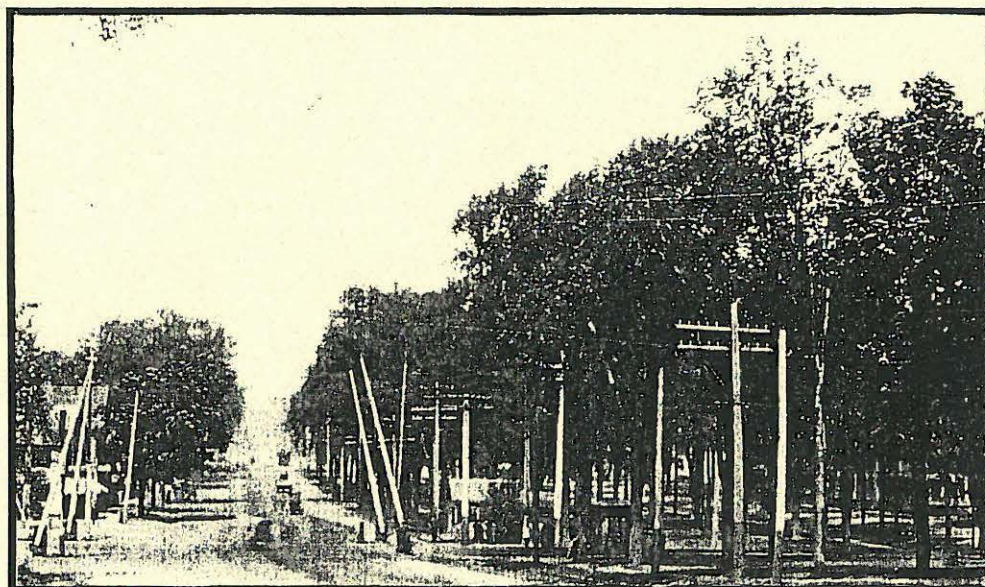


THE MALL
Brunswick, Maine



MANAGEMENT PLAN
April 2000

Town of Brunswick, Maine
&
Richardson & Associates, *Landscape Architects*

Management Plan for The Mall

Brunswick, Maine

April 2000

Prepared for
the Town of Brunswick, Maine

by

The Mall Management Plan Committee

with assistance from

Richardson & Associates, *Landscape Architects*
176 Main Street
Saco, Maine

ACKNOWLEDGEMENTS

MALL MANAGEMENT PLAN COMMITTEE (MMPC):

Robert Annese	<i>Commander, Police Department</i>
Peter Baecher	<i>Parks & Facilities Manager</i>
Doug Bolles	<i>Brunswick Intown Group</i>
Jim Burbank	<i>Chairman, Recreation Commission</i>
Deborah Cabana	<i>Town Clerk</i>
Michael Carney	<i>Citizen</i>
Blythe Edwards	<i>Bowdoin College</i>
Tom Farrell	<i>Director of Parks & Recreation</i>
John Foster	<i>Director of Public Works</i>
Don Gerrish	<i>Town Manager</i>
Theo Holtwijk	<i>Director of Planning & Development</i>
Faith Moll	<i>Town Councilor</i>
Mercie Normand	<i>Citizen</i>
Deborah Smith	<i>Director, Pejepscot Historical Society</i>
Steve Sprague	<i>Mall Food Vendor</i>
Mary Alice Treworgy	<i>Village Improvement Association</i>
Eric Welzel	<i>Brunswick Farmers Market Association</i>

OTHER CONTRIBUTORS:

S.W. Cole Engineering, Inc.

Longfellow Elementary School 3rd graders (Mrs. Lowe's, Mrs. Searles' and Mr. DeCamilla's classes)

The consultants and the MMPC would like to express their appreciation to those Brunswick residents and visitors who contributed their valuable time and input by attending the public forums and participating in the user survey.

BRUNSWICK MALL MANAGEMENT PLAN

TABLE OF CONTENTS

Executive Summary

I.	Introduction.....	2
II.	Historic Overview.....	4
III.	Process Overview.....	6
IV.	Site Analysis.....	8
V.	User Survey.....	23
VI.	Soil Survey.....	25
VII.	Project Goals and Objectives.....	27
VIII.	Recommendations.....	28
IX.	Conclusion.....	59

Appendix

- Appendix A: Phasing Recommendations
- Appendix B: Cost Estimate
- Appendix C: Soil Report
- Appendix D: User Survey
- Appendix E: Public Forum Citizen Input

Note: Cover photograph and photographs in the Historic Overview are from Joyce K. Bibber's book Images of America: Brunswick and Topsham (published by Arcadia Publishing; Charleston, SC; 1994) with permission from the Author. All other photographs are by Richardson & Associates Landscape Architects.

EXECUTIVE SUMMARY

The Mall Management Plan is a master plan that establishes recommendations to guide the use, inform the policies, maintain and improve the physical environment, and ensure the proper long-term maintenance and management of the Mall in Brunswick, Maine. Following the introduction, chapters II and III provide an overview of the history of the Mall and the process that the Town of Brunswick, the Mall Management Plan Committee (MMPC) and the consultant underwent in preparing the plan. Chapters IV through VI document the site analysis portion of the project, including the user survey and the soil survey. Chapter VII outlines the goals and objectives of the Management Plan as developed by the MMPC.

Chapter VIII provides recommendations for the future management of the Mall, and is divided into three sections: programmed use and policy recommendations, physical improvements recommendations, and maintenance recommendations. Highlights of Chapter VIII include the following recommendations (please refer to Chapter VIII for detailed descriptions of each recommendation):

Programmed use and policy:

- Improve the pedestrian circulation route between the Lower and Upper Malls so that use of the Middle and Upper Malls is increased.
- Increase parking opportunities adjacent to the Lower Mall.
- Clarify the Town's existing policy of the use of the Mall so that it better describes acceptable activities on the Mall.
- Prohibit all vehicular traffic on the Mall, with the exception of very limited use by the Brunswick Farmers Market Association.
- Shift responsibility of Mall policy enforcement to the Parks and Recreation Department.

- Establish a fine system for members of the public, the Brunswick Farmers Market Association, and food vendors who do not adhere to Mall regulations.
- Establish a public education strategy for the Mall.
- Establish a short- and long-term policy for the location of the Farmers Market on the Lower Mall.
- Provide hard surfacing under each food vendor cart location to minimize impact on existing soil and vegetation.
- Review food vendor applications each year by the Village Review Board to ensure that vendor carts meet a certain level of aesthetic quality that corresponds with their visible location on the Lower Mall.
- Modify the permit application for special events on the Mall so that it gives the Town the ability to better assess the nature of the event and its impact on the Mall.
- Require a fee of all special event sponsors, to cover administrative and maintenance costs associated with the event.
- Require a flat fee of all special event sponsors requesting the use of Town electricity for their event.
- Provide the option to require a refundable performance bond from certain large event sponsors.
- Shift responsibility of special event permit application processing from the Town Clerk to the Parks and Recreation Department.

Physical Improvement Recommendations:

- Install granite curbing at the entire perimeter of the Lower, Middle and Upper Malls.
- Install concrete brick paving at the sidewalks on the Lower Mall.
- Upgrade benches and trash receptacles at the Lower Mall.
- Provide additional benches at the ice skating rink.
- Install an information kiosk at the Lower Mall.
- Upgrade electrical service at the gazebo and at food vendor locations.

- Consider replacing the existing gazebo structure.
- Restore soil and turf at damaged areas on the Lower Mall.
- Develop a tree planting program at the Upper Mall.

Maintenance Recommendations:

- Outline an annual maintenance schedule for the Mall.
- Conduct a soil and vegetation analysis of the Mall every five years.
- Perform more intensive maintenance at the ice skating / gazebo area.
- Undertake an Integrated Pest Management approach to landscape maintenance.

An appendix follows the conclusion of the study. The appendix contains some items (in their entirety) that are referenced briefly within the main body of the report, including the soils report and the user survey. It also contains recommendations on phasing and implementation, a cost overview, and input from the public forums.

I. INTRODUCTION

The image of the town green or common has become almost indistinguishable from the image of the traditional New England town. For many, the presence of the town green represents the vitality of community life. At a time when people are relocating at higher rates than ever before, the town green gives the sense of stability and timelessness. A place out of doors to meet and greet neighbors, to have a picnic with one's family, or to attend a political or cultural function at the heart of the downtown.

The romantic ideal of the town green in New England is somewhat of a twentieth century phenomenon. In earlier centuries, the function of the common was primarily to herd livestock and to conduct military exercises. Historian John Stilgoe calls the town common "the clearest objective of corporate effort", stating that continual use of the green by humans and animals left most greens looking like "wide, muddy paddocks".¹ The Mall in Brunswick was developed as a town common fairly late in the Town's development. Although efforts were made to make the swampy area into a town green as early as 1823, it wasn't until 1922 that the Mall was officially declared a public park. Nonetheless, the development of the Mall as a place of community gathering has solidified over the past 80 years and is now felt by many Brunswick area citizens to be an important part of the community. It is a place where the vitality of the community can be witnessed.

In recent years the popularity of the Mall as a public gathering place has not been without its consequences. In the past the Town has had to increase its police presence on the Mall to combat unlawful behavior. The Mall is now felt by many to be a safer place than in

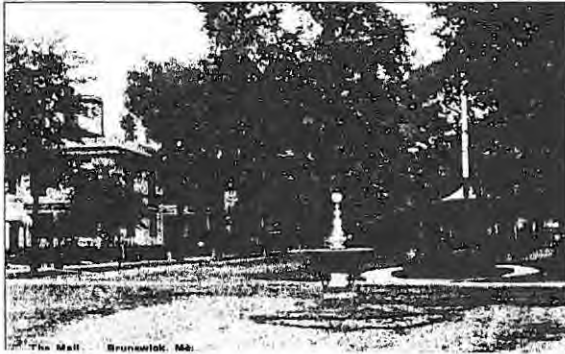
¹ Stilgoe, John. Common Landscape of America: 1580 to 1845. New Haven, Yale University Press, 1982.p. 48

recent years. However, the increase in the number of outdoor special events held on the Mall, as well as the presence of the food vendors and the Farmers Market, have all contributed to the long term decline of the physical health of the landscape. Because of the Mall's incremental development separate from Brunswick's other outdoor open spaces, there exists very little in the way of policy to govern its use and care. This only serves to compound its problems.

The Town of Brunswick enlisted the services of Richardson & Associates Landscape Architects to work with the Town and the community in a developing management plan for the Brunswick Mall. The purpose of the plan is to outline recommendations for the improvement of the physical condition of the Mall through changes in policy, maintenance and capital investment.



II. HISTORIC OVERVIEW²



In 1717 a twelve-rod road was laid out by early Brunswick settlers from Fort George to Maquoit Bay. This road formed the basis of Maine Street today. To avoid a swamp in downtown, the road went out to one side (now Park Row), much farther east than originally laid out. The west line of Maine Street, as it now is, between Noble Street and Pleasant streets was accepted by the Town in 1804. The area enclosed by the two roads, Maine Street and Park Row, however, remained a swamp. "Cows often had to be pried out of the mud where the Mall³ is."

In 1823 John O'Brien Esq., Robert and John Dunning conveyed the Mall to the Town for "five cents" to be "reserved and used as a public walk or mall." In 1826 and 1827, a group of citizens set out on July 4th to improve the drainage of this area. In 1838 the first Village Improvement Committee was appointed to oversee further improvements. That year and the following, a fence was installed and trees were planted.

In 1858, through private subscription, two rows of trees were set out in a separate area, on Maine Street from the First Parish Congregational Church to the end of the Bowdoin College grounds. This improvement constituted what is now known as the "Upper Mall" with the former area identified as the "Lower Mall."

Despite the improvement efforts the 1873 Selectmen's Annual Report states:

² Some of this was gleaned from Wheeler, George Augustus and Henry Warren Wheeler, *History of Brunswick, Topsham, and Harpswell, Maine*, 1878, 1974 reprint Pejepscot Historical Society, pp. 534-8.

³ The Mall is pronounced as "mell" by some and "maul" by others.



The Mall ought to be put under the care of some person of judgment and taste, and attention given to its condition. If the grounds were kept clean and smooth, the walks trimmed, and seats erected in different parts, what is now unsightly and of no particular interest to any one, will be made an ornament and become a point to which our people will gravitate for rest and recreation during the heat of summer and in which we shall all feel a just pride.

In 1922 the Town voted that the "south Mall" (it is unclear if this refers just to the area between Fitch Place and First Parish Church or also includes the Upper Mall) "shall be deemed a public park." "No vehicle shall be driven in said park, and except as allowed by the [park] commission, no games shall be played or practiced therein."

A gazebo and a veteran's memorial were constructed in 1973. The Lower Mall and most of the Upper Mall were included in the boundaries of the Federal Street Historic District, which was added to the National Register for Historic Places in 1976. The Brunswick Farmers Market has been held on the Mall two days a week from May through November since 1977. In addition a total of four vendors may be authorized by the Town Council for the Mall.

Although the Village Improvement Association still maintains a portion of the Mall (the area around the gazebo), the Town of Brunswick has assumed maintenance of the remainder. In recent years the Town has seen an increase in the number and variety of requests to use the Mall and a decrease in the physical condition of certain areas of the Mall. Therefore, the Town believes it is important that an adequate use policy and physical improvement plan is prepared at this time.

III. PROCESS OVERVIEW

To guide the process of the project, the Town assembled a committee of people who have a special interest in the future of the Mall. This allowed the consultant to develop the framework of the management plan with input from Town Staff, special interest groups, and members of the community at various stages in the process. The Mall Management Plan Committee (or "MMPC") included a Town Councilor, several members of the Town Staff, two citizens who live adjacent to the Mall, and representatives from many groups including the Brunswick Farmers Market Association, the Village Improvement Association, the Pejepscot Historical Society and Bowdoin College. The purpose of the MMPC was to guide the development of the master plan and to serve as a liaison between the Town and the community. In addition to the input from the MMPC, public forums were held in order to gain an understanding of issues and concerns that the public have for this landscape and the recommendations proposed for it.

The consultant began the planning process by conducting an analysis or assessment of the current condition of the Mall and the policies by which it is managed. This was accomplished in two ways. First, the site was photographed and a series of maps were developed that separated the site into its constituent parts. This created the ability to pinpoint problem areas and to gain a better understanding of the site as a whole. Second, the consultant and the Town of Brunswick conducted a user survey that sought to gather public opinion on how the Mall is currently used, how the public regards the current use and condition of the Mall, and what improvements the public feels are necessary in the future. A full-page newspaper insert discussing the project was prepared for the Times Record and was distributed to 13,000 households in the Bath-Brunswick area. The results of the site analysis were presented to the public at a forum held on October 25, 1999.

Also at this forum, members of the public were encouraged to speak about their wishes for the future of the Mall.

Following the site analysis, the consultant drafted a series of preliminary management plan recommendations that were reviewed first by Town Staff, then by the MMPC, and finally by the public (at a second public forum held on January 10, 2000). The feedback received from the Town, the MMPC and the public enabled the consultant to refine the recommendations into a final Mall Management Plan that is presented in the following report.

IV. SITE ANALYSIS



The consultant conducted a site inventory and analysis of the Mall with the purpose of better understanding the use patterns, opportunities and constraints of the existing site. Through the course of this analysis they identified three different geographic areas within the Mall that had their own defining characteristics (fig. 1). These areas are referred to within the body of the recommendations within this report. The three areas are as follows:

Lower Mall

The Lower Mall is what people are usually referring to when they say "the Mall". Geographically, it lies between Maine Street and Park Row and is bounded by Fitch Place to the south and School Street to the north. Physically, it is constrained by Downtown Brunswick to one side and the railroad tracks on the other. Most of the programmed uses or activities that take place on the Mall take place at the Lower Mall. Its identity is closely linked with the civic core of the downtown.

Middle Mall

The Middle Mall is that portion of the Mall that lies between Fitch Place and Bath Road, also between Maine Street and Park Row. It consists of a triangle of tree-covered lawn to the south of the railroad tracks, and a smaller triangle to the north of First Parish Church that contains a Spanish War memorial and some flower beds. Little to no gathering occurs at the Middle Mall because of the difficult relationship of these spaces to automobile or train traffic.





Upper Mall

The Upper Mall is the largest of the three areas. It lies between Maine Street and Park Row and is bounded by Bath Road to the north and the terminus of Park Row to the south. It is bisected by four streets along its length of approximately .55 mile: College Street, Boody Street, South Street and Longfellow Avenue. It is as wide as 95 feet and as narrow as 12 feet. Its identity is closely linked with Bowdoin College, so much so that many people mistakenly attribute ownership of the Upper Mall to the College.

Site Inventory

To better understand the “parts that make up the whole” the consultant conducted a site inventory that maps and describes the various components that comprise the landscape of the Brunswick Mall. This inventory looks at the activities that take place on the Mall, the location and condition of existing vegetation, the vehicular and pedestrian circulation patterns, and the location and condition of site furnishings. The inventory maps are illustrated in figures 2 to 9.

Programmed and General Use

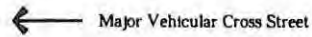
Probably ninety-five percent of the activity that takes place on the Mall occurs at the Lower Mall. Its role as the closest large, public park to downtown Brunswick ensures that it gets used year-round for a variety of programmed (pre-planned) and non-programmed activities.

FRAMEWORK FOR UNDERSTANDING THE STUDY AREA

Context

- The Lower Mall tends to be associated with Downtown Brunswick, the Upper Mall with Bowdoin College.
- Major vehicular routes intersect with the Mall at several places along its length.
- The Upper, Middle and Lower sections of the Mall have distinguishing characteristics that make them feel like three separate places.
- Mixed uses about the Lower Mall. College and residential uses about the Upper Mall.

KEY



TOWN OF BRUNSWICK
MALL MASTER MANAGEMENT PLAN
BRUNSWICK, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS

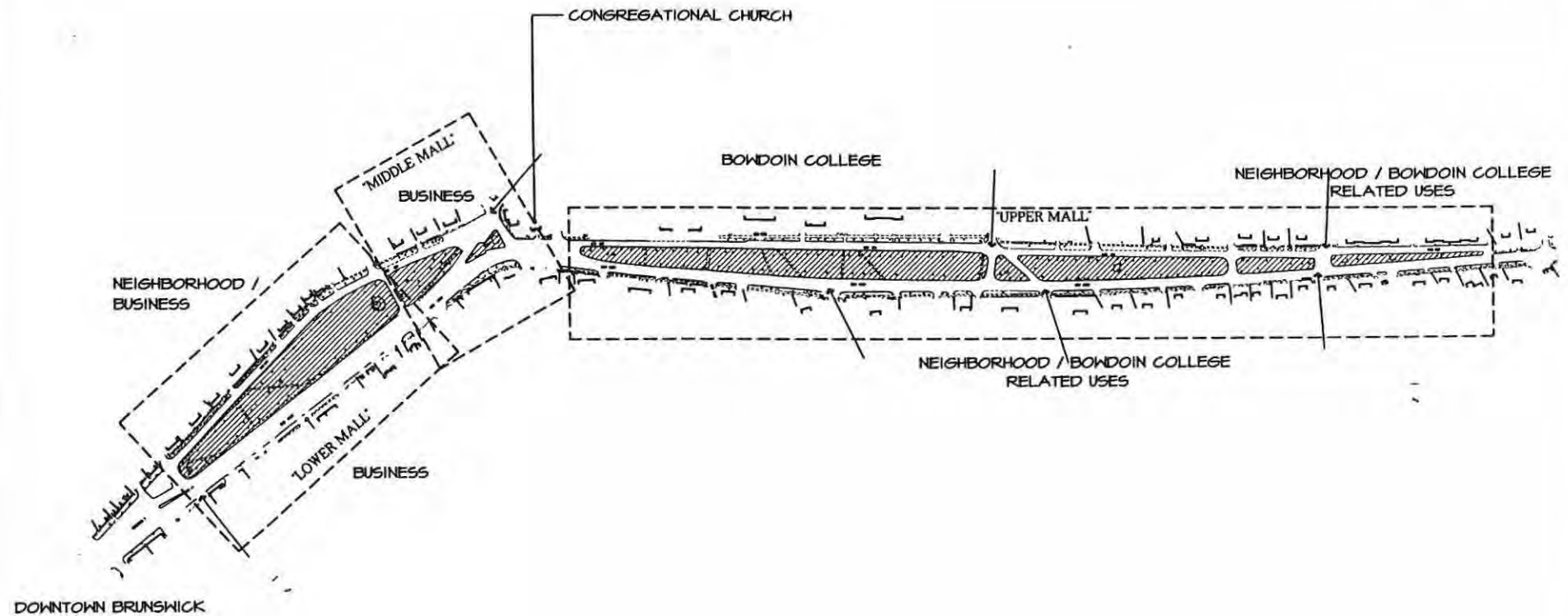


Figure 1

FRAMEWORK FOR UNDERSTANDING THE STUDY AREA

Programmed and General Use

- Programmed activities exist year-round at the Lower Mall, but are more frequent during warm-weather months.
- The heaviest use of the Lower Mall is for programmed activity.
- General use is clustered around the gazebo, the food vendors, at the end of the Mall closest to the Downtown, and at the benches located at the perimeter of the Mall.
- The largest open area (free of trees) is also the area used most frequently for large gatherings.

KEY

-  Area of Programmed Use
-  Area of Significant General Use
-  Deciduous Tree
-  Evergreen Tree

TOWN OF BRUNSWICK
MALL MASTER MANAGEMENT PLAN
BRUNSWICK, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS

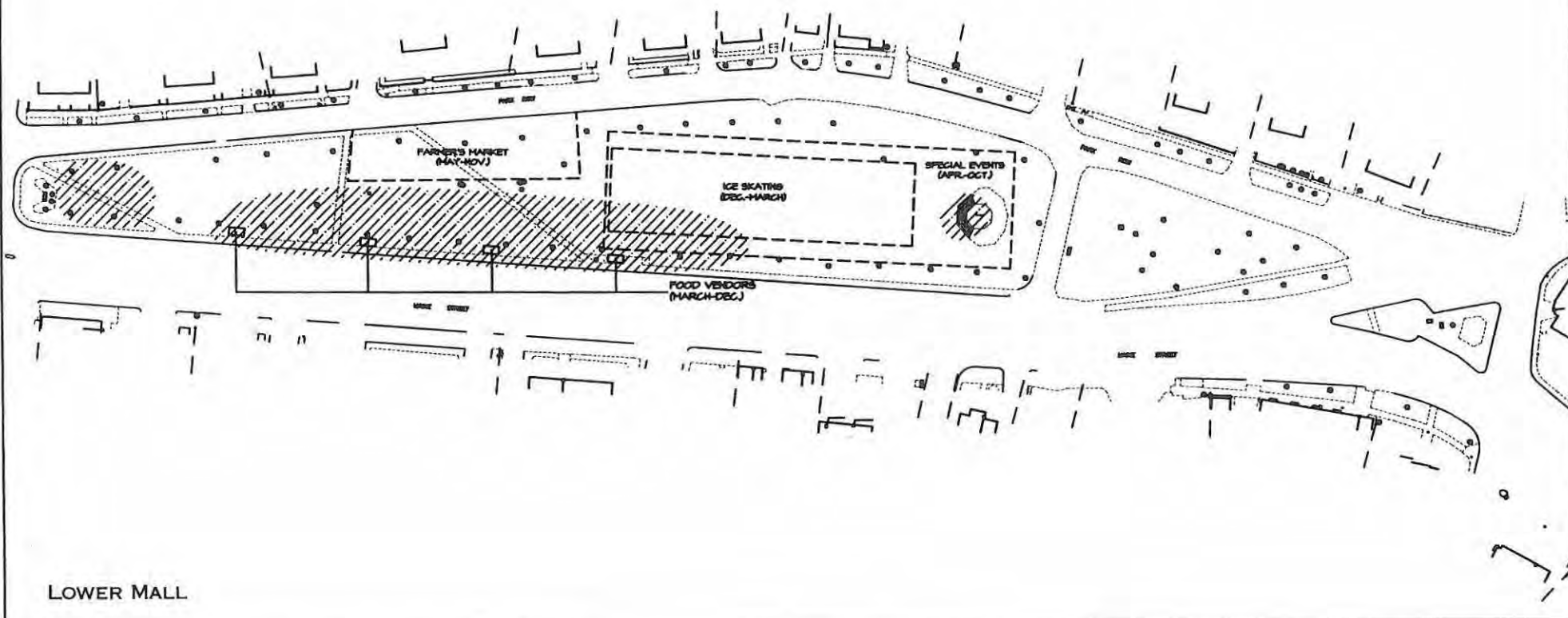


Figure 2

FRAMEWORK FOR UNDERSTANDING THE STUDY AREA

Programmed and General Use

- There are no regularly programmed activities that take place at the Upper Mall
- The heaviest use at the Upper Mall is by Bowdoin College and neighborhood residents using the paths that cross the Mall
- There is infrequent general use of the Upper Mall for passive recreation, primarily by Bowdoin College and neighborhood residents

KEY

-  Area of Programmed Use
-  Area of Significant General Use
-  Deciduous Tree
-  Evergreen Tree

TOWN OF BRUNSWICK
MALL MASTER MANAGEMENT PLAN
BRUNSWICK, MAINE
RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS

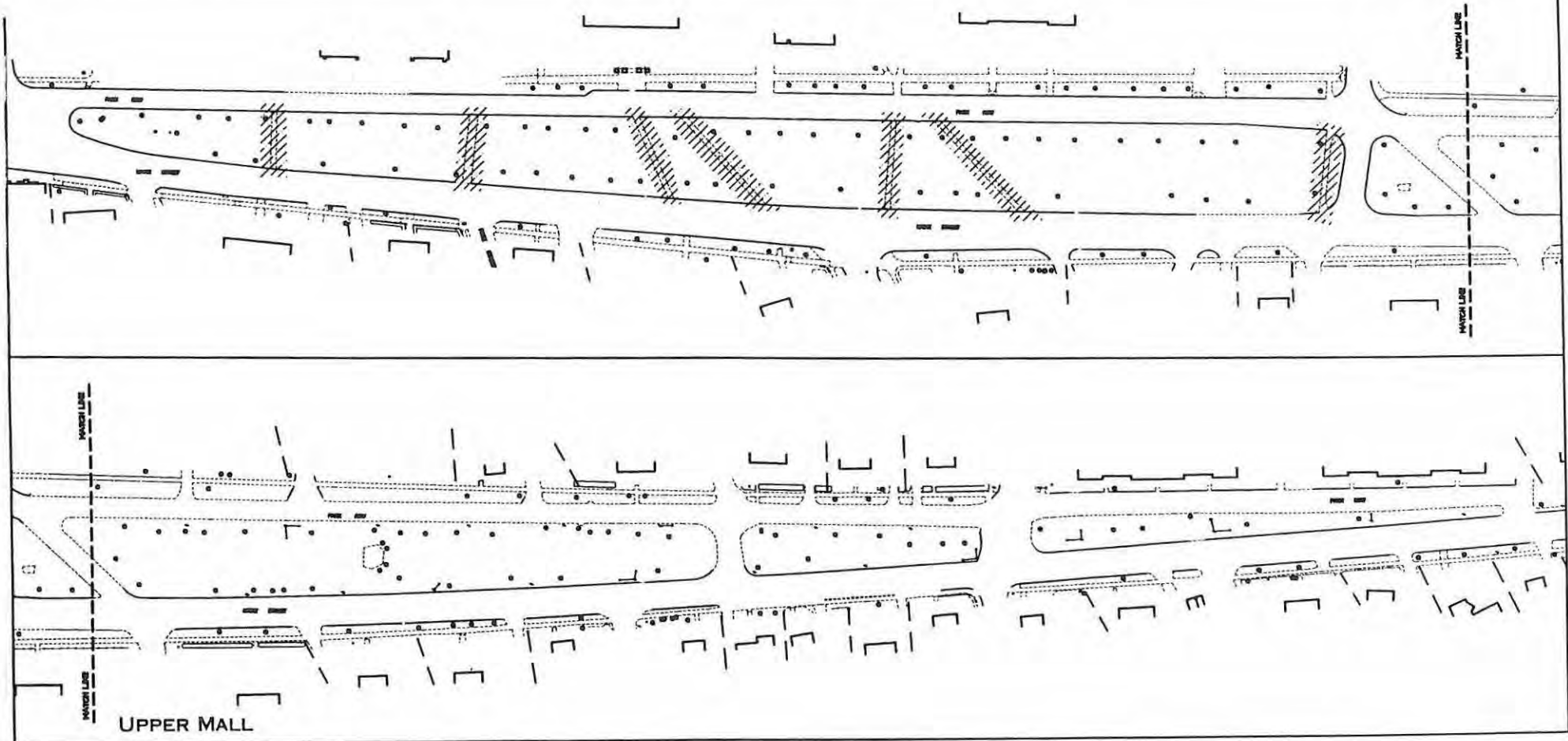


Figure 3

FRAMEWORK FOR UNDERSTANDING THE STUDY AREA

Existing Vegetation: Location and Condition

- Trees and expansive lawn are the character-defining physical elements of the Lower Mall.
- Tree species are very diverse throughout the Lower Mall.
- The general condition of trees at the Lower Mall is good.
- There are large areas of bare ground and compaction in specific locations.
- Small areas of bare ground are apparent near food vendors and popular benches.
- Visible tire tracks in the grass/bare ground are apparent at the northern end of the Lower Mall.
- Shrubs appear to be overgrown and block visibility into Mall from the downtown.

KEY

-  Ground Covers / Perennials
-  Shrub
-  Evergreen Tree
-  Deciduous Tree

-  Area of Significant Degradation
-  Tree in Decline

TOWN OF BRUNSWICK
MALL MASTER MANAGEMENT PLAN
BRUNSWICK, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS

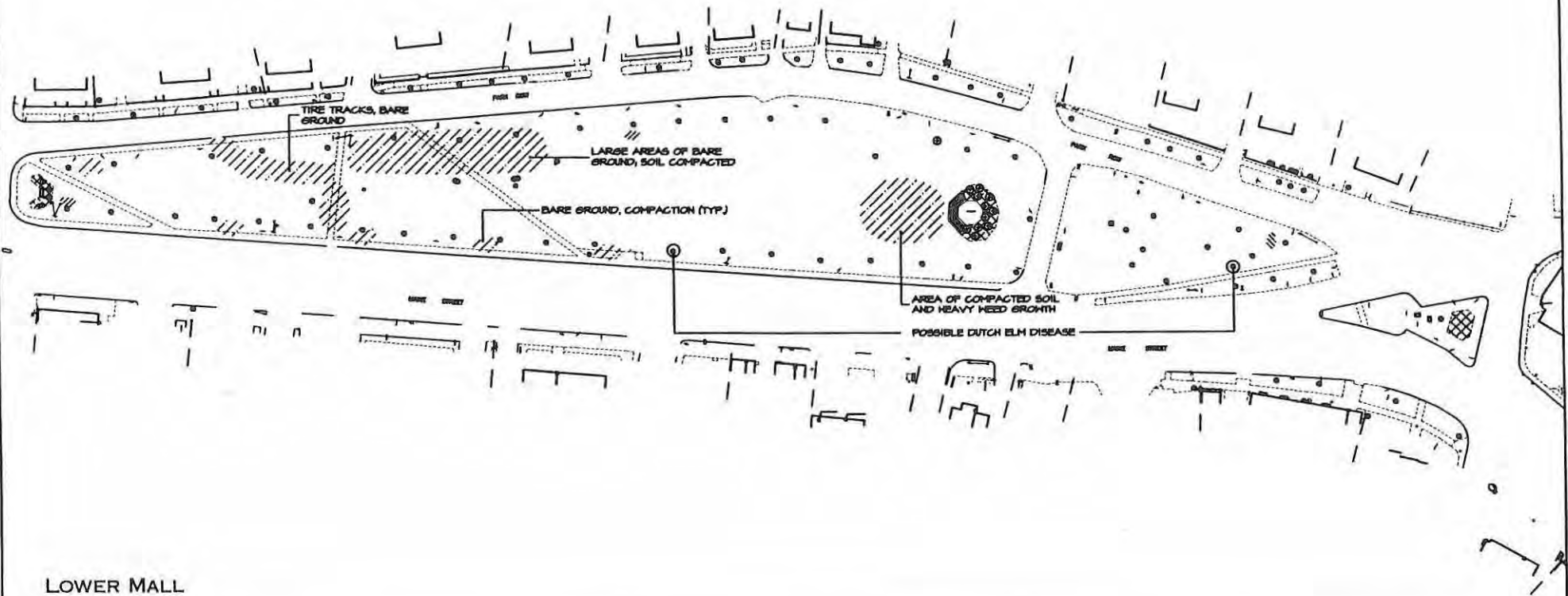


Figure 4

FRAMEWORK FOR UNDERSTANDING THE STUDY AREA

Existing Vegetation: Location and Condition

- Many trees are in decline at the Upper Mall adjacent to Bowdoin College.
- Areas of compaction and bare ground are apparent near construction activity.
- The curb is missing or has degraded in several locations, causing erosion, compaction, bare ground and— in some instances— drainage problems.
- The grass at the Upper Mall is in relatively good overall condition.
- Tree species is very diverse throughout the Upper Mall.
- Shrub plantings limit the views into and across the Upper Mall.

KEY

 Ground Covers / Perennials

 Shrub

 Evergreen Tree

 Deciduous Tree

 Area of Significant Degradation

 Tree In Decline

TOWN OF BRUNSWICK
MALL MASTER MANAGEMENT PLAN
BRUNSWICK, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS

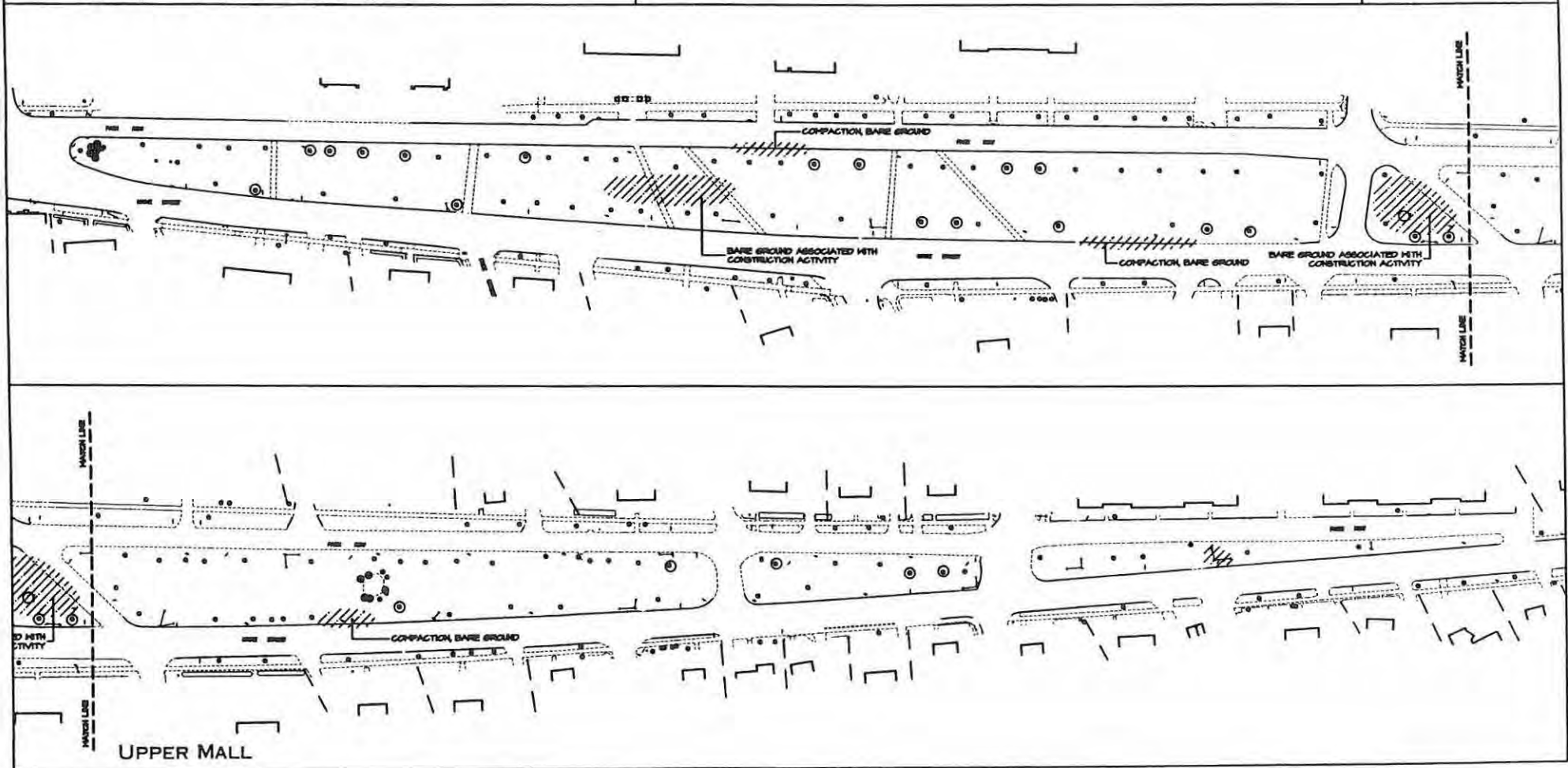
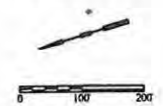


Figure 5

FRAMEWORK FOR UNDERSTANDING THE STUDY AREA

Structures and Amenities: Location and Condition

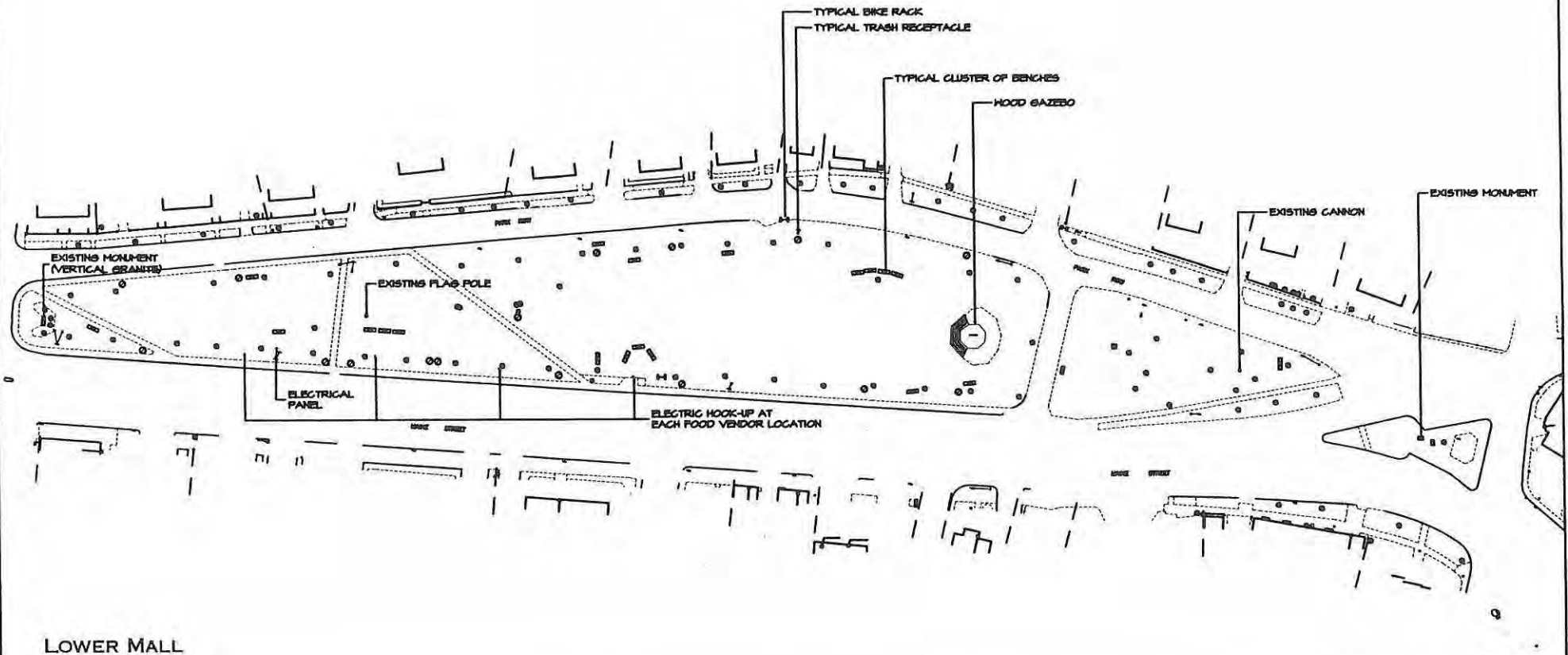
- Many benches are clustered and/or located under tree canopies
- Benches are rarely located in close proximity to a sidewalk
- There are a large number of trash receptacles with no logical location strategy
- Bike racks are not located in the most travelled areas of the Lower Mall
- Site furnishings are outdated
- Monuments are not located in areas where people typically gather
- Site lighting at the Upper Mall is provided by street lights serving nearby roads
- Bike racks, trash receptacles and benches are moveable
- Electrical hook-ups appear temporary in nature
- Wood gazebo is showing signs of deterioration; there is evidence of graffiti; the structure is not universally accessible

KEY

- Existing Bench
- Existing Trash Receptacle
- Existing Bike Rack
- Existing Utility Pole

TOWN OF BRUNSWICK
MALL MASTER MANAGEMENT PLAN
BRUNSWICK, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS



LOWER MALL

Figure 6

FRAMEWORK FOR UNDERSTANDING THE STUDY AREA

Structures and Amenities: Location and Condition

- There are very few amenities at the Upper Mall
- Site lighting of the Upper Mall is provided by street lights serving nearby roads
- Existing bench at upper mall is surrounded by dense vegetation, creating a potential safety issue

KEY

-  Existing Bench
-  Existing Trash Receptacle
-  Existing Bike Rack
-  Existing Utility Pole

TOWN OF BRUNSWICK
MALL MASTER MANAGEMENT PLAN
BRUNSWICK, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS

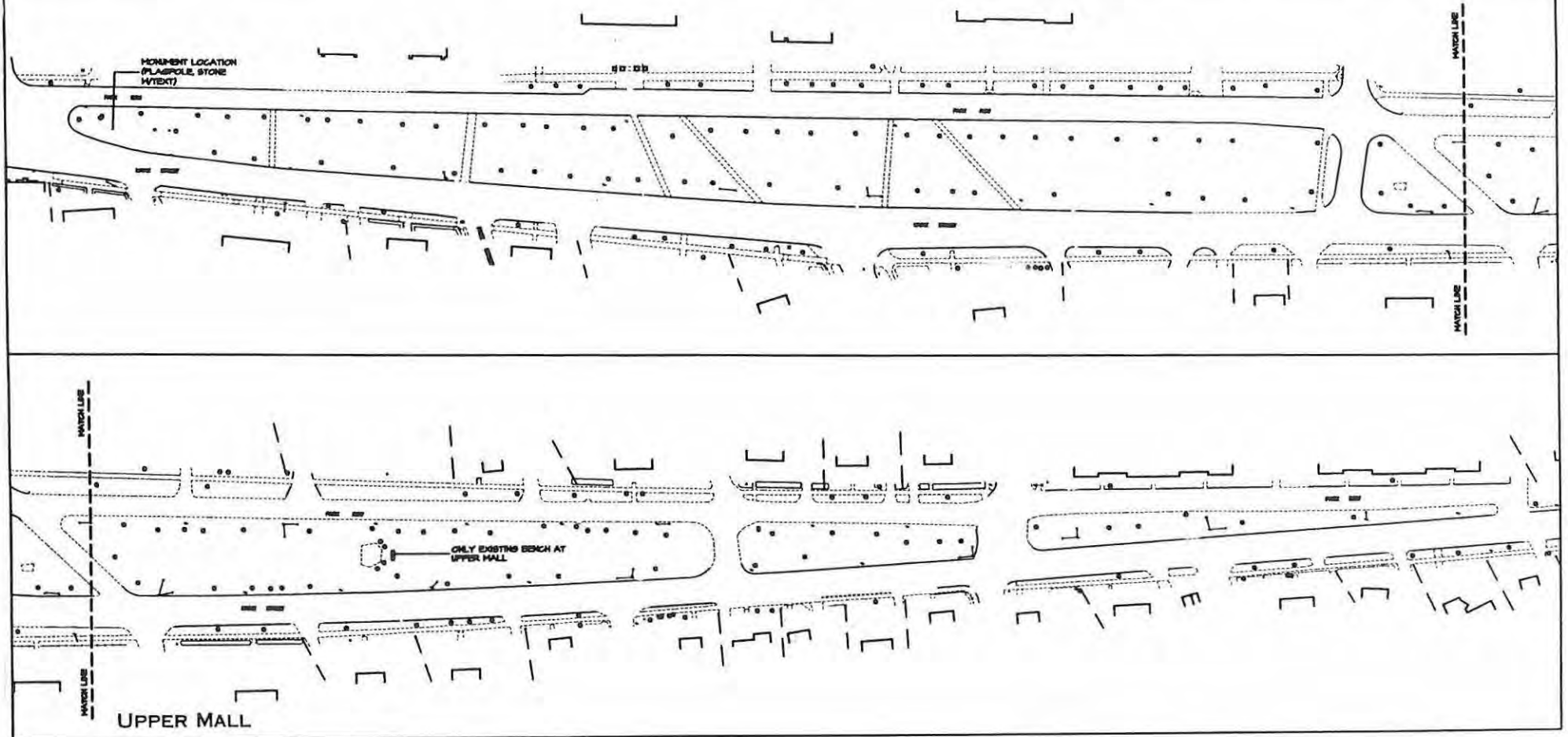


Figure 7

FRAMEWORK FOR UNDERSTANDING THE STUDY AREA

Vehicular and Pedestrian Circulation

- Vehicles access the Lower Mall by way of the 2 existing curb cuts
- The use of curbing is inconsistent in location and material
- Pedestrian movement at the Lower Mall takes place in two predominant ways:
 1. Along its length (a. parallel to its edges and b. within the Mall)
 2. Diagonally across the Lower Mall
- The railroad tracks are a physical and psychological barrier to pedestrians
- Vehicular parking occurs on both sides of the Lower Mall
- Parking for the Lower Mall is not exclusive— it is shared with other downtown uses.

KEY

- ← Vehicular Traffic Route
- Pedestrian Traffic Route
- ||||| Pedestrian Crosswalk

TOWN OF BRUNSWICK
MALL MASTER MANAGEMENT PLAN
BRUNSWICK, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS

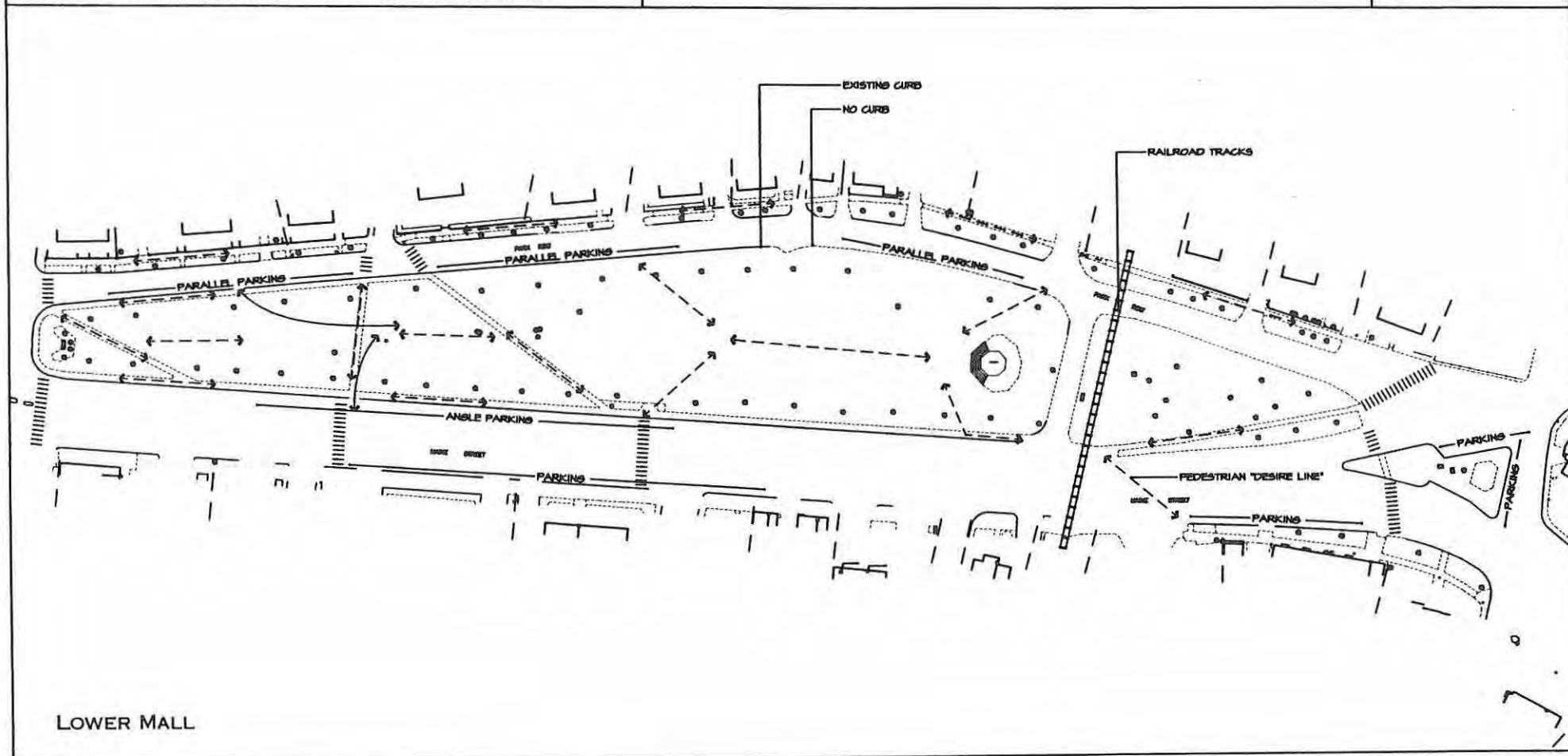


Figure 8

FRAMEWORK FOR UNDERSTANDING THE STUDY AREA

Vehicular and Pedestrian Circulation

- Most pedestrians travel across the Upper Mall, rather than along it, and are associated w/the College
- The use of curbing is inconsistent in location and material
- Vehicular parking is not allowed on either side of the Upper Mall.
- Vehicular parking occurs on the opposite side of Maine Street and Park Row from the Upper Mall.
- Crosswalks are not located at many of the pathways leading to or across Maine Street.

KEY

- ← Vehicular Traffic Route
- Pedestrian Traffic Route
- ||||| Pedestrian Crosswalk

TOWN OF BRUNSWICK
MALL MASTER MANAGEMENT PLAN
BRUNSWICK, MAINE

RICHARDSON & ASSOCIATES
LANDSCAPE ARCHITECTS

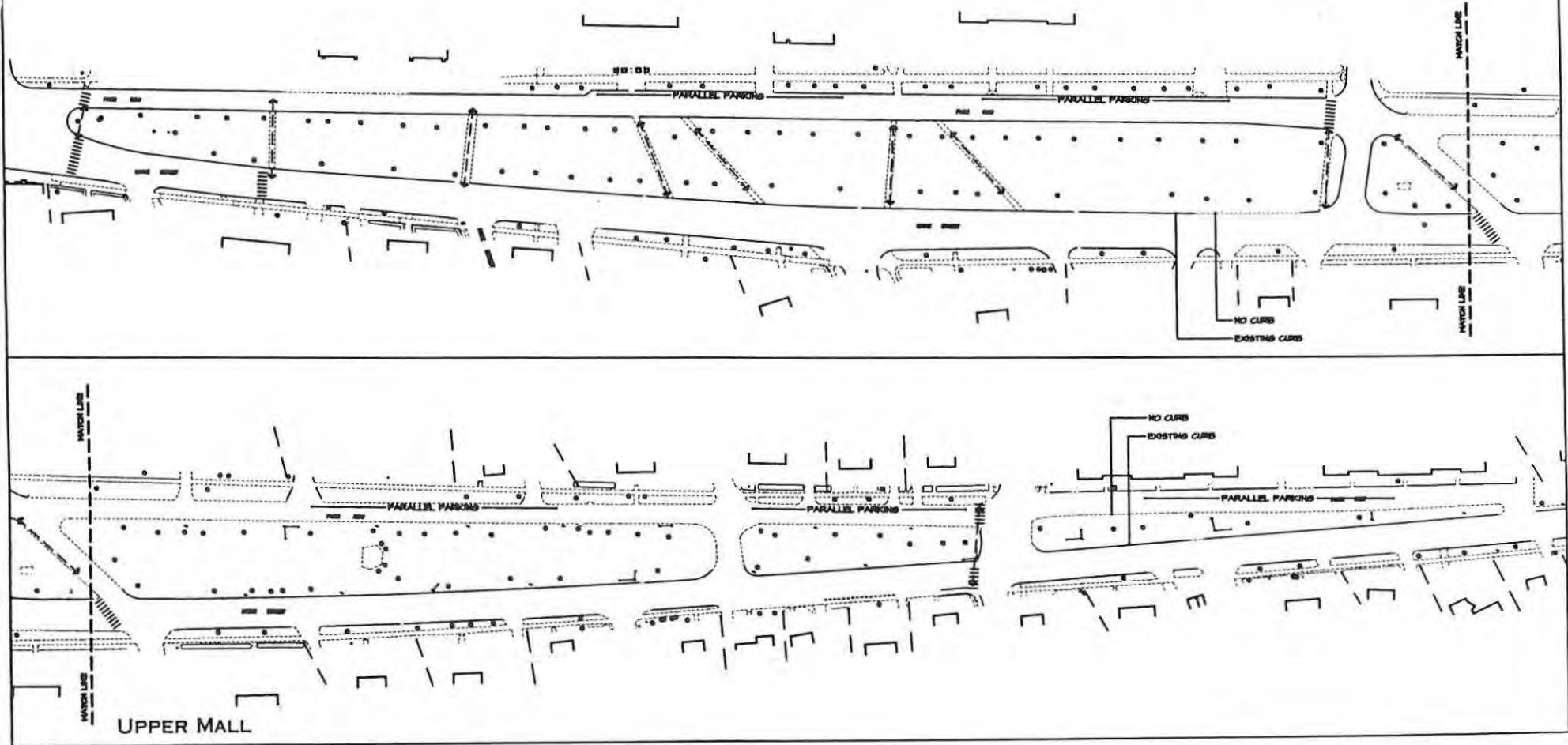


Figure 9



Although the Lower Mall is used during the warmer months by visitors seeking a quiet place to eat lunch or to take a walk, the consultant learned from the user survey and by observation that most visitors are attracted by the many programmed activities that occur there. There are basically three types of programmed use that take place on the Lower Mall. They are as follows:

The Town allows use of the Mall for **special events**. These events can only be sponsored by non-profit organizations and require a permit from the Town. Past events have included a summer concert series, walk-a-thons and road races, political party registration and rallies, and numerous raffles and picnics. Although events can be held year-round on the Mall, summer months are by far the most popular time. A notable exception is the ice skating on the Mall that is sponsored by the Town of Brunswick. A portion of the lawn near the gazebo is flooded throughout the winter months for this purpose.

The Brunswick Farmers Market Association (BFMA) holds its **Farmers Market** on the Lower Mall every Tuesday and Friday from May through November. This enormously popular event has been occurring in this location since 1977. The BFMA regulates the number of vendors and their exact location on the Mall.

The Town permits four **food vendors** to locate on the Lower Mall from March to December. The vendors line the sidewalk adjacent to the angle parking spaces on Maine Street and sell a variety of prepared foods. Their existence is one of the reasons that the Lower Mall is so popular during the lunch hour.

The Upper Mall is a popular place for the Bowdoin College community to gather for informal, passive recreation. Students will often be seen studying in the shade of the large trees planted on the Mall. Although the Town allows special events to happen on

the Upper Mall as well as the Lower Mall, virtually nobody requests to sponsor an activity on the Upper Mall.

Existing Vegetation

Historic photographs show that the Lower Mall was once graced with canopy trees—most likely American Elms—throughout its interior as well as along its edges. The demise of the American Elm as a result of Dutch Elm disease changed the visual character of most New England downtowns, and Brunswick was certainly no exception. By the mid-1980s the Town was concerned about the condition of the tree canopy at the Mall and hired a consultant to create a tree planting plan for the Lower Mall. Terrence J. DeWan and Associates' plan was partially implemented in the late 1980s and has resulted in the numerous young trees in existence today at the Lower Mall.

In 1997 Johnson's Arboriculture conducted an inventory of existing trees in the downtown area, including the Lower Mall. Its written report included a mapping of each tree, its condition and recommendations for new plantings and tree maintenance. The quality of tree cover at the Lower Mall and Middle Mall is generally good. There is a healthy mix of young and old trees, and a good diversity of tree species. All of the most recently planted trees are located at the perimeter of the Lower Mall. When the older trees at the center of the Mall reach the end of their life span, this may cause an absence of trees at the center of the Mall.

The Upper Mall is similar to the Lower Mall in the respect that most of the trees are located at the perimeter. This is appropriate at the Upper Mall because of its narrow width. However, most of the trees that exist seem to be nearing the end of their typical life span. Many trees are dying or showing signs of decline. If the Town does not



begin to inter-plant new trees among these older trees the result will be a rapid decline in the number of trees on the Upper Mall.

There are very few shrubs planted on the Mall. Those that exist tend to be in groupings around a monument or a place of gathering. The consultant noted that in many locations these shrubs have been allowed to become overgrown. This can be a safety concern in the event that the shrubs enclose an area to an extent that it cannot easily be seen from the street.



At the Lower Mall, many areas of bare ground and heavily compacted soils were noted. Areas that exhibit these qualities are in the vicinity of the Farmers Market, the food vendors and the gazebo. (This compaction was noted in Johnson's Arboriculture 1997 report.) The compaction seems to be from two sources—vehicular traffic and foot traffic. Vehicular traffic can very quickly cause extensive compaction of the soil, especially in wet weather. Compaction is exacerbated if there is no lawn or ground cover to help cushion the impact. Foot traffic compacts the soil over a longer period of time, but can be just as damaging. Pedestrians tend to abrade the ground cover or lawn with repeated use, causing bare patches of vulnerable earth to surface. These bare patches at the Lower Mall often lead from an entrance point onto the Mall where there is no curb that would discourage vehicles from driving onto the sidewalk.

Compaction of the soil causes a visible difference in the appearance of the lawn, as noted above. However, it also causes substantial damage to the trees although this may not be readily apparent to the eye. Compaction prevents water and air from getting to the feeder roots below the soil. It also, when pronounced as it is at the Lower Mall, causes soil to lower in elevation, raising roots above the surface of the ground. Many people bemoan this as a trip hazard. A tree does not much like it either.

There was no sign of degradation of the lawn area at the Middle Mall.

The lawn at the Upper Mall is generally in good condition. Noted exceptions to this were bare spots that were located near construction activity where vehicles were allowed to drive on the Mall, or at locations where curbing was missing. Lack of curbing can cause erosion, compaction, bare ground and storm drainage difficulty.

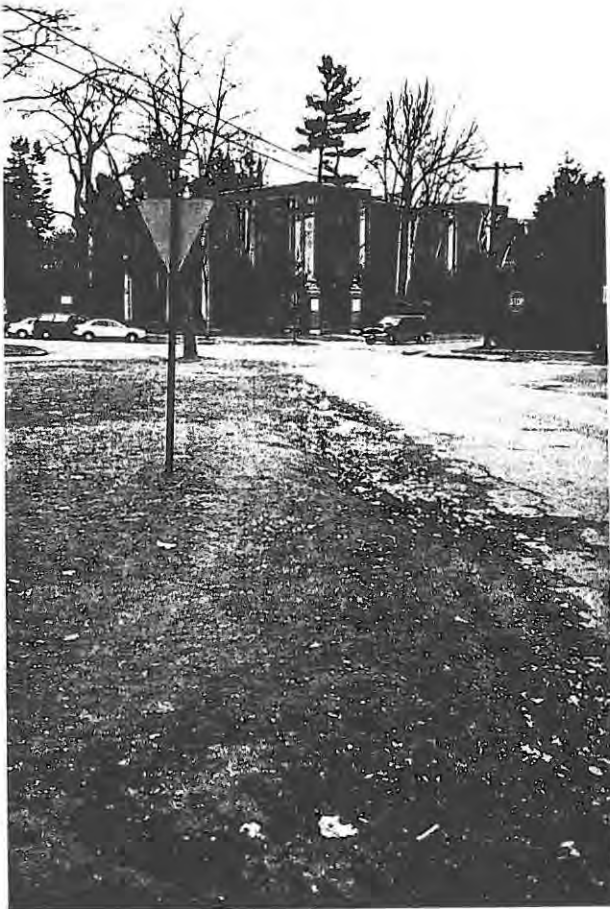
Vehicular and Pedestrian Circulation

Maine Street is the most obvious vehicular presence along the entire length of the Mall. Being one of the feeder streets to downtown Brunswick, it often carries a significant volume of traffic moving at moderate speeds. As it approaches the downtown it carries three lanes of traffic, creating a challenge for pedestrians wishing to cross to the Lower Mall. Park Row is a constant presence on the other side of the Mall along its length. More of a "local" street, Park Row provides many of the parking opportunities adjacent to the Mall, especially at the Upper Mall.

Fitch Place divides the Lower Mall and the Middle Mall. The street does not attract a significant volume of traffic, yet combined with the presence of the railroad tracks that run parallel to the street creates a formidable visual obstacle to pedestrians. There are four major roads that bisect the Upper Mall (College Street, Boody Street, South Street and Longfellow Avenue). Because the Upper Mall's width is so narrow at its south end (and because there are no sidewalks), these streets divide the Mall into narrow slivers that go virtually unused by pedestrians.

Sidewalks on the Mall are typically asphalt, which is in good condition in most locations. Sidewalks running along the sides of the Mall are generally in better condition than those running across it (fewer broken edges, cracks and settling). There



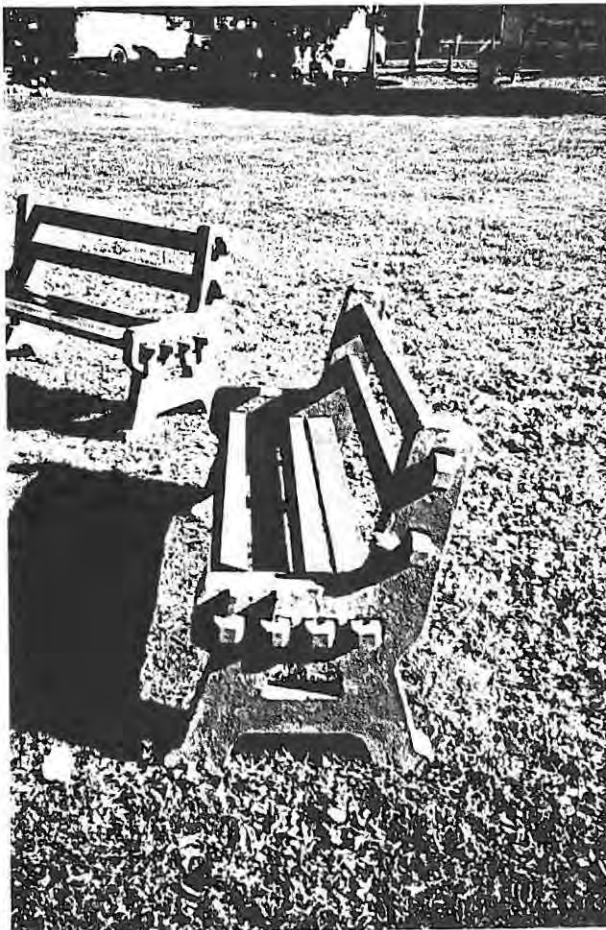


is a continuous sidewalk along the Maine Street side of the Lower Mall, allowing pedestrians to walk along its perimeter. The sidewalk on the Park Row side of the Lower Mall runs only from School Street to Green Street, requiring pedestrians to either cross Park Row or cross the Mall to continue walking on a paved surface. The Middle Mall has a sidewalk along the Maine Street side that crosses to Park Row. The Upper Mall has no sidewalk along either side. This means that pedestrians wishing to walk along Maine Street or Park Row must do so on the non-Mall side of the road in either case.

Many pedestrians use the sidewalks that cross the Upper Mall between Bowdoin College and the adjacent neighborhood. This pedestrian activity creates almost the only consistent use of the Upper Mall, and only serves to exacerbate the feeling of the Mall as an island. These sidewalks that cross the Upper Mall only occur between Bath Road and Longfellow Avenue (the location of Bowdoin College on Park Row), after which point there are no sidewalks at all. A popular crossing point where there is no sidewalk is at the intersection of College Street and Boody Street with Maine Street and Park Row. The non-curbed edge of the lawn island at this location has been completely eroded by the presence of pedestrian and vehicular traffic.

Three sidewalks cross the Lower Mall near its downtown end. These are well-traveled by visitors to the Lower Mall, as well as by Farmers Market vehicles and food vending carts that are jockeying for a parking spot on the Mall. This vehicular presence has caused a bare strip of earth on both sides of one of the sidewalks. During wet weather, water pools over the sidewalk in this location.

Crosswalks at Maine Street and Park Row are present in every location where sidewalks cross the Mall (Upper and Lower). One place where crosswalks are conspicuously absent is at Maine Street near the gazebo (south) end of the Lower Mall. Many people



cross the street here to access businesses like Cote's Ice Cream. The sight lines for vehicles are poor, as there is a lane widening that takes place at this location. One has to wait at the sidewalk until several motorists simultaneously stop long enough to allow one to cross.

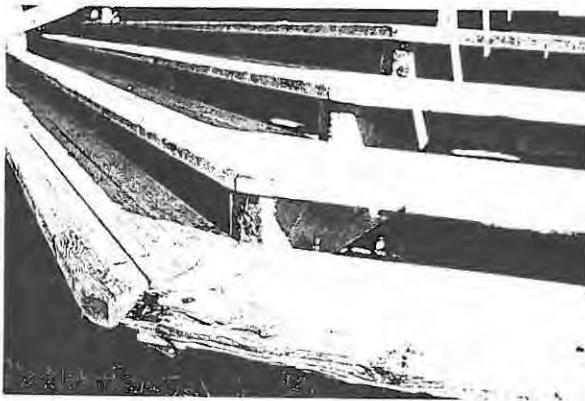
The only parking that is allowed directly adjacent to the Mall is at the Lower Mall. This parking is not exclusive to the Mall, but is shared with other downtown parking. There is a long row of angle parking spaces on the Maine Street side of the Mall that provides parking for several cars. There is also parallel parking allowed on the Park Row side of the Lower Mall. Several people have mentioned the lack of parking at the Lower Mall, but the consultants have observed that this seems to be a problem only on days when the Farmers Market is being held.

Structures and Amenities

Landscape furnishings and structures are almost exclusively located at the Lower Mall. This is consistent with the use that the Lower Mall gets, but one wonders if the lack of amenities at the Upper Mall contributes to its lack of use.

Benches

There are approximately 19 benches at the Lower Mall, one bench at the Middle Mall and one bench at the Upper Mall. All benches are of the same style-- wood benches with slatted seats and backs, painted green. These benches are dated in appearance and are showing signs of age. In some cases the slats have lost their end anchors and have been secured using makeshift wood pegs. Benches are not anchored to the ground, and are removed during the winter months for repair and storage. Benches are not located in any organized fashion and are often moved into groupings by visitors to the Mall.



Trash Receptacles

There are approximately 16 trash receptacles on the Lower Mall, and none on either the Middle or the Upper Mall. They were donated by the Village Improvement Association between 1984 and 1994. Trash receptacles are metal with a flared hood top, painted white on the bottom and green on the top. As with the benches, trash receptacles are arranged somewhat arbitrarily along the edge of the Lower Mall and beside paths. Some are clustered together, while most stand alone. Like the benches, the trash receptacles are dated in appearance. Though they are not necessarily in need of replacement because of their condition, today they do not reflect the Town's expected standards.

Bicycle Storage

There are two bike racks located on the Lower Mall. They are welded metal bar stock, painted bright green. They do not seem to be frequently used, perhaps because of their somewhat out-of-the-way location at the southern end of the Mall. They are not anchored to the ground and during the site analysis both were located in somewhat precarious positions.

Structures

The only structure on the Mall is the wood gazebo at the Lower Mall. This structure was erected in the mid 1970s as a Veterans memorial. It was designed by Cambridge Seven Associates and was funded jointly by the Town of Brunswick and the Village Improvement Association. Although its roof was replaced in 1995, it has been vandalized and some of the wood is beginning to decay. Additionally, the structure is so high off the ground that it makes accessibility a challenge for anyone who is not in



good physical condition. It is architecturally modern, which clashes with the historic character of other civic structures in the Downtown area.

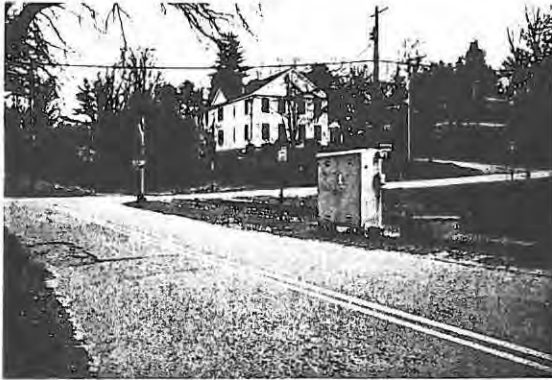
Monuments

Including the gazebo, there are five memorials on the Mall. One occurs at the northernmost tip of the Lower Mall, at School Street. This monument was erected at approximately the same time as the gazebo, in the mid 1970s. It is a vertical granite monument with engraved lettering. Planting around the monument was added at a later date. There is a flagpole monument at the Lower Mall that is the site of the annual "National Day of Prayer" celebration. A third monument is a Spanish War memorial located across from First Parish Church on the Middle Mall. It consists of a cannon and a granite monument that is set in front of a well-cared for flower garden. Another monument, commemorating Joshua Chamberlain, is located at the northern end of the Upper Mall. It consists of an engraved granite plaque, an Oak tree, and a flagpole.

Utilities

There are relatively few utilities present on the Mall. There are water meters and valves located at the Lower and Upper Malls, but neither is irrigated. There is no pedestrian-scale lighting specific to the Mall. Spillover lighting occurs from the streetlights on Maine Street and Park Row. There are two floodlights mounted on utility poles that illuminate the southern portion of the Lower Mall for special events (such as ice skating).

The gazebo is equipped with electricity that can be used by special events sponsors upon written request (the Town does not currently charge for this service). The Town has received complaints that the level of service may not be sufficient for some users, such as bands. Each food vendor has access to town electricity through an outlet that is



mounted on a wood post. The cost of the electricity is included within the vendor's annual permit fee. These posts are inconspicuous when the vendors are present, but quite obvious when they are not. Vendors have complained that they often blow the fuse on the electrical service, so the level of existing service may not be sufficient.

The most obvious utilities are those associated with the railroad lines that traverse the Middle Mall at Fitch Place. They consist of a large metal enclosure; a large concrete box; and electric-powered, red-and-white striped railroad gates with signals. While these utilities are necessary for safe operation of the railroad, from a visual standpoint they create a wall at the southern terminus of the Lower Mall.

Program and Policy Analysis

It has been said that the Mall is being "loved to death" by all of the activity that takes place on the site. The analysis of program and policy attempts to understand the patterns of programmed and non-programmed activity on the Mall, to examine how this activity is linked with the degradation of the physical landscape, and to determine what role policy plays in the management of the physical space. The results of this analysis have been summarized in a physical use and policy matrix (fig. 10). This matrix attempts to simplify these rather complex relationships. The consultant also developed a chart that outlines current maintenance activities of the Town, their duration and time of year (fig. 11). This allowed them to determine if there was a way to optimize the current maintenance routine.

The consultant assessed the physical needs of four activities that take place on the Mall—the Farmers Market, the food vendors, special events, and general (non-programmed) use. Also assessed was the extent of any physical degradation that has

occurred as a result of these events. The consultant described policies that are currently in place which regulate the activities, then drew conclusions (or "implications") from the relationships they saw between the physical needs and the current policies.

Farmers Market

The Farmers Market is regulated by the Town Code and by the BFMA regulations. The Town Code states what permitting procedure the BFMA must follow and what fees they must pay, and the BFMA regulations outline the type of goods that can be sold and define how the market is physically located on the Mall. Some highlights from these policies:

Town Code:

- The Farmers Market is licensed on an annual basis
- The BFMA must pay an annual fee of \$1500
- The BFMA must clean up after using the Mall
- The Town Council has the authority to issue and revoke the license

BFMA Regulations:

- The Market is held from May through November
- The number of stalls is limited to 15 at any one time
- Stall space is 16' wide and a maximum length of 1/2 the width of the Mall
- One vehicle may park at each stall
- No merchandise is allowed on the sidewalk
- No setup is allowed before 7:00am, and all vendors must leave by 5:30pm

There is very little enforcement of the BFMA regulations by the Town of Brunswick. Vendors are often noticed setting up before the allowed time, which disturbs the peace

of adjacent homes. Stall size is often larger than regulated, causing a greater than necessary impact on the site. The BFMA policy only states that one vehicle may park at each stall, but does not regulate how that vehicle gets to the stall or how many times the vehicle travels back and forth across the Mall. The result of this is a greater impact over a larger area of the site.

The Market used to rotate its location from year to year, but is now consistently located under the shade of the pine trees at the middle of the Lower Mall. While a consistent location isolates the damage caused on the Mall, it also concentrates all of the wear and tear on a single location. The shaded location exacerbates the effect that the vehicles and pedestrians have on the grass cover.

Food Vendors

The food vendors have little regulation compared to the Farmers Market. They are similarly regulated by the Town Code, which states that:

- licenses are renewable each year
- the fee is \$750 per vendor per year
- food vendor licenses are at the discretion of the Town Council
- the number of vendors is limited to four per year
- vendors cannot leave their carts on the Mall overnight
- vendors must clean up after themselves

Although the food vendors are generally present from March to December, there is no regulation that defines this period. There are also no official hours of business that have been established. The fact that no entrance and exit access routes have been defined creates the opportunity for the food vendors to drive their carts on any part of the Mall to gain access to their vending location. As with the Farmers Market, the

consistent location of the vendors is both an advantage and a disadvantage to the physical condition of the Mall. There is compacted, bare earth at the location of each food vendor.

There has been some concern over what some citizens feel is the Town's lack of regulation over the aesthetic standards of the food vendors' carts. What started out as push carts several decades ago has blossomed into full-size trailers needing electrical hook-ups. There is no regulation that states that food vendors shall sell different types of food, a fact that upsets some of the food vendors who have longer tenure on the Mall.

Special Events

Special events are permitted through an application process with the Town of Brunswick. Requests for use of the Mall are mailed to the Town Clerk, who reviews the application. Questions of appropriateness are directed to the relevant body, usually the Parks and Recreation Department and/or the Town Manager. The policy that regulates the use of the Mall for special events is the Town's Municipal Policy on the Use of the Town Mall. This policy states that:

- organizations sponsoring an event must be non-profit in nature
- the requested use of the Mall must be such that the existing vegetation is not damaged or destroyed
- sponsoring organizations must clean up after their event
- the Town Council has the authority to deny any request for a permit

The existing policy does not consider the carrying capacity of the Mall, or the amount of compounded use that the landscape can accept before it will inevitably decline. The Town currently looks at each individual event to determine its impact on the site. The

actual impact on the site is the aggregate sum of all of the events held during a given season. This takes much more attention to manage.

General Use

General, non-programmed use of the Mall is also regulated by the *Municipal Policy on the Use of the Town Mall* and by the Town Code, which sets the curfew for the Lower Mall.

The Brunswick Mall is not currently listed in the Brunswick Town Code's list of "parks and facilities" in Section 14-124. This technically exempts the Mall from a lot of the regulations that govern all other parks, even though most citizens are probably not aware of the omission.

V. USER SURVEY

As part of the site analysis phase of the project, a user survey was conducted in order to canvass public opinion on the current use and condition of the Mall. The consultant developed a series of questions with the intention of discovering:

- Who uses the Mall and how do they use it?
- What uses occur on different areas of the Mall?
- What is the level of public interest in the physical condition of the Mall?

A copy of the user survey questionnaire and a summary of responses can be found in Appendix D.

150 user surveys were handed out at the Lower and Upper Malls on two different weekdays (one when the Farmers Market was in operation and another when it was not). Surveys were returned by mail to Richardson & Associates. The overall return rate for this distribution of the survey was 46%. The survey was also published in the *Times Record* newspaper and distributed at the first Public Forum. These surveys were returned to the Town of Brunswick directly.

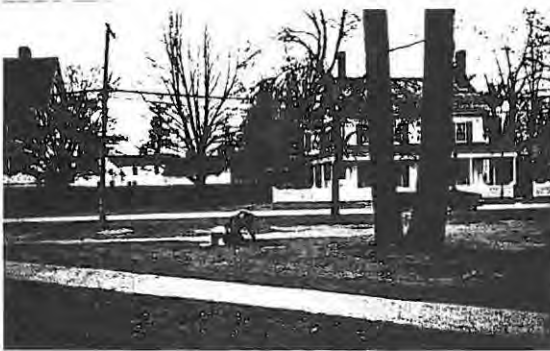
The Town did not provide a summary of data from its survey collection for this report. Therefore, the summary of findings below is based only on the surveys that were distributed on the Mall by Richardson & Associates. It should be noted that there is an inevitable bias inherent in the way that the survey was conducted. For example, the fact that the surveys were handed out at the Farmers Market may account for the market's popularity in the survey.

A summary of the findings is as follows:

- The majority of Mall visitors are female
- Mall visitors are more likely to be middle-aged or elderly
- The majority of visitors do not live in Brunswick
- The majority of visitors come to the Mall by car, and come from home
- Most visitors enter the Lower Mall at Maine Street
- The Lower Mall is much more frequented than the Upper Mall
- Most visitors come to the Lower Mall once or twice a week in the Spring, Summer and Fall
- The Farmers Market is a very popular destination at the Lower Mall
- Many people visit the Mall to eat lunch or to get fresh air
- The Mall is most frequented in the morning and early afternoon
- The lack of parking is a concern to many visitors, as is the maintenance of the landscape
- Many people feel that there should be more places to sit at the Mall

Contrary to what was observed on the site, many respondents to the user survey felt that the physical condition of the Lower Mall has either stayed the same or has improved over the past five years. A small percentage (11%) responded that they have observed deterioration in the Lower Mall's condition.

VI. SOIL SURVEY



Because of the level of soil compaction, erosion, bare earth, root exposure and other soil degradation evidenced on many areas of the Lower Mall, the town recommended that a soil scientist be hired to perform a soil investigation. The purpose of this study was to determine why grass has difficulty establishing, to better understand the effect of the stress on the existing trees, and to find out what improvements might be made to the soil that would have beneficial effects to the vegetation on the Mall. S.W. Cole Engineering was hired to conduct this investigation. (A copy of this firm's report can be found in Appendix C).

The Town conducts an annual test of soil fertility at the Lower Mall. This test measures the level of nutrients in the soil and their general availability to plants. One test result and recommendation is typically given for the entire Lower Mall. The soil study conducted by S.W. Cole, in contrast, looked at Mall soil at both the macro- and micro-scale. It reported on the texture of the soil over the entire study area, as well as the soil fertility, soil compaction and soil salinity for specific areas, both damaged and undamaged, at the Upper and Lower Malls. Two samples were taken at the current location of the Farmers Market, two in the vicinity of the ice skating rink, one in the vicinity of the food vendors, one in a less used area of the Lower Mall, and two on the Upper Mall.

The soil investigation shows that the quality of the soil at both the Lower and Upper Malls is of excellent quality for establishing and maintaining vegetative growth. The tests show between 9" and 15" of sandy loam fill over the original soil that most likely constituted the swampy, low land of the 1700s. The combination of sandy and loamy soils translates to well-drained soils with a relatively high nutrient content and a low to moderate susceptibility to compaction. The soil fertility tests resulted in a "good to excellent" rating,

with nutrients being present and available to plant roots. Salinity (or sodium level) was also rated as low.

The biggest problem with the current soil environment was determined to be excessive compaction of the soil in the areas of the Farmers Market, the food vendors and the ice skating area. Even though the soil is of good to excellent quality, water cannot penetrate and roots cannot grow because of this compaction. Compaction on the Lower Mall is caused by foot traffic, vehicular traffic, and temporary structures erected for use during Mall events. Compaction can occur in wet or dry weather, but is markedly worse in wet weather.

Many other well-worn and beloved public open spaces have suffered from a similar problem. Deering Oaks in Portland, the Boston Common, Harvard Yard, and the Capitol Mall in Washington DC, to name a few. Many of these spaces, like the Mall, had the compounded problem of tree roots in the vicinity of the compaction. These areas are much more difficult to mitigate.

VII. PROJECT GOALS AND OBJECTIVES

A mission statement was developed by Richardson & Associates and the MMPC to clarify the goals and objectives of the Mall Management Plan.

Mission Statement: To develop a plan that establishes recommendations to guide use, inform policies, maintain and improve the physical environment, and ensure the proper long-term maintenance and management of the Mall. In doing so this plan shall balance the following goals:

1. Improve and sustain the condition of trees, lawn areas and other natural features that are of historic, aesthetic and functional value to the Mall.
2. Encourage a diversity of passive recreation activities and programmed uses in order to allow the Mall to be a universal community gathering place.
3. Maintain the historic integrity of the Mall by conserving, adapting or preserving existing historic resources and/or introducing new elements that are reflective of the history of the Mall.
4. Improve and develop a safe and functional circulation system for pedestrian and vehicular users of the Mall.
5. Establish a balance between the traffic and recreational needs of the Mall in such a way that minimizes vehicular and pedestrian conflicts.
6. Provide universal access that is barrier-free to all users.

VIII. RECOMMENDATIONS

The following recommendations stemmed from the site analysis, the responses to the user survey and the public forums, and insight gained from conversations with Brunswick Town Staff and the MMPC. The recommendations fall into three categories: those addressing programmed use or policy-related issues, those addressing the physical infrastructure, and those addressing ongoing maintenance of the Mall.

It should be understood that any drawings submitted by the consultant as part of this Management Plan are illustrative only and are not design representations. Adoption of an element does not imply a commitment to the specific features shown, but rather a commitment to the concept as presented. Detailed design studies will be needed once the conceptual alternatives are selected by the Town.

Programmed Use / Policy Recommendations

General

Increase use of the Upper Mall

There was a lot of support expressed by the MMPC and the public for a stronger connection between the Lower, Middle and Upper Malls. The site analysis informed us that the geographic differences between the three areas create distinctly different identities at each space. It would be misguided to recommend that the Upper Mall become more like the Lower Mall, but its use should be encouraged for passive recreation and gathering in an area that is away from the intensity of the downtown. Many citizens and committee members felt that the Upper Mall has a lot of potential for increased public activity but

that its narrow width, its distance from the Downtown and its position sandwiched between Maine Street and Park Row contribute to its isolation and lack of use.

The MMPC recommends increasing the visibility of the Upper Mall as a public open space by scheduling certain special events at its northern end as appropriate. Its narrowness would preclude it from being used for very large events (like concerts), but at the current time there is not sufficient parking in the area to support a large event. Events that might be appropriate would include fundraising auctions, picnics, walk-a-thons, small demonstrations and art shows. Very small events (like raffles) that depend on downtown foot traffic to generate interest in their event would also probably not be appropriate for the Upper Mall unless grouped together with a couple of larger events. Grouping several small events on the Upper Mall, when possible, might be another way to generate “pull” between the Lower and Upper Mall.

The Town also needs to be more proactive in communicating that the Upper Mall is a public park, as many members of the public seem to be under the misconception that this area is owned by Bowdoin College. Some of the later recommendations on signage will help to communicate this.

Improve pedestrian and bicycle circulation routes between the Upper, Middle and Lower Malls

One way to encourage use of the Upper Mall is to strengthen the physical connection between the Lower and Upper Malls. The Town has started to do this by extending the brick sidewalks in the downtown area up Maine Street as far as the Chamberlain House at Potter Street. A further recommendation is to reconfigure the traffic intersection at Maine Street, Park Row and Bath Road (in front of the First Parish Church) to make it more pedestrian friendly.

Part of the problem with the intersection as it currently exists is that one cannot see the Upper Mall from the Lower Mall so it is difficult to make this connection. By simplifying the vehicular routes in this area and providing less parking at the intersection, the sight lines between the two areas would be increased. By using permanent material crosswalks and crossing signals, better definition of pedestrian travel paths would be created. Two schemes for simplifying the intersection at Bath Road and Maine Street appear in the *Downtown Master Development Plan* (DMDP). We do not endorse either of these schemes as they do not sufficiently address the visual obstacles that are obstructing these sight lines. The MMPC recommends that the Town study the traffic and pedestrian issues at this intersection.

There is significant degradation of the planted island at the intersection of College Street and Boody Street with Maine Street and Park Row. The MMPC recommends that, in addition to curbing, the Town provide a sidewalk along the side of the island and a crosswalk across Park Row (to Boody Street) that better identifies the travel route and creates a more pedestrian friendly connection between Bowdoin College and the neighborhood to the west.

Many members of the MMPC expressed concern over the frequency of pedestrian crossings between the Lower Mall and the area near Cote's Ice Cream on Maine Street. There is no pedestrian crosswalk currently delineated, but there is clearly a desire for this connection to be made in a more formal way. This desire will only increase if the Maine Street Station site is developed in the future. Unfortunately the problem is greater than just installing a crosswalk. The current vehicular patterns in this area—sight lines, speeds of vehicles, lane adjustments—would have to be modified in order for a crosswalk to be safe. The MMPC recommends that the Town look at this area in greater detail and develop a traffic plan that will allow a safer pedestrian crossing at this location.



There was a small amount of public support for the idea of installing a sidewalk down the center of the Upper Mall to increase pedestrian use of the space and to create a feeling similar to that at Commonwealth Avenue in Boston. It was decided by the MMPC that this sidewalk would divide the Upper Mall rather than unify it, and it is therefore not recommended.

Improve parking and landscape opportunities near the Lower Mall

Many people expressed the desire for more parking spaces in the vicinity of the Lower Mall. This need seems to be greater during the summer months and on Farmers Market days. Parking spaces directly on the Lower Mall have been maximized on Maine Street and on Park Row. Any new parking will need to come from adjacent areas.



One area with a lot of potential is the Maine Street Station site. Its size and proximity to the Mall are very attractive, as is the fact that the Town owns the land. Because of the current “sea of parking” next door at the Shop ‘n Save, the MMPC strongly recommends against developing the Maine Street Station site in a similar fashion. Many parking lots are being developed in other communities that function dually as an outdoor market place or gathering space. This can be done without sacrificing many parking spaces. The parking lot is typically boldly planted with trees and shrubs, and consideration is given to the location of a focal point (or points) within the lot where public gathering can occur. If this location is developed, a safe pedestrian crossing between Maine Street Station and the Lower Mall should be created.

Revise Town Code Section 14-124 to include the Mall

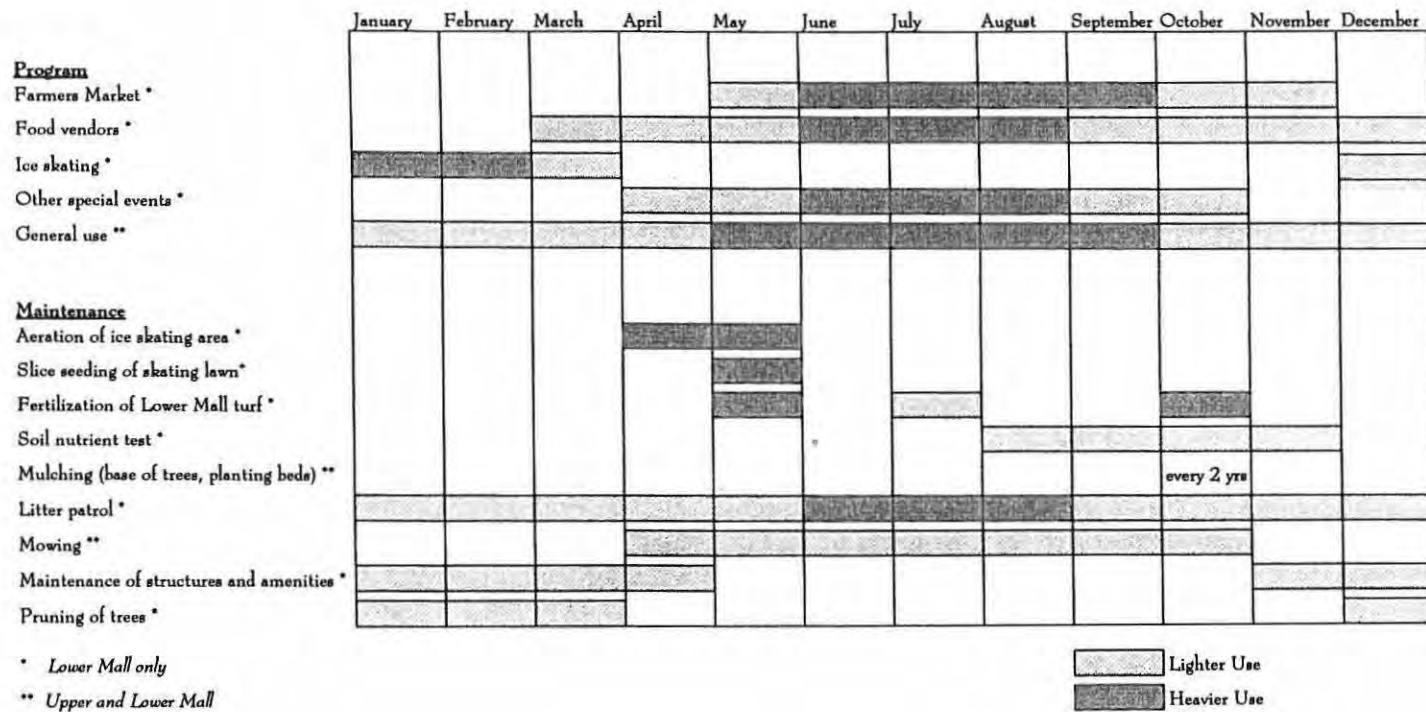
The Brunswick Mall is not currently listed in the Brunswick Town Code’s list of “parks and facilities” in Section 14-124. This technically exempts the Mall from many of the

	Physical Condition	Current Policy	Implications
<i>Farmer's Market</i>	Consistently located at an area of the Lower Mall adjacent to Park Row Area where Farmer's Market is held has large areas of bare, compacted earth and no grass Farmer's Market is held under the shade of trees	Regulated by the Brunswick Town Code and the BFMA Regulations Operates biweekly at the Lower Mall, from May to November Size limited to 15 vendors, 16' stall width. Depth of stall not to extend beyond 1/2 of Mall width Set-up / take-down hours are limited Parking is limited to one vehicle per stall Yearly fee is \$1500 for the entire market Each member is responsible for his/her own cleanup	Stall size is often not enforced, allowing the possibility that the Market's impact on the site can be greater than anticipated Set-up hours are not enforced, so the impact of traffic on the site is difficult to regulate Policies do not state where vehicular access is allowed to take place, or how many times each vendor may access the site by vehicle. The result of this is greater impact over a larger area of the site. The shaded location makes it more difficult for grass to rebound after being disturbed Consistent location is both an advantage (less overall impact) and a disadvantage (more consistent impact) to the site
<i>Food Vendors</i>	Spaced along Maine Street at the Lower Mall Located adjacent to electrical hook-up Some vendors have both front and rear access to their booths Grass beneath and around vendors' booths is degraded, soil is compacted	Regulated by the Brunswick Town Code Vendors operate daily. Months of operation are March-December Number of vendors is limited to four per year Vendors and their equipment must vacate the Mall when not in business Yearly fee is \$750/vendor (including electrical use)	Type of food sold and aesthetic appearance of vendors' booths are not regulated, which allows the Town less control over site impact No vehicular access routes are designated, which makes site impact more difficult to manage Consistent location is both an advantage (less overall impact) and a disadvantage (more consistent impact) to the site Electrical power is inadequate for vendor's needs
<i>Special Events</i>	Located throughout Lower Mall Size and impact of events vary Heaviest demand is June-October Heavy year-round use of lawn in front of gazebo for large events The lawn in front of the gazebo is weedy, and the soil is compacted	Regulated by the Town of Brunswick Municipal Policy Application for special event use must be submitted to the Town Clerk Only non-profit organizations may use the Mall for a special event Sponsoring organizations are responsible for their own cleanup The special event must be such that "the turf, trees, shrubbery, etc., are not injured or destroyed" as a result of the event Applicants may request a location for their event, which the Town Clerk reviews Non-residents of Brunswick may use the Mall for a special event No fee is charged for the use of the Mall for a special event	The carrying capacity for the Lower Mall is only determined by the available space for the event(s) The policy is only able to enforce site impact as a direct result of a single event, not as an aggregate of events The policy states that the Town Council will determine the "value of the event to the general public"
<i>General Use</i>	Lower Mall is generally used at lunchtime and/or for programmed uses Upper Mall paths are used as a cut-across for Bowdoin students The Upper Mall is used for infrequent passive recreation Some benches have worn turf under them There are a few areas where desired line paths have been worn due to high use	Regulated by the Brunswick Town Code (Article I: In General) and by the Municipal Policy on the Use of the Town Mall Night use of the Mall is restricted by a curfew (different on the Lower Mall in summer than in winter) The Municipal Policy states that the Mall shall be developed and preserved as a "focal point of natural beauty"	The regulation of the Mall falls outside of Article V (Parks and Recreation regulations) in the Brunswick Town Code, and doesn't have its own section in the town code (thus it has fewer restrictions) "Natural beauty" is not defined in the Municipal Policy, thus it is open to interpretation by the individual or group user

Figure 10

Mall Master Management Plan
Brunswick, Maine

Program / Maintenance Schedule



Implications:

1. The department which approves the programmed uses of the Mall is not the same as the one responsible for Mall maintenance.
2. The most intensive maintenance activities take place during a time of the year when fewer programmed uses are taking place. However, seeding ideally requires germination and establishment time without disturbance.
3. The Lower Mall is more actively maintained than the Upper Mall, due to the intensity of programmed use at the Lower Mall.
4. A thorough soil analysis includes data on soil texture and soil horizons, not just nutrient levels. This information would help to more specifically treat soil compaction.
5. No fertilization, aeration, seeding or top-dressing maintenance is performed in the area where the Farmer's Market is held.
6. Only a small portion of the lawn is fertilized, and no trees are fertilized.
7. The Town has no dutch elm disease program at the current time.
8. The current materials of the gazebo are prone to vandalism and are showing signs of deterioration.
9. Neither the Lower nor the Upper Mall is currently irrigated.

Figure 11

regulations that govern all other park areas in the Town. These regulations include (but are not limited to) more detailed descriptions of restrictions to:

- Operation of vehicles
- Parking
- Damage to property
- Damage to plants
- Obeying signage
- Pet leash law
- Consumption of alcoholic beverages

The MMPC recommends adding the Mall to this list to create consistency within the Town Code.

Clarify the Municipal Policy on the Use of the Town Mall to better describe acceptable activities specific to the Lower and Upper Malls.

The MMPC recommends that the following language be added to the existing *Municipal Policy on the Use of the Town Mall* in order to create a stronger document with which the Town can enforce its policies:

- Activities occurring on the Mall shall not prohibit the use and enjoyment of the Mall by other members of the general public.
- Activities occurring on the Mall must not disturb the peace of homeowners and businesses located adjacent to or in the neighborhood of the Mall.
- Activities occurring on the Mall shall not cause undue stress or risk to the natural health and physical condition of the Mall.

- No motorized vehicles shall be allowed on the Mall without express permission of the Town of Brunswick.
- Solid pet waste must be collected by the owner and be properly disposed of.

The Parks and Recreation Department will be responsible for the enforcement of Mall policies through their own forces.

One challenge facing the Town of Brunswick is the ability to successfully enforce the updated policies on the Mall. While it may be unrealistic to think that the area can be continuously policed, there should be some party responsible for visiting the Mall on a regular basis to ensure that policies are being adhered to.

The MMPC recommends that the Parks and Recreation Department be the entity responsible for this surveillance. It is currently responsible for the physical maintenance of the Mall and thus has a vested interest in protecting its health.

Establish a fine system that will help to self-enforce Mall policies.

The public will be more apt to adhere to Mall policy if there is an established fine system in place for when regulations are ignored. The Town must decide what fine amounts are most appropriate for different infractions.

Establish a public education program for the Mall

Any management plans for the Mall will be limited if the public is not educated about the special nature of this landscape. The MMPC recommends that the Town create a public education campaign that will allow citizens to feel that they are stewards of the Mall. Public education might include:

- An annual “Mall Day” where the community can gather to take part in improvement projects focusing on the health and beautification of the Mall.
- Historic and horticultural walking tours of the Mall.
- An annual “State of the Mall” report produced by the Town.
- A “Mall Events” posting board located on the Mall.

The Town Council shall be the official body that interprets Mall policy.

Minor disputes over the Mall policy shall be resolved in-house by Town staff. If there is any dispute over Mall policy that cannot be adequately resolved by Town staff, the issue shall be brought to the Town Council for review.

There needs to be a review policy for physical improvements that are proposed by outside parties, such as the installation of sculptures or commemorative structures. (Capital improvements conducted by the Town would not apply.) The MMPC recommends that the Village Review Board review permanent physical improvements proposed by the public for the Lower Mall. They recommend that the Town Council review physical improvements proposed by the public for the Upper Mall (this is the current policy).

This issue arose because there has been a request for the installation of a statue of Joshua Chamberlain at the northern end of the Upper Mall. The MMPC agrees with the general location for this piece of sculpture. The consultant recommends that the following issues be looked at when locating any sculpture on the Mall:

- The location of the sculpture relative to sight lines. The sculpture should not obstruct the sight lines of vehicles, but should provide a focal point for pedestrian viewers.
- The appropriateness of the sculpture (what it commemorates) to the history and use of the area where it is being proposed.

- The scale of the sculpture relative to its context.
- The color and material of the sculpture relative to its context.
- The opportunity for the sculpture to create a place for Mall visitors to congregate or rest.

If sculpture or any other major physical amenity is donated by an outside source for installation on the Mall, the donation becomes Town property and must include appropriate maintenance funds associated with the gift.

Farmers Market

It was determined during the site analysis process that the presence of the Farmers Market has contributed significantly to the degradation of a portion of the Lower Mall. This degradation has not stemmed from a single cause; rather, it is a combination of consistent and heavy pedestrian and vehicular traffic on the site. It is almost surely exacerbated by the Market being held during wet weather. It is damage that has accumulated over the course of 20 years.

Because the current location of the Market is within a grove of trees, it is much more difficult to recommend solutions for repairing the damage caused by the Market while still endorsing its location on the same site. Because the site is shaded most of the time, grass is more difficult to establish. The presence of tree roots makes removing the existing, compacted soil a more delicate operation. Many members of the public have complained about the "trip hazards" inherent in exposed tree roots, not realizing that this condition is also lethal to the trees. In fact, many experts feel that once damage occurs to tree roots there is no way to "undo" this damage. Ann Blair states that:

Robert DeFeo, (the chief horticulturist for the National Park Service, National Capital Region) states that he has not seen any surface treatment that effectively protects tree

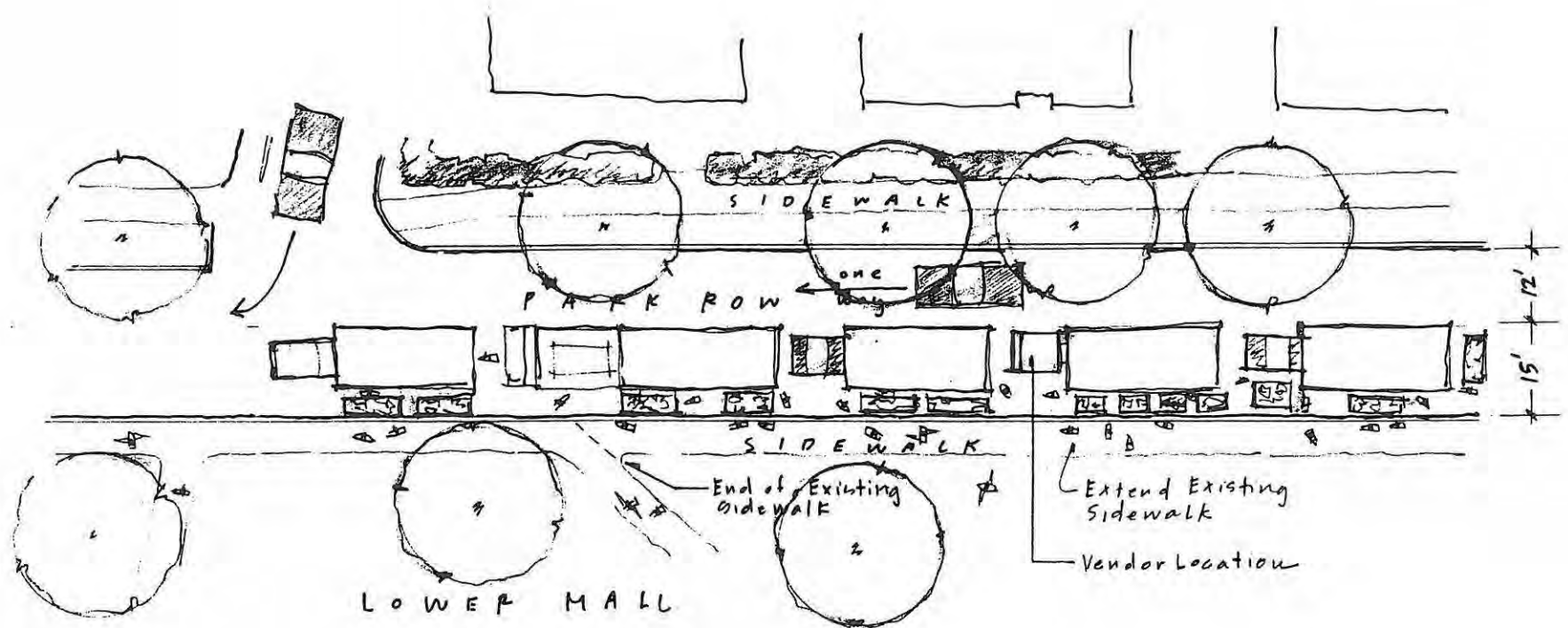


Figure 12: Conceptual sketch showing relocation of Farmers Market to Park Row

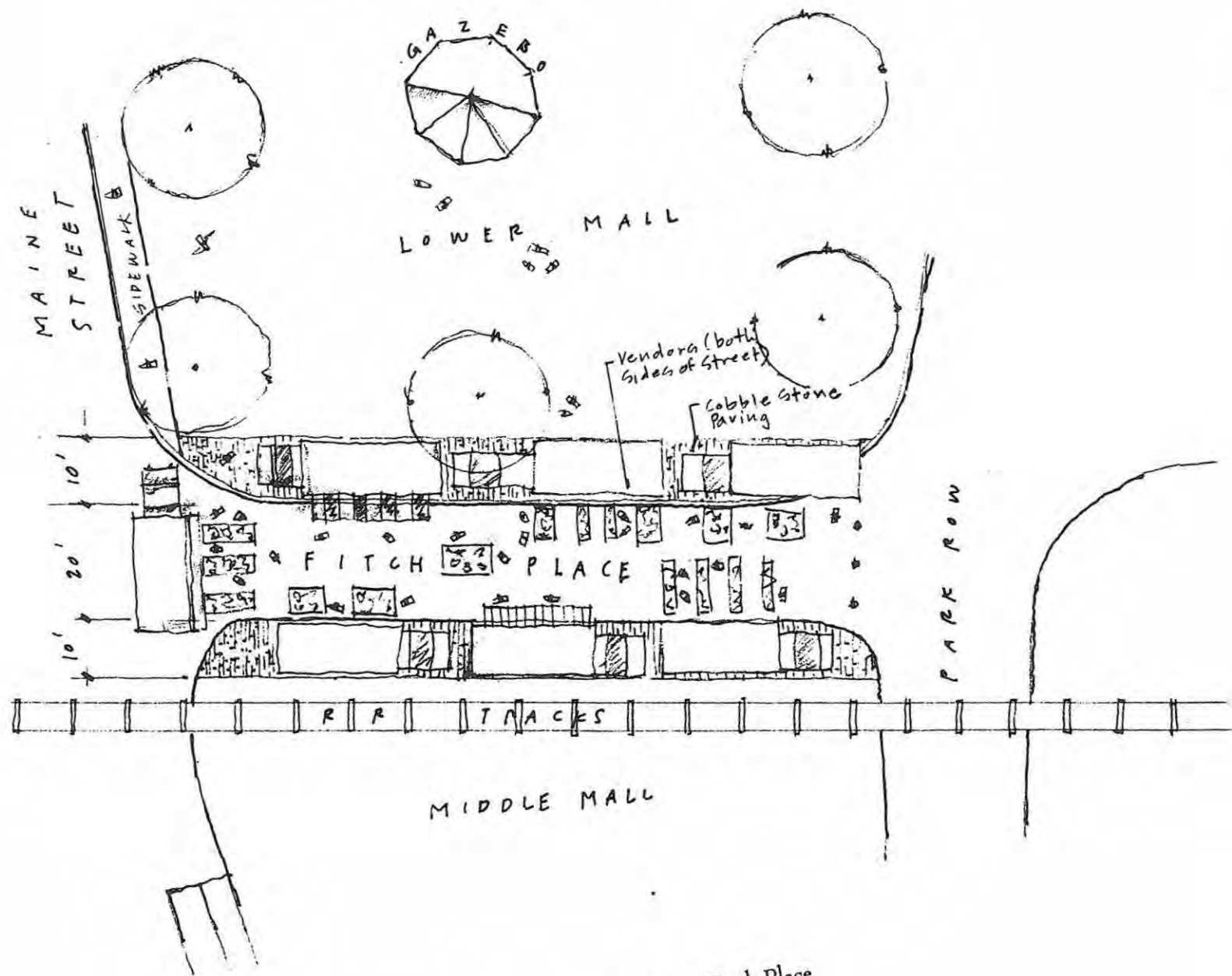


Figure 13: Conceptual sketch showing relocation of Farmers Market to Fitch Place

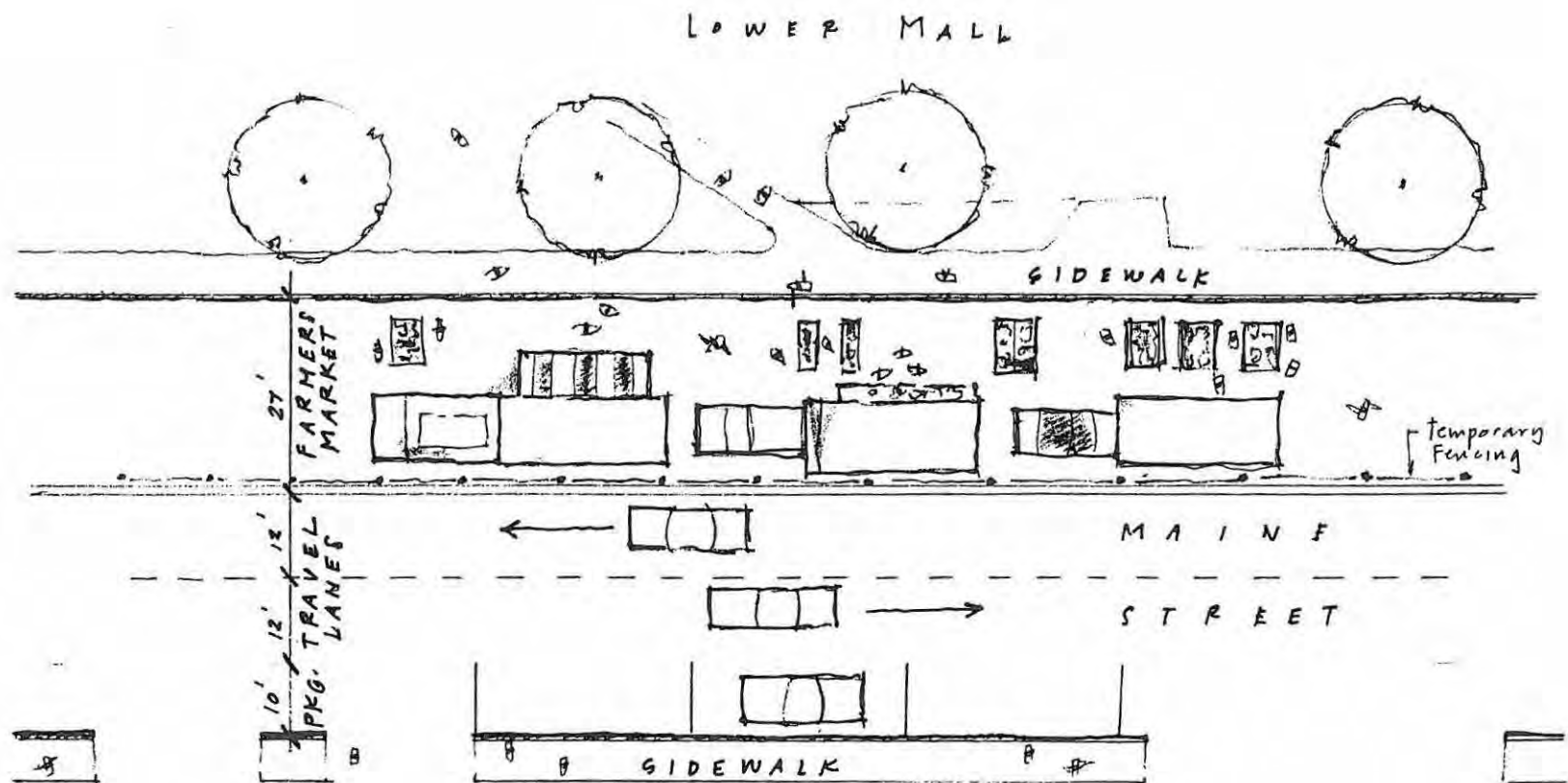


Figure 14: Conceptual sketch showing relocation of Farmers Market to Maine Street

roots while allowing access, including grass block pavers, covering the entire area with a geotextile underneath four inches of mulch, or covering the areas in use with plywood. Mr. DeFeo said that if treed areas are used repeatedly, the damage is cumulative, and that no amount of money will repair it.⁴

It was the consultant's recommendation, therefore, that the Market be moved to a location off the Mall. This would stop further damage from being caused by vehicles and foot traffic, and give the Town the opportunity to mitigate the damage. Several alternative Farmers Market locations were presented to the MMPC and to the public. They included the following:

- Relocation of the Farmers Market to Park Row (fig. 12)
- Relocation of the Farmers Market to Fitch Place (fig. 13)
- Relocation of the Farmers Market to Maine Street (fig. 14)
- Relocation of the Farmers Market to the Maine Street Station site

Although the public recognized the degree to which the site has been damaged, it nonetheless felt very strongly that the Market should remain on the Lower Mall. Many MMPC members, reflected their opinion that the Town needs to evaluate the desire of the public as it affects the integrity of the physical landscape.

This general consensus resulted in a short-term recommendation from the MMPC that focuses on keeping the Farmers Market on the Lower Mall until a more suitable location is created, but avoiding impact to locations underneath the tree canopy. The Market will be rotated on a regular basis so that no single area is overburdened by its presence. At the

⁴ Telephone Conversation between Robert DeFeo and Ann Blair (Brown and Rowe), as included in Brown and Rowe's report to the Friends of the Boston Common and Public Garden: *Special Events on the Boston Common: Budgeting for Landscape Mitigation*; Spring, 1995

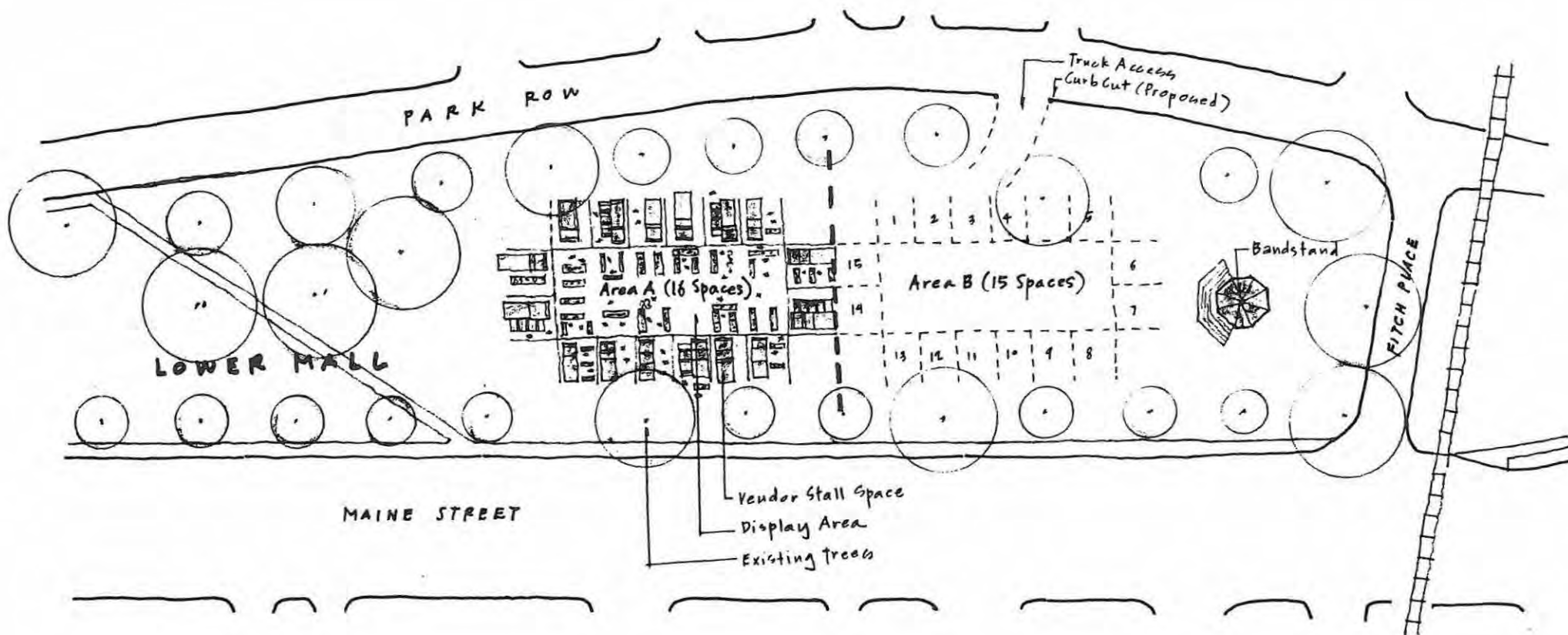


Figure 15: Conceptual sketch showing short-term relocation of Farmers Market to skating lawn (Town and BFMA to determine final layout)

same time, the location where the Market is currently held will be restored to a more healthy state for the grass and trees.

A long-term solution focuses on eventually relocating the Farmers Market to the Maine Street Station site. This site was thought to have the greatest potential to be an open-air market.

Short Term Solution - Rotation

Maintain the Location of the Farmers Market on the Lower Mall and rotate it annually between two identified locations.

The two locations would be the north and south sides of the ice skating lawn area as defined in figure 15. The Farmers Market configuration would have to be adjusted as necessary to fit within this area.

Intensive measures should be taken to protect the well-being of both the area in current use and the other rotation location. Measures such as slice seeding, aeration, soil replacement and sodding may all be necessary. The use of the alternative rotation areas may have to be restricted while it is being restored.

Vehicular access shall be limited to one vehicle per stall. Vehicles will only be allowed to enter and exit once per day, and established entrance/exit points and travel routes should be designated by the Town. Vendors taking produce from another vendor must do so at an off-site location. All designated access routes shall not be within the dripline of any existing trees.

The location of parked vehicles/trucks for the Farmers Market directly influences the pedestrian circulation within and through it. Since it has been observed that pedestrian traffic contributes to compaction and turf degradation on the Mall, altering the location of parked vehicles/trucks from week to week is an additional provision to minimize this impact. By moving the location of parked vehicles/trucks each week, the compaction from both vehicles/trucks and the resultant pedestrian circulation would be distributed over a larger area thereby reducing the amount of impact in any given location.

If the rotation strategy is seen by the Town as ineffective in reducing degradation or “too costly” the following should also be considered and associated with the short term solution.

- Eliminate car/truck traffic on the Mall by requiring that all goods be carried onto the Mall
- Limit the number of days that the Farmers Market is held on the Mall so that carrying capacity is not exceeded (the health of vegetation is not at risk).
- Shorten the Market season to historically drier months (June-September)

The soils in the location of the current Farmers Market should be restored by scarifying all of the compacted soils, amending the soil and reseeded. (See *Appendix C* for more information.) This would require protecting the area by closing it off until new turf has satisfactorily been reestablished.

Long Term Recommendation- Relocate Market to the Maine Street Station site
When the Maine Street Station is being considered for future development, investigate how the site could best suit the needs of an open-air Farmers Market.



Possible benefits of the Maine Street Station location include:

- Designed specifically to meet the physical needs of the Market
- Possible increase in number of vendors (future expansion capacity)
- Longer season
- Increase in number of days/week
- Efficiency and ease of function: set up/take down
- Evening hours for Market
- Downtown revitalization
- Secure future for the Farmers Market
- Near Mall for special events and food vendors

Note: Particular consideration must be given to the safety of pedestrians crossing Maine Street from the Lower Mall.

Require a refundable performance bond from the BFMA

The MMPC recommends establishing a policy requiring the BFMA to pay an annual performance bond to protect the Town against any permanent damage caused by their presence on the Lower Mall. This bond would be refunded at the end of each year provided that no damage is caused that would permit the Town to withhold a portion of the funds. Any amount withheld would be equivalent to the cost of repair.

Establish a fine system

The MMPC recommends establishing a fine system that will help to self-enforce policies relating to the Farmers Market. These fines would be levied on an annual basis to the

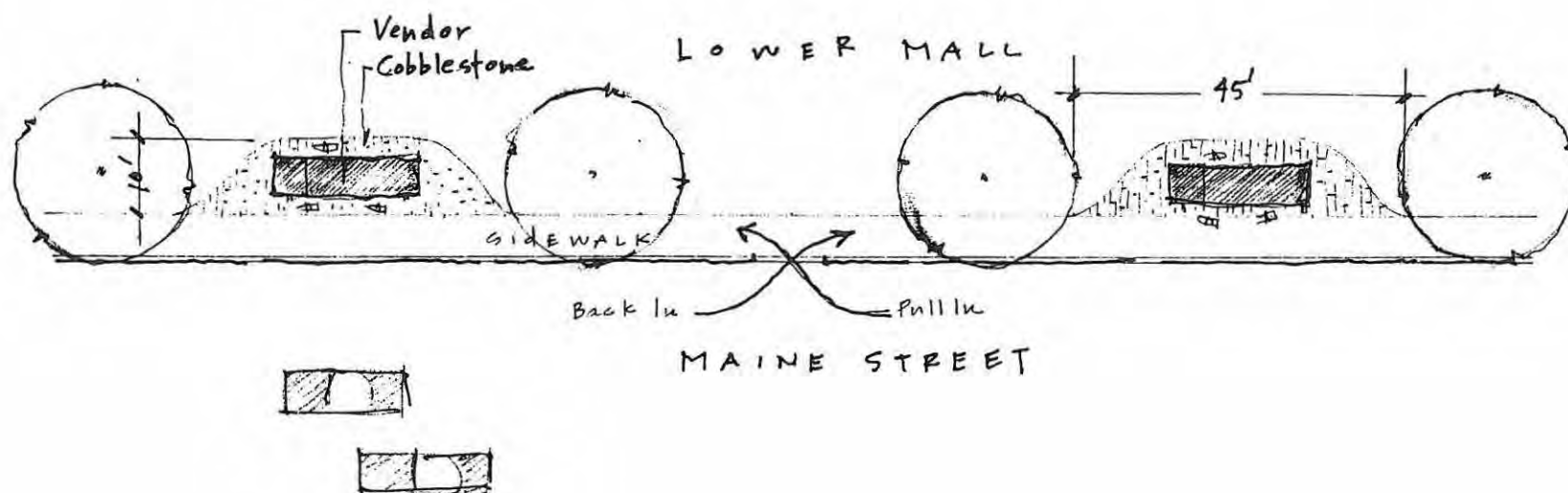


Figure 16: Proposed paving bump-outs under food vendor cart locations

BFMA if it is determined that any vendor has violated the established policies. The following fine levels are suggested:

1 st offense:	Warning
2 nd offense:	\$50
3 rd offense:	\$100
4 th offense:	\$250
5 th offense:	Suspension of privilege to vend for one year

Food Vendors

Provide hard surfacing under established vendor cart locations to prevent compaction and erosion of soil.

The consultant noted in the site analysis that the food vendors contribute to the degradation of the Lower Mall in a similar way as the Farmers Market, but on a smaller scale. There is currently no policy that guides the location of the food vendors, or the way by which they are allowed to access the site. They are present on the Lower Mall for a longer period of time than the Farmers Market (every day for eight or nine months of the year).

The MMPC recommends creating a permanent surface “pad” on which each vendor will be required to locate. This pad should be “bumped out” of the sidewalk along Maine Street (fig. 16), and should be large enough for each vendor to easily locate on. The most appropriate materials for this pad would be:

- Cobblestone paving with sand joints
- Poured-in-place concrete paving

- Concrete brick pavers to match those on Maine Street in Downtown Brunswick

The MMPC was not unanimous in their recommendation of paved areas under each vending cart. Ten members of the committee supported the recommendation; 5 did not.

The Town must establish entrance and exit points for vendors, and curb cuts need to be provided at those points. Access ways for each vendor must also be established, as must general hours of operation. Every effort must be made to minimize the amount of driving that the food vendors are allowed to do on unpaved surfaces.

The Village Review Board will review aesthetic standards for vendor carts

Members of the public have expressed concern that there are no aesthetic design standards for the vendor carts. There was general agreement among MMPC members that there should not be any design standards that would attempt to *standardize* the look of the vendors. Rather, there should be a design review board that ensures that vendor carts and furnishings meet a certain level of appropriateness that corresponds to their visible location within the downtown.

The MMPC recommends that each food vendor be required to submit with his/her annual application photographs of his/her cart. The Village Review Board would then review these photographs and make a decision about the appropriateness of each applicant's cart.

Establish a fine system

The MMPC recommends establishing a fine system that will help to self-enforce policies relating to the food vendors. These fines would be levied to individual vendors if it is determined that they have violated the established policies. The following fine levels are suggested:

1 st offense:	Warning
2 nd offense:	\$50
3 rd offense:	\$250
4 th offense:	Suspension of privilege to vend for one year
5 th offense:	Permanent revocation of privilege to vend

Special Events

The number of requests to use the Lower Mall for special events has increased markedly over the past several years. The amount of activity, particularly in the vicinity of the gazebo, is starting to cause deterioration of the lawn area. In some cases, nearby residents feel that certain events are disturbing their peace. The Town's current policy is vague regarding who is allowed to sponsor a special event on the Mall. It is not as specific as it needs to be in order to enable the Town to respond to some of these issues.

Modify the application to give the Town greater authority over special events

The current application that is used to request the use of the Mall does not state any guidelines within which this use is allowed to take place. This gives the Town little ability to cancel an event due to weather, to deny a permit based on the nature of the proposed activity, or to charge a fee to cover the Town's administrative cost of permitting the event. The MMPC recommends that the permit application be modified to include the following statements:

- No for-profit organization may apply for a special event permit. (This is already the case, but it is not clearly stated on the application form.)
- Amplified noise is allowed on the Mall, but the level of amplification will be at the discretion of the Town. The need for amplification must be identified on the application for a special event permit.

- Event sponsors wishing to use the Town's electricity must state this on the permit application and pay a \$25 flat fee for this privilege.
- A flat fee of \$25 for the use of the Mall for a special event will be required of all applicants. This fee will cover administrative and maintenance costs created by the event. If a sponsor feels he/she cannot pay this fee because it would cause undue hardship, he/she should contact the Town of Brunswick at the number printed on this form.
- A refundable security deposit of \$250 may be required of large event sponsors (anticipated attendance of 150+). This deposit does not relieve the sponsor of his/her responsibility to clean up after an event. If the Town has to clean up after the event or repair any damage caused by the event the Town has the right to retain a portion of the security deposit equal to the cost of the repair.
- A "zoning" of the Lower and Upper Malls will be created. Events will be scheduled with a specific location (zone) assigned to the event sponsor. A map will be provided with each permit that specifically outlines the limits of each zone. Locations will be rotated on a regular basis to avoid repeated stress to a particular area. Event sponsors may request which zone they would like to be located within, but the Town cannot promise that this request will be granted.
- Event sponsors must remove all trash resulting from their event to an off-site location.
- Events that expect an attendance of greater than 150 persons will be located within the zone at the southern end of the Lower Mall (in front of the gazebo), unless otherwise permitted by the Town.

- The Town has the right to cancel any special event due to inclement weather or impending weather that it feels will cause undue stress or risk to the physical well-being of the Mall or its occupants. (Rain dates may be scheduled when applying for a permit.)
- The Town may require portable restrooms based on the expected attendance and duration of the event.
- The Town has the right to deny any event sponsor a permit if it feels that any of the Mall policies or permit requirements cannot be met.

A copy of the *Municipal Policy on the Use of the Town Mall* must be included with every application.

Encourage a rest period between large events

Encourage where possible a two week rest period from special events occurring in the zones that have been occupied by an event with over 250 persons in attendance at one time. This would allow the landscape to sufficiently “rebound” from overuse. This may be difficult to do if the applicant is not sure how many people may attend the event, or with an event that is typically held every week for several weeks.

Change the application procedure

Currently, the Town Clerk processes all requests to use the Mall for special events. If questions of appropriateness arise, she contacts the Department of Parks and Recreation and/or the Town Manager for a decision. The MMPC recommends that these application requests be directed to, reviewed and approved by a single department within the Town.

The Parks and Recreation Department is recommended because it can most directly assess the physical impact of a given event.

Physical Improvements Recommendations

As stated in the site analysis, there are many physical elements in the Lower and Upper Malls that are in need of repair or replacement. There are also improvements to both areas that are being recommended, many at the request of MMPC members or members of the public.



Install granite curbing throughout the Lower and Upper Mall

Curbing serves an important function in the public landscape. It prevents vehicles from driving on sidewalks or open spaces, it prevents erosion of planted areas adjacent to roads, and it simplifies road maintenance and snow plowing. Much of the Lower Mall and a portion of the Upper Mall are currently curbed with granite. A small portion of the Lower Mall and a large portion of the Upper Mall (along Maine Street) are curbed with asphalt. A portion of the Lower Mall and much of the Upper Mall (along Park Row) is not curbed.

The MMPC recommends upgrading all curbed areas to granite curb, and installing curbing in areas where it does not currently exist. Granite is recommended because it is the least susceptible to damage and the best looking solution. Its short-term cost is higher but it tends to pay for itself in the long run.

Install brick paving at the Lower Mall

The bituminous concrete (asphalt) walks that are located along each side of and across the Lower Mall are in need of repair. The MMPC feels that the Town has the opportunity to replace the asphalt paving with the same concrete brick pavers that are being used in the Downtown area. This would serve to reinforce the role of the Lower Mall as the premier public open space in the Downtown area.



Upgrade benches and trash receptacles at the Lower Mall

The benches and trash receptacles present on the Lower Mall have reached the end of their life expectancy and are in need of replacement. The Town needs to consider replacing the benches with non-wood ones, which are generally easier to maintain and more difficult to damage. There must be some consideration given to matching the existing benches in the Downtown area. There were a fair number of requests from the public for additional benches at the Lower Mall. While the consultant did not observe a need for additional benches during their site inventory, the Town shall observe the use patterns at the Lower Mall over a longer period of time and consider purchasing additional benches if necessary.

Consideration also must be given to the location of benches and trash receptacles within the Lower and Upper Malls. Benches are often successfully located adjacent to paths or sidewalks, where access is easier and where there is some social aspect to sitting. There was some concern by the MMPC that the existing benches are easily moved. The consultant's recommendation to anchor benches to a concrete pad was not adopted by the MMPC. The positive aspect of being able to move benches is that visitors to the Mall can form their own seating configuration. The drawback is that moving benches from inappropriate locations can become a maintenance headache for the Town. The consultant recommends replacing benches with heavier models that are more difficult to move long distances.

Trash receptacles should be provided close to food vendors and near the area where the Farmers Market is located, but the Town should avoid locating them in the middle of lawn areas, where they are visually and physically intrusive.

Move bicycle racks to locations where they are more likely to be utilized

There are two bike racks currently located on the Lower Mall. Neither is located in an area where they are likely to be used. The MMPC recommends that one bike rack be located

on the Maine Street side of the Lower Mall, near one of the food vendor stalls. This location is more likely to be a destination for cyclists, and the presence of vendors will add to the safety of the area. The other rack could be located near the gazebo, along the sidewalk. The Town should consider permanently affixing the bike racks to pavement. Cyclists are more likely to think of the rack as being safe if it cannot be moved easily.

Provide ice skating benches

There have been a number of requests for benches at the ice skating rink on the Lower Mall. The MMPC recommends that the Town provide several benches at the perimeter of the ice skating rink during the days of its operation. These benches should not be the same as the ones used during the summer at the Mall—they should be made of wood, backless, and light enough to be easily moved.

Assess current lighting at the ice skating rink

The type of light fixture selected should provide an adequate amount of light to the rink without producing glare in the vicinity of the Mall. The direction that the light is aimed should also be concentrated on the skating area, without a lot of “throw” to the outskirts of the Mall. The quality of the light should take into consideration the color of the light as well as its efficiency. Although very efficient, high pressure sodium and low pressure sodium lamps cast an orange light that is very unattractive and associated with a lack of safety. Metal halide (h.i.d.), halogen or incandescent lamps are preferred. Lighting must conform to existing zoning codes.

Install signage at the Lower and Upper Malls

One of the best methods to communicate Mall policy to its visitors is to post this information on discreet signs located at popular entrance points to the Mall. The design

of the signs should complement other signs used by the Town in its other public open spaces.

Install an information kiosk at the Lower Mall

An information kiosk would create the opportunity for Lower Mall visitors to familiarize themselves with the various activities taking place on the Mall. A special events calendar could be posted here, as well as the *Municipal Policy on the Use of the Town Mall*. A map could also be displayed that shows the Lower Mall's relation to Downtown, Bowdoin College and the Upper Mall. The map should include locations of civic institutions, Town offices and businesses in the downtown. The kiosk structure should be low-profile and built of a style and material language which complements the neighborhood architecture. It should have the ability for information to be printed on both sides. We have provided a sketch showing one possibility (fig. 17). The kiosk should be located along the Maine Street sidewalk, to the left of the diagonal path that crosses from Green Street to Maine Street. This location will provide visibility.

Install a pay phone at the Lower Mall

The 3rd graders contributing their opinion to the study were very interested in having a pay phone located at the Lower Mall. The MMPC felt that this would be a welcome addition by many who stop to eat lunch at the Mall or who are attending a special event. The Town must consider the value of this recommendation. It is recommended that the pay phone be installed in close proximity to the kiosk; perhaps at one end of the kiosk. The cost of the pay phone and its installation is typically paid by the telephone company, and the Town would receive a small commission for each call made.

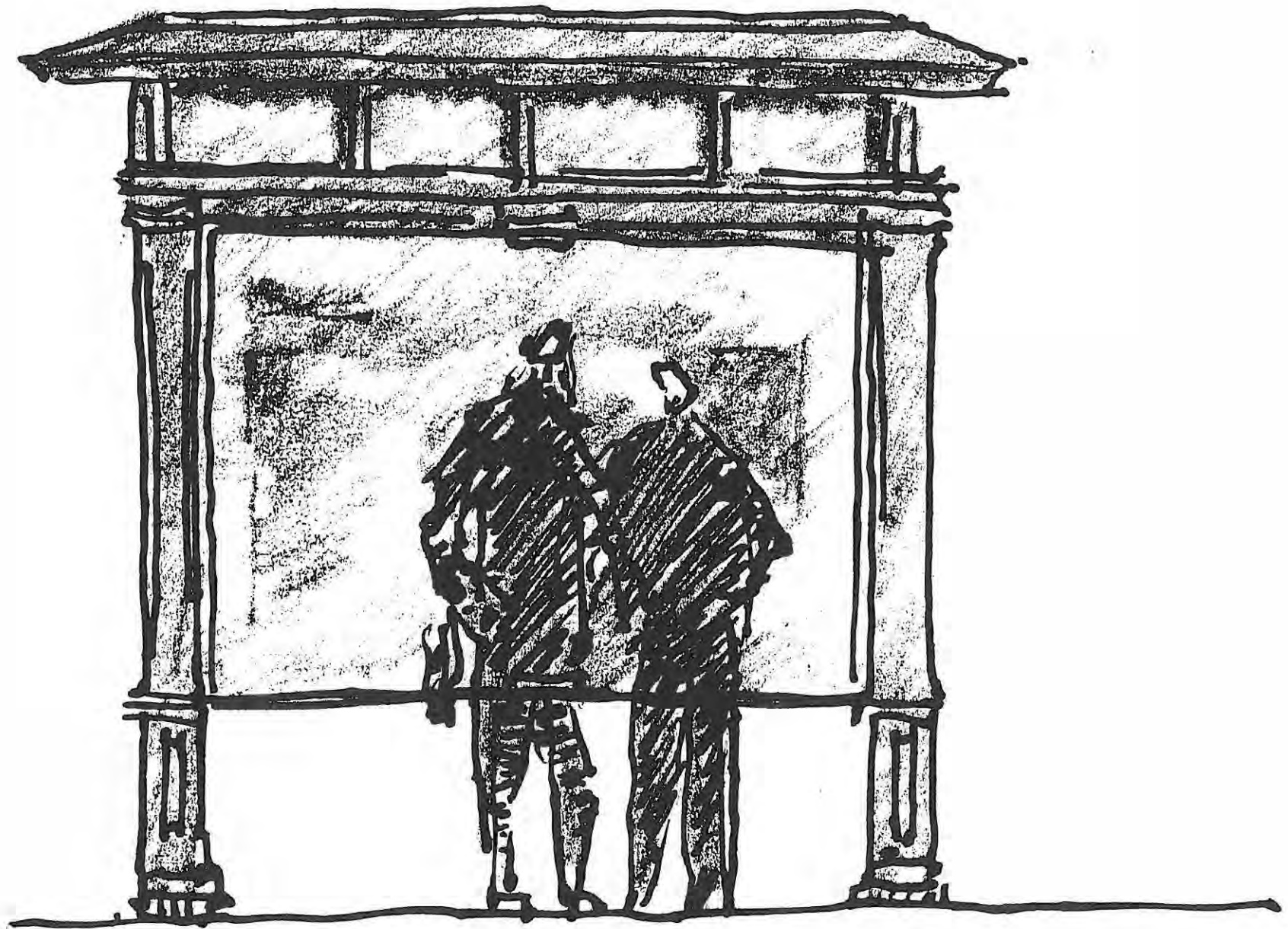


Figure 17: Information kiosk

Upgrade electrical services at food vendor locations

Food vendors have indicated that the existing electrical service is insufficient for their needs. The MMPC recommends upgrading this service. Furthermore, the posts that contain the electrical receptacle should be as low as code allows to decrease their visual presence on the Mall.

Consider replacing the existing gazebo structure

The existing gazebo is currently in poor condition. A special committee of Town staff and citizens must be appointed to review this issue, research its history, and consider the replacement of the gazebo with a structure that is in the same location on the Lower Mall but one that is:

- lower in height to result in more manageable acoustics and accessibility
- more compatible with Brunswick's architectural history
- universally accessible (A.D.A. compliant)
- open to both sides of the Mall (north and south) for visual and functional improvements
- consistent with the gazebo's presence as a war memorial

In the meantime, the existing electrical service at the gazebo needs to be upgraded so that it more successfully meets the needs of the various special events that require its use.

Restore soil and reestablish turf at the Lower Mall

As stated in a previous section, the damage at the Lower Mall caused by the presence of excessive foot and vehicular traffic will probably never be fully repaired, specifically in areas of tree cover. However, the MMPC recommends that the Town try to mitigate the damage that has occurred and prevent further damage from occurring.



In S.W. Cole Engineering's *Soil Consulting Services Report* for the Mall (see Appendix C) it recommended a procedure for mitigating soil damage in the area of excessively compacted soils, like the area of the Farmers Market. It is hoped that repairing the compaction and soil cover problems in that area will, in combination with continued monitoring of soil fertility, produce an environment that is favorable for sustained grass growth.

Develop a Tree Planting Program for the Upper Mall

In 1988 Terrence J. DeWan and Associates was hired to create a tree planting plan for the Lower Mall. At that time it was felt that the Lower Mall was a greater priority. As a result, much of this tree planting plan has been undertaken and the Lower Mall has been much improved. The Upper Mall is now in need of the same attention. The tree canopy that at one time created a uniform street edge at the Upper Mall is now in serious jeopardy.

It was noted in the site analysis that many trees on the Upper Mall are either dead, damaged or diseased (fig. 5). Part of the reason for this may be the lack of maintenance that has been provided to them over the past several years. Part of this Maintenance Plan recommends maintenance measures that should be taken at both the Lower and Upper Malls to ensure the future health of the trees in both areas. However, it will still be necessary to replace the dead or severely damaged and diseased trees at the Upper Mall. It would be wise to begin to plant new trees among those in decline. This will ensure a tree canopy of a decent size by the time that the declining trees are removed. The consultant recommends that only canopy trees (those that reach a mature height of more than 40 feet) be considered for planting at the Upper Mall. The MMPC recommends planting these trees closer to the center of the Upper Mall so that overhead wires are avoided.

Maintenance Recommendations

Outline an annual maintenance schedule for the Lower and Upper Malls

The consultant suggests the following categories for landscape maintenance at the Mall. The Parks and Recreation Department will use its expertise to determine the specific maintenance needs of the landscape:

Annually:

Tree pruning: Best accomplished in late winter or early spring before bud break.

Tree fertilization: Best accomplished in early spring or in late fall. Not all trees will need to be fertilized. Soil tests will show areas of general need. Tree growth rates and leaf color should be observed for indications that a tree would benefit from fertilization.

Leaf collection: Best accomplished in the fall, after peak leaf drop.

Top dressing: All lawn areas (especially those susceptible to compaction) would benefit from this treatment in early autumn. Lawns should be top dressed at the rate of 3 lbs per square yard of a mixture of 1 part peat, 4 parts loam and 3 parts sand. Work this mixture into the soil with a rake or spreader. Top dressing should be followed by overseeding in areas where weeds are a problem, or where grass is thin.

Lawn scarification: Lawn areas susceptible to compaction (like the Farmers Market and Ice Skating areas) should be scarified with a rake to remove thatch. This should only be done in autumn, prior to top dressing.

Lawn fertilization: Fertilize lawn and perennial areas in spring or early summer. Refer to soil nutrient test results for specific nutrients needed.

Repair/painting of site furnishings: This should take place in the winter after site furnishings have been removed from the Mall.

Pavement repair: Upon installation brick paving should be inspected annually to reset any loose pavers that may cause a trip hazard, or replace any broken or damaged pavers.

Semi-annually:

Core aeration: Should be performed once a year in areas of healthy grass, and twice a year (in May and September) in areas typically susceptible to compaction (like the Ice Skating area).

Mulching: Trees would benefit from a fresh application of bark mulch around their bases each autumn. This will guard against temperature fluctuation and frost damage. A reapplication in the spring will prevent the need to mow grass close to the tree trunk. Perennial beds should also be mulched twice a year: in autumn to protect the roots over winter, and in spring to prevent weed growth.

Ongoing:

Lawn mowing: Lawns should be mowed regularly during the growing season to a height of not less than 2 1/2".

Dead-heading: Flowering perennials will need to be dead-headed regularly during the growing season to encourage bloom and to discourage self-seeding.

As needed:

Weed control: Perennial and ground cover beds should be monitored regularly for the growth of weeds. Weeds should be hand-pulled with the help of a cultivator. Lawn weeds should be killed by using an herbicide (preferably organic) unless they are large (plantain or dandelion) and isolated enough to be able to be hand-pulled.

Pest control: Trees especially should be monitored regularly for signs of disease due to insect or fungal infestation. If diseases are not discovered in a timely manner there is a risk that the problem could spread to other individuals.

These maintenance recommendations are by no means exhaustive. This list is merely to provide guidance to the Parks and Recreation Department which will ultimately make the maintenance decisions regarding this landscape.

Conduct a soil and vegetation analysis every 5 years

The Town must undertake a “proactive” approach to landscape management of the Mall rather than a “reactive” approach. A reactive approach has resulted in the problems that are apparent today at the Lower Mall. A proactive approach will result in a more beautiful landscape that is less costly to maintain in the long run.

As part of a proactive approach, the MMPC recommends that the Town perform an analysis on the health of the soil and vegetation at both the Upper and Lower Malls. It would be sufficient to conduct this analysis every 5 years. The analysis would include a soil test that gathers information on soil fertility, soil texture and compaction. Individual soil

samples should be gathered from several locations on the Lower and Upper Malls. These samples should be representative of different uses on the Mall. The analysis should also include a mapping of all shrubs and trees at the Lower and Upper Mall to chart the health of woody vegetation. The consultant recommends a continuation of the Johnson's Arboriculture report, using the same format. If the Town does not currently map Mall vegetation using Geographic Information System (GIS) software, it may want to consider doing so. After the initial setup period, this can be a very efficient way of tracking changes in the health of vegetation over time.

Perform more intensive maintenance at the ice skating area

The lawn area in front of the gazebo (where the ice rink is installed) is more susceptible to decline because of the amount of use that area attracts. Especially in the short term, when the Farmers Market will be located there, this area should be intensively maintained as noted in the above recommendations. Maintenance practices should include core aeration, top dressing, overseeding and weed control. The consultant further recommended that an automatic irrigation system be installed in this area, but the MMPC chose not to endorse this recommendation. Irrigation systems are typically installed in high-use lawn areas because more routine watering increases the health of the vegetation and can significantly reduce stress during drought periods. Droughts often occur in the summer when this area is frequently used.

Undertake an Integrated Pest Management approach to turf and tree maintenance

Integrated Pest Management (IPM) is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed

according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment.

An Integrated Pest Management (IPM) approach requires an active understanding of the condition of the landscape and of its susceptibility to certain pests. The Town will need to develop a strategy for monitoring the landscape.

A typical monitoring procedure for trees might be as follows:

1. Examine trees in the landscape routinely. Begin by seeking information about species, cultivar, age and current growth rate. A knowledge of soil type, pH, fertility, drainage, and recent maintenance activities such as planting, pruning, and fertilization is important.
2. Identify the key potential pests. Sources of infestation or inoculum should be sought in the landscape.
3. Use pheromone (sex attractant) traps, if available, for the important insect pests which require precise timing of control measures.
4. Keep track of degree-days. The rate of development of many insect pests can be predicted by keeping track of the accumulated degree-days above 40°F. The pest manager can thus determine when key stages in insect development will occur and time control activities more accurately.

5. Use detection methods such as putting burlap bands on tree trunks to detect gypsy moth larvae, or shaking needled evergreen branches over white paper to detect the presence of mites.⁵

Charles T. Ravis, a turf agronomist, visited the Lower Mall in November 1999 and provided the following recommendations for IPM of turf areas:

1. Choose to grow grass species compatible with the site and the intended use.
2. Assure the site provides fertile soil, sunlight, air movement, surface drainage, sub-surface drainage, irrigation, and adequate traffic distribution.
3. Soil test
4. Adjust pH and develop a fertility program based on the soil test results
5. [Develop a] mowing program addressing height of cut, frequency of cut, clippings, and maintenance of sharp blades.
6. Use aerification to relieve soil compaction and to control thatch.
7. Use verti-cutting and topdressing to control thatch.
8. Continue to research methods to grow healthy turfgrass.

⁵ P.P. Pirone, et al. Tree Maintenance, 6th ed. New York: Oxford University Press, 1988. p. 264

If the Town finds it necessary to use chemical pesticides, herbicides or fertilizers, the use of such chemicals must be well publicized. Signs that describe the location of the application, as well as the date and the type of application need to be erected in conspicuous places on the Mall.

IX. CONCLUSION

The Mall is one of the most important and beloved public open spaces within the Town of Brunswick. In creating a Master Management Plan for the Mall, the Town of Brunswick has the opportunity to more confidently orchestrate the future of this historic landscape. The goal of this report has been to recommend changes for the Mall's future that strengthen rather than diminish its well-established and much appreciated sense of place. The recommendations contained herein are intended to provide direction that will create a sustainable landscape, but one that is also able to be fully utilized by Brunswick citizens as the community gathering space that it has become. It is our hope that the Mall will continue to grow and change to meet the needs of the people of Brunswick, while remaining the distinguished landscape that it has always been.

APPENDICES

Appendix A: PHASING RECOMMENDATIONS

There are many recommendations contained within this report. While we feel that all of the recommendations are important to the future success of the Mall as a public landscape, realistic priorities need to be set. These phasing suggestions attempt to organize the recommendations in a way that makes sense both logistically and financially. We have organized them into three broad categories in order that the Town can compare these recommendations with the cost estimate and find the combination of improvements that is most appropriate in any given financial year.

Higher Priority

- Policy items with no cost associated with them:
 - Increase use of the Upper Mall
 - Revise the Town Code to include the Mall on its list of parks and facilities
 - Broaden the *Municipal Policy on the Use of the Town Mall*
 - Establish a fine system for violations of Mall regulations (for public, BFMA, and food vendors)
 - Establish a policy defining who will conduct design review for Mall physical improvements
 - Enforce the prohibition of vehicular traffic on the Mall
 - Require a refundable performance bond from BFMA
 - Establish a policy requiring the Village Review Board to review food vendor applications (for aesthetic standards)
 - Modify the permit application for special events to better define policy
 - Encourage a two week rest period between special events with more than 250 attendants
- Transfer the authority of surveillance of the Mall, and the responsibility of processing special events permit applications, to the Parks & Recreation Department.
- Pursue the redevelopment of the Maine Street Station site so that it can serve as an additional source of parking and become the long-term location of the Brunswick Farmers Market.
- Provide permanent surfacing under the food vendor cart locations

- Add a sidewalk and crosswalk at Boody Street and Maine Street at the Upper Mall
- Provide benches at the ice skating rink
- Upgrade electrical service at the bandstand and at food vendor cart locations
- Restore turf at all damaged areas on the Lower Mall
- Install granite curbing at all edges of the Mall
- Develop a tree planting program for the Upper Mall
- Outline an annual maintenance program for the Mall
- Conduct a comprehensive soil and vegetation analysis every 5 years
- Undertake an Integrated Pest Management approach to landscape maintenance

Medium Priority

- Move bicycle racks and permanently affix them to the ground
- Upgrade bench and trash receptacles at the Lower, Middle and Upper Malls
- Install brick sidewalks throughout the Lower Mall
- Install signage at the Lower, Middle and Upper Mall
- Install kiosk at Lower Mall
- Install pay telephone at Lower Mall
- Reconfigure vehicular traffic at Maine Street near Maine Street Station / add a pedestrian crosswalk
- Extend Lower Mall to the north, encompassing the area in front of Bull Moose Music
- Consider the replacement of the bandstand structure

Lower Priority

- Reconfigure the intersection at Bath Road, Park Row and Maine Street

Appendix B: Cost Estimate

Note: Not all recommendations have costs associated with them. As well, other recommendations require further study to determine what improvements would be necessary before being able to estimate their associated costs. Those recommendations that have predictable costs associated with them are broken out into the following estimate.

All costs are approximate in-place composite costs for the year 2000.

<i>Item:</i>	<i>Allowance</i>	<i>Notes</i>
One Time Costs		
Traffic Studies: Maine St. / Bath Rd. intersection, Maine Street/Maine Street Station area	\$15,000.00	
Sidewalk at College St.	\$750.00	Bituminous concrete, 4' wide
Crosswalk at College St.	\$750.00	Allowance
Design Study for Maine St. Station	\$22,000.00	Landscape / Architectural
Construction documents to reconfigure land by Bull Moose Music	\$12,000.00	Specifications / Technical drawings
Cost of implementation of proposal to reconfigure land in front of Bull Moose Music	\$100,000.00	Estimated from DMDP plan
Paving pads under (4) food vendor carts (10'x25' per vendor)	\$12,000.00	Granite cobble w/sand joints
New granite curbing throughout Mall (where currently missing)	\$107,875.00	Majority to be straight curb
Installation of brick pavers for sidewalks at Lower Mall	\$45,750.00	Assumes use of existing gravel base
Replace (21) existing benches	\$17,850.00	High quality park benches
Replace (16) existing trash receptacles	\$12,000.00	High quality park receptacles
Concrete pads for (2) bike racks	\$1,200.00	Rough broom finish
New benches (10) at ice skating rink	\$2,500.00	Simple, backless wood benches
New signs (6) at the Mall	\$3,000.00	Wood posts, metal signs
Information kiosk at the Lower Mall	\$5,000.00	(see figure 18)
New gazebo	\$75,000.00	Stone base / Wood roof
Repairs to concrete and slate floor covering in gazebo	\$5,000.00	
Repairs to wooden steps and seating area in gazebo	\$1,880.00	
New trees (23) at Upper Mall	\$17,250.00	3" caliper
Upgrade electrical service at vendor stalls	\$3,500.00	Estimated allowance
Upgrade electrical service at bandstand	\$1,500.00	Estimated allowance

<i>Item:</i>	<i>Allowance</i>	<i>Notes</i>
Annual Costs		
Additional Parks and Recreation staffing to:		
- provide part-time surveillance at the Mall	\$6,153.00	32 hours/wk from 5/1 thru 10/31
Additional annual landscape maintenance tasks		
- tree pruning	\$1,400.00	
- tree fertilization	\$300.00	
- topdressing	\$1,280.00	120,000 sq.ft. @ \$.01/sq.ft
- lawn fertilization for Upper Mall	\$1,170.00	(Lower Mall already in Parks budget)
- remulching of trees and flower beds	\$2,400.00	
- dead-heading	\$60.00	
- repair / painting of site furnishings	\$780.00	Benches and trash receptacles
- weed control	\$205.00	Corn gluten weed killer
- core aeration - Upper and Lower Malls once	\$780.00	Using Parks & Rec's aerator and drag
Periodic Costs		
Restore turf at Lower Mall		As necessary
- core aerating to 6" depth	\$1,050.00	35,000 sq.ft. @ \$.03/sq.ft.
- soil amendments (mostly topsoil) in place	\$1,260.00	7,000 sq.ft. @ \$.18/sq.ft.
- seeding (ice skating area)	\$1,425.00	25,000 sq.ft. @ \$.057/sq.ft.
- sodding	\$2,780.00	7,000 sq.ft @ \$.397/sq.ft.
- temporary water until established	\$1,700.00	30,000 sq.ft. @ \$.057/sq.ft.
Additional aerations at Lower Mall	\$440.00	Each
Weed control	\$205.00	Corn gluten weed killer
Comprehensive soil analysis	\$4,000.00	Every 5 years-- outside professional
Comprehensive vegetation analysis	\$2,750.00	Every 5 years-- outside professional

Appendix C: SOIL SURVEY

**SOIL CONSULTING SERVICES REPORT
THE "MALL" PARK
BRUNSWICK, MAINE**

99-981 D DECEMBER 29, 1999

TABLE OF CONTENTS

1.0 INTRODUCTION	1
1.1 Scope of Services	1
1.2 Appendices	1
2.0 SUMMARY OF FINDINGS	2
3.0 SITE LOCATION	2
4.0 EXPLORATION AND TESTING	3
5.0 CLASS C – MEDIUM HIGH INTENSITY SOIL SURVEY	4
5.1 General Site and Subsurface Conditions	4
5.2 Soil Descriptions	5
6.0 SOIL FERTILITY TESTING	5
6.1 General Observations	5
6.2 Soil Fertility Analysis	6
6.3 Fertility Recommendations	7
6.4 Other Observations	8
7.0 SOIL COMPACTION	9
7.1 Soil Compaction Observations	9
7.2 Compaction Recommendations	10
8.0 SUMMARY AND RECOMMENDATIONS	10
9.0 CLOSURE	11
APPENDIX A - Limitations	
APPENDIX B - Site Locus/Class C-Medium High Intensity Soil Survey & Testing Plan	
APPENDIX C - Soil Mapping Unit Descriptions	
APPENDIX D - Soil Conditions Summary Table & Soil Description & Classification Logs	
APPENDIX E - Soil Fertility Testing Results	
APPENDIX F - Glossary	
APPENDIX G - Methodology	

99-981 D

December 29, 1999

Richardson & Associates Landscape Architects
Attention: Allison Towne
176 Main Street
Saco, ME 04072

Subject: Soil Consulting Services Report
The "Mall" Park
Brunswick, Maine

1.0 INTRODUCTION

In accordance with our Proposal dated October 25, 1999, signed by you on November 11, 1999, we are pleased to submit our Soil Consulting Services Report for the "Mall" Park in Brunswick, Maine. The park is approximately 7 acres in size and is a multi-use area with both high and low pedestrian and vehicle traffic areas.

1.1 Scope of Services

We conducted a Class C – Medium High Intensity Soil Survey of the park, providing information on soil texture, structure, consistence, and drainage class for planning purposes. We also conducted composite sampling of surface soils in areas of the park selected by their relative use patterns. These composite samples were tested for soil fertility including exchangeable salt, providing information on the soil as a growth medium. We also conducted surface phase compaction examinations during the composite sampling phase of our work.

1.2 Appendices

This report is subject to the limitations attached in Appendix A. Appendix B contains a Site Locus and Class C – Medium High Intensity Soil Survey and Testing Plan. The Plan illustrates the location, type, and extent of the soils we observed within the site, as well as the locations of the fertility testing areas. Appendix C contains Soil Mapping Unit Descriptions for each soil series we identified on the site. Appendix D contains a



99-981 D
December 29, 1999

Soil Conditions Summary Table and Soil Description and Classification Logs for each test pit. Appendix E contains copies of the soil fertility testing results received from the Maine Soil Testing Service. Appendix F contains a glossary. Appendix G contains methodology, which also describes the minimum standards established by the Maine Association of Professional Soil Scientists for this level of soil investigation.

2.0 SUMMARY OF FINDINGS

The following is a summary of our findings:

- High pedestrian and vehicular traffic use areas within the park, as evidenced by areas of poor or no turfgrass growth and/or weedy growth, exhibited "firm" or "very firm" consistencies within the top 2" of the soil surface. These "firm" and "very firm" areas appear to be due to compaction caused by the heavy use. Compaction precludes vigorous turfgrass growth as it causes a restriction in water movement down through the soil and reduces the potential for survival of plant roots.
- Soil fertility analyses showed that general soil fertility in the park is good to excellent, with near optimal pH and Cation Exchange Capacity (CEC) levels. Soil organic matter and nitrate-N (one form of plant available nitrogen), however, were below the optimum range. We did not find a correlation between reduced organic matter and nitrogen levels with areas of soil compaction. Low organic matter and plant-available nitrogen could decrease optimal turfgrass growth. Low organic matter could make the soil more susceptible to compaction.

3.0 SITE LOCATION

The approximately 7-acre park is located within an approximately 1 mile long portion of the Maine Street median strip in Brunswick, Maine. The northernmost and most heavily used section of the park is in downtown Brunswick and is referred to as the "Lower Mall" in this report. The southernmost and least used section of the park is on the Bowdoin College campus and is referred to as the "Upper Mall" in this report.



99-981 D
December 29, 1999

4.0 EXPLORATION AND TESTING

We conducted our field investigation on November 18, 1999. For the Class C Soil Survey, we explored 6 hand-dug test pits in various locations throughout the park. We located the test pits onto the Site Plan using a hand compass and measuring tape or pacing to known locations. The test pits were not labeled in the field.

For the soil fertility testing, we collected composite surface soil samples from eight areas within the park based on perceived differences in relative use patterns. Each composite sample included surface soil from at least 12 different surface test pits within the sample area. Refer to our Soil Survey and Testing Plan in Appendix B, which illustrates the eight areas. Five of these areas were chosen for testing by the client. The additional three were chosen by us based on professional judgement. The eight areas chosen for testing are labeled and described in the following manner:

<u>Sample Name and #</u>	<u>Description</u>
Upper Mall #1	Includes southernmost end of Upper Mall section of park, approximately 1800' along Maine Street. Area appeared in light use and grass was "undamaged".
Upper Mall #2	Includes northernmost end of Upper Mall section of park, approximately 1300' along Maine Street. Area appeared in light use and grass was "undamaged".
Vendor #1	Includes an approximately 20,000-sq.ft. area in the Lower Mall in perceived "undamaged" grass areas around farmers market and food vendor areas.
Vendor #2	Includes an approximately 5000-sq. ft. area in the Lower Mall where food vendors are set up from approximately March to December of each year. Area appeared in heavy use and grass was "damaged".



99-981 D
December 29, 1999

- Vendor #3 Includes an approximately 5000-sq.ft. area in the Lower Mall where a farmers market is set up from approximately May to November of each year. Area appeared in heavy use and grass was "damaged".
- Ice Skating #1 Includes an approximately 26,250-sq.ft. area in the Lower Mall where between December and March each year the ground is flooded for the purpose of providing an ice skating rink. The sample is taken from perceived "undamaged" grass areas within the rink area.
- Ice Skating #2 Includes an approximately 26,250-sq.ft. area in the Lower Mall that is flooded as described above. The sample is taken from perceived "damaged" grass areas (either no grass, "patchy" grass, or weedy areas) within the rink area.
- Lower Mall #1 Includes an approximately 17,500-sq.ft. area in the Lower Mall that is located between the farmers market area and School Street. Area appeared in light use and grass was "undamaged".

5.0 CLASS C – MEDIUM HIGH INTENSITY SOIL SURVEY

5.1 General Site and Subsurface Conditions

The survey area is dominated by deep or very deep (>60") loamy over fine sandy stratified glaciofluvial deposits. We observed between 9"-14" of loamy or sandy fill over the original soil surface in the Lower Mall and between 11"-15" of loamy fill over the original soil surface in the Upper Mall. The fill appeared to be fairly old (>100 years according to client) and was placed in two to three layers. We observed broken brick



99-981 D
December 29, 1999

fragments within the fill at TP3, near the ice skating area, otherwise the fill appeared clean of debris.

5.2 Soil Descriptions

We identified the soils in the park as a somewhat excessively drained phase of Duxbury fine sandy loam soils. The filled layers over the original soils fit, by texture, into the soil series description for unfilled soils. This fill should not affect use and management for turfgrass growth in a park.

Duxbury soils were formed in glaciofluvial deposits on outwash plains and terraces. Soil textures range from a fine sandy loam to a loamy sand in the surface, subsurface and subsoil horizons, and from a gravelly loamy fine sand to a loamy sand in the substratum (C horizons). Permeability is "moderately rapid" (2.0-6.0"/hr.) in the loamy solum and rapid (6.0-20.0"/hr.) or very rapid (>20.0"/hr.) in the substratum.

According to the Soil Interpretations Record by the NRCS, Duxbury soils have a "low" potential for frost action and, on 0-8% slopes, have "slight" limitations for lawns and landscaping. We believe potential limitations for turfgrass growth on a somewhat excessively drained phase of Duxbury soils would be "slight" due to droughtiness and depth to the seasonal water table (>40"). A soil mapping unit description, which provides further details on the major soil type identified during our investigations, is included in Appendix C.

6.0 SOIL FERTILITY TESTING

6.1 General Observations

We performed composite sampling of surface soils in eight areas that were generally representative of use patterns. The samples were sent to the Maine Soil Testing Service for fertility testing. The eight areas are described above in Section 4.0, Explorations and Testing, and are illustrated on our Soil Survey and Testing Plan, included in Appendix B.



99-981 D
December 29, 1999

We observed both the Upper and Lower Mall for general use patterns based on both poor and good turfgrass growth. It appears that more heavily trafficked areas in the Lower Mall exhibit very poor grass growth ("damaged" areas, i.e. either no grass, "patchy" grass, or weedy areas) while less trafficked areas in both the Lower and Upper Mall sections exhibit good growth ("undamaged areas", i.e. healthy, dense grass growth).

6.2 Soil Fertility Analysis

We received results of the soil fertility tests from the Maine Soil Testing Service on December 22, 1999. Copies of the results are included in Appendix E.

In general, it appears that soil fertility is good to excellent. All of the samples had near optimal pH levels and good cation exchange capacity (CEC - a measure of a soil's capacity to adsorb nutrient cations, which are in available forms for plant uptake, and "hold" the nutrients for release to the plants). All sodium levels are within normal ranges, reducing the possibility that winter salt is contributing to the poor health of the grass. All of the samples, except for Upper Mall #1, showed excessive amounts of phosphorous, and several of the samples showed excessive amounts of potassium, calcium and/or magnesium. The levels of these nutrients, as reported, are not within the toxicity range for plants, but are above the optimum range and could be leached out of the soil and therefore is considered excess or waste.

It appears, due to the excesses noted above, that these soils may have been recently limed or fertilized with base forming soil nutrient cations. As stated on the Soil Testing Reference Sheet (included at end of fertility testing results from the Maine Soil Testing Service) *"If you have applied lime within six months prior to sampling your soil, it has not completely reacted yet and has not adjusted the pH level to the full extent that it will."* If lime was added within the past six months, we recommend skipping the next application to allow the excessive nutrients to reach a stasis with the soil. The possibility exists that the excessive nutrients are inherent in the fill material.



99-981 D
December 29, 1999

Soil organic matter and nitrate-N (one form of plant-available nitrogen) were below the "optimum range" in all but two of the eight samples each. Organic matter is an important soil constituent for many reasons: water retention, maintenance of soil tilth and structure, and increased CEC. Nitrogen is a macronutrient, which means that it is needed in significant quantities for optimal plant growth. Low plant-available nitrogen levels in the soil can decrease plant vigor and ability to handle stress. The addition of organic matter and (preferably) plant-available nitrogen (Nitrate - NO_3 , Ammonium - NH_4) into the soil at this site would greatly increase the ability of grass to grow there.

6.3 Fertility Recommendations

Listed below are three suggestions for improving soil organic matter and nitrogen levels. These suggestions are presented in order from the fastest, but more expensive alternative to the slower, more inexpensive alternative. Since the Lower Mall appears to have the grass "damage" due to heavy use, it may be more feasible to apply these suggestions to only the Lower Mall.

1. Kill or remove sod. Till soil in the park to 6" or greater in depth (giving trees a wide setback) incorporating approximately 1 pound cow manure, compost, or other organic matter (with similar nitrogen availability rating) per 1000-sq.ft., and 1"-2" thickness of peat moss into the surface soil. Grade tilled area and place new sod. New sod should be chosen for cold hardiness and resistance to heavy traffic. Follow BMP's for erosion control. Do not till during excessively wet or excessively dry times of the year. Follow suggestion #4 for application of organic matter and nitrogen fertilizer in subsequent years.
2. Kill or remove sod. Till soil in the park to 6" or greater in depth (giving trees a wide setback) incorporating approximately 1 pound cow manure, compost, or other organic matter (with similar nitrogen availability rating) per 1000-sq.ft., and 1"-2" thickness of peat moss into the surface soil. Grade tilled area and plant with a cold tolerant annual and perennial grass seed mixture that includes species resistant to disturbance (i.e. with a dense root mat). If healthy sod was removed, it can be reapplied to the surface of the tilled and graded ground. Follow BMP's for erosion



99-981 D
December 29, 1999

control and seeding. Do not till during excessively wet or excessively dry times of the year. Follow suggestion #4 for application of organic matter and nitrogen fertilizer in subsequent years.

3. Kill or remove sod on "damaged" areas of the park only. Follow suggestion above for these areas. Follow suggestion #4 for application of organic matter and nitrogen fertilizer in subsequent years.
4. As suggested by the Maine Soil Testing Service in the fertility testing results, "*Set mower high and leave clippings on when mowing. Apply pelletized organic matter each year...*" A mulching mower would also give the same desired results of increased organic matter. In a park setting, leaving grass clippings on the lawn could be aesthetically undesirable for park users. Application of pelletized organic matter every year will produce the same result. Follow the manufacturer instructions for application rates.

Apply a nitrogen fertilizer at a rate of "2.0 pounds per 1000-sq.ft." two times per year. (Note: 10 pounds of a fertilizer spread over 1000-sq.ft. with an N-P-K rating of 20-P-K will produce the desired 2.0 pounds/1000-sq.ft., as will 20 pounds of a 10-P-K fertilizer or 8 pounds of 24-P-K. We suggest the P rating be below 10 and the K rating be below 15 for application in this park). Have soil fertility testing done approximately every 5 years and adjust the application rates accordingly.

If suggestions #1, #2 or #3 are used, do not apply nitrogen fertilizer the first year in areas that were tilled and reseeded or sodded. After the first year, apply fertilizer at a rate of 1.0 pounds per 1000-sq.ft. (5 pounds of 20-P-K, for example) one time per year for 5 years. Have soil fertility testing done approximately every 5 years and adjust the application rates accordingly.

6.4 Other Observations

The Maine Soil Testing Service detected "*moderate contamination*" with lead in two of the soil fertility analyses, Vendor #2 and Ice Skating #2. We spoke with Mr. Bruce



99-981 D
December 29, 1999

Hoskins of the Maine Soil Testing Service on December 22, 1999 to clarify the results. Mr. Hoskins related that the type of lead testing done for soil fertility tests is equivalent to a lead screening and is not a quantitative test. He said that the two samples would be sent to the State Health and Environmental Testing Laboratory (HETL) for further tests since we indicated to him that the samples were taken from areas that were actively used by people.

S. W. COLE ENGINEERING, INC. has assessed other properties in the downtown area of Brunswick where coal ash has been used for fill or remained from former industry in the area. Coal ash can have high levels of lead in it, as well as other contaminants. We observed a dark colored material in areas of the filled soils at the park that may or may not be coal ash. Our composite sampling for fertility analysis was conducted in the surface soils and not in the lower filled horizons that appeared to contain the darker material. Our recommendations for mitigating organic matter and nitrogen deficiencies, and soil compaction, including tilling, should not be completed until we receive test results from HETL. We will provide further recommendations regarding possible lead contamination at the park upon our receipt and review of the test results. We estimate that review of the results by an environmental scientist will cost approximately \$100 over our original estimated costs.

7.0 SOIL COMPACTION

7.1 Soil Compaction Observations

We made observations of soil compaction in each of the eight "use" areas that were tested for fertility. In general, high traffic areas exhibited "firm" or "very firm" consistence within the upper 2" of the soil surface layer, which appears to be caused by compaction from heavy pedestrian and vehicular traffic use. "Firm" and "very firm" soil consistencies restrict water movement down through the soil and plant rooting ability.

The following were our observations by area:

Upper Mall #1 – Surface soils were friable.



99-981 D
December 29, 1999

- Upper Mall #2** – Surface soils were friable.
Vendor #1 – Surface soils were very firm to 2" in depth.
Vendor #2 – Surface soils were firm to 2" in depth.
Vendor #3 – Surface soils were friable.
Ice Skating #1 – Surface soils were friable.
Ice Skating #2 – Surface soils were firm to 2" in depth.
Lower Mall #1 – Surface soils were friable.

7.2 Compaction Recommendations

Soil compaction can be mitigated by: 1) tilling or otherwise breaking up the firm or very firm soil surface layer, incorporating organic matter into the surface, and sodding or replanting with a cold tolerant traffic resistant grass mix species (not to be done during excessively wet or excessively dry conditions); 2) tilling or otherwise breaking up the firm or very firm soil surface layer, placing a layer of clean loam or fine sandy loam fill over the existing grade, and sodding or replanting with a cold tolerant traffic resistant grass mix species (not to be done during excessively wet or excessively dry conditions); or 3) placing gravel, crushed stone, bricks, pavers, or other surfaces over the compacted and heavily trafficked areas to channel the majority of use and traffic off of grassed areas.

8.0 SUMMARY AND RECOMMENDATIONS

We conducted a Class C – Medium High Intensity Soil Survey of the "Mall" park in Brunswick, Maine. We classified the soils in the park as a somewhat excessively drained phase of Duxbury fine sandy loam, 0 to 3 percent slopes. According to the NRCS, Duxbury soils have a "low" potential for frost action and, on 0-8% slopes, have "slight" limitations for lawns and landscaping. We believe potential limitations for grass growth would be due to droughtiness and depth to the seasonal water table (>40"). Permeability is "moderately rapid" (2.0-6.0"/hr.) in the loamy solum and rapid (6.0-20.0"/hr.) or very rapid (>20.0"/hr.) in the sandy substratum.

We conducted soil fertility sampling in eight areas of the park based on perceived use patterns. Fertility results received from the Maine Soil Testing Service indicated good



99-981 D
December 29, 1999

overall fertility of the soils in the park. However, soil organic matter content and available nitrogen levels are not optimal and should be raised for more vigorous grass growth. We recommend soil organic matter and nitrogen be applied to the soil at the rates recommended in Section 6.3 of this report. Due to the "moderate contamination" with lead found in two of the samples, we further recommend that this work not be begun until receipt of lead testing by the State Health & Environmental Testing Laboratory.

We conducted surface phase compaction testing in the eight use areas in which we conducted soil fertility analysis. There appears to be a correlation between soil compaction, as indicated by "firm" or "very firm" soil consistence in the soil surface, and heavily trafficked areas. Our recommendations for mitigation of soil compaction are included in Section 7.2.

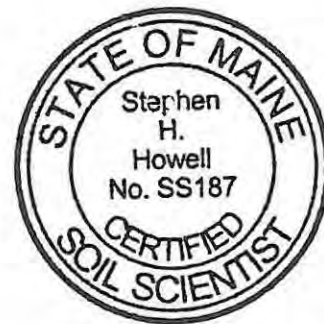
9.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. If you have any further questions, or if we may be of further assistance, please do not hesitate to contact us.

Very truly yours,

S. W. COLE ENGINEERING, INC.

Stephen H. Howell, C.S.S.



Donald W. Phillips for AMB
Aleita M. Burman, C.S.S.



SHH-AMB:amb/jgr/slh

F:\PROJECTS\1999\99-981 D The Mall - Brunswick\99-981 Soils Report.doc

APPENDIX A

Limitations

APPENDIX A

Limitations

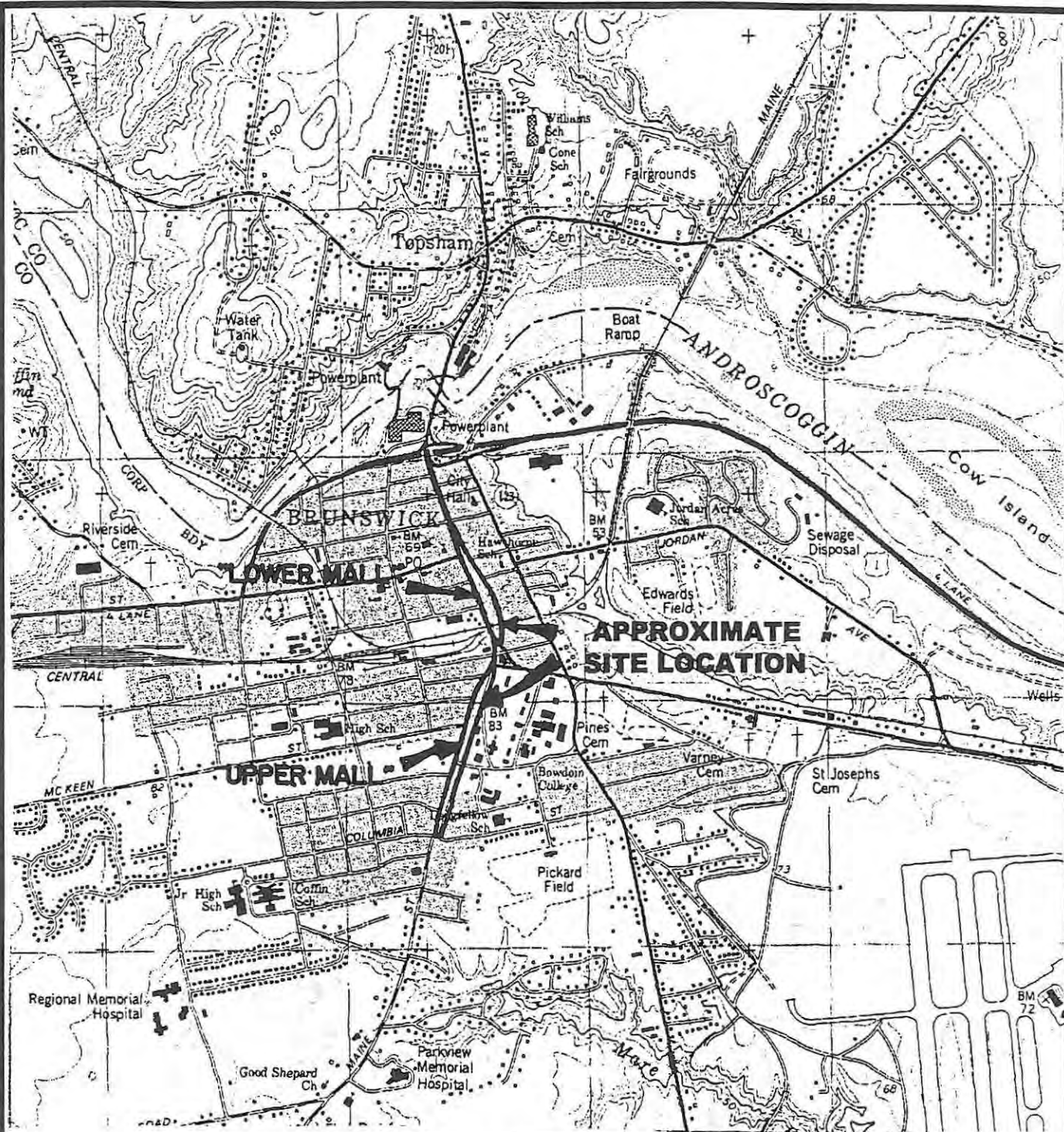
This report has been prepared for the exclusive use of Richardson & Associates for specific application to the "The Mall" park in Brunswick, Maine. S. W. COLE ENGINEERING, INC. has conducted the work in accordance with generally accepted soil science practices. No other warranty, expressed or implied, is made.

This investigation was conducted, compiled and reported in general accordance with guidelines described in the Guidelines for Maine Certified Soil Scientists for Soil Identification and Mapping (1995). The conclusions and recommendations presented in this report are based upon the data obtained from the areas explored.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from explorations made at the site, published information from the USDA Natural Resources Conservation Service, and laboratory soil fertility results from the Maine Soil Testing Service. Variations in subsurface conditions may occur between explorations and in soil fertility over time. If variations in subsurface conditions or fertility become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

APPENDIX B

Site Locus/Class C – Medium High Intensity Soil Survey & Testing Plan



S.W. COLE

ENGINEERING, INC.
GEOTECHNICAL CONSULTANTS

RICHARDSON & ASSOCIATES

SITE LOCATION MAP

Soil Consulting Services
"The Mall" Park
Brunswick, Maine

NOTE:

Base map taken from DeLorme 3-D
TopoQuads.



Job No. 99-981 D
Date: 12/23/98

Scale 1 : 24,000
Sheet B-1

APPENDIX C

Soil Mapping Unit Descriptions

(DxA) Duxbury fine sandy loam, somewhat excessively drained phase
0 to 3% slope

Depth to Bedrock: Very deep (greater than 60 inches)

Drainage: Somewhat excessively drained. Redoximorphic features occur at greater than 40 inches below the soil surface.

SETTING

Parent Material: Glaciofluvial deposits

Landform: Broad plain

Landscape Position: Level upland

TYPICAL PROFILE DESCRIPTION

A typical pedon for this soil was described at TP1. Typically, the surface is covered with 9 inches friable fine sandy loam fill placed in two layers. The surface layer is 6 inches of friable, black, fine sandy loam. The subsoil is 5 inches of friable, dark yellowish brown sandy loam over 13 inches of olive brown gravelly loamy sand. The substratum is stratified olive brown gravelly loamy fine sand over light olive brown loamy fine sand to 45 inches or more in depth. It is firm in place but not restrictive to root growth or water movement.

INCLUSIONS

Similar:

WATER RELATED INFORMATION

Permeability: Moderately rapid (2.0-6.0 in/hr) in the solum and rapid (6.0-20.0 in/hr) or very rapid (>20.0 in/hr) in the substratum

Surface Runoff: Slow

Hydrologic Group: A

K-Factor: 0.32 in the surface layer, 0.49 in the subsurface layer, 0.28 in the subsoil layers, and 0.17 in the substratum

Flooding Potential: None

USE AND MANAGEMENT

Soil limitations for lawns and landscaping are "slight". Because we have placed a somewhat excessively drained phase on this soil, we believe "slight" limitations would be due to droughtiness. Sheepscot soils have a water table depth of between 16 and 40 inches below the soil surface from November to May in most years. Potential frost action is "low".

APPENDIX D

Soil Conditions Summary Table & Soil Description & Classification Logs

Page 1 of 1

Project name:

"THE MALL" PARK

Project #

99-981 D

Applicant name:

RICHARDSON : ASSOCIATES

Consultant name:

S.W. COLE ENGINEERING, INC.

Project location (municipality):

BRUNSWICK, MAINE

Type of investigation:

Professional Endorsements (as applicable)

S.E.

signature:

Date:

name printed/typed:

Lic. #:

C.S.S.

signature:

Date: 12/28/99

name printed/typed: STEPHEN A HOWELL

Cert. #: 187

C.G.

signature:

Date:

name printed/typed:

Сер. #:

space for
professional stamp

SOIL TESTING REFERENCE SHEET

Dear Customer:

Enclosed are the test results from the soil sample (s) you recently submitted. Please read both sides of this page for important information regarding your results and recommendations and where to direct your questions. Soil test results can be confusing! Feel free to ask questions if you have any.

SAMPLE INFORMATION

All background information concerning the sample area is listed at the top of the report form. Please note the **LAB NUMBER** in the upper left corner. This is our reference number for this sample. If you are paying for analysis or if you have any questions regarding this sample, please list this number.

RELATIVE NUTRIENT LEVELS

Ordinarily, most of the numerical results should be of minor concern. These results have been interpreted for you in the 'Relative Soil Nutrient Level' section. The bar graphs in that section show what the current pH and nutrient levels are in your soil relative to what they ideally should be for the crop listed.

RECOMMENDATIONS

Please check the crop name and cropcode in the 'Recommendations' section to be sure the correct crop and growth stage (new seeding vs. existing) is listed. All recommendations key on the cropcode number. If it is incorrect, write or call the Maine Soil Testing Service to receive a corrected recommendation.

Please note If you have applied lime within six months prior to sampling your soil, it has not completely reacted yet and has not adjusted the pH level to the full extent that it will. Subtract any lime application made within the last six months from our recommendations and apply only that reduced amount.

Be sure to read all information in the 'Recommendations' section. Often the management tips are just as important as the lime and fertilizer recommendations.

BILLING

At the very bottom of each form is a statement indicating our records of your payment for the analysis of that one sample. If you have not prepaid in full for your soil test, an invoice will also be enclosed. Be sure you have received credit for any payment you sent with your sample(s). If there is an error in our records, please write or call the Maine Soil Testing Service so that we may correct your account.

PROBLEMS

If you have a problem or question on the interpretation of your results or recommendations, please contact the nearest county Cooperative Extension office listed on the back of this form. An educator or crop specialist should be able to help you with most questions concerning soil testing.

Refer any problems relating to questionable results, additional analysis, incorrect cropcodes, billing issues, etc. to:

Maine Soil Testing Service
5722 Deering Hall
Orono ME 04469-5722

(207)581-2945
or
(207)581-3591

2/15/1999	7268	LOWER MALL #1	CUMBERLAND	
DATE	LAB NO.	SAMPLE IDENTIFICATION	COUNTY	ACRES OR SQ. FT.

• SOIL TEST REPORT FOR:

ALEITA BURMAN - S.W. COLE ENGINEERING
6 LIBERTY DRIVE
BANGOR ME 04401

MAINE SOIL TESTING SERVICE
UNIVERSITY OF MAINE
5722 DEERING HALL
ORONO, MAINE 04469-5722

• RELATIVE SOIL TEST LEVELS

LOW MEDIUM OPTIMUM EXCESSIVE

PHOSPHORUS (P)	XXX	XXXX
POTASSIUM (K)	XXX	
CALCIUM (Ca)	XXX	
MAGNESIUM (Mg)	XXX	
SOIL pH	XXX	
ORGANIC MATTER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	

• RECOMMENDATIONS FOR LAWN-EXISTING - Crop Code # 201

Soil pH is near or above the optimum level for this crop. No lime recommended.

Magnesium level is sufficient to meet crop requirement.

Calculated major nutrient requirements as follows:

- 2.0 pounds nitrogen per 1000 sq. ft.
- 0.0 pounds phosphate per 1000 sq. ft.
- 0.9 pounds potash per 1000 sq. ft.

To meet major nutrient requirements:

- Apply 8 lb 24-0-11 or 6-7 lb 30-0-15 fertilizer/1000 sq. ft.
- Apply 1/2 in early spring and 1/2 in mid to late August.
- Apply fertilizer when grass is dry and water in immediately to prevent burn.
- Apply 1/2 the recommended nutrients if clippings are left on.
- For organic fertilizers: adjust the application rate to provide 1 lb N/1000 sq. ft. and apply the full rate in the spring.

LABORATORY RESULTS

CEC and nutrient balance calculations are based on present pH of 6.1

Level Found	6.1	6.5	18.7	157	360	1787	6.1	3.3	24.1	72.6	0.0
	Soil pH	Lime Index	P (lb/A)	K (lb/A)	Mg (lb/A)	Ca (lb/A)	CEC (me/100gm)	K	Mg (% Saturation)	Ca	Acidity
Optimum Range	5.5-6.5	N/A	7-10	see % Saturation levels			> 5	2.8-4.0	10-25	60-80	< 10
Level Found	4.3	N/A	30	N/A	8 (low)						
	Organic Matter (%)	Zinc (ppm)	Sodium (ppm)	Soluble Salts (mmhos/cm)	Nitrate-N (ppm)						
Optimum Range	5 - 8		----		----						

Additional Results

Lead scan: NORMAL BACKGROUND LEVEL - no health risk.

Project Name: Brunswick Mall Soil Survey		Applicant Name: Richardson & Associates	
Symbol: <i>DxA</i>	O Horizon Thickness: <i>0"</i>	Symbol: <i>DxA</i>	O Horizon Thickness: <i>0"</i>
Test Pit: TP 1	Hydric (y/n): <i>No</i>	Test Pit: TP 2	Hydric (y/n): <i>No</i>
Soil Name: <i>Duxbury fine sandy loam, well drained</i>		Soil Name: <i>Duxbury fine sandy loam, well drained</i>	

Horiz	0	Texture	Consistency	Color	Mottling
<i>A₁</i>	1				
	2			10YR 3/1	
	3				
	4				
<i>A₂</i>	5	<i>fine</i>			
	6	<i>sandy</i>			
	7	<i>loam</i>	<i>friable</i>	10YR 3/2	<i>none observed</i>
	8				
	9				
<i>2Ap</i>	10				
	12			10YR 2/1	
	14				
<i>2Bs</i>	16	<i>sandy</i>			
	18	<i>loam</i>		10YR 4/6	
	20				
<i>2BC</i>	25	<i>gravelly sandy loam</i>		2.5Y 4/4	
	30				
<i>2C₁</i>	35	<i>gravelly loamy fine sand</i>			
	40		<i>firm in place (not rest)</i>		
<i>2C₂</i>	45	<i>loamy fine sand</i>		2.5Y 5/3	<i>cm⁺ 2.5Y 4/3</i>
	50				<i>do not appear to be drainage moths</i>
	55	<i>LLI = 45"</i>			
	60				
	65				
	70				
	75				
	80				

Horiz	0	Texture	Consistency	Color	Mottling
<i>A₁</i>	1		<i>firm</i>	10YR 3/1	
	2				
	3				
	4	<i>loamy fine sand</i>			
<i>A₂</i>	5			10YR 3/2	
	6				
	7				<i>none observed</i>
	8		<i>friable</i>		
	9				
<i>2Ap</i>	10				
	12	<i>fine sandy loam</i>		10YR 2/1	
	14				
<i>2Bs</i>	16				
	18	<i>gravelly sandy loam</i>		10YR 5/4	
	20				
<i>2BC</i>	25				
	30			2.5Y 4/4	
<i>2C₁</i>	35	<i>gravelly loamy fine sand</i>			
	40		<i>firm in place (not rest)</i>		
<i>2C₂</i>	45	<i>loamy fine sand</i>		2.5Y 5/3	<i>cm⁺ 2.5Y 4/3</i>
	50				<i>do not appear to be drainage moths</i>
	55	<i>LLI = 45"</i>			
	60				
	65				
	70				
	75				
	80				

C.S.S.	Name: <i>[Signature]</i>	Date: <i>12/29/99</i>
--------	--------------------------	-----------------------

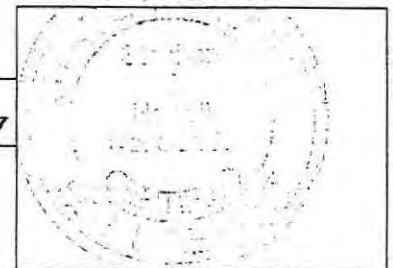


Project Name: Brunswick Mall Soil Survey		Applicant Name: Richardson & Associates	
Symbol: Dx A	O Horizon Thickness: 0"	Symbol: Dx A	O Horizon Thickness: 0"
Test Pit: TP 3	Hydric (y/n): No	Test Pit: TP 4	Hydric (y/n): No
Soil Name: Duxbury fine sandy loam, swe drained		Soil Name: Duxbury fine sandy loam, swe drained	

Horiz	0	Texture	Consistency	Color	Mottling
A ₁	1			10YR 3/1	
	2			↓	
	3				
	4				
A ₂	5			10YR 3/2	
	6			↓	
	7	fine		↓ none	
2A	8	sandy	friable	10YR 2/1 ↓ observed	
	9	loam		7.5YR 3/4	
2Bw	10			? 10YR 3/4	
	12			↓	
2E	14			10YR 6/3 ↓	
2Bhs				7.5YR 3/4 ↓	
	16			↓	
3Ap	18			10YR 2/1	
	20			↓	
3Bw	25			10YR 3/2	
	30			↓	
Bs	35	gravelly sandy loam		10YR 4/4 ↓	
3BC	40	gravelly loamy fine sand		2.5Y 5/4 ↓	
	45	LLI = 40"			
	50				
	55				
	60				
	65				
	70				
	75				
	80				

Horiz	0	Texture	Consistency	Color	Mottling
A ₁	1			10YR 3/1	
	2			↓	
	3				
	4				
A ₂	5	fine		10YR 3/2	
	6	sandy		↓	
	7	loam		↓ none	
	8			↓ observed	
	9		friable	↓	
2Ap	10				
	12			10YR 2/1	evidence of old fluct. water table
	14			↓	
2E	16			10YR 6/1	water from ice rink could be causing seasonal
	18	gravelly		↓	high water table
2Bw	20	sandy			before biological begins
	25	loam		10YR 2/2	
	30			↓	
2B	35			10YR 3/3	
	40			↓	
2BC	45	gravelly loamy fine sand		2.5Y 5/4 ↓	
	50	LLI = 45"			
	55				
	60				
	65				
	70				
	75				
	80				

C.S.S.	Name:	Date: 12/28/99
--------	-------	----------------

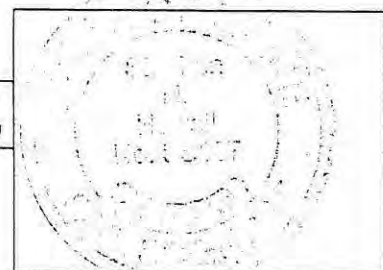


Project Name: Brunswick Mall Soil Survey		Applicant Name: Richardson & Associates	
Symbol: <i>Dx A</i>	O Horizon Thickness: <i>0"</i>	Symbol: <i>Dx A</i>	O Horizon Thickness: <i>0"</i>
Test Pit: TP 5	Hydric (y/n): <i>No</i>	Test Pit: TP 6	Hydric (y/n):
Soil Name: <i>Duxbury fine sandy loam, well drained</i>		Soil Name: <i>Duxbury fine sandy loam, well drained</i>	

Horiz	0	Texture	Consistency	Color	Mottling
	1			10YR 3/1	
<i>A₁</i>	2	<i>fine</i>			
	3	<i>sandy</i>		10YR 3/2	
<i>A₂</i>	4	<i>loam</i>			
<i>2E</i>	5			10YR 6/2	
	6				
	7	<i>sandy</i>	<i>friable</i>		<i>none</i>
<i>B_s</i>	8	<i>loam</i>		10YR 4/4	<i>observed</i>
	9				
	10				
	12			10YR 5/2	
<i>2E'</i>	14			10YR 3/3	
<i>2B_{hs}</i>	16				
	18	<i>loamy</i>		10YR 4/6	
<i>3B_s</i>	20	<i>fine sand</i>			
	25				
<i>3BC</i>	30	<i>loamy sand</i>		2.5Y 6/4	
	35				
<i>3C</i>	40		<i>firm in place</i>	2.5Y 5/4	
	45				
	50	<i>LLI = 45"</i>			
	55				
	60				
	65				
	70				
	75				
	80				

Horiz	0	Texture	Consistency	Color	Mottling
	1			10YR 3/1	
<i>A₁</i>	2	<i>fine</i>			
	3	<i>sandy</i>			
<i>A₂</i>	4	<i>loam</i>		10YR 3/2	
	5				
	6		<i>friable</i>		<i>none</i>
	7	<i>sandy</i>		10YR 5/6	<i>observed</i>
<i>B_s</i>	8	<i>loam</i>		10YR 3/3	
	9				
	10				
	12				
	14				
	16			2.5Y 6/4	
	18	<i>loamy</i>			
<i>2B_s</i>	20	<i>sand</i>			
	25				
	30				
	35				
	40				
<i>2C</i>	45		<i>firm in place</i>	2.5Y 5/3	
	50	<i>LLI = 45"</i>			
	55				
	60				
	65				
	70				
	75				
	80				

C.S.S.	Name: <i>[Signature]</i>	Date: <i>12/28/99</i>
--------	--------------------------	-----------------------



APPENDIX E

Soil Fertility Testing Results

Sample Name and #	Description
Upper Mall #1	Includes southernmost end of Upper Mall section of park, approximately 1800' along Maine Street. Area appeared in light use and grass was "undamaged".
Upper Mall #2	Includes northernmost end of Upper Mall section of park, approximately 1300' along Maine Street. Area appeared in light use and grass was "undamaged".
Vendor #1	Includes an approximately 20,000-sq.ft. area in the Lower Mall in perceived "undamaged" grass areas around farmers market and food vendor areas.
Vendor #2	Includes an approximately 5000-sq. ft. area in the Lower Mall where food vendors are set up from approximately March to December of each year. Area appeared in heavy use and grass was "damaged".
Vendor #3	Includes an approximately 5000-sq.ft. area in the Lower Mall where a farmers market is set up from approximately May to November of each year. Area appeared in heavy use and grass was "damaged".
Ice Skating #1	Includes an approximately 26,250-sq.ft. area in the Lower Mall where between December and March each year the ground is flooded for the purpose of providing an ice skating rink. The sample is taken from perceived "undamaged" grass areas within the rink area.
Ice Skating #2	Includes an approximately 26,250-sq.ft. area in the Lower Mall that is flooded as described above. The sample is taken from perceived "damaged" grass areas (either no grass, "patchy" grass, or weedy areas) within the rink area.
Lower Mall #1	Includes an approximately 17,500-sq.ft. area in the Lower Mall that is located between the farmers market area and School Street. Area appeared in light use and grass was "undamaged".

2/15/1999	7271	UPPER MALL #1	CUMBERLAND	2 Acres
DATE	LAB NO.	SAMPLE IDENTIFICATION	COUNTY	ACRES OR SQ. FT.

• SOIL TEST REPORT FOR:

ALEITA BURMAN - S.W. COLE ENGINEERING
6 LIBERTY DRIVE
BANGOR ME 04401

MAINE SOIL TESTING SERVICE
UNIVERSITY OF MAINE
5722 DEERING HALL
ORONO,MAINE 04469-5722

• RELATIVE SOIL TEST LEVELS

	LOW	MEDIUM	OPTIMUM	EXCESSIVE
PHOSPHORUS (P)	XX			
POTASSIUM (K)	XX			
CALCIUM (Ca)	XX			
MAGNESIUM (Mg)	XX			
SOIL pH	XX			
ORGANIC MATTER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			

• RECOMMENDATIONS FOR LAWN-EXISTING - Crop Code # 201

Soil pH is near or above the optimum level for this crop. No lime recommended.

Magnesium level is sufficient to meet crop requirement.

Calculated major nutrient requirements as follows:

- 2.0 pounds nitrogen per 1000 sq. ft.
- 0.7 pounds phosphate per 1000 sq. ft.
- 0.7 pounds potash per 1000 sq. ft.

All sodium levels are within the normal range - no sign of salt contamination. Bruce

To meet major nutrient requirements:

Apply 10 lb 20-4-8 or 22-6-8 fertilizer/1000 sq. ft.

Apply 1/2 in early spring and 1/2 in mid to late August.

Apply fertilizer when grass is dry and water in immediately to prevent burn.

Apply 1/2 the recommended nutrients if clippings are left on.

For organic fertilizers: adjust the application rate to provide 1 lb N/1000 sq. ft.

and apply the full rate in the spring.

Set mower high and leave clippings on when mowing. Apply pelletized organic material each year, if possible, to improve soil nutrient and water holding capacity over time.

LABORATORY RESULTS

CEC and nutrient balance calculations are based on present pH of 5.9

Level Found	5.9	6.5	7.8	139	119	1043	3.2	5.5	15.0	79.5	0.0
	Soil pH	Lime Index	P (lb/A)	K (lb/A)	Mg (lb/A)	Ca (lb/A)	CEC (me/100gm)	K	Mg (% Saturation)	Ca	Acidity
Optimum Range	5.5-6.5	N/A	7-10	see % Saturation levels			> 5	2.8-4.0	10-25	60-80	< 10
Level Found	4.3	N/A	28	N/A	1 (low)	Additional Results					
	Organic Matter (%)	Zinc (ppm)	Sodium (ppm)	Soluble Salts (mmhos/cm)	Nitrate-N (ppm)	Lead scan: NORMAL BACKGROUND LEVEL - no health risk.					
Optimum Range	5 - 8		-----		----						

7/15/1999	7272	UPPER MALL #2	CUMBERLAND	1 Acres
DATE	LAB NO.	SAMPLE IDENTIFICATION	COUNTY	ACRES OR SQ. FT.

• SOIL TEST REPORT FOR:

ALEITA BURMAN - S.W. COLE ENGINEERING
6 LIBERTY DRIVE
BANGOR ME 04401

MAINE SOIL TESTING SERVICE
UNIVERSITY OF MAINE
5722 DEERING HALL
ORONO, MAINE 04469-5722

• RELATIVE SOIL TEST LEVELS

LOW MEDIUM OPTIMUM EXCESSIVE

PHOSPHORUS (P)	XX	XXXX
POTASSIUM (K)	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	
CALCIUM (Ca)	XX	
MAGNESIUM (Mg)	XX	
SOIL pH	XX	
ORGANIC MATTER	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	

• RECOMMENDATIONS FOR

LAWN-EXISTING - Crop Code # 201

Soil pH is near or above the optimum level for this crop. No lime recommended.

Magnesium level is sufficient to meet crop requirement.

Calculated major nutrient requirements as follows:

- 2.0 pounds nitrogen per 1000 sq. ft.
- 0.0 pounds phosphate per 1000 sq. ft.
- 1.6 pounds potash per 1000 sq. ft.

To meet major nutrient requirements:

Apply 8 lb 24-0-11 or 6-7 lb 30-0-15 fertilizer/1000 sq. ft.

Apply 1/2 in early spring and 1/2 in mid to late August.

Apply fertilizer when grass is dry and water in immediately to prevent burn.

Apply 1/2 the recommended nutrients if clippings are left on.

For organic fertilizers: adjust the application rate to provide 1 lb N/1000 sq. ft. and apply the full rate in the spring.

Set mower high and leave clippings on when mowing. Apply pelletized organic material each year, if possible, to improve soil nutrient and water holding capacity over time.

LABORATORY RESULTS

CEC and nutrient balance calculations are based on present pH of 5.9

Level Found	5.9	6.4	10.2	51	135	1207	3.6	1.9	15.4	82.7	0.0
	Soil pH	Lime Index	P (lb/A)	K (lb/A)	Mg (lb/A)	Ca (lb/A)	CEC (me/100gm)	K	Mg (% Saturation)	Ca	Acidity
Optimum Range	5.5-6.5	N/A	7-10	see % Saturation levels			> 5	2.8-4.0	10-25	60-80	< 10
Level Found	5.0	N/A	40	N/A	2 (low)		<u>Additional Results</u>				
	Organic Matter (%)	Zinc (ppm)	Sodium (ppm)	Soluble Salts (mmhos/cm)	Nitrate-N (ppm)		Lead scan: NORMAL BACKGROUND LEVEL - no health risk.				
Optimum Range	5 - 8		-----		----						

2/15/1999	7265	VENDOR #1	CUMBERLAND	8000 sq. ft
DATE	LAB NO.	SAMPLE IDENTIFICATION	COUNTY	ACRES OR SQ. FT.

• SOIL TEST REPORT FOR:

ALEITA BURMAN - S.W. COLE ENGINEERING

6 LIBERTY DRIVE

BANGOR ME 04401

MAINE SOIL TESTING SERVICE

UNIVERSITY OF MAINE

5722 DEERING HALL

ORONO, MAINE 04469-5722

RECEIVED

• RELATIVE SOIL TEST LEVELS

LOW

MEDIUM

OPTIMUM

EXCESSIVE

PHOSPHORUS (P)	XX	XXXXX
POTASSIUM (K)	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	
CALCIUM (Ca)	XX	
MAGNESIUM (Mg)	XXXXXXXXXXXXXXXXXXXXXXXXXXXX	
SOIL pH	XX	
ORGANIC MATTER	XXXXXXXXXXXXXXXXXXXX	

• RECOMMENDATIONS FOR

LAWN-EXISTING

- Crop Code # 201

Soil pH is near or above the optimum level for this crop. No lime recommended.

To meet crop magnesium requirement, use a fertilizer containing magnesium if possible.

Calculated major nutrient requirements as follows:

2.0 pounds nitrogen per 1000 sq. ft.

0.0 pounds phosphate per 1000 sq. ft.

2.3 pounds potash per 1000 sq. ft.

To meet major nutrient requirements:

Apply 10 lb 20-0-20 or 30 lb 6-0-6 fertilizer/1000 sq. ft.

Apply 1/2 in early spring and 1/2 in mid to late August.

Apply fertilizer when grass is dry and water in immediately to prevent burn.

Apply 1/2 the recommended nutrients if clippings are left on.

For organic fertilizers: adjust the application rate to provide 1 lb N/1000 sq. ft.

and apply the full rate in the spring.

LABORATORY RESULTS

CEC and nutrient balance calculations are based on present pH of 6.9

Level Found	6.9	7.0	20.1	143	201	3585	9.9	1.8	8.3	89.8	0.0
	Soil pH	Lime Index	P (lb/A)	K (lb/A)	Mg (lb/A)	Ca (lb/A)	CEC (me/100gm)	K	Mg (% Saturation)	Ca	Acidity
Optimum Range	5.5-6.5	N/A	7-10	see % Saturation levels			> 5	2.8-4.0	10-25	60-80	< 10
Level Found	3.3	N/A	33	N/A	7 (Low)		Additional Results				
	Organic Matter (%)	Zinc (ppm)	Sodium (ppm)	Soluble Salts (mmhos/cm)	Nitrate-N (ppm)		Lead scan: NORMAL BACKGROUND LEVEL - no health risk.				
Optimum Range	5 - 8		-----		-----						

1/15/1999	7266	VENDOR #2	CUMBERLAND	8000 sq. ft
DATE	LAB NO.	SAMPLE IDENTIFICATION	COUNTY	ACRES OR SQ. FT.

• SOIL TEST REPORT FOR:

ALEITA BURMAN - S.W. COLE ENGINEERING
6 LIBERTY DRIVE
BANGOR ME 04401

MAINE SOIL TESTING SERVICE
UNIVERSITY OF MAINE
5722 DEERING HALL
ORONO, MAINE 04469-5722

• RELATIVE SOIL TEST LEVELS

LOW

MEDIUM

OPTIMUM

EXCESSIVE

PHOSPHORUS (P)	XX	XXXX
POTASSIUM (K)	XX	XXXX
CALCIUM (Ca)	XX	
MAGNESIUM (Mg)	XX	
SOIL pH	XX	
ORGANIC MATTER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	

• RECOMMENDATIONS FOR LAWN-EXISTING - Crop Code # 201

Soil pH is near or above the optimum level for this crop. No lime recommended.

Magnesium level is sufficient to meet crop requirement.

Calculated major nutrient requirements as follows:

- 2.0 pounds nitrogen per 1000 sq. ft.
- 0.0 pounds phosphate per 1000 sq. ft.
- 0.7 pounds potash per 1000 sq. ft.

To meet major nutrient requirements:

Apply 20 lb 10-0-4 or 5 lb 38-0-0 fertilizer/1000 sq. ft.

Apply 1/2 in early spring and 1/2 in mid to late August.

Apply fertilizer when grass is dry and water in immediately to prevent burn.

Apply 1/2 the recommended nutrients if clippings are left on.

For organic fertilizers: adjust the application rate to provide 1 lb N/1000 sq. ft. and apply the full rate in the spring.

LABORATORY RESULTS

CEC and nutrient balance calculations are based on present pH of 6.0

Level Found	6.0	6.5	11.5	220	268	1763	5.7	4.8	19.0	76.1	0.0
	Soil pH	Lime Index	P (lb/A)	K (lb/A)	Mg (lb/A)	Ca (lb/A)	CEC (me/100gm)	K	Mg (% Saturation)	Ca	Acidity
Optimum Range	5.5-6.5	N/A	7-10	see % Saturation levels			> 5	2.8-4.0	10-25	60-80	< 10
Level Found	4.6	N/A	35	N/A	8 (Low)						
	Organic Matter (%)	Zinc (ppm)	Sodium (ppm)	Soluble Salts (mmhos/cm)	Nitrate-N (ppm)	Additional Results					
						Lead scan:					
						MODERATE CONTAMINATION INDICATED -					
Optimum Range	5 - 8		-----		----	no health risk if under a grass cover.					

15/1999	7267	VENDOR #3	CUMBERLAND	8000 sq. ft
DATE	LAB NO.	SAMPLE IDENTIFICATION	COUNTY	ACRES OR SQ. FT.

• SOIL TEST REPORT FOR:

ALEITA BURMAN - S.W. COLE ENGINEERING
6 LIBERTY DRIVE
BANGOR ME 04401

MAINE SOIL TESTING SERVICE
UNIVERSITY OF MAINE
5722 DEERING HALL
ORONO, MAINE 04469-5722

• RELATIVE SOIL TEST LEVELS

LOW MEDIUM OPTIMUM EXCESSIVE

PHOSPHORUS (P)	XXX	XXXX
POTASSIUM (K)	XXX	XXXX
CALCIUM (Ca)	XXXXXXXXXXXXXXXXXXXX	
MAGNESIUM (Mg)	XXXXXXXXXXXXXXXXXXXX	
SOIL pH	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	
ORGANIC MATTER	XXXXXXXXXXXX	

• RECOMMENDATIONS FOR LAWN-EXISTING - Crop Code # 201

To raise soil pH to 6.0, apply 60 pounds of lime per 1000 sq. ft.

Lime recommendation assumes a calcium carbonate equivalence (neutralizing value) of 100 %.

To meet crop magnesium requirement, use a magnesium lime.

Calculated major nutrient requirements as follows:

- 2.0 pounds nitrogen per 1000 sq. ft.
- 0.0 pounds phosphate per 1000 sq. ft.
- 0.7 pounds potash per 1000 sq. ft.

To meet major nutrient requirements:

Apply 20 lb 10-0-4 or 5 lb 38-0-0 fertilizer/1000 sq. ft.

Apply 1/2 in early spring and 1/2 in mid to late August.

Apply fertilizer when grass is dry and water in immediately to prevent burn.

Apply 1/2 the recommended nutrients if clippings are left on.

For organic fertilizers: adjust the application rate to provide 1 lb N/1000 sq. ft. and apply the full rate in the spring.

Set mower high and leave clippings on when mowing. Apply pelletized organic material each year, if possible, to improve soil nutrient and water holding capacity over time.

LABORATORY RESULTS

CEC and nutrient balance calculations assume a pH management level of 6.0

Level Found	5.5	6.5	11.2	190	76	838	5.0	4.7	6.1	41.2	47.9
	Soil pH	Lime Index	P (lb/A)	K (lb/A)	Mg (lb/A)	Ca (lb/A)	CEC (me/100gm)	K	Mg (% Saturation)	Ca	Acidity
Optimum Range	5.5-6.5	N/A	7-10	see % Saturation levels			> 5	2.8-4.0	10-25	60-80	< 10
Level Found	2.3	N/A	26	N/A	23 (Optimum)		Additional Results				
	Organic Matter (%)	Zinc (ppm)	Sodium (ppm)	Soluble Salts (mmhos/cm)	Nitrate-N (ppm)		Lead scan: NORMAL BACKGROUND LEVEL - no health risk.				
Optimum Range	5 - 8		-----		----						

12/15/1999	7269	ICE SKATING #1	CUMBERLAND	1 Acres
DATE	LAB NO.	SAMPLE IDENTIFICATION	COUNTY	ACRES OR SQ. FT.

• SOIL TEST REPORT FOR:

ALEITA BURMAN - S.W. COLE ENGINEERING

6 LIBERTY DRIVE

BANGOR ME 04401

MAINE SOIL TESTING SERVICE

UNIVERSITY OF MAINE

5722 DEERING HALL

ORONO, MAINE 04469-5722

• RELATIVE SOIL TEST LEVELS

LOW

MEDIUM

OPTIMUM

EXCESSIVE

PHOSPHORUS (P)	XX	
POTASSIUM (K)	XX	
CALCIUM (Ca)	XX	
MAGNESIUM (Mg)	XX	
SOIL pH	XX	
ORGANIC MATTER	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	

• RECOMMENDATIONS FOR

LAWN-EXISTING

- Crop Code # 201

Soil pH is near or above the optimum level for this crop. No lime recommended.

Magnesium level is sufficient to meet crop requirement.

Calculated major nutrient requirements as follows:

2.0 pounds nitrogen per 1000 sq. ft.

0.0 pounds phosphate per 1000 sq. ft.

1.3 pounds potash per 1000 sq. ft.

To meet major nutrient requirements:

Apply 8 lb 24-0-11 or 6-7 lb 30-0-15 fertilizer/1000 sq. ft.

Apply 1/2 in early spring and 1/2 in mid to late August.

Apply fertilizer when grass is dry and water in immediately to prevent burn.

Apply 1/2 the recommended nutrients if clippings are left on.

For organic fertilizers: adjust the application rate to provide 1 lb N/1000 sq. ft.

and apply the full rate in the spring.

LABORATORY RESULTS

CEC and nutrient balance calculations are based on present pH of 6.3

Level Found	6.3	6.7	15.9	151	208	2139	6.3	3.0	13.5	83.5	0.0
	Soil pH	Lime Index	P (lb/A)	K (lb/A)	Mg (lb/A)	Ca (lb/A)	CEC (me/100gm)	K	Mg (% Saturation)	Ca	Acidity
Optimum Range	5.5-6.5	N/A	7-10	see % Saturation levels			> 5	2.8-4.0	10-25	60-80	< 10
Level Found	4.4	N/A	31	N/A	3 (low)						
	Organic Matter (%)	Zinc (ppm)	Sodium (ppm)	Soluble Salts (mmhos/cm)	Nitrate-N (ppm)						
Optimum Range	5 - 8		----		----						

Additional Results

Lead scan: NORMAL BACKGROUND LEVEL - no health risk.

1/15/1999	7270	ICE SKATING #2	CUMBERLAND	1 Acres
DATE	LAB NO.	SAMPLE IDENTIFICATION	COUNTY	ACRES OR SQ. FT.

• SOIL TEST REPORT FOR:

ALEITA BURMAN - S.W. COLE ENGINEERING

6 LIBERTY DRIVE

BANGOR ME 04401

MAINE SOIL TESTING SERVICE
UNIVERSITY OF MAINE
 5722 DEERING HALL
 ORONO, MAINE 04469-5722

• RELATIVE SOIL TEST LEVELS

LOW

MEDIUM

OPTIMUM

EXCESSIVE

PHOSPHORUS (P)	XX	
POTASSIUM (K)	XX	
CALCIUM (Ca)	XX	
MAGNESIUM (Mg)	XX	
SOIL pH	XX	
ORGANIC MATTER	XX	

• RECOMMENDATIONS FOR

LAWN-EXISTING - Crop Code # 201

Soil pH is near or above the optimum level for this crop. No lime recommended.

Magnesium level is sufficient to meet crop requirement.

Calculated major nutrient requirements as follows:

- 2.0 pounds nitrogen per 1000 sq. ft.
- 0.0 pounds phosphate per 1000 sq. ft.
- 1.8 pounds potash per 1000 sq. ft.

To meet major nutrient requirements:

Apply 10 lb 20-0-20 or 30 lb 6-0-6 fertilizer/1000 sq. ft.

Apply 1/2 in early spring and 1/2 in mid to late August.

Apply fertilizer when grass is dry and water in immediately to prevent burn.

Apply 1/2 the recommended nutrients if clippings are left on.

For organic fertilizers: adjust the application rate to provide 1 lb N/1000 sq. ft. and apply the full rate in the spring.

LABORATORY RESULTS

CEC and nutrient balance calculations are based on present pH of 6.1

Level Found	6.1	6.6	19.0	205	396	2700	8.6	3.0	18.9	78.1	0.0
	Soil pH	Lime Index	P (lb/A)	K (lb/A)	Mg (lb/A)	Ca (lb/A)	CEC (me/100gm)	K (% Saturation)	Mg (% Saturation)	Ca (% Saturation)	Acidity
Optimum Range	5.5-6.5	N/A	7-10	see % Saturation levels			> 5	2.8-4.0	10-25	60-80	< 10
Level Found	6.3	N/A	37	N/A	15 (medium)	Additional Results					
	Organic Matter (%)	Zinc (ppm)	Sodium (ppm)	Soluble Salts (mmhos/cm)	Nitrate-N (ppm)	Lead scan:					
Optimum Range	5 - 8		-----		----	MODERATE CONTAMINATION INDICATED -					
						no health risk if under a grass cover.					

APPENDIX F

Glossary

APPENDIX F - GLOSSARY

SOIL ERODIBILITY FACTOR (K)

The soil erodibility factor (K) is a measure of the susceptibility of a soil to particle detachment and transport by rainfall. It is a quantitative value, experimentally determined. Values of K range from 0.02 to 0.69. The higher the value the more susceptible the soil to sheet and rill erosion by water. In the table below, K factors are assigned to each surface textural phase of all soil series in the survey area. The major subhorizons that would be exposed by cutting or scalping are listed below the existing surface phase for each series.

Soil properties that influence rainfall erosion are: (1) those that affect infiltration rate, movement of water through the soil, and the water storage capacity; and (2) those that affect dispersion, detachability, abrasion, and mobility of soil particles by rainfall and runoff. Some of the most important properties are texture and organic matter content of the exposed soil layer, size and stability of structural aggregates in the exposed permeability of the subsoil, and depth to slowly permeable layers. Antecedent soil moisture and presence of frozen soil also influence rainfall erosion.

SOIL CONSISTENCE

Soil consistence refers to "attributes of soil material as expressed in degree of cohesion and adhesion or in resistance to deformation or rupture" (USDA). Consistence includes resistance of soil material to rupture, resistance to penetration, plasticity, toughness, and stickiness of puddled soil material, and the manner in which the soil material behaves when subject to compression (USDA).

HYDROLOGIC SOIL GROUPS

A hydrologic soil group is a class of soils having the same runoff potential under similar storm and vegetative cover conditions. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to seasonally high water table, intake rate, permeability after prolonged wetting, and depth to a very slowly permeable layer. The influence of ground cover is treated independently (not in hydrologic soil groups). The soils in the U.S. are placed into four groups: A, B, C, and D. In the following definitions of the groups, infiltration rate is the rate at which water

enters into the soil at the surface and is controlled by the surface conditions. Transmission rate is the rate at which water moves within the soil and is controlled by the inherent properties of each horizon.

A. (Low runoff potential) Soils in this class have high infiltration rates even when thoroughly wetted and consist chiefly of deep, well drained to excessively drained sands or gravels. These soils have a high rate of water transmission.

B. (Moderately low runoff potential) Soils in this group have moderate infiltration rates when thoroughly wetted. They consist primarily of moderately deep to deep, moderately well drained to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.

C. (Moderately low runoff potential) Soils in this class have slow infiltration rates when thoroughly wetted. They consist mainly of soils with a layer that impedes downward movement of water, or soils with moderately fine to fine textures. These soils have a slow rate of water transmission.

D. (High runoff potential) Soils in this class have very slow infiltration rates when thoroughly wetted. They consist primarily of clays soils with a high shrink/swell potential, soils with a permanent high water table, soils with a clay pan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very slow rate of water transmission.

USDA TEXTURE

USDA texture refers to the U.S. Department of Agriculture's soil texture classification. Soil texture is the relative proportions by weight, of the several soil particle size classes finer than 2 mm in equivalent diameter. The material finer than 2 mm is called the fine earth fraction. Material larger than 2 mm is called the rock fragments.

Soil texture influences both engineering works and plant growth. Soil texture has a strong influence on soil mechanics and the behavior of soil when it is used as a construction or foundations material. It influences such properties as bearing strength,

compressibility, permeability, shrink/swell potential, and compaction. Rock fragments also affect construction applications.

Soil texture influences plant growth by its influence on aeration, water intake rate, available water capacity, cation exchange capacity, permeability and workability.

Soil texture modifiers

The texture classes may be modified by the addition of suitable adjectives when rock fragments exceed about 15 percent by volume (for example, gravelly loam). The terms "very" and "extremely" are used when rock fragments exceed about 35 and 60 percent by volume respectively. "Mucky" and "peaty" are terms used to modify soils when the organic matter content is more than 40 percent (for example, mucky loam).

Terms used in lieu of textures

Organic materials, materials coarser than 2 mm, or materials that limit root penetration are used in a way similar to texture terms. Examples are fibric material, sand and gravel, and unweathered bedrock.

DEPTH TO CLASSES	
Very Shallow	Less than 10 inches
Shallow	10 to 20 inches
Moderately Deep	20 to 40 inches
Deep	40 to 60 inches
Very Deep	Greater than 60 inches

DRAINAGE CLASSES

Drainage Class refers to the frequency and duration of periods of saturation or particle saturation. Seven classes of soil drainage are recognized:

Excessively drained - Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some have steep slopes. All are free of mottling related to wetness.

Somewhat excessively drained - Water is removed from the soil rapidly. Many

somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of mottling related to wetness.

Well drained - Water is removed from the soil readily, but not rapidly. It is not available to plants throughout most of the growing season. Wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained - Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive.

Somewhat poorly drained - Water is removed slowly enough that the soil is wet for significant periods during the growing season. Somewhat poorly drained soils commonly have slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained - Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. The soil is not continuously saturated in layers below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained - Water is removed from these soils so slowly that free water remains at or on the surface during most of the growing season. They are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

PERMEABILITY

Permeability is the quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.20 inch
Moderately slow	0.20 to 0.60 inch
Moderately	0.6 to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

SURFACE RUNOFF

Surface runoff is the water that flows away from the soil over the surface without infiltrating. The water may come from precipitation or run-on from adjacent areas. The rate and amount of runoff are determined by internal and external characteristics of the soil and by climate and plant cover. Runoff can be significantly different on a soil under natural cover, under cultivation, and under different kinds of management. Differences in runoff can also be caused by difference in topography and rainfall density. Soils usually have a high rate of runoff when frozen.

Six classes of runoff rates are recognized:

Ponded - Little or none of the precipitation and run-on escapes as runoff. Free water stands on the surface for significant periods of time. The amount of water that must be removed from ponded areas by percolation into and through the soil, by plants, or by evaporation is usually greater than the total rainfall. Ponding normally occurs on level to nearly level soils in depressions or concave positions of the microrelief. Water depth may fluctuate greatly.

Very slow - Surface water flows away slowly, and free water stands on the surface for long periods or immediately enters the soil. Most of the water passes through the soil, is used by plants, or evaporates. These soils are commonly level to nearly level or are very open and porous.

Slow - Surface water flows away slowly enough that free water stands on the surface for moderate periods or enters the soil rapidly. Most of the water passes

through the soil, is used by plants, or evaporates. The soils are nearly level to gently sloping, or they are steeper and absorb precipitation very rapidly.

Medium - Surface water flows away fast enough that free water stands on the surface for only short periods. Part of the precipitation enters the soil and is used by plants, is lost by evaporation, or moves into underground channels. The soils are nearly level to gently sloping and absorb precipitation at a moderate rate, or they are steeper and absorb water rapidly.

Rapidly - Surface water flows away fast enough that the period of concentration is brief and free water does not stand on the surface. Only small portion of the water enters the soil. The soils are mainly moderately steep or steep and have moderate to slow rates of absorption.

Very rapidly - Surface water flows away so fast that the period of concentration is brief and free water does not stand on the surface. Only a small portion of the water enters the soil. The soils are mainly steep or very steep and absorb precipitation slowly.

ADDITIONAL TERMS

Complex - A map unit that consists of areas of two or more kinds of soils that are in a consistently repeating pattern so intricate that the two components can not be delineated separately at the scale of mapping selected.

Flooding - Flooding is the temporary covering of soil surface by flowing water from any source, such as streams overflowing their banks, runoff from adjacent or surrounding slopes, inflow from high tides, or any combination of sources. Shallow water, standing or flowing during or shortly after rain or snowmelt is excluded from the definition of flooding. Standing water (see ponding) or water that forms a permanent cover is excluded from the definition.

Flooding hazard is expressed by frequency classes, duration classes, and time of year

flooding occurs. Also important are velocity and depth of floodwater.

Map Unit - A collection of soil areas delineated during mapping. It is generally an aggregate of several different bodies of a soil type and named for the principal components.

Ponding - Ponding is standing water in a closed depression. The water is removed only by percolation, transpiration, or evaporation.

Soil Slope - The slope of the soil surface has several distinct properties: gradient, complexity, configuration, length, and aspect. In soil science, slope is considered a property of the soil, not a landform like a ridge or a valley side.

Stoniness - See table of surface phase names and stoniness class attached.

SURFACE PHASE CLASSIFICATION OF SOILS HAVING STONES AND BOULDERS		
Stoniness Class	Phase Name	Surface Covered (%)
0	Nonstony	Less than 0.01
1	Stony or bouldery 1/	0.01-0.1
2	Very stony or very bouldery 1/	0.1-3.0
3	Extremely stony or extremely bouldery 1/	3.0-15
4	Rubbly 1/	15-75
5	Rubble land 2/	More than 75

1/ The term "bouldery" is used if boulders dominate stones as a limiting factor for use even though stones may occupy a greater proportion of the surface

2/ Areas that stony are treated as the kind of miscellaneous area, "rubble land."

APPENDIX G
Methodology

APPENDIX G

Methodology

G.1 - A description of the guidelines and methods that we utilized during this project follows below.

G.1.1 Guidelines For Conducting Soil Surveys - Our investigation was performed generally following the Maine Association Of Professional Soil Scientists (MAPSS) publication entitled Guidelines For Maine Certified Soil Scientists For Soil Identification And Mapping (February, 1995). We used criteria for documenting very poorly drained and poorly drained soils (hydric soils) that were described in the New England Interstate Water Pollution Control Commission publication entitled Field Indicators For Identifying Hydric Soils In New England, Version 2 (1998). We examined exposed soil profiles for horizon development, color, depth of redoximorphic features (mottling), texture, coarse fragment content, root abundance, consistence, structure, depth of saturation, and other pertinent soil characteristics as observed. We examined surficial features such as rock outcrop, stoniness, and groundwater seepage when observed.

G.1.2 Class C- Medium High Intensity Soil Survey – The scale for a Class C – Medium High Intensity soil survey must be 1" = 500' or larger. Inclusions in a Class C – Medium High Intensity survey, as defined by MAPSS "...will not contain dissimilar limiting inclusions larger than 5 acres" [per mapping unit but] "may total more than 5 acres per map unit delineation, in the aggregate, if not contiguous." This means that each mapping unit, as illustrated on the accompanying soils map, may include other soils other than those for which the mapping unit was named.

G.1.3 Explanation For Map Unit Symbols - Each map unit symbol consists of three letters (Ex: WaC). The first two letters represents the soil that exists within the area delineated on the map (e.g., Wa = Waumbek very bouldery fine sandy loam). The third letter in the map unit symbol represents a phase, which is usually the surface slope of the soil (e.g., C = 8-15 percent slopes). Phases are also based on texture, stoniness, drainage, depth to bedrock, or similar characteristics that may affect the use and management of that soil. Each map unit having the same symbol essentially delineates the same soil type and phase. The soils within an area enclosed by a map unit boundary will have a minimum of 75 percent of the named soil(s), or similar soil, for that map unit.

99-981.1 D

January 28, 2000

Richardson & Associates Landscape Architects
 Attention: Allison Towne
 176 Main Street
 Saco, ME 04072

Subject: Soil Lead Testing
 The Mall Park
 Brunswick, Maine

Dear Ms. Towne:

This letter is a follow-up to our Soil Consulting Services Report, dated December 29, 1999. We indicated that the Maine Soil Testing Service detected "moderate contamination" with lead in two of the surface soil samples we collected at the Mall Park in Brunswick, namely "Vendor #2" and "Ice Skating #2." Due to this laboratory result, the Maine Soil Testing Service sent these two samples to the EPA Regional lab in Lexington, MA for a total lead analysis. The results of this testing and a copy of the plan showing the sample locations are attached.

The EPA Regional lab results indicate a total lead level of 120 parts per million (ppm) in the Vendor #2 sample and 190 ppm in the Ice Skating #2 sample. We understand that these two areas of the park are heavily used during the summer months for recreation, including picnics and outdoor events. According to the Maine Soil Testing Service, these levels correspond to a "slight" lead contamination. It is recommended by the Service that if a play area is located on this soil that the play area be moved to an "uncontaminated" site. The Maine DEP Draft Remedial Action Guideline for lead is 375 ppm for a residential setting (if no other listed contaminants were present).

As indicated in our Report, we observed a dark colored material in the fill that is underneath the current soil surface and turf in the general areas of the Park where the



99-981.1 D
January 28, 2000

samples were taken. Based on our experience working in this area of Brunswick, the dark colored material may be coal ash, which potentially could contain elevated levels of lead and other compounds. Our composite soil samples were taken from surface soils and not in the lower filled horizons where the dark material was observed.

You will note in the "Lead in Soil" information sheet included with the test results that "...an effective way to eliminate the (heavy) contamination (is) to cover it with fresh soil..." Based on our observations, the darker colored material is buried beneath the uppermost layer of fill. The upper fill layers are "capping" this darker material to some extent, but may have mixed with it during placement.

We recommend that the darker underlying soils be sampled and analyzed to assess the possible presence of contaminants, such as heavy metals and polyaromatic hydrocarbons.

It has been a pleasure to be of assistance to you with this phase of your project. if you have any questions or if we may be of further assistance, please do not hesitate to contact us.

Very truly yours,

S. W. COLE ENGINEERING, INC.

A handwritten signature in black ink, appearing to read "David J. Dunning".

David J. Dunning, Environmental Scientist
DJD:amb/jgr



UNIVERSITY OF MAINE

AML

Analytical Lab
Department of Plant, Soil, and Environmental Sciences

407 Deering Hall
Orono, Maine 04469-0118

*SW Cole
Vendor #2 sample*

January 21, 2000

Dear Customer:

Lab # *7266*

On your routine soil fertility analysis, you were told that we had detected lead in your soil at a level higher than the normal background level. A subsample of what you sent to us was sent as an anonymous sample to the EPA Regional lab in Lexington, MA for a total lead analysis. The total lead level in your soil is 120 parts per million (ppm). A general interpretation is as follows:

Level found	Contamination level	Recommended Precautions		
		Ornamentals/lawns	Vegetable gardens	Play areas
Less than 50 ppm	Normal Background	None needed	None needed	None needed
50 - 300 ppm	Slight	None needed	Wash all vegetables. Wash & peel root crops.	Move play area to uncontaminated site.
300-500 ppm	Moderate	None needed	Grow fruiting vegetables. Avoid leafy vegetables. Avoid root crops. Wash vegetables thoroughly. Keep soil pH 6.5 - 7.0. Add manure/compost each year.	Move play area to uncontaminated site. Have blood lead level tested.
More than 500 ppm	Heavy	Avoid breathing dust during cultivation. Mulch or maintain grass cover to keep down dust/rain spatter.	Move garden to uncontaminated area or bring in clean soil to build new garden.	Move play area to uncontaminated site. Have blood lead level tested.

The above are only general suggested guidelines, since every case and the potential for exposure and/or intake of lead is different. Lead contamination is first and foremost a concern with children, since they are the most sensitive to lead toxicity and because of their greater likelihood of exposure from play habits, etc. To add some perspective, the soil levels listed above are nowhere near as high as lead paint chips, which may contain more than 3 to 5 percent lead (30,000-50,000 ppm). However, prolonged exposure to areas of heavy soil contamination can significantly add to the total intake of lead for those individuals working/playing in it or eating unwashed produce from it. Our ultimate purpose is not to alarm, but to inform you of a potential problem.

Be aware that the lead level in this area will not decline significantly with time. Resampling the same area in future may show more or less lead than this sample, not because more has been added or lost, but because contaminated soils tend to be quite variable in lead content from spot to spot. To remove lead requires that the soil itself be removed or covered with some kind of barrier, such as grass or mulch, to limit contact with soil and/or dust. If you have a heavily contaminated soil in an area of high traffic or activity, it is advisable to set up a sampling pattern to better define the extent of the contaminated area. These samples can be run free of charge through EPA.

Two additional pieces of information on soil lead are enclosed. If you have further questions or would like to do further testing, please call me at 581-2945.

Bruce Hoskins

Bruce Hoskins
Assistant Scientist



UNIVERSITY OF MAINE

Analytical Lab
Department of Plant, Soil, and Environmental Sciences

407 Deering Hall
Orono, Maine 04469-0118

SW Cole
ice skating #2

January 21, 2000

Dear Customer:

Lab # 7270

On your routine soil fertility analysis, you were told that we had detected lead in your soil at a level higher than the normal background level. A subsample of what you sent to us was sent as an anonymous sample to the EPA Regional lab in Lexington, MA for a total lead analysis. The total lead level in your soil is 190 parts per million (ppm). A general interpretation is as follows:

Level found	Contamination level	Recommended Precautions		
		Ornamentals/lawns	Vegetable gardens	Play areas
Less than 50 ppm	Normal Background	None needed	None needed	None needed
50 - 300 ppm	Slight	None needed	Wash all vegetables. Wash & peel root crops.	Move play area to uncontaminated site.
300-500 ppm	Moderate	None needed	Grow fruiting vegetables. Avoid leafy vegetables. Avoid root crops. Wash vegetables thoroughly. Keep soil pH 6.5 - 7.0. Add manure/compost each year.	Move play area to uncontaminated site. Have blood lead level tested.
More than 500 ppm	Heavy	Avoid breathing dust during cultivation. Mulch or maintain grass cover to keep down dust/rain spatter.	Move garden to uncontaminated area or bring in clean soil to build new garden.	Move play area to uncontaminated site. Have blood lead level tested.

The above are only general suggested guidelines, since every case and the potential for exposure and/or intake of lead is different. Lead contamination is first and foremost a concern with children, since they are the most sensitive to lead toxicity and because of their greater likelihood of exposure from play habits, etc. To add some perspective, the soil levels listed above are nowhere near as high as lead paint chips, which may contain more than 3 to 5 percent lead (30,000-50,000 ppm). However, prolonged exposure to areas of heavy soil contamination can significantly add to the total intake of lead for those individuals working/playing in it or eating unwashed produce from it. Our ultimate purpose is not to alarm, but to inform you of a potential problem.

Be aware that the lead level in this area will not decline significantly with time. Resampling the same area in future may show more or less lead than this sample, not because more has been added or lost, but because contaminated soils tend to be quite variable in lead content from spot to spot. To remove lead requires that the soil itself be removed or covered with some kind of barrier, such as grass or mulch, to limit contact with soil and/or dust. If you have a heavily contaminated soil in an area of high traffic or activity, it is advisable to set up a sampling pattern to better define the extent of the contaminated area. These samples can be run free of charge through EPA.

Two additional pieces of information on soil lead are enclosed. If you have further questions or would like to do further testing, please call me at 581-2945.

Bruce Hoskins

Bruce Hoskins
Assistant Scientist

APPENDIX D:

- User Survey
- User Survey Analysis
- Letters from Local School Children

Brunswick Mall User Survey

Town of Brunswick, Maine

Richardson & Associates, Landscape Architects

Profile Information

1. ☐ Male ☐ Female
2. ☐ Age _____
3. _____ Where do you live? (Street and/or City)

Use Information

1. How do you typically come to the Mall?
By Car ☐ By Bus ☐
On Foot ☐ By Bicycle ☐
Other (please specify) _____
2. Where do you typically come from to use the Mall
Home ☐ Bowdoin College ☐ Other School ☐
Work ☐ Other (please specify) _____
3. Where do you typically enter/exit the Mall? _____
4. How many times a week do you typically visit the Lower Mall? (between the First Parish Church and downtown Brunswick-- see attached location map)

Spring	Summer	Fall	Winter
☐ Not at all	☐ Not at all	☐ Not at all	☐ Not at all
☐ Less than once/week	☐ Less than once/week	☐ Less than once/week	☐ Less than once/week
☐ 1-2 times/week	☐ 1-2 times/week	☐ 1-2 times/week	☐ 1-2 times/week
☐ 3-4 times/week	☐ 3-4 times/week	☐ 3-4 times/week	☐ 3-4 times/week
☐ 5-7 times/week	☐ 5-7 times/week	☐ 5-7 times/week	☐ 5-7 times/week

5. How many times a week do you typically visit the Upper Mall? (adjacent to Bowdoin College-- see attached location map)

Spring	Summer	Fall	Winter
☐ Not at all	☐ Not at all	☐ Not at all	☐ Not at all
☐ Less than once/week	☐ Less than once/week	☐ Less than once/week	☐ Less than once/week
☐ 1-2 times/week	☐ 1-2 times/week	☐ 1-2 times/week	☐ 1-2 times/week
☐ 3-4 times/week	☐ 3-4 times/week	☐ 3-4 times/week	☐ 3-4 times/week
☐ 5-7 times/week	☐ 5-7 times/week	☐ 5-7 times/week	☐ 5-7 times/week

6. How often do you engage in the following activities on the Lower Mall? (between First Parish Church and downtown Brunswick-- see attached location map)

Walking	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Getting Fresh Air/Nature	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
People Watching	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Socializing	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Farmers Market	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response

Having Lunch	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Studying	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Recreation (frisbee, etc.)	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Walking the Dog	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Special Event on the Mall	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Ice Skating	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response

7. How often do you engage in the following activities on the Upper Mall? (adjacent to Bowdoin College-see attached location map)

Walking	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Getting Fresh Air/Nature.	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
People Watching	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Socializing	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Having Lunch	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Studying	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Recreation (frisbee, etc.)	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Walking the Dog	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Special Event on the Mall	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response

8. How often do you come to the Lower Mall...

With people from work	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
With family members	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
With friends	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Alone	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response

9. How often do you come to the Upper Mall...

With people from work	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
With family members	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
With friends	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response
Alone	☐ Never	☐ Occasionally	☐ Frequently	☐ Always	☐ No Response

10. Please check the time(s) of day you typically use the Mall (Upper and Lower)?

☐ Early Morning (6-8am)	☐ Early Afternoon (1-3pm)
☐ Morning (8-11am)	☐ Late Afternoon (3-5pm)
☐ Noontime (11am-1pm)	☐ Evening (after 5 pm)

Opinion and Attitude

1. Please indicate how important the following factors are to you with regard to the Mall:

Healthy Green Grass	☐ Not at All	☐ Somewhat	☐ Important	☐ Very Important	☐ NR
Healthy Trees	☐ Not at All	☐ Somewhat	☐ Important	☐ Very Important	☐ NR
Historical Significance	☐ Not at All	☐ Somewhat	☐ Important	☐ Very Important	☐ NR
Safety	☐ Not at All	☐ Somewhat	☐ Important	☐ Very Important	☐ NR
Winter Ice Skating	☐ Not at All	☐ Somewhat	☐ Important	☐ Very Important	☐ NR
Special Events	☐ Not at All	☐ Somewhat	☐ Important	☐ Very Important	☐ NR
Farmers Market	☐ Not at All	☐ Somewhat	☐ Important	☐ Very Important	☐ NR
Food Vendors	☐ Not at All	☐ Somewhat	☐ Important	☐ Very Important	☐ NR

Close to Home	☐ Not at All	☐ Somewhat	☐ Important	☐ Very Important	☐ NR
Close to Work	☐ Not at All	☐ Somewhat	☐ Important	☐ Very Important	☐ NR
Close to Shopping	☐ Not at All	☐ Somewhat	☐ Important	☐ Very Important	☐ NR
Close to School	☐ Not at All	☐ Somewhat	☐ Important	☐ Very Important	☐ NR

2. Do you favor more places to sit and gather?

☐ Yes ☐ No ☐ No Opinion ☐ No Response

3. If yes, does this apply to the Upper Mall or Lower Mall?

☐ Upper Lower ☐ Lower Mall

4. Do you feel that the physical condition of the Upper Mall over the last 5 years has...

☐ improved ☐ stayed the same ☐ deteriorated

5. Do you feel that the physical condition of the Lower Mall over the last 5 years has...

☐ improved ☐ stayed the same ☐ deteriorated

6. If you could change 3 things about the Mall or its use what would they be:

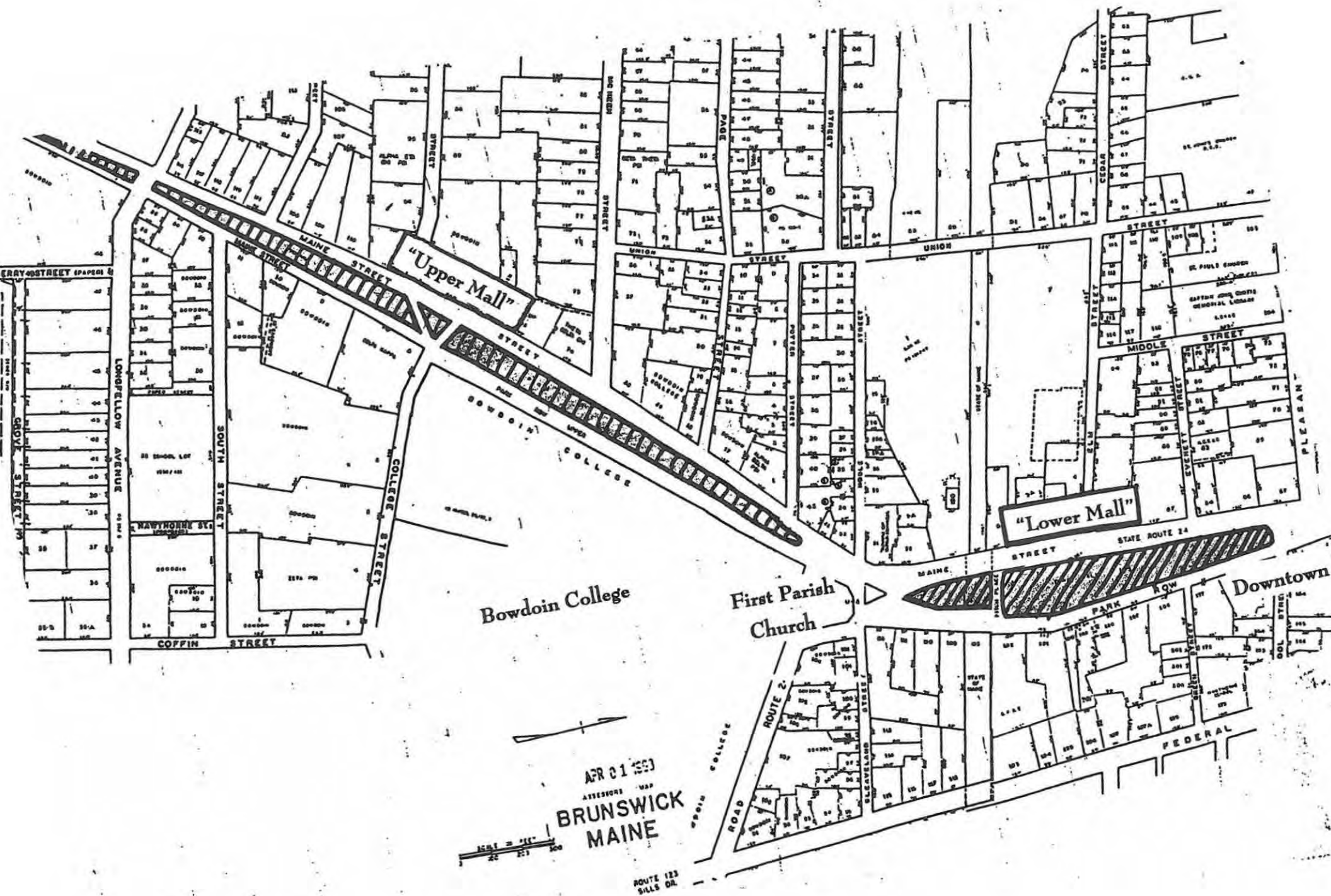
- a.
- b.
- c.

7. Please check those concerns you have about the Mall that you would like to see addressed in the future.
Please indicate whether your concern(s) apply to the Upper Mall, Lower Mall or both.

- ☐ Safety
- ☐ Dog Waste
- ☐ Lighting levels
- ☐ Maintenance of Landscape
- ☐ Condition of Mall amenities (benches, trash receptacles, gazebo etc.)
- ☐ Automobile/Pedestrian Conflicts at Street Crossings
- ☐ Overcrowding / Too many people
- ☐ Availability of Parking
- ☐ Noise levels
- ☐ Additional Restrictions / Guidelines for use of Mall
- ☐ Fewer Restrictions / Guidelines for use of Mall
- ☐ Loitering / People "hanging out"

THANK YOU IN ADVANCE FOR YOUR INPUT. YOUR FEEDBACK IS VERY IMPORTANT AND WILL HELP THE TOWN OF BRUNSWICK TO SHAPE THE FUTURE OF ONE OF ITS MOST VALUED OUTDOOR SPACES.

All Surveys should be returned no later than Wednesday, October 6 to Richardson & Associates using the attached envelope or by mailing to: P.O. Box 426, Saco, Maine 04072



USER SURVEY ANALYSIS

I. OVERVIEW

A. Purpose

The purpose of conducting the following survey was to gather quantitative and qualitative information about the current use of the Brunswick Mall. This information will assist the planning and design team and the Mall Master Management Plan Committee in making improvement recommendations to the Town of Brunswick.

The organization of these materials is represented and analyzed in the following ways:

1. By the actual number of responses
2. A graphic representation of the information
3. Survey observations made by Richardson & Associates

B. Comments

The aim of this survey was to formulate questions and gather information and opinion in as much of an objective way as possible. It is, however, an impossibility to completely eliminate all of the factors that might bias the results of a survey in one way or another. It should be noted that the number of surveys distributed, the season, days and times of day at which they were distributed, and the location from which they were administered, have all had an inherent influence on the results. Despite these caveats, survey results are very informative and will be valuable to the planning and design process.

It should also be noted that the data presented within this document is based directly upon the number of responses and the actual manner in which they were provided for each individual question. As a result, there will be instances where the total number of responses for a particular question will be less or more than the total number of respondents to the survey.

Survey Distribution:

Survey 1*: Saturday, September 25, 1999
Mid-day (10am-2pm)

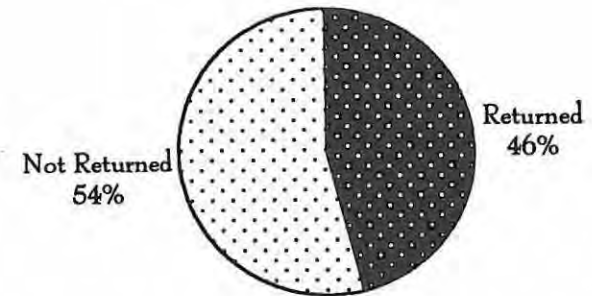
Survey 2**: Friday, October 1, 1999
Morning (9am-11am)

* Distributed at the Lower Mall, Upper Mall and Downtown Brunswick.

** Distributed at the Lower Mall and Upper Mall.

Survey Return Rate

	Quantity Distributed:	Returned:	Percentage Returned:
Set 1:	50	39	44%
Set 2:	100	30	30%
Overall Survey Return Rate:			46%



Survey Observations: The relatively high survey return rate indicates that the Mall is a resource that the greater Brunswick community cares about sustaining.

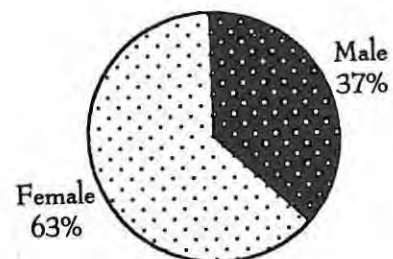
II. SURVEY RESULTS

Profile Information

1. Gender

Gender:
Male
Female

Number of Respondents:
20 (37%)
34 (63%)

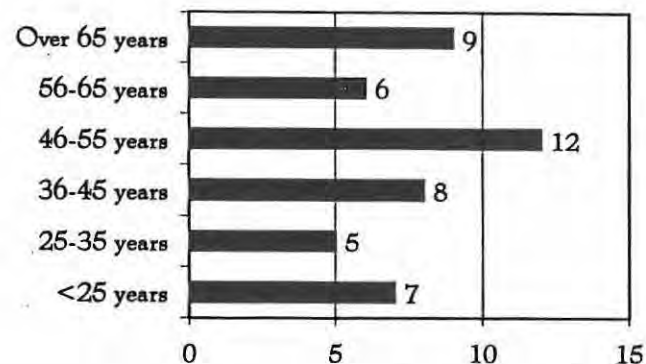


Survey Observations :

2. Age

Age Ranges:
<25 years
25-35 years
36-45 years
46-55 years
56-65 years
Over 65 years
No Response

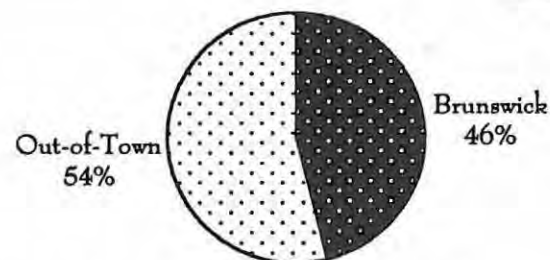
Number of Responses:
7
5
8
12
6
9
8



3. Home Location

Location:
Brunswick
Out-of-Town
No Response

Number of Responses:
24
28
4



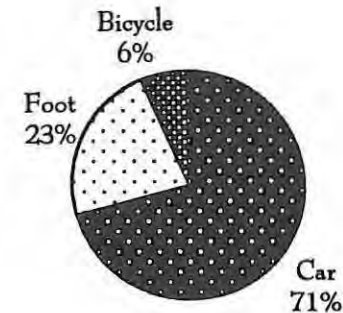
Survey Observations:

- The majority of Mall users are female, middle aged or elderly, and not from Brunswick. (The fact that the majority of the surveys were distributed on a weekday during the Farmer's Market may indicate a bias in these questions).

Use Information

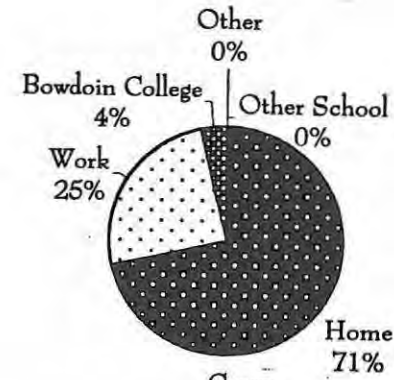
1. How do you typically come to the Mall?

Means of Transportation:	Number of Responses:
By Car	44
On Foot	14
By Bicycle	4



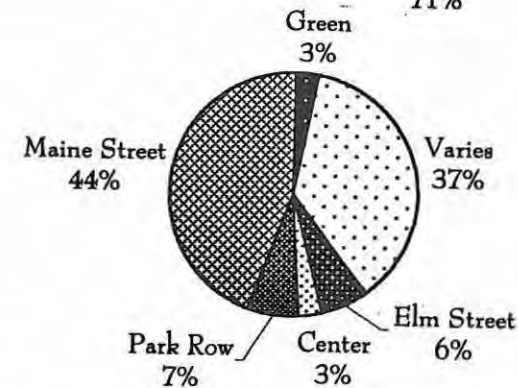
2. Where do you typically come from to use the Mall?

Location:	Number of Responses:
Home	40
Work	14
Bowdoin College	2
Other School	0
Other	0



3. Where do you typically enter/exit the Mall?

Location:	Number of Responses:
Green	2
Maine Street	27
Park Row	4
Center	2
Elm Street	2
Varies	9
No Response	6



Survey Observations:

- The majority of Mall visitors come to the Mall by car, from home. They enter the Mall by way of Maine Street.

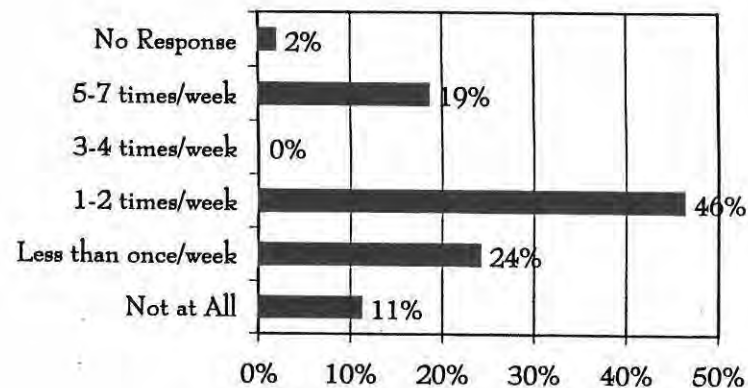
4. How many times a week do you typically visit the Lower Mall?

Season:

Number of Responses:

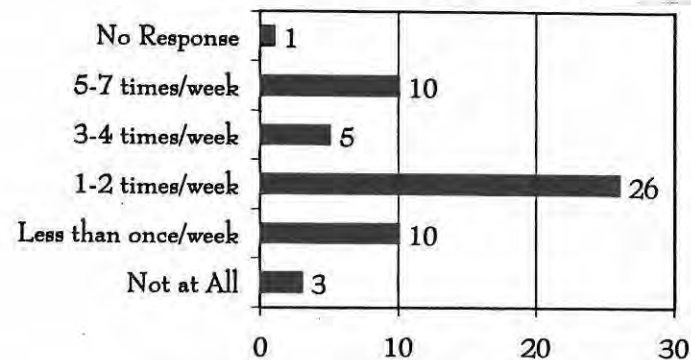
Spring

Not at All	6 (11%)
Less than once/week	13 (24%)
1-2 times/week	25 (46%)
3-4 times/week	0 (0%)
5-7 times/week	10 (19%)
No Response	1 (2%)



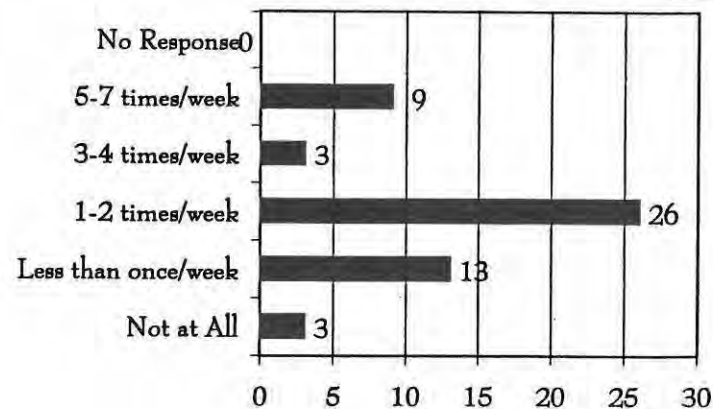
Summer

Not at All	3 (6%)
Less than once/week	10 (19%)
1-2 times/week	26 (48%)
3-4 times/week	5 (9%)
5-7 times/week	10 (19%)
No Response	1 (2%)



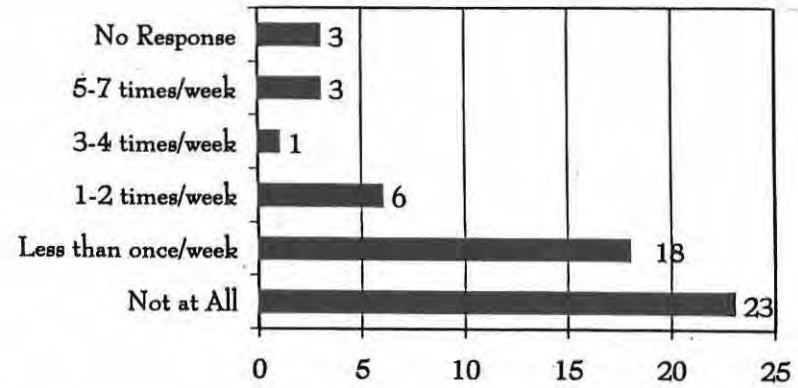
Fall

Not at All	3 (6%)
Less than once/week	13 (24%)
1-2 times/week	26 (48%)
3-4 times/week	3 (6%)
5-7 times/week	9 (17%)
No Response	0 (0%)



Winter

Not at All	23 (43%)
Less than once/week	18 (33%)
1-2 times/week	6 (11%)
3-4 times/week	1 (2%)
5-7 times/week	3 (6%)
No Response	3 (6%)



Survey Observations:

- The Lower Mall is visited more frequently in the Spring, Summer and Fall months, with most respondents visiting one or two times a week.

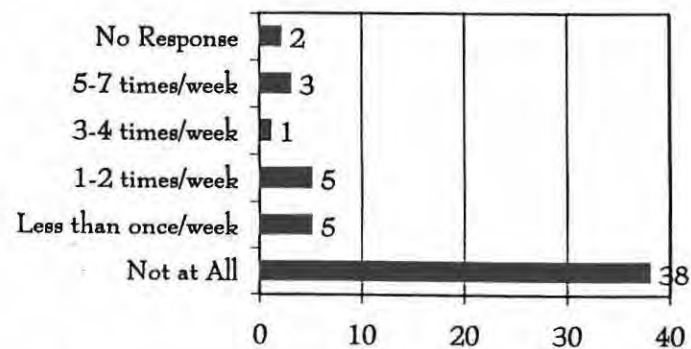
4. How many times a week do you typically visit the Upper Mall?

Season:

Number of Responses:

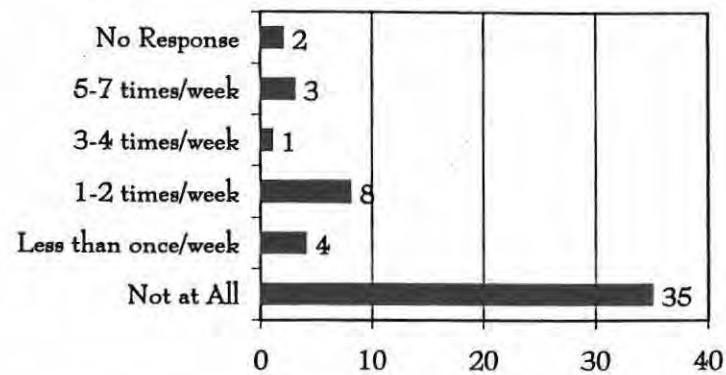
Spring

Not at All	38 (70%)
Less than once/week	5 (9%)
1-2 times/week	5 (9%)
3-4 times/week	1 (2%)
5-7 times/week	3 (6%)
No Response	2 (4%)



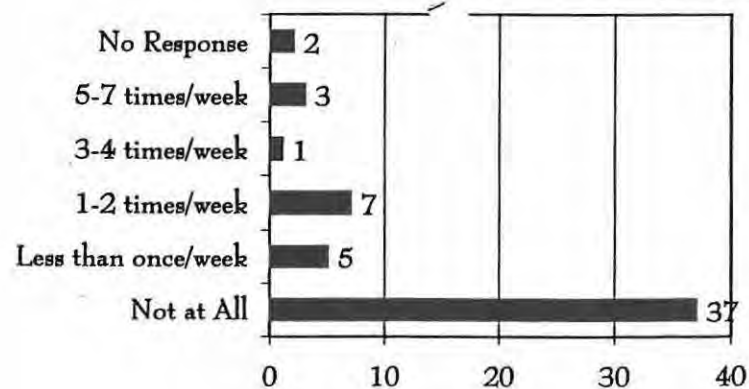
Summer

Not at All	35 (65%)
Less than once/week	4 (7%)
1-2 times/week	8 (15%)
3-4 times/week	1 (2%)
5-7 times/week	3 (6%)
No Response	2 (4%)



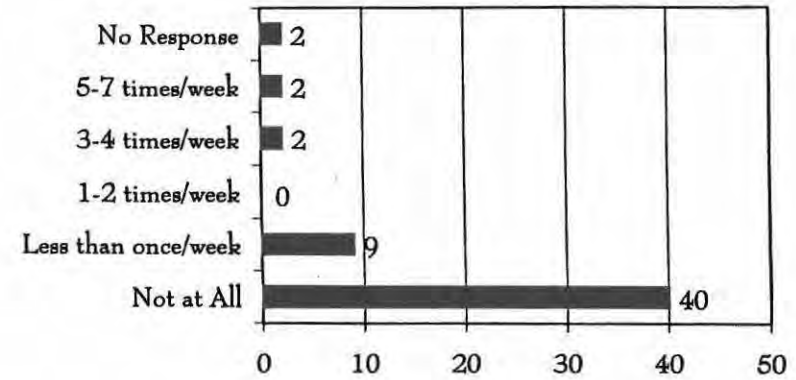
Fall

Not at All	37 (69%)
Less than once/week	5 (9%)
1-2 times/week	7 (13%)
3-4 times/week	1 (2%)
5-7 times/week	3 (6%)
No Response	2 (4%)



Winter

Not at All	40 (74%)
Less than once/week	9 (17%)
1-2 times/week	0 (0%)
3-4 times/week	2 (4%)
5-7 times/week	2 (4%)
No Response	2 (4%)



Survey Observations:

- The majority of respondents do not use the Upper Mall. Those respondents tend to frequent the Mall more often in warmer months.

6. How often do you engage in the following activities on the Lower Mall?

	Never (0)	Occasionally (1)	Frequently (2)	Always (3)	No Response (0)	Total Value:
Walking	11	18	11	4	11	52
Getting Fresh Air/Nature	13	13	14	3	12	50
People-Watching	15	17	7	5	11	46
Socializing	14	16	8	5	12	47
Farmers Market	3	24	12	15	2	93
Eating Lunch	10	27	10	6	2	65
Studying	39	5	1	0	10	7
Recreation	33	9	3	0	10	15
Walking the Dog	39	3	2	8	10	7
Special Event on the Mall	10	30	8	2	5	52
Ice Skating	32	11	1	1	10	16

Survey Observations:

- Most visitors to the Lower Mall are drawn by the Farmers Market. Other popular activities include eating lunch, walking and attending special events. (The fact that the majority of the user surveys were distributed at the Farmers Market may indicate a bias in the responses to this question.)

7. How often do you engage in the following activities on the Upper Mall?

	Never (0)	Occasionally (1)	Frequently (2)	Always (3)	No Response (0)	Total Value:
Walking	39	4	2	1	8	11
Getting Fresh Air/Nature	40	4	3	0	7	10
People-Watching	41	2	3	0	8	8
Socializing	40	5	1	1	8	10
Eating Lunch	40	4	1	2	7	12
Studying	44	3	0	0	9	3
Recreation	45	1	0	0	8	1
Walking the Dog	46	1	0	0	8	1

Survey Observations:

- Very few respondents visit the Upper Mall. Those that visit typically engage in passive recreational activity.

8. How often do you come to the Lower Mall?

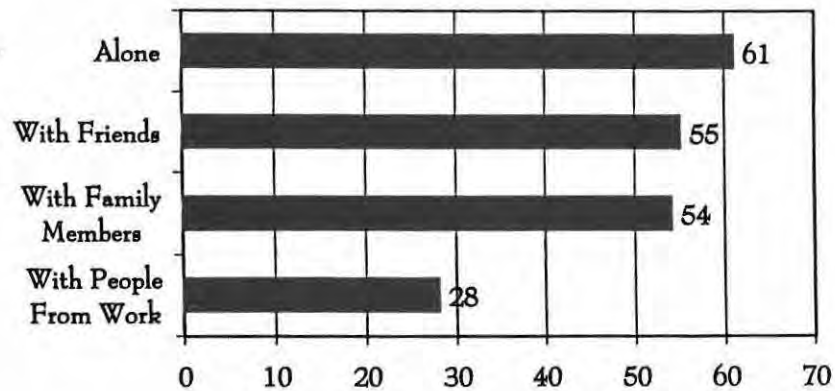
	Never (0)	Occasionally (1)	Frequently (2)	Always (3)	No Response (0)	Total Value:
With People From Work	23	4	9	2	17	28
With Family Members	9	21	12	3	10	54
With Friends	9	23	7	6	9	55
Alone	5	26	16	7	7	61

Survey Observations:

- Most people visit the Lower Mall by themselves. Many others visit with friends or family members.

8. How often do you come to the Lower Mall?

	Never (0)	Occasionally (1)	Frequently (2)	Always (3)	No Response (0)	Total Value:
With People From Work	23	4	9	2	17	28
With Family Members	9	21	12	3	10	54
With Friends	9	23	7	6	9	55
Alone	5	26	16	7	7	61

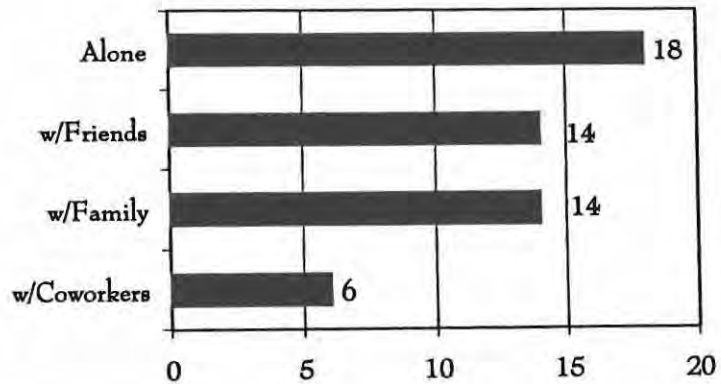


Survey Observations:

- Most people visit the Lower Mall by themselves. Many others visit with friends or family members.

9. How often do you come to the Upper Mall?

	Never (0)	Occasionally (1)	Frequently (2)	Always (3)	No Response (0)	Total Value:
With People From Work	42	2	2	0	9	6
With Family Members	38	7	2	1	7	14
With Friends	35	10	2	0	8	14
Alone	34	6	3	2	5	18

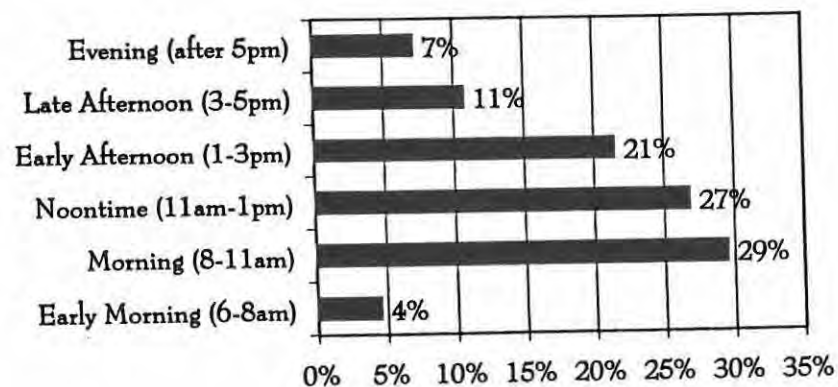


Survey Observations:

- Most people do not visit the Upper Mall. The majority of visitors come by themselves.

10. Please check the time(s) of day you typically use the Mall (Upper and Lower)?

Early Morning (6-8am)	5	Early Afternoon (1-3pm)	24
Morning (8-11am)	33	Late Afternoon (3-5pm)	12
Noontime (11am-1pm)	30	Evening (after 5pm)	8
No Response	2		

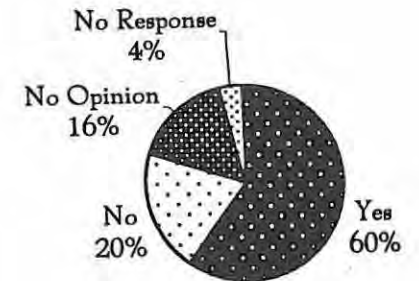


Survey Observations:

- Most visitors use the Mall in the morning hours. Lunch time and early afternoon are also popular visiting times.

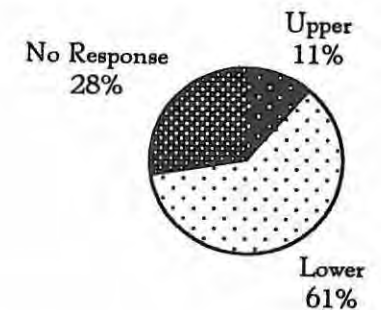
2. Do you favor more places to sit and gather?

Response:	Number of Responses:
Yes	33
No	11
No Opinion	9
No Response	2



3. If yes, does this apply to the Upper Mall or Lower Mall?

Response:	Number of Responses:
Upper Mall	6
Lower Mall	33
No Response	15

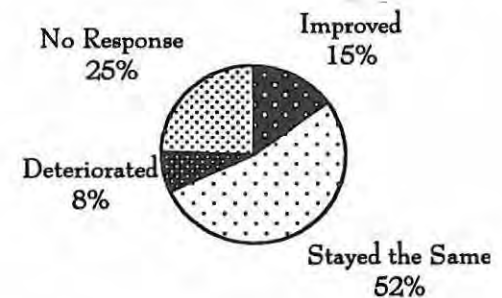


Survey Observation:

- Most Lower Mall visitors desire a greater number of seating possibilities.

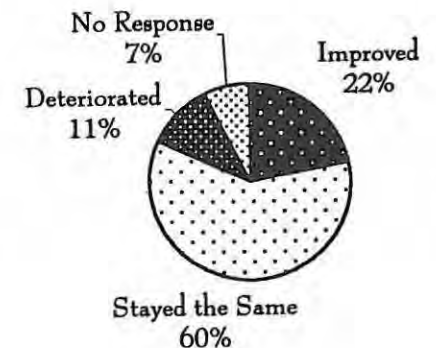
4. Do you feel that the physical condition of the Upper Mall over the last 5 years has....

Response:	Number of Responses:
Improved	8
Stayed the Same	28
Deteriorated	4
No Response	13



5. Do you feel that the physical condition of the Lower Mall over the last 5 years has.....

Response:	Number of Responses:
Improved	12
Stayed the Same	33
Deteriorated	6
No Response	4



Survey Observation:

- Most Mall users feel that the physical condition of the Upper and Lower Mall has stayed the same over the past 5 years. More respondents feel that the condition has improved rather than deteriorated.

6. If you could change 3 things about the Mall or its use what would they be?

Response:	Number of Responses:
More Parking	5
Add Flowers	4
Improve Farmers Market	3
Satisfied	3
No Loitering	3
Cleanup/Improve	2
Re-seed Grass	2
Add Play Area	2
More Trash Cans	2
Brick Sidewalks	2
No Dogs	2
More Events	2
More Farmers Markets	2
No vehicles permitted on grass	1
More Trees	1
Healthy Trees	1
Add Fountain	1
Replace Gazebo	1
More Benches	1
No Parking Tickets	1
No Meter Maid	1
Police Presence	1
Safe crossings	1
Make School Street One Way	1
No commercialism	1
Less Noise	1

Musical Events	1
More Advertising	1
More Farmers	1
More Year-Round Use	1
More Space for Skating	1
Change Name	1

Survey Observations:

7. Please check those concerns you have about the Mall that you would like to see addressed in the future. Please indicate whether your concern(s) apply to the Upper Mall, Lower Mall or both.

Concern:	Both	Upper Mall	Lower Mall	Did Not Specify
Safety	3	0	8	10
Dog Waste	4	0	9	11
Lighting Levels	4	0	3	5
Maintenance of Landscape	6	0	6	12
Condition of Mall Amenities	4	0	8	8
Automobile/Pedestrian Conflicts at Street Crossings	2	0	9	12
Overcrowding	2	0	0	2
Availability of Parking	3	0	6	18
Noise Levels	1	0	0	2
Additional Restrictions	1	0	2	5
Fewer Restrictions	3	0	1	2
Loitering	2	0	5	10
No Response	2			

Survey Observations:

- Parking is the biggest concern for most respondents. Not surprisingly, automobile/pedestrian conflicts are also a frequent concern. The maintenance of the landscape, including the removal of dog waste, is a concern for many people. Safety is also an issue that is on the minds of many respondents.

LETTERS FROM LOCAL SCHOOL CHILDREN

November 10, 1999

To: The Brunswick Town Planner
From: Mr. DeCamilla's 3rd grade class
Longfellow Elementary School

Subject: Ideas for improving the Brunswick Mall

1. Add a playground.
2. Make a flower garden.
3. Add water fountains.
4. Add a public bathroom.
5. Design a dog run.
6. Use recycle bins.
7. Have public phones available.
8. Build a small pond with ducks, fish.
9. Place a map of the Brunswick town offices and stores at the Mall. Cover it with plastic for people to use as a reference all year long.
10. Add some picnic tables and grills.
11. Build a playhouse or fort for the children.
12. Create an outdoor basketball area.

November 12, 1999

Dear [Mr.] Holtwijk,

This is a picture of the mall with last year's third graders doing a drawing of the Historical Society. Then they went to the Farmer's Markets and then got hot dogs.

Thank you for coming to our school and telling us about the Mall. Here are some of our ideas about changes:

- fountain
- fish pond
- wishing well
- flower bed
- bigger farmer's market
- baseball field
- playground
- more benches
- bathroom
- high tower
- jogging trail
- walkway
- clubhouse
- climbing tree
- parking

Sincerely,

Mrs. Lowe's 3rd grade class
Longfellow Elementary School

November 12, 1999

Dear Mr. Holtwijk,

Thank you for coming to our classroom to share about the mall. You told us a lot! You told us we could help the mall. Thank you for the newspaper articles, the slides, and the big maps too.

We joined up with a few other classes and came up with these ideas to improve the mall. Some kids want a gazebo on the upper mall. Some kids want a swimming pool with a slide and a hot tub. They want a restaurant on the upper mall. They want a gazebo with special needs. A trampoline would be wonderful! A snack bar with candy AND healthy foods would be nice. We think there should be telephones so that if you get hurt, you don't have to go across the street and call. Some kids would appreciate having bathrooms. Some kids would like two sidewalks on the mall. Kids think it would be safer if there were stop lights next to the mall. Some kids think it would be nice to have a small library to borrow a book and sit down on a bench to read it. It would be wonderful if we could have more benches on the mall.

We hope you enjoyed coming to our room to tell us about the mall. We enjoyed your visit!!!

Your Brunswick citizens

Mrs. Searles' 3rd grade class
Longfellow Elementary School

Appendix E: PUBLIC FORUM CITIZEN INPUT

Attendants of the public forums made the following suggestions for improvements. While the Town decided not to adopt these suggestions as official recommendations at this time, they nonetheless felt it important to list the contributions of the public.

- Install tables with checkerboards at the Lower Mall
- Initiate a shuttle service to the Farmers Market to alleviate traffic problems
- Install grass crete pavers under Farmers Market
- Remove overhead electric wires; move power underground
- Move ice skating rink to ballfield area in town
- Let Upper Mall “grow wild” at its southern end
- Plant millenium trees at Upper Mall
- Install Joshua Chamberlain statue at northern end of Upper Mall
- Install sculptural rocks at Upper Mall
- Install chess tables at Upper Mall
- Continue sidewalk on Park Row side of Lower Mall
- Waive maintenance fee for donors of sculpture
- Erect a peace pole at the bandstand

