Cultural Landscape Report, Treatment, and Management Plan for Branch Brook Park
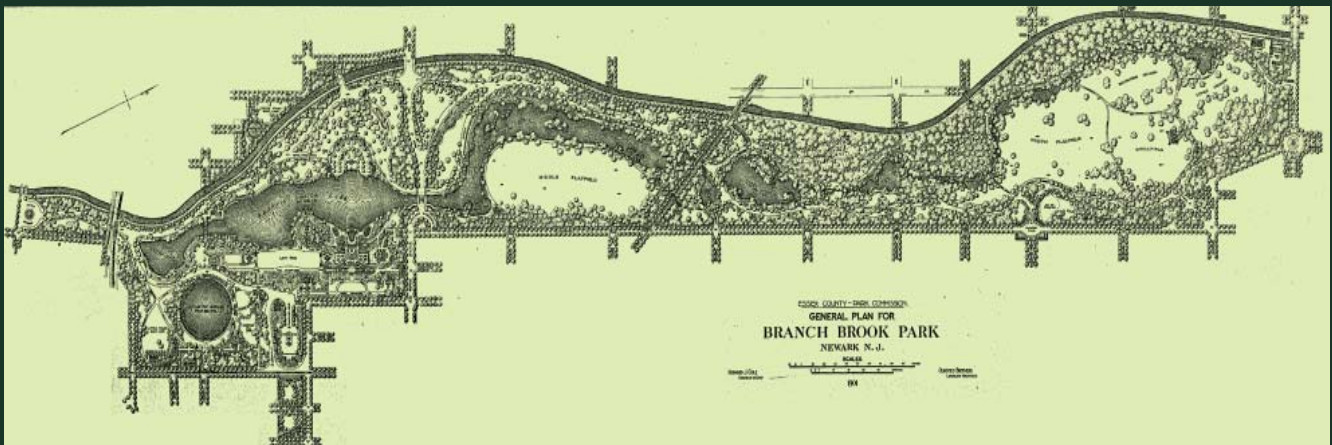

Newark, New Jersey

Volume 5: Vegetation in the Park

Table of Contents

PROJECT OVERVIEW

As part of the Cultural Landscape Report, Treatment, and Management Plan being prepared for Branch Brook Park by Rhodeside & Harwell, Incorporated, Paul Cowie & Associates (PC&A) completed a survey and assessment of the Park's existing woody vegetation.

Specifically, this survey included:

1. The individual inventory, assessment, tagging, and mapping of 6401 stand-alone, shade and ornamental trees and 119 existing stumps in maintained areas of the Park.
2. The general characterization of dense, unmaintained stands of trees and natural woodlots.

The following sections summarize the findings of this study and provide general recommendations for improving, managing and perpetuating these valuable resources.

PROJECT OBJECTIVES

The primary objectives of this Vegetation Study were to:

1. Provide the Branch Brook Park Alliance (BBPA) and project team members with thorough and accurate baseline data regarding the existing tree resources for the purpose of making sound design and management decisions and to facilitate development and implementation of a comprehensive forest management plan.
2. Develop and provide general recommendations and management guidelines for maintaining, protecting and perpetuating the tree resources over the long term in a manner that maximizes their benefits to park users and the community overall.
3. Facilitate long-term management and cost efficient maintenance of the Park's woody vegetation through the use of a computerized tree inventory database system.

SPECIES COMPOSITION

1. Branch Brook Park's tree resource consists of 6401 individually inventoried shade and ornamental trees and tens of thousands of additional trees and associated woody and herbaceous vegetation in unmaintained "woodlots."

2. The shade and ornamental tree resource is comprised of 102 different species representing 54 different genera.

3. Oaks (33.2%), cherries (20.2%) and maples (12.9%) comprise disproportionately large portions of the shade and ornamental tree population. Other significant genera include ash (4.4%) and pine (4.3%).

4. Oaks and maples predominate in the unmaintained woodlots. Other significant genera include ash, sycamore, Ailanthus, cherry, and elm.

5. Both the shade and ornamental tree and woodlot populations contain significant numbers of undesirable exotic invasive species including Norway maple, mulberry, Ailanthus, and sycamore maple.

6. A systematic program should be implemented to remove undesirable invasive species as areas of the Park are developed and continued annually to prevent their reinvasion.

DIAMETER & AGE STRUCTURE

1. The shade and ornamental tree population is generally uneven-aged, containing substantial numbers of trees in young, middle and advanced age classes.

2. Distinct age strata resulting from remnants of the original Olmsted planting, waves of subsequent replanting efforts, and continuous natural regeneration are evident in all areas of the Park.

3. Tree populations in most of the woodlot units are irregular, uneven-aged in structure. However, there is wide variation in the age and successional development between woodlots throughout the Park.

TREE CONDITION

1. The shade and ornamental tree population is in fair and deteriorating condition due to advancing age, environmental stresses, and insufficient maintenance.

2. 39.7% of the shade and ornamental trees were rated in 'Good' condition, 36.2% in 'Fair' condition, 20.9% in 'Poor' condition, and 3.2% were dead at the time they were inventoried.

3. Of the woodlot areas, 15.6% were rated in 'Good' condition, 31.3% in 'Fair' condition, and 53.1% in 'Poor condition.

4. The poor condition of the woodlot areas is primarily attributed to the:

   a) Indiscriminate cutting of understory vegetation

   b) Displacement of desirable native vegetation by exotic invasives

   c) Impact of climbing vines and colonizing species on the health of canopy trees and understory vegetation

   d) Insufficient regeneration of desirable species.

1. 47% of the shade and ornamental trees required pruning or removal on a high or medium priority basis to mitigate potentially hazardous conditions at the time they were inventoried.

2. 515 shade and ornamental trees were identified as requiring removal because they were dead, dying or structurally unsound at the time they were inventoried, as follows:

   e) Southern Division: 109 trees

   f) Middle Division: 32 trees

   g) Northern Division: 127 trees

   h) Extension: 247 trees

3. 57.4% of the trees requiring high priority removal are large trees 19" in diameter and larger.

4. Many additional trees in user-frequented areas adjacent to and within most of the woodlot units require high or medium priority pruning or removal.

5. 104 existing stumps from previously removed trees were identified as requiring removal as soon as possible, as follows:

   a) Southern Division: 8 stumps

   b) Middle Division: 11 stumps

   c) Northern Division: 36 stumps

   d) Extension: 49 stumps

6. An additional 155 stumps, which will result from emergency and high priority trees that must be removed as soon as possible, will require removal in the near future.

7. The fact that so many trees throughout the Park require priority pruning and removal clearly indicates that a more comprehensive and systematic program is needed to maintain this immensely valuable asset and to minimize the County's exposure to liability.

8. An ongoing, systematic tree removal, stump removal and replanting program is necessary to help ensure that the Park's tree resource is properly maintained and perpetuated.

9. An increase in staff and equipment allocation, or increased use of outside contractors, is necessary to adequately maintain the Park's tree resources.

10. This Vegetation Survey and accompanying shade and ornamental tree inventory database be used and updated on an ongoing basis.

11. Ongoing training is necessary for Essex County and Branch Brook Park Alliance staff to help ensure the effective use of the vegetation survey and database and proper arboricultural practices.

12. A corps of community "Tree Watchers" should be organized and trained to assist in monitoring, protecting and maintaining the Park's trees.

1. Branch Brook Park's famed cherry blossom collection has been severely degraded over the years and is continuing to deteriorate rapidly.

2. The collection currently consists of 984 individually inventoried trees. An additional number of scattered trees also exist in the unmaintained woodlot areas.

3. The majority (77.8%) of the ornamental flowering cherries are various cultivars of Japanese flowering cherry *(Prunus serrulata)*. The remainder are primarily Yoshino cherry *(Prunus yedoensis, 16.8%)* and Higan cherry *(Prunus subhirtella, 5.4%)*.

4. The condition of the flowering cherry tree collection is poor and deteriorating. 28.6% were rated in 'Good' condition, 37.5% in 'Fair' condition, 32.0% in 'Poor' condition, and 1.9% were dead at the time they were inventoried.

5. The deteriorating condition of the collection is attributed to the advanced age of

many of the trees, unfavorable growing conditions, and insufficient maintenance.

6. 89 of the individually inventoried flowering cherry trees were identified as requiring removal because they were dead, dying or structurally unsound at the time they were inventoried.

7. More proactive maintenance, more frequent and consistent replanting, and a greater diversity of cultivars are necessary to ensure that the cherry collection is maintained at the level desired and perpetuated over the long term.

SECTION DELINEATION

To facilitate the storage and retrieval of inventory data and the implementation of future management efforts, each of the four established Divisions of the Park were further divided into numerous "Sections," as follows:

1. Southern Division – 51 Sections
2. Middle Division – 26 Sections
3. Northern Division – 44 Sections
4. Extension Division – 71 Sections

The boundaries of each Section are delineated by roads, paths and other field-identifiable fixtures.

Within each Division, Sections are consecutively numbered from "1" through the total number of Sections in the Division.

VEGETATION SURVEYED

Two types of vegetation were surveyed using the corresponding methods outlined below.

2. *Shade & Ornamental Trees*
    a) For the purpose of this survey, shade and ornamental trees are defined as trees that are free-standing, grouped or otherwise arranged in regularly used areas of the Park where there is evidence of regular maintenance of the ground surrounding at least 50% of the circumference of the base of the tree.
        i)   Trees that were apparently planted based on their species, location, and other attributes, were inventoried regardless of their current size.
        ii) Trees that were apparently not planted were inventoried only if they were eight inches in diameter or larger at the time they were inventoried.
    b) Shade and ornamental trees, as well as existing stumps from previously removed shade and ornamental trees and vacant planting sites where shade and ornamental trees are clearly missing (e.g. vacant planter boxes, etc.), were individually tagged, inventoried, evaluated, and, in most cases, plotted on the accompanying survey drawings.

3. *Woodlots*
    a) For the purpose of this survey, woodlots are defined as relatively dense areas of trees of mixed species and diameter structure, a relatively closed canopy, associated understory vegetation, and little or no maintained ground cover.
        i)   Trees and other vegetation within designated woodlots were not individually inventoried and evaluated in the same manner as shade and ornamental trees regardless of size and whether or not they were planted.
    b) Stand-level observations and evaluations were made and recorded at numerous sample points throughout each Division to characterize the various woodlot cover types, characterize the dynamics of the various types, evaluate their condition, and develop recommendations for their improvement and maintenance.

DATA ORGANIZATION

Data collected for each shade and ornamental tree inventoried and each woodlot area evaluated are organized in the accompanying *TreeFiles* database according to:

1. *Location*

    a) The Section in which each individually inventoried shade and ornamental tree, stump, vacant planting site, and woodlot area is located within the Park is indicated by a fictitious "address" consisting of the number of the Section and the name of the Division in which it is located (e.g. 23 Northern Division).

2. *Tag# or Woodlot#*

    a) Tag# indicates the number assigned to uniquely identify each individually inventoried shade and ornamental tree, stump and vacant planting site within each of the four Park Divisions.

        i) Within each Division, Tag#'s are consecutively numbered from "1" through the total number of individually inventoried trees in the Division.

        ii) Numbers assigned to trees and stumps requiring immediate removal, however, are based on the number of an adjacent tree plus a letter suffix (e.g. 232-A) so that the number sequence of the remaining trees will remain largely intact after it is removed.

        iii) A corresponding aluminum tag was affixed to individually inventoried trees and stumps.
            - A round, heavy gauge, "permanent" aluminum tag was nailed to the trunk of most individually inventoried trees. In addition to the corresponding tag number, the tag is stamped with the initial of the Division in which it is located to aid in field identification (S = Southern, M = Middle, N = Northern, E = Extension).
            - A rectangular, soft, "temporary" aluminum tag was affixed to dead trees, trees and stumps requiring immediate removal.

    b) Woodlot# indicates the number assigned to uniquely identify each woodlot evaluation area within each of the four Park Divisions.

        i) Woodlot#'s are keyed to differentiate them from the individual tree tag#'s and to indicate their approximate location within the Park.
            - The 'W' prefix indicates that the number refers to a woodlot area versus an individually inventoried shade or ornamental tree, stump or vacant planting site.
            - The second letter indicates whether the woodlot area is located in the Southern ('S'), Middle ('M'), Northern ('N'), or Extension ('E') Division of the Park.
            - The number is the Section number in which the woodlot area is located.
            - In some cases, the Woodlot# also contains a letter suffix to uniquely identify woodlot evaluation areas where there is more than one in a given Section.

        ii) Trees in woodlot areas were not individually tagged in the field.

VEGETATION MAPPING

The approximate location of most individually inventoried shade and ornamental trees, stumps and vacant planting site and all woodlot evaluation areas is indicated on the accompanying survey drawings.

The mapping of individually inventoried shade and ornamental trees, stumps and vacant planting sites was accomplished by matching trees in the field with trees plotted on a survey previously prepared by others.

Trees not previously shown on the survey and woodlot evaluation areas were roughly

plotted, versus precisely surveyed, based on their position relative to other trees and fixtures shown on the survey. Therefore, the survey drawings should be used for general reference purposes only.

There are some rather expansive areas on the drawings where no trees and insufficient benchmarks were shown on the survey provided to plot the trees with any degree of accuracy. Therefore, not all trees were added to the drawings. Field surveying will be necessary to add trees to the survey drawing in these areas.

SHADE & ORNAMENTAL TREE SITE DATA

The following data regarding the site in which individually inventoried trees, stumps and vacant planting sites are located were collected and recorded in the accompanying *TreeFiles* database.

1. *Site Occupancy*
   a) Site Occupancy indicates whether the specific spot in the field is occupied by a tree or a stump or is vacant (a tree is clearly missing from an intended design).

2. *Site Type & Size*
   a) Site Type briefly describes the area in which the tree is rooted.
   b) Size indicates the smallest dimension in feet where the site is restrictive to root development. Size is not indicated where the site is not restrictive.

3. *Wires*
   a) Wires indicates the presence (Yes) or absence (No) of pole-to-pole utility wires over or near the tree, stump or vacant planting site.

4. *Conflict*
   a) Conflict indicates that there is a spatial conflict between the hardscape fixture(s) noted (e.g. structures, fences, etc.) and the growth of the tree.

5. *Damage*
   a) Damage indicates that the growth of the tree has caused damage to the hardscape fixture(s) noted (e.g. sidewalks)

6. *Planting Site Notes*
   a) Planting Site Notes provides additional miscellaneous information regarding the location of a tree, stump or vacant planting site or the site in which it is located.

SHADE & ORNAMENTAL TREE DATA

The following data were collected and recorded in the accompanying *TreeFiles* database for each individually inventoried tree and stump.

1. *Tree Status*
   a) A Tree Status of "Current" indicates that the database record refers to an existing tree or stump.
   b) A Tree Status of "Archive" indicates that the database record refers to a tree or stump that was present when inventoried, but which has since been removed.

2. *Species*
   a) Common Name is the regionally accepted species name for each inventoried tree and stump.
   b) Botanical Name (Genus & Species) is the universally accepted scientific name for each inventoried tree and stump.

c) Cultivar names or classifications are provided for trees under Tree Notes only if there were readily discernable identification features present at the time they were inventoried.

d) Non-specific values in the Species field of the *TreeFiles* database include:

e) 'Undetermined,' which indicates that the species was not positively identified (dead trees and stumps).

f) 'Woodlot,' which indicates that the database record refers to grouping of trees (see Woodlot Survey Methods below) versus an individually inventoried tree or stump.

3. *Stems*

a) Stems indicates the number of stems the tree or stumps possesses at the point of diameter measurement.

4. *Diameter*

a) For trees, the diameter of each stem was measured to the nearest inch as Diameter at Breast Height (DBH = 4.5' above the ground) or at the point indicated.

b) For stumps, the diameter was measured at the top of the stump including basal flare.

5. *Condition*

a) The overall health and structural condition of each tree was rated by systematically assessing its crown, scaffold branch structure, foliage, trunk, and root system, as follows:

   i) *Good:* The tree has no more than one or two minor defects and is advancing with vigor;

   ii) *Fair:* The tree has 2 – 4 minor defects or one major defect and is advancing, but with limitations.

   iii) *Poor:* The tree has several minor defects and/or two or more major defects and is declining in vigor.

   iv) *Dead:* 50% or more of the crown is dead and any remaining live portions are deteriorating rapidly.

6. *Disorders*

a) Disorders are significant insect, disease and site-induced problems that may affect the overall health, vitality, and longevity of the tree.

7. *Defects*

a) Defects are significant physical conditions that may compromise the structural integrity and safety of the tree.

b) The evaluation of each tree's condition was limited to simple visual observations of external portions of the tree from the ground and did not include aerial inspections or advanced diagnostic techniques. Therefore, the presence of certain defects may have gone unnoted or the severity of defects may not have been fully realized. While reasonable efforts were made to identify and characterize significant problems, this was not the primary purpose of the inventory and no guarantees that every problem or potentially hazardous condition was identified are implied.

8. *Tree Notes*

a) Tree Notes provides additional miscellaneous information regarding the tree or stump, such as:

   i) Cultivar names.

ii) More detailed description regarding the nature and severity of health disorders and structural defects.

iii) Additional stem diameters for multi-stem trees.

Tree maintenance recommendations were made, and priority levels were set, based on the need to improve safety where hazards exist first, and improving tree health, structure and appearance second, as follows.

The evaluation of each tree's condition was limited to simple visual observations of external portions of the tree from the ground and did not include aerial inspections or advanced diagnostic techniques. Therefore, the presence of certain defects may have gone unnoted or the severity of defects may not have been fully realized. While reasonable efforts were made to identify and characterize significant problems, this was not the primary purpose of the Vegetation Survey and no guarantees that every problem or potentially hazardous condition was identified are implied.

1. *Prune Emergency & High Priority*

   a) Recommended for trees containing at least one dead, dying, diseased, decayed, broken, or split limb 4" in diameter or larger.

   b) Pruning is required immediately to eliminate imminent hazards to life and property.

   c) Emergency priority pruning should be completed immediately.

   d) High Priority pruning should be completed as soon as possible.

2. *Prune Medium Priority*

   a) Recommended for trees containing 2 - 3 or more dead, dying, diseased, decayed, broken, or split limbs 2" - 4" in diameter.

   b) Pruning is required to eliminate potential hazards, but should be addressed after High Priority work is completed.

3. *Remove Emergency & High Priority*

   a) Recommended for trees that are imminent safety hazards and high liability risks.

   b) These include medium to large size trees that are dead or near dead or which have severe defects that are likely to result in the failure of a large tree part, but can not be corrected through typical arboricultural techniques.

   c) Emergency priority removals should be removed immediately.

   d) High Priority removals should be removed as soon as possible.

4. *Remove Medium Priority*

   a) Recommended for trees that are moderate safety hazards and liability risks.

   b) These include medium to large size trees that are near dead or which have significant defects that may result in failure of a large tree part, but cannot be corrected through typical arboricultural techniques.

   c) Medium Priority trees should be removed as soon as possible, but after the High Priority trees are addressed.

5. *Remove Low Priority*

   a) Recommended for trees that should be removed because they are dead or have serious defects, but pose little hazard because of their small size or location (e.g. dead transplants).

   b) This group may also include trees that should be removed for aesthetic, nuisance, or other non-safety related reasons.

6. *Elevate/Clear*

   a) Recommended where pruning is required to clear sidewalks, drives, signs, traffic controls, buildings, etc.

   b) Clearance of traffic controls and signs at intersections must be completed on a high priority basis.

   c) Other Elevation and clearance pruning may be completed on a medium or low priority basis.

7. *Developmental Prune*

   a) Recommended where specialized pruning is needed for developing a strong, well-spaced branch scaffold in young trees, especially those prone to branch failure as they age (e.g. Callery pear).

8. *Remove Stump*

   a) Recommended for existing stumps left from the removal of trees in the past that require grinding or removal.

9. *Cable*

   a) Recommended where the installation of steel support cables may help reduce the risk of splitting between weak branch attachments when there is a high likelihood of property damage or injury resulting from failure.

10. *Inspect/Monitor*

    a) Recommended for trees that have apparent problems that require a more detailed examination using more advanced diagnostic techniques to fully determine the extent of the problem (e.g. extent of internal wood decay) and/or trees possessing disorders or defects that should be continually reevaluated so that the emergence of a potentially hazardous condition can be promptly addressed.

WOODLOT SURVEY DATA

The following data were collected and recorded in the accompanying woodlot management cards for each of the woodlot areas evaluated.

1. *Location*

   a) Indicates the Division and Section in which the woodlot area is located.

2. *Composition*

   a) The predominant species observed are listed for the various crown classes.

      i) *Dominant Trees:* The largest and most vigorous trees with crowns above the general level of crown cover and receiving full sun from above and partly from the side.

      ii) *Codominant Trees:* Trees with crowns forming the general level of crown cover and receiving full sun from above, but little from the side.

      iii) *Understory Vegetation:* Trees completely overtopped by the main canopy and ground-level vegetation that receives no direct sun.

3. *Overall Condition*

   a) The overall, stand-level condition of the woodlot area was rated as 'Good,' 'Fair,' or 'Poor' based on an evaluation of:

      i) The average condition of individual trees.

      ii) Stand density and growth rate.

      iii) The extent of natural regeneration of desirable trees and understory vegetation.

iv) The extent of undesirable exotic invasive vegetation.

v) The impact of vines and other competitive growth.

4. *Slope*

a) Describes the terrain within the woodlot area to the extent that it may affect soil erosion, tree health, tree stability, and the regeneration of vegetation.

5. *Overstory Density*

a) Describes the relative density of the trees that comprise the main canopy of the woodlot and the extent of crown closure.

6. *Understory Density*

a) Describes the relative density of trees, shrubs and other vegetation in the lower crown and ground-level layers of the woodlot.

7. *Age Structure*

a) Classifies the structure of the primary stand based on the relative numbers and area covered by trees of different age classes, as follows:

i) *Even Aged:* The majority of the trees are similar in age.

ii) *Uneven Aged:* The majority of the trees occupy three or more different age classes.

- *Balanced Uneven Aged:* The majority of the trees and the area they occupy are more or less evenly distributed over three or more age classes.
- *Irregular Uneven Aged:* The majority of the trees and the area they occupy are unevenly distributed over three or more age classes.

8. *Successional Stage*

a) Indicates the level of ecosystem development as a result of natural succession since the site was last cleared or otherwise disturbed.

i) *Early Succession:* The stand is comprised primarily of short-lived, pioneer and/or early successional species, relatively young and infrequent mid-successional species, and/or an abundance of herbaceous plants inhabiting a site that was cleared or otherwise disturbed in the recent past.

ii) *Mid succession:* The stand is comprised primarily of longer-lived, mid-successional species which, after time, inhabited and out-competed the short-lived, pioneer and early successional species, relatively young and infrequent late successional species, and shade tolerant herbaceous and understory woody plants inhabiting a site that has remained undisturbed for a significant period of time.

iii) *Late succession:* The stand is comprised primarily of long-lived, late-successional and "climax" species (longest lived), which dominate the canopy, and primarily shade tolerant herbaceous and woody plants in the understory.

9. *Invasive Species*

a) Indicates species generally considered to be undesirable, exotic invasives that were noted.

10. *Observations*

a) Provides general observations and conclusions regarding the current condition and history of the woodlot are provided.

11. *Management Goals*

a) Generally, woodlot-specific management goals are not provided because the

details of area-specific design intent, security concerns and other issues were not known at the time this Vegetation Survey was completed.

b) It is strongly recommended that design and management goals be developed for each woodlot area and that all management decisions and maintenance activities follow accordingly.

12. *Recommendations*

a) The recommendations provided are general in nature and based on improving and maintaining the overall condition of the woodlot in its current state.

b) These recommendations may be altered or additional recommendations may be added once management goals are developed and specified.

Branch Brook Park's vegetative resources currently consist of:

1. 6401 individually inventoried shade and ornamental trees.

2. Tens of thousands of additional trees in unmaintained woodlots.

3. Acres of native and non-native shrubs, vines and herbaceous plants, primarily growing in an unmanaged state in the woodlots and unmaintained borders.

4. Acres of sprawling, open and semi-open turf areas and recreation fields.

5. A limited number of relatively small ornamental landscape plantings.

The areas in which trees and other vegetation are growing vary widely in their design and current state, type and intensity of use by Park visitors, and level of maintenance by Park managers.

Those categorized as shade and ornamental trees by this survey are generally found in:

1. Areas of vast open lawns used for both frequent and infrequent passive and active recreation.

2. Designed landscapes along roadways, around buildings, and in and around parking lots and other high use areas.

3. A variety of other maintained and semi-maintained areas.

Those categorized as woodlot trees are generally found in:

1. Areas of various sizes and configurations that have been left in a natural or semi-natural state since the Park was constructed.

2. Areas of various sizes and configurations that were originally landscaped and maintained, but which reverted to a natural or semi-natural state after maintenance ceased.

3. Relatively small pockets and narrow strips along streams and on the perimeter of high use areas that were either left in a natural or semi-natural state to provide buffers or which reverted due to insufficient maintenance.

Overall, the stocking of trees and other woody vegetation in the Park overall is quite good. The density of stocking varies widely throughout the Park from large areas with no trees, to savannahs with sparse scatterings of individual and small clusters of trees, to dense woodlots. The wide range of densities is aesthetically pleasing and provides a wide range of recreation opportunities and wildlife habitats.

A relatively small number of trees were found to be conflicting with or damaging sidewalks, structures and other hardscape fixtures.

The vast majority of the planting sites in which trees and other vegetation are growing provide sufficient above and below ground space to permit the normal growth, full development and long life of most tree species.

Soils in many areas of the Park are heavy in texture and/or compacted and limited in their drainage and aeration capacity. In many areas, the condition and longevity of planted trees and shrubs is correlated to their inherent tolerance of the existing soil and site conditions.

SHADE
& ORNAMENTAL
TREE
POPULATION
SUMMARY (BY
SPECIES AND
DIAMETER
CLASS)

Species	01-03	04-06	07-12	13-18	19-24	25-30	31-36	37-42	43+	Total
AILANTHUS		2	32	21	8	2	1	1		67
AMERICAN BEECH				2	3	5	10	3	2	25
AMERICAN ELM		4	37	40	15	29	13	8	5	151
AMERICAN HOLLY		1	3	2						6
AMERICAN LINDEN			9	9	7	6	2	3		36
AMERICAN SYCAMORE			1	1	15	15	17	9	6	64
AMUR CORKTREE					1	1				2
APPLE		1	3							4
AUSTRIAN PINE		6	49	83	26	2				166
BLACK BIRCH			8	8	3	2				21
BLACK CHERRY		18	181	82	15	2	1	1		300
BLACK GUM		1	3	7	3	2		1		17
BLACK LOCUST		6	20	24	7	3	3	1		64
BLACK OAK			1	3	7	8	6	4	5	34
BLACK WALNUT				1	1					2
BLACK WILLOW									1	1
BLACKHAW VIBURNUM		1	1							2
BOXELDER		1	4	1	1	1				8
CALLERY PEAR			1							1
CAROLINA SILVERBELL			2							2
CATALPA			2	4	1	1	1			9
CHESTNUT OAK				1	2	1	1			5
COLORADO SPRUCE		1	3	1						5
CORNELIAN CHERRY		9	4							13
CRABAPPLE		1	3	2						6
CUCUMBER MAGNOLIA					1	2	1			4
DAWN REDWOOD	1									1
DOUGLAS FIR		1								1
ENGLISH ELM			2	4	1	2	2			11
EUROPEAN BEECH				1	5	3	1			10
EUROPEAN LINDEN						2				2
EUROPEAN WHITE BIRCH				5	4	1				10
FLOWERING DOGWOOD		35	41	1						77
GINKGO			2	5	8	2				17
GOLDEN RAINTREE			2							2
GRAY BIRCH			8	4						12
GREEN ASH		1	4	7	4	6	2	2		26
HACKBERRY			3	2	4				1	10
HAWTHORN		18	22	4						44
HEDGE MAPLE		2	21	13	4	1	1			42
HEMLOCK			66	48	2					116
HIGAN CHERRY	17	3	19	11	3					53
HIMALAYAN PINE						1				1
HONEYLOCUST			11	13	11	10	8	1		54
HOPHORNBEAM		1	7	4	1					13
HORSECHESTNUT				3	9	12	4	1		29
HYBRID MAPLE			2							2
IRONWOOD		1	3	4	2					10
JAPANESE FLRW CHERRY	81	167	299	158	50	9		1	1	766
JAPANESE HOLLY		2	4							6
JAPANESE MAPLE		5	5							10
JAPANESE TREE LILAC			4	1						5
KENTUCKY COFFEETREE			1	1	3	6				11
KOUSA DOGWOOD			1							1
LITTLELEAF LINDEN			2	13	39	36	10	4	4	108
LONDON PLANETREE			5	23	16	17	15	7	4	87

Species	01-03	04-06	07-12	13-18	19-24	25-30	31-36	37-42	43+	Total
MULBERRY		4	27	35	9	3				78
NORWAY MAPLE	3	34	177	118	67	39	19	4		461
NORWAY SPRUCE			6	3	2					11
OHIO BUCKEYE			1	2		1				4
OSAGE ORANGE					1		1			2
PIGNUT HICKORY						1	1			2
PIN OAK		2	120	208	276	261	154	57	22	1100
PUMPKIN ASH					1					1
RED CEDAR		1	6	1	2	1				11
RED MAPLE		6	38	53	55	36	7	8	2	205
RED OAK		5	85	111	141	169	134	78	54	777
REDBUD				1						1
RIVER BIRCH			4	9	4	3	5	1		26
ROYAL EMPRESS TREE								1		1
SASSAFRAS			3	8	2					13
SAWTOOTH OAK					3	2				5
SCARLET OAK				1	1		2	1	1	6
SCHOLAR TREE			3	14	13	6	5	1	2	44
SCOTCH PINE			1	6			1			8
SHINGLE OAK			12	9	11	2	4	1		39
SIBERIAN ELM			1		3	2				6
SILVER LINDEN					2		1			3
SILVER MAPLE	1			1	4	7	4	3		20
SLIPPERY ELM							1			1
SOURWOOD			1	1						2
SUGAR MAPLE			3	10	11	2	3			29
SWAMP WHITE OAK			2	2	13	25	17	12	3	74
SWEET CHERRY		4	7	1						12
SWEETGUM		1	1	23	37	40	14	3		119
SYCAMORE MAPLE		2	11	13	14	6	1		1	48
TATARIAN HONEYSUCKLE		1	1							2
TULIP			1	2	2	10	7	1	2	25
UNDETERMINED	4	7	21	12	6	5	1	3		59
WASHINGTON HAWTHORN			1							1
WEEPING WILLOW				1	1					2
WHITE ASH		6	41	55	54	50	30	11	6	253
WHITE OAK			2	4	11	15	7	7	6	52
WHITE PINE	1	2	37	36	16	7				99
WILLOW				1	2	4	2		2	11
WILLOW OAK				1	1	6	20	7	1	36
WITCH HAZEL			1							1
YELLOW BIRCH				2						2
YELLOW BUCKEYE			3							3
YELLOWWOOD			5	3	4	2	2		1	17
YEW	1		1							2
YOSHINO CHERRY	9	12	66	53	24	1				165
ZELKOVA			9	1						10
Totals	**118**	**375**	**1599**	**1418**	**1075**	**897**	**541**	**246**	**132**	**6401**

Site Type	Size	No. of Trees	No. of Stumps	No. Vacant	Total
PAVEMENT CUTOUT	2'-3'	1			1
PAVEMENT CUTOUT	3'-4'				0
PAVEMENT CUTOUT	4'-5'	2			2
PAVEMENT CUTOUT	5'-6'	1			1
PAVEMENT CUTOUT	6'-7'				0
PAVEMENT CUTOUT	7'-8'	11	1		12
PAVEMENT CUTOUT	8'-9'	14			14
PAVEMENT CUTOUT	9'+				0
Subtotals		**29**	**1**	**0**	**30**
PLANTING STRIP	4'-5'	1			1
PLANTING STRIP	5'-6'	1			1
PLANTING STRIP	6'-7'	2			2
PLANTING STRIP	7'-8'	8			8
PLANTING STRIP	8'-9'	4	1		5
PLANTING STRIP	9'+	197	10		207
Subtotals		**213**	**11**	**0**	**224**
LANDSCAPE BED	9'+	9			9
Subtotals		**9**	**0**	**0**	**9**
LAWN	9'+	4766	98	23	4887
Subtotals		**4766**	**98**	**23**	**4887**
NATURAL	9'+	1384	9	5	1398
Other Subtotals		**1384**	**9**	**5**	**1398**
Totals		**6401**	**119**	**28**	**6548**

Shade & Ornamental Tree Species Composition

EXISTING SPECIES COMPOSITION

The shade and ornamental tree resource is comprised of 102 different species representing 54 different genera. While this may seem like a highly diverse population on the surface, more than half of the trees are from just two genera.

Oaks (33.2%), cherries (20.2%) and maples (12.9%) comprise disproportionately large portions of the shade and ornamental tree population. Other significant genera include ash (4.4%) and pine (4.3%).

Conversely, the balance of the shade and ornamental tree population is comprised of 92 different species representing 46 different genera, which comprise less than 2% each. Many of these minor species are highly desirable and growing well in Branch Brook Park.

Though design intent usually dictates plant selection, there are risks associated with over reliance on a small number of species. Most insect and disease problems are species specific. Populations with limited diversity are vulnerable to catastrophic losses when unanticipated, species-specific problems emerge.

The classic example is the American elm and introduction of Dutch elm disease in the early 1900's. Many cities across the United States, which relied so heavily on American elm as a street and park tree, experienced great hardship when most of their grandest trees fell to the disease within a few short years.

Oak has been a major component of Branch Brook Park's tree resource since the Park was designed and has performed well over the years. Many oaks, including many presumed to be from the original Olmsted plantings, have attained great size and stature and remain in good condition.

Bacterial leaf scorch, a fatal, untreatable vascular disease of trees caused by the bacterium, *Xylella fastidiosa, has* become of top forest health concerns in New Jersey in

Genus Composition Park-Wide

Species Composition Park-Wide
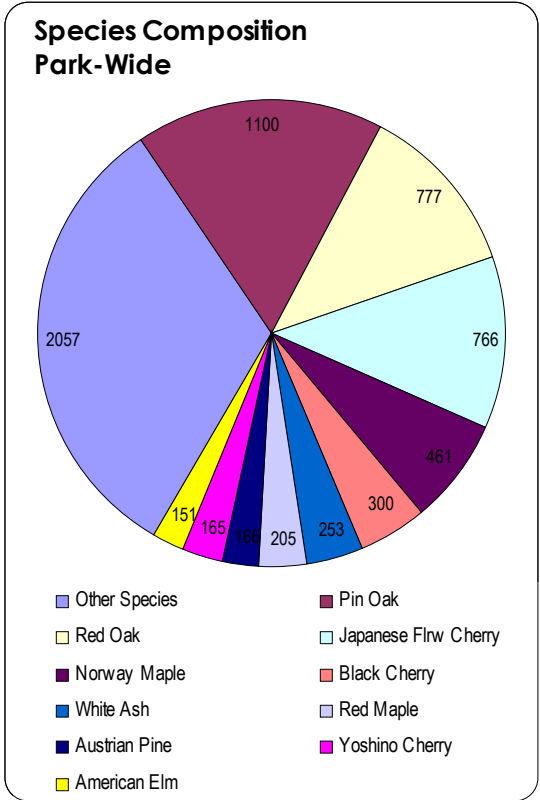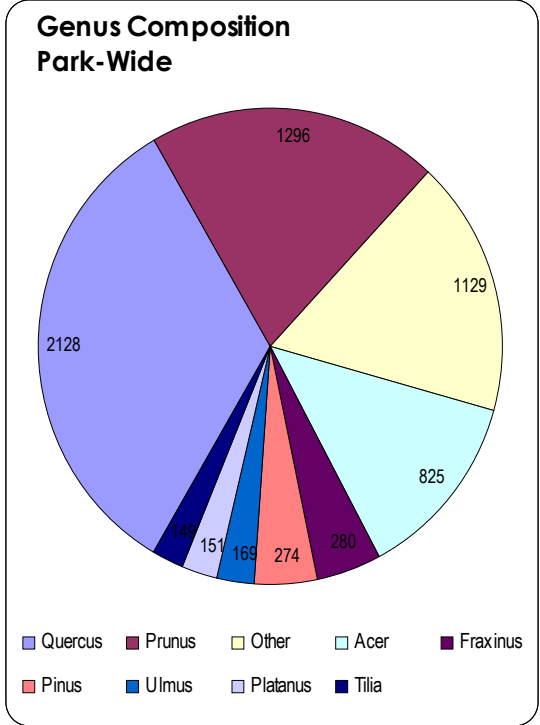
recent years. It has long been a problem in a number of species in the southeastern states and southern New Jersey, but recent indications are that its range may be moving northward. Scattered individual tree infections have been confirmed as far north as Bergen County and New York City.
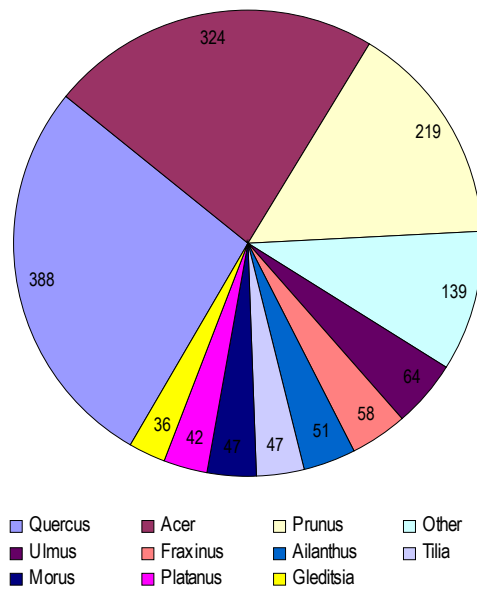
In New Jersey, bacterial leaf scorch infections have been almost exclusively limited to red and pin oak, which make up 29% of Branch Brook Park's shade and ornamental tree population and a major portion of its woodlot resource. Clearly, with so many potentially susceptible trees, the health of the tree resource, and the very character of the Park, is at risk.

Both the shade and ornamental tree and woodlot populations contain significant numbers of undesirable exotic invasive species including Norway maple, mulberry, Ailanthus, and sycamore maple.
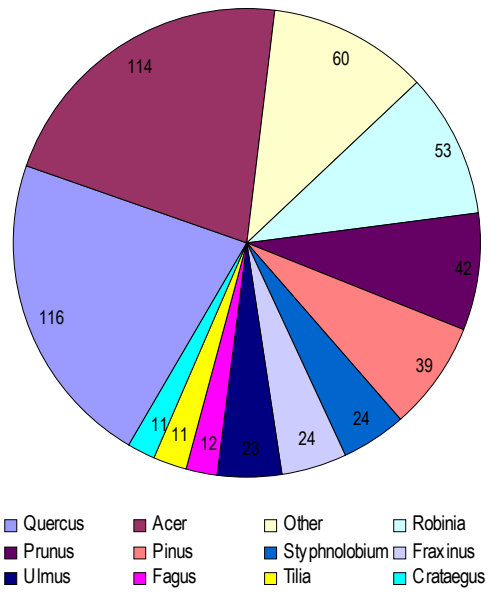
The local dominance of exotic invasive species and displacement of native vegetation in some woodlot areas is the result of seeding from trees planted in the Park and surrounding neighborhoods. In many cases, the rapid and prolific regeneration and aggressive growth of these invasives is creating maintenance problems and continuing to gradually change the composition of the natural areas.
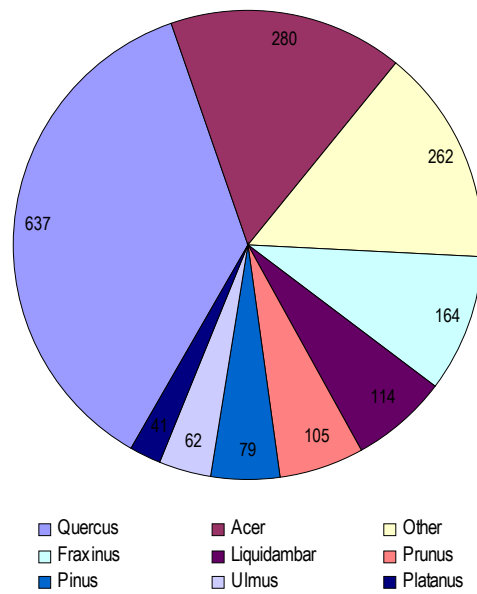
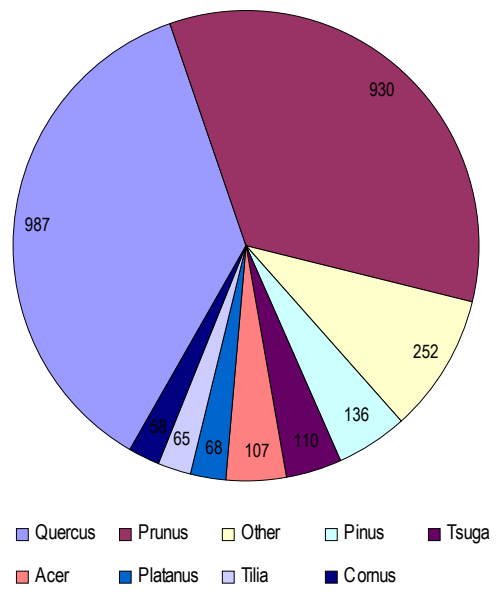**GENUS COMPOSITION BY DIVISION**

Southern Division

324, 219, 388, 139, 64, 58, 51, 47, 47, 42, 36
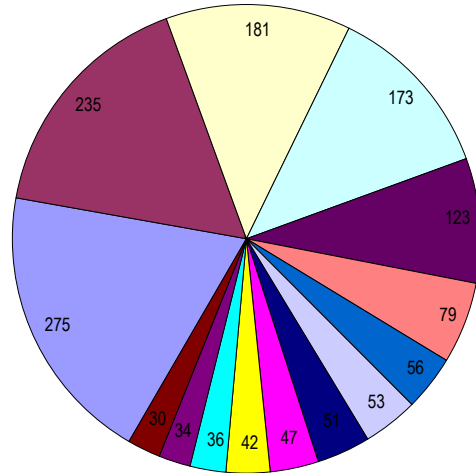
Quercus · Acer · Prunus · Other
Ulmus · Fraxinus · Ailanthus · Tilia
Morus · Platanus · Gleditsia

Middle Division

114, 60, 53, 116, 42, 39, 24, 24, 23, 12, 11, 11

Quercus · Acer · Other · Robinia
Prunus · Pinus · Styphnolobium · Fraxinus
Ulmus · Fagus · Tilia · Crataegus

Northern Division

280, 262, 637, 164, 114, 105, 79, 62, 41

Quercus · Acer · Other
Fraxinus · Liquidambar · Prunus
Pinus · Ulmus · Platanus

Extension

930, 987, 252, 136, 110, 107, 68, 65, 58

Quercus · Prunus · Other · Pinus · Tsuga
Acer · Platanus · Tilia · Cornus
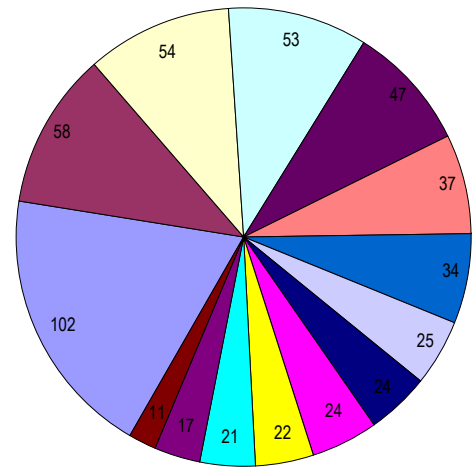
Southern Division

- Other Species
- Pin Oak
- Black Cherry
- American Elm
- Ailanthus
- Hedge Maple
- London Planetree

- Norway Maple
- Red Oak
- Japanese Flrw Cherry
- White Ash
- Mulberry
- Honeylocust
- Littleleaf Linden

Middle Division

- Other Species
- Red Oak
- Norway Maple
- Sycamore Maple
- Scholar-Tree
- American Elm
- Japanese Flrw Cherry

- Pin Oak
- Black Locust
- Austrian Pine
- Black Cherry
- White Ash
- Red Maple
- Hawthorn

Northern Division
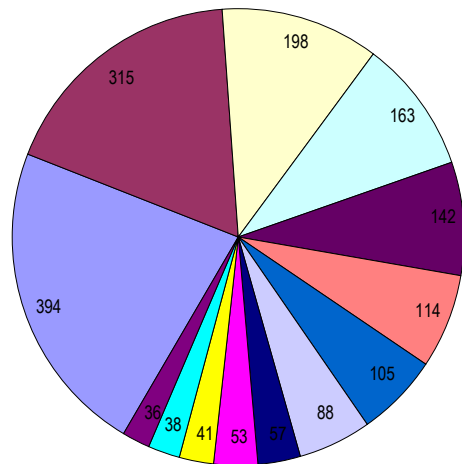
- Other Species
- Norway Maple
- Black Cherry
- American Elm
- White Oak

- Pin Oak
- White Ash
- Red Maple
- White Pine

- Red Oak
- Sweetgum
- Swamp White Oak
- Austrian Pine

Extension
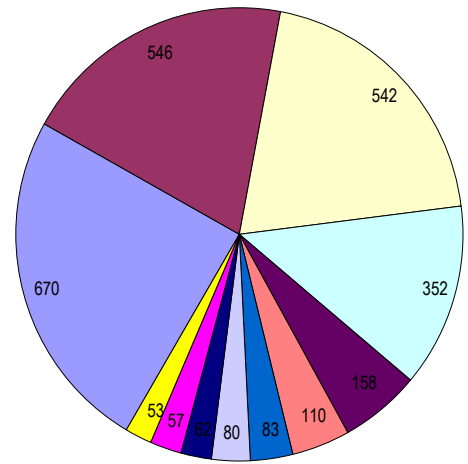
- Japanese Flrw Cherry
- Other Species
- Yoshino Cherry
- Austrian Pine
- Littleleaf Linden
- Higan Cherry

- Pin Oak
- Red Oak
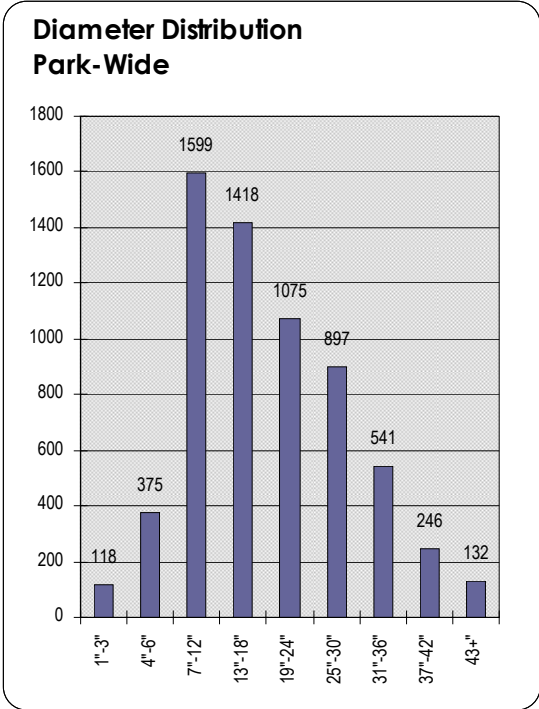- Hemlock
- Red Maple
- Flowering Dogwood

EXISTING DIAMETER & AGE STRUCTURE

The shade and ornamental tree population is generally uneven-aged, containing substantial, though somewhat unbalanced, numbers of trees in young, middle and advanced age classes.

Distinct age strata resulting from remnants of the original Olmsted planting, waves of subsequent replanting efforts, and continuous natural regeneration are evident in all areas of the Park.

With significant numbers of trees in all diameter and age classes, Branch Brook Park's shade and ornamental tree population should remain relatively stable and sustainable for many more years. In the future, however, the somewhat unbalanced age structure will result in an increase in removal and replacement needs as the relatively large number of trees in the 7"-12" and 13"-18" diameter classes approach their life expectancy.

Conversely, the relatively small number of trees currently in the smallest diameter classes, many of which are smaller and shorter-lived ornamental species, will result in a relatively small number of large trees when they reach maturity.

Diameter Distribution Park-Wide

Diameter	Count
1"–3"	118
4"–6"	375
7"–12"	1599
13"–18"	1418
19"–24"	1075
25"–30"	897
31"–36"	541
37"–42"	246
43+"	132

With 47% of the shade and ornamental trees in the 7"-12" and 13"-18" age classes, a large number of Branch Brook Park's trees are large enough to provide significant benefits for many more years, yet still young enough to have relatively low maintenance needs.

39% of the shade and ornamental trees are in the 13"-18" and 19"-24" diameter classes. Shade trees in these middle diameter classes are generally at their peak – they provide the highest level of benefits relative to the cost of maintaining them. Proper maintenance is vital at this stage because neglected middle-aged trees can quickly become declining, hazardous mature trees. Ornamental species are typically shorter-lived and smaller at maturity, however. Therefore, many of the trees in these classes are already beyond their prime.

Nearly 17% of the shade and ornamental trees are in the 19"-24" diameter class and poised to begin moving into the over-mature classes. Large, over-mature trees can provide the greatest physical and aesthetic benefits, but the cost to maintain them increases disproportionately. Proper maintenance during the young and middle classes can significantly reduce the trees' maintenance requirements as they age.
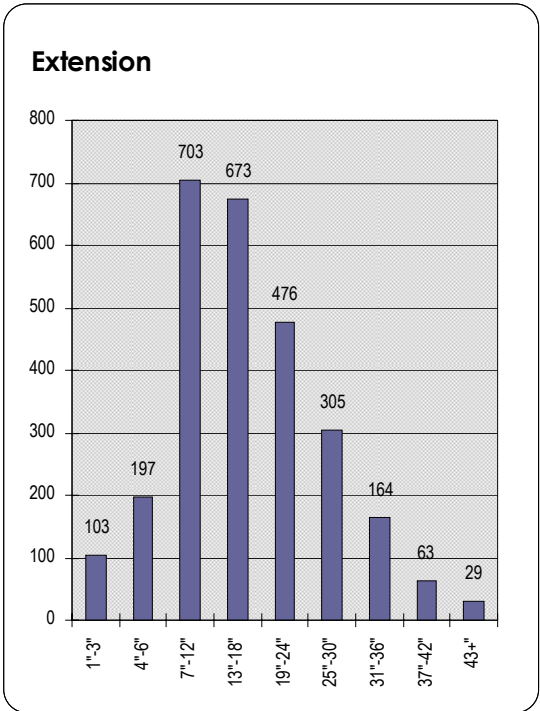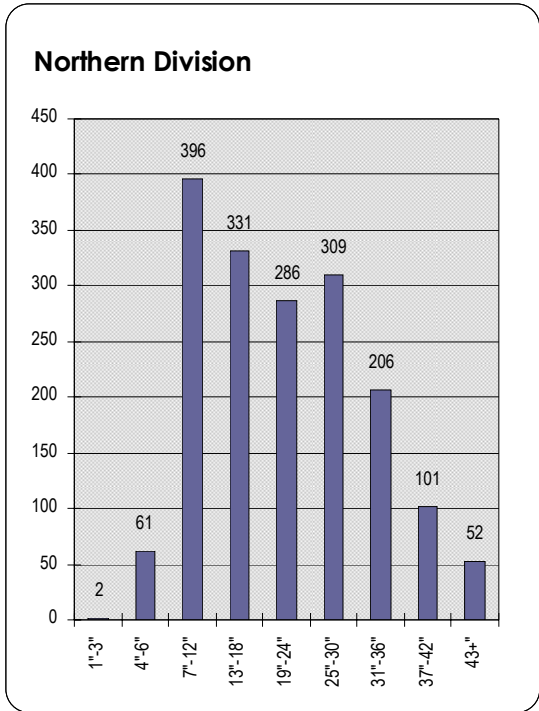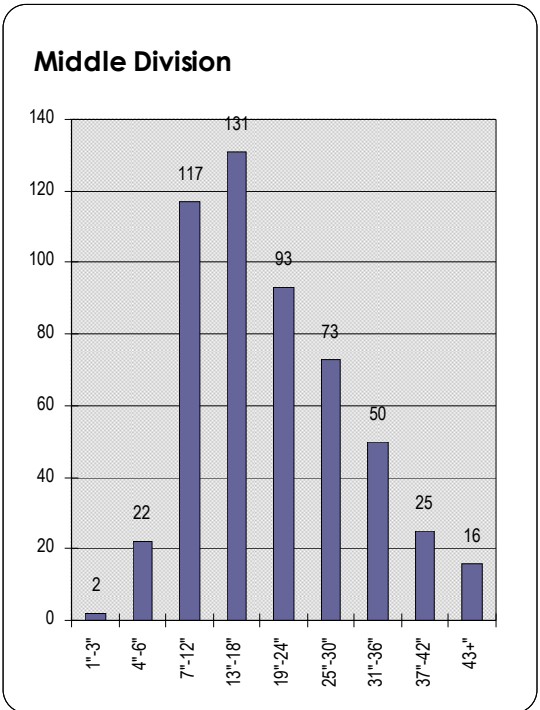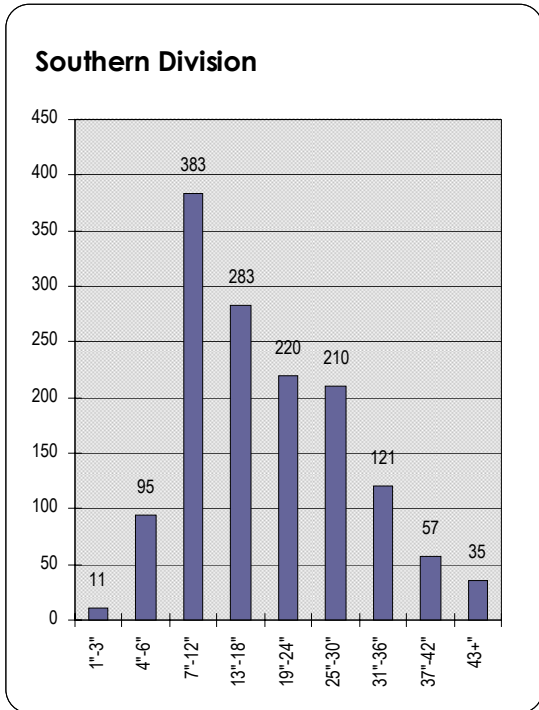
28% of Branch Brook Park's shade and ornamental trees are 25-inches in diameter and larger. 50% of these trees were rated in good condition. Many are presumed to have

been planted or were existing and retained when the Park was constructed and have matured into grand, picturesque specimens.

The largest trees individually inventoried as part of this survey are all red oaks – a 71-inch diameter tree in the Northern Division and trees of 64, 58 and 56-inches in the Southern Division. All were rated in good condition.

A 55-inch diameter hackberry inventoried in the Southern Division rivals the current State champion in size and has been reported to the New Jersey Forest Services Big Tree Program for consideration.

Southern Division

Diameter	1"-3"	4"-6"	7"-12"	13"-18"	19"-24"	25"-30"	31"-36"	37"-42"	43+"
Count	11	95	383	283	220	210	121	57	35

Middle Division

Diameter	1"-3"	4"-6"	7"-12"	13"-18"	19"-24"	25"-30"	31"-36"	37"-42"	43+"
Count	2	22	117	131	93	73	50	25	16

Northern Division

Diameter	1"-3"	4"-6"	7"-12"	13"-18"	19"-24"	25"-30"	31"-36"	37"-42"	43+"
Count	2	61	396	331	286	309	206	101	52

Extension

Diameter	1"-3"	4"-6"	7"-12"	13"-18"	19"-24"	25"-30"	31"-36"	37"-42"	43+"
Count	103	197	703	673	476	305	164	63	29

**EXISTING TREE CONDITION**

The shade and ornamental tree population is in fair condition overall, but segments of the population are deteriorating in condition due to advancing age, environmental stresses, and insufficient maintenance.

39.7% of the shade and ornamental trees were rated in 'Good' condition, 36.2% in 'Fair' condition, 20.9% in 'Poor' condition, and 3.2% were dead at the time they were inventoried.

1. Trees that are currently in 'Good' condition require no immediate attention (other than priority pruning, if specified) and should survive well into the future with minimal care. It is important to realize, however, that even trees in good condition are not maintenance free. Many of the trees rated in good condition require high priority pruning.

2. Although trees in 'Fair' condition can be expected to survive for at least several years, they may deteriorate without treatment and/or routine maintenance. With corrective treatments and proper maintenance, trees currently in fair condition can often be improved to good condition at a lower cost than neglecting and eventually removing and replacing them.

Tree Condition Park-Wide

(Bar chart: Good = 2540, Fair = 2318, Poor = 1337, Dead = 206)

3. Trees in 'Poor' condition are likely to continue to deteriorate and require removal within the short term. Treatments may improve their condition temporarily, but the need for ongoing treatments to maintain them will be costly and of little benefit over the long term. Many of the trees rated in 'Poor' condition because of structural defects, rather than health, have been recommended for removal. The priority level at which their removal is recommended is dependent upon the nature and severity of the defects.

4. All 'Dead' trees must be removed on a priority basis due to the potential for hazard and liability.
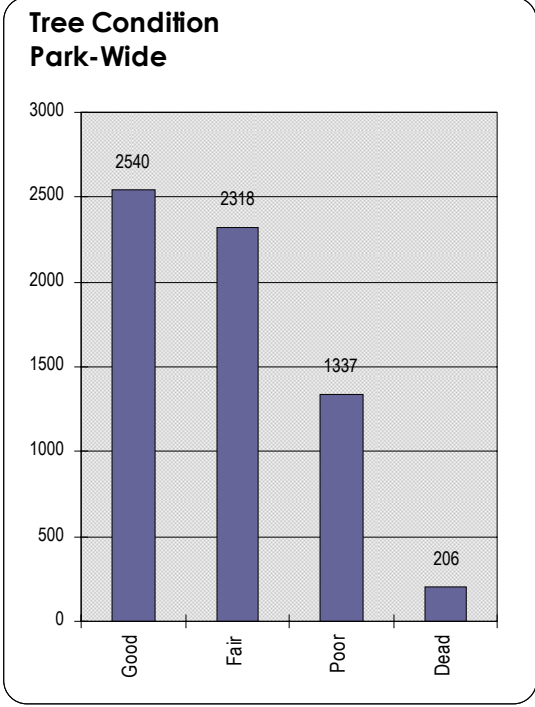
Significant differences exist in the performance of certain tree species within Branch Brook Park:

1. Of the major species (species comprising at least 2% of the shade and ornamental tree population), species that comprise a substantially greater percentage of the trees in poor condition or dead versus their percentage of the population overall are Japanese flowering cherry (16.5% versus 12%), Austrian pine (5.9% versus 2.6%), and Yoshino cherry (4.3% versus 2.6%). This difference suggests that growing conditions in the Park, or at least the areas in which they are most frequently growing, are not conducive for these species. Other species with a significant difference include red maple (4.5% versus 3.2%), black cherry (5.8% versus 4.7%),

white ash (5% versus 4%).

2. Of the major species, pin oak and red oak are performing well. Of the minor species, the following were consistently found to be performing well in most areas: American elm, American linden, black gum, Ginkgo, green ash, hedge maple, London planetree, white oak, swamp white oak, and sweetgum.

While many of the shade and ornamental trees may be alive, fully foliated and growing well, they possess potentially hazardous structural defects such as cracks, wood decay, and weakly attached co-dominant stems and limbs, among others. Many of the 'Poor' condition rating were the sole result of serious structural defects in trees that are in an otherwise healthy and vigorous condition.
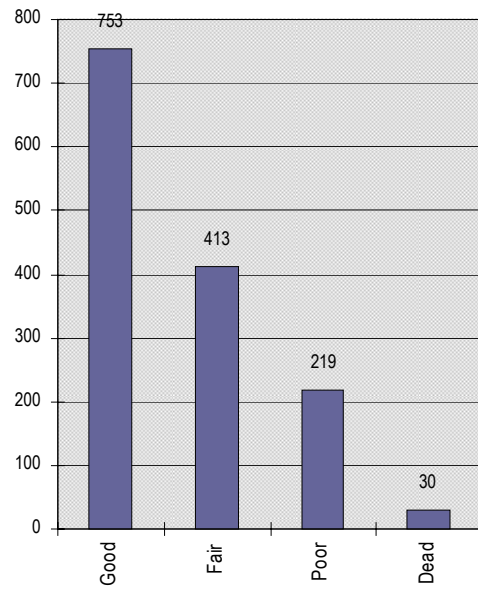
Problems that were frequently noted throughout the Park and which often resulted in degraded condition ratings and recommendations for removal include:

1. Structurally defective branch structure which may have been corrected through developmental pruning when the tree was young.

2. Wood decay resulting from the splitting of structurally defective branching or insufficient pruning of deadwood, which served as an entry point for wood decay organisms into the main stems.

3. Severe bark wounds on the lower trunk and buttress roots from lawn maintenance equipment, barbeque coals and other physical impacts.

4. Repetitive damage from vehicles to low-hanging branches.

5. Boring insect infestations on ornamental trees, particularly flowering cherries.

6. Soil compaction and other non-infectious disorders and stresses.
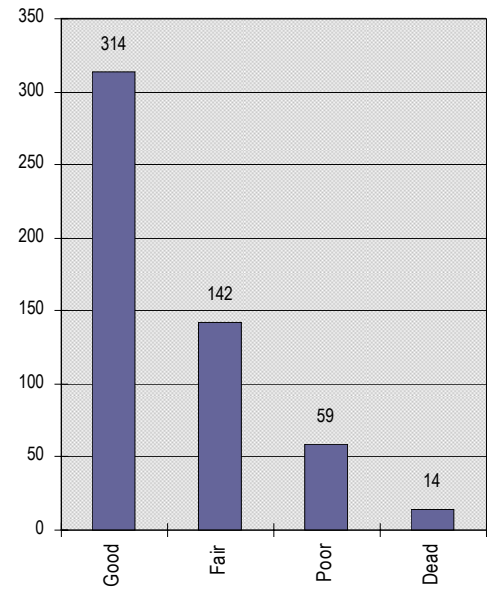
33% of the shade and ornamental trees for which significant decay, cavities and other structural defects were noted and 32% of the trees for which bark wounds and other significant health disorders were noted were ornamental flowering cherries.

Southern Division

Bar chart showing tree condition counts: Good 753, Fair 413, Poor 219, Dead 30.

Middle Division

Bar chart showing tree condition counts: Good 314, Fair 142, Poor 59, Dead 14.

Northern Division

Bar chart showing tree condition counts: Good 968, Fair 521, Poor 202, Dead 53.

Extension

Bar chart showing tree condition counts: Good 505, Fair 1242, Poor 857, Dead 109.
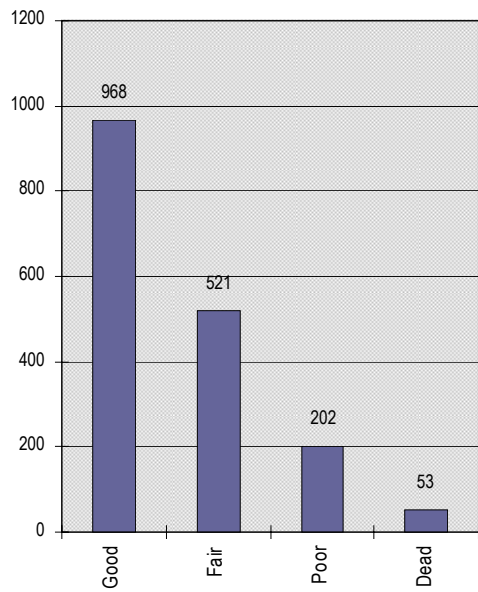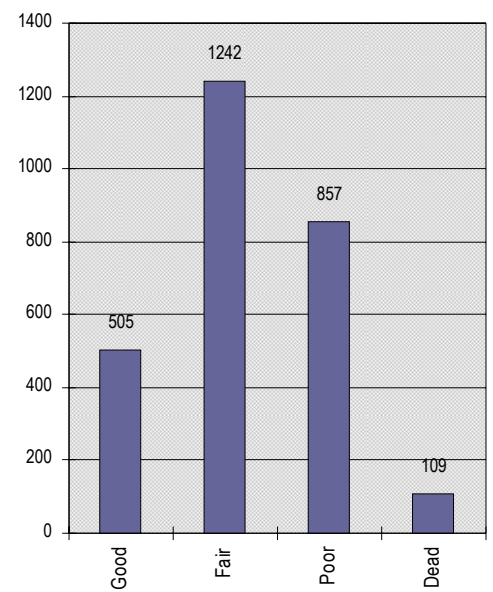
Species	Good	Fair	Poor	Dead	Total
AILANTHUS	19	33	11	4	67
AMERICAN BEECH	15	8	2		25
AMERICAN ELM	90	40	17	4	151
AMERICAN HOLLY	4	2			6
AMERICAN LINDEN	25	7	3	1	36
AMERICAN SYCAMORE	31	22	11		64
AMUR CORKTREE		2			2
APPLE		2	1	1	4
AUSTRIAN PINE	12	63	78	13	166
BLACK BIRCH	4	10	5	2	21
BLACK CHERRY	73	138	76	13	300
BLACK GUM	15	2			17
BLACK LOCUST	27	25	11	1	64
BLACK OAK	9	18	7		34
BLACK WALNUT	1	1			2
BLACK WILLOW	1				1
BLACKHAW VIBURNUM		2			2
BOXELDER	5	3			8
CALLERY PEAR	1				1
CAROLINA SILVERBELL	1	1			2
CATALPA	2	5	2		9
CHESTNUT OAK	4	1			5
COLORADO SPRUCE	1	2	2		5
CORNELIAN CHERRY		1	11	1	13
CRABAPPLE		5	1		6
CUCUMBER MAGNOLIA	2	1	1		4
DAWN REDWOOD		1			1
DOUGLAS FIR		1			1
ENGLISH ELM	5	5	1		11
EUROPEAN BEECH	6	4			10
EUROPEAN LINDEN	2				2
EUROPEAN WHITE BIRCH	2	2	3	3	10
FLOWERING DOGWOOD	7	36	26	8	77
GINKGO	11	6			17
GOLDEN RAINTREE		1	1		2
GRAY BIRCH		3	8	1	12
GREEN ASH	19	6	1		26
HACKBERRY	3	4	3		10
HAWTHORN	19	18	7		44
HEDGE MAPLE	26	11	5		42
HEMLOCK	3	45	51	17	116
HIGAN CHERRY	21	19	12	1	53
HIMALAYAN PINE		1			1
HONEYLOCUST	9	24	21		54
HOPHORNBEAM	8	1	3	1	13
HORSECHESTNUT	15	9	5		29
HYBRID MAPLE		2			2
IRONWOOD	4	2	4		10
JAPANESE FLRW CHERRY	211	300	238	17	766
JAPANESE HOLLY	1	5			6
JAPANESE MAPLE	5	5			10
JAPANESE TREE LILAC		2	3		5
KENTUCKY COFFEETREE	5	3	1	2	11
KOUSA DOGWOOD			1		1
LITTLELEAF LINDEN	59	35	12	2	108

Species	Good	Fair	Poor	Dead	Total
LONDON PLANETREE	57	18	11	1	87
MULBERRY	17	38	22	1	78
NORWAY MAPLE	270	120	62	9	461
NORWAY SPRUCE	7	4			11
OHIO BUCKEYE	2	1	1		4
OSAGE ORANGE		2			2
PIGNUT HICKORY	1		1		2
PIN OAK	385	502	203	10	1100
PUMPKIN ASH	1				1
RED CEDAR	7	3	1		11
RED MAPLE	58	77	65	5	205
RED OAK	396	293	85	3	777
REDBUD		1			1
RIVER BIRCH	11	10	5		26
ROYAL EMPRESS TREE	1				1
SASSAFRAS		3	9	1	13
SAWTOOTH OAK	3	2			5
SCARLET OAK	2	1	3		6
SCHOLAR TREE	18	14	11	1	44
SCOTCH PINE		5	3		8
SHINGLE OAK	15	19	5		39
SIBERIAN ELM	2	2	2		6
SILVER LINDEN	3				3
SILVER MAPLE	5	11	4		20
SLIPPERY ELM	1				1
SOURWOOD	1	1			2
SUGAR MAPLE	17	8	3	1	29
SWAMP WHITE OAK	50	14	9	1	74
SWEET CHERRY	7	1	3	1	12
SWEETGUM	104	11	3	1	119
SYCAMORE MAPLE	33	10	5		48
TATARIAN HONEYSUCKLE	1	1			2
TULIP	13	8	4		25
UNDETERMINED				59	59
WASHINGTON HAWTHORN			1		1
WEEPING WILLOW	2				2
WHITE ASH	102	74	64	13	253
WHITE OAK	41	7	3	1	52
WHITE PINE	35	37	23	4	99
WILLOW	3	5	3		11
WILLOW OAK	18	14	3	1	36
WITCH HAZEL			1		1
YELLOW BIRCH		2			2
YELLOW BUCKEYE			3		3
YELLOWWOOD	8	3	6		17
YEW	1	1			2
YOSHINO CHERRY	49	50	65	1	165
ZELKOVA	10				10
Totals	**2540**	**2318**	**1337**	**206**	**6401**

EXISTING TREE MAINTENANCE NEEDS

Signs of insufficient tree maintenance are evident throughout Branch Brook Park. Of the 6401 individually inventoried shade and ornamental trees, 47% were identified as requiring high or medium priority pruning or removal to mitigate potentially hazardous conditions and an additional number on a low priority basis to address non-hazardous conditions, including:

1. 515 (8.0%) trees recommended for removal:
    a) 155 (2.4%) on an emergency or high priority basis because they are dead or so structurally unsound that they represent an imminent hazard risk.
    b) 296 (4.6%) on a medium priority basis because they are dead or structurally unsound to the extent that they represent a moderate hazard risk
    c) 64 (1.0%) on a low priority basis.
2. 2733 (42.7%) trees recommended for maintenance or clearance and elevation pruning:
    a) 1267 (19.8%) on an emergency or high priority basis because they contain potentially hazardous dead or structurally unsound limbs.
    b) 1293 (20.2%) on a medium priority basis moderately hazardous dead or structurally unsound limbs.
    c) 173 (2.7%) on a low priority basis.
3. 104 existing stumps from trees previously removed recommended for stump removal as soon as possible. An additional 155 stumps, which will result from emergency and high priority trees that must be removed as soon as possible, will require removal in the near future.

The fact that so many trees throughout the Park require priority pruning and removal clearly indicates that a more comprehensive and systematic program is needed to maintain this immensely valuable asset and to minimize the County's exposure to liability.

Work Type (Priority)	01-03	04-06	07-12	13-18	19-24	25-30	31-36	37-42	43+	Total
REMOVE (EMERGENCY)			1	5	2	1	3	1	1	14
REMOVE (HIGH)		2	19	39	30	33	7	6	5	141
REMOVE (MEDIUM)	3	17	105	85	35	27	12	6	6	296
REMOVE (LOW)	13	11	23	11	4	1	1			64
Remove Subtotals	**16**	**30**	**148**	**140**	**71**	**62**	**23**	**13**	**12**	**515**
PRUNE (EMERGENCY)					1			1	1	3
PRUNE (HIGH)			15	103	248	353	290	147	85	1241
PRUNE (MEDIUM)		5	131	312	338	246	129	37	17	1215
PRUNE (LOW)	1	2	6	6	3					18
Prune Subtotals	**1**	**7**	**152**	**421**	**590**	**599**	**419**	**185**	**103**	**2477**
CLEAR/ELEVATE (HIGH)		4	5	6	3	3	1	1		23
CLEAR/ELEVATE (MEDIUM)		4	30	29	8	2	4	1		78
CLEAR/ELEVATE (LOW)		9	69	46	19	5	5		2	155
Clear/Elevate Subtotals	**0**	**17**	**104**	**81**	**30**	**10**	**10**	**2**	**2**	**256**
REMOVE STUMP (LOW)		1	20	24	21	15	12	3	8	104
Remove Stump Subtotals	**0**	**1**	**20**	**24**	**21**	**15**	**12**	**3**	**8**	**104**
OTHER	1		1				1		1	4
Other Subtotals	**1**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**4**
Totals	**18**	**55**	**425**	**666**	**712**	**686**	**465**	**203**	**126**	**3356**

Southern Division

Work Type (Priority)	01-03	04-06	07-12	13-18	19-24	25-30	31-36	37-42	43+	Total
REMOVE (EMERGENCY)				1	1		2		1	5
REMOVE (HIGH)			4	6	8	7	1	2	1	29
REMOVE (MEDIUM)		2	25	20	13	9	4		2	75
REMOVE (LOW)										0
Remove Subtotals	**0**	**2**	**29**	**27**	**22**	**16**	**7**	**2**	**4**	**109**
PRUNE (EMERGENCY)										0
PRUNE (HIGH)			4	10	45	54	54	25	19	211
PRUNE (MEDIUM)		1	32	60	64	50	28	12	4	251
PRUNE (LOW)			1	1						2
Prune Subtotals	**0**	**1**	**37**	**71**	**109**	**104**	**82**	**37**	**23**	**464**
CLEAR/ELEVATE (HIGH)		1		1	1	3		1		7
CLEAR/ELEVATE (MEDIUM)			1	4	1		2			8
CLEAR/ELEVATE (LOW)		4	6	6	7	2	3			28
Clear/Elevate Subtotals	**0**	**5**	**7**	**11**	**9**	**5**	**5**	**1**	**0**	**43**
REMOVE STUMP (LOW)				2	3	2			1	8
Remove Stump Subtotals	**0**	**0**	**0**	**2**	**3**	**2**	**0**	**0**	**1**	**8**
OTHER									1	1
Other Subtotals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**
Totals	**0**	**8**	**73**	**111**	**143**	**127**	**94**	**40**	**29**	**625**

Middle Division

Work Type (Priority)	01-03	04-06	07-12	13-18	19-24	25-30	31-36	37-42	43+	Total
REMOVE (EMERGENCY)				1		1	1			3
REMOVE (HIGH)			1	6	3	3			1	14
REMOVE (MEDIUM)		3	2	6	2	1				14
REMOVE (LOW)			1							1
Remove Subtotals	**0**	**3**	**4**	**13**	**5**	**5**	**1**	**0**	**1**	**32**
PRUNE (EMERGENCY)										0
PRUNE (HIGH)			2	15	22	24	24	14	10	111
PRUNE (MEDIUM)		1	13	34	23	20	15	4	4	114
PRUNE (LOW)										0
Prune Subtotals	**0**	**1**	**15**	**49**	**45**	**44**	**39**	**18**	**14**	**225**
CLEAR/ELEVATE (HIGH)										0
CLEAR/ELEVATE (MEDIUM)										0
CLEAR/ELEVATE (LOW)			2		1					3
Clear/Elevate Subtotals	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**3**
REMOVE STUMP (LOW)			1	1		1	4	1	3	11
Remove Stump Subtotals	**0**	**0**	**1**	**1**	**0**	**1**	**4**	**1**	**3**	**11**
OTHER										0
Other Subtotals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Totals	**0**	**4**	**22**	**63**	**51**	**50**	**44**	**19**	**18**	**271**

Northern Division

Work Type (Priority)	01-03	04-06	07-12	13-18	19-24	25-30	31-36	37-42	43+	Total
REMOVE (EMERGENCY)				1	1			1		3
REMOVE (HIGH)		1	2	7	7	15	1	2	2	37
REMOVE (MEDIUM)		5	19	22	10	12	6	6	3	83
REMOVE (LOW)		1	1		1	1				4
Remove Subtotals	**0**	**7**	**22**	**30**	**19**	**28**	**7**	**9**	**5**	**127**
PRUNE (EMERGENCY)						1		1		2
PRUNE (HIGH)			4	25	60	124	118	68	41	440
PRUNE (MEDIUM)		2	52	82	121	105	55	14	5	436
PRUNE (LOW)		1	1							2
Prune Subtotals	**0**	**3**	**57**	**107**	**182**	**229**	**173**	**83**	**46**	**880**
CLEAR/ELEVATE (HIGH)		3	2	2	2					9
CLEAR/ELEVATE (MEDIUM)		1	7	12	1			1		22
CLEAR/ELEVATE (LOW)		2	34	30	8	2	2			78
Clear/Elevate Subtotals	**0**	**6**	**43**	**44**	**11**	**2**	**2**	**1**	**0**	**109**
REMOVE STUMP (LOW)		1	2	7	5	10	6	1	4	36
Remove Stump Subtotals	**0**	**1**	**2**	**7**	**5**	**10**	**6**	**1**	**4**	**36**
OTHER							1			1
Other Subtotals	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**
Totals	**0**	**17**	**124**	**188**	**217**	**269**	**189**	**94**	**55**	**1153**

Extension

Work Type (Priority)	01-03	04-06	07-12	13-18	19-24	25-30	31-36	37-42	43+	Total
REMOVE (EMERGENCY)			1	2						3
REMOVE (HIGH)		1	12	20	12	8	5	2	1	61
REMOVE (MEDIUM)	3	7	59	37	10	5	2		1	124
REMOVE (LOW)	13	10	21	11	3		1			59
Remove Subtotals	**16**	**18**	**93**	**70**	**25**	**13**	**8**	**2**	**2**	**247**
PRUNE (EMERGENCY)									1	1
PRUNE (HIGH)			5	53	121	151	94	40	15	479
PRUNE (MEDIUM)		1	34	136	130	71	31	7	4	414
PRUNE (LOW)	1	1	4	5	3					14
Prune Subtotals	**1**	**2**	**43**	**194**	**254**	**222**	**125**	**47**	**20**	**908**
CLEAR/ELEVATE (HIGH)			3	3			1			7
CLEAR/ELEVATE (MEDIUM)		3	22	13	6	2	2			48
CLEAR/ELEVATE (LOW)		3	27	10	3	1			2	46
Clear/Elevate Subtotals	**0**	**6**	**52**	**26**	**9**	**3**	**3**	**0**	**2**	**101**
REMOVE STUMP (LOW)			17	14	13	2	2	1		49
Remove Stump Subtotals	**0**	**0**	**17**	**14**	**13**	**2**	**2**	**1**	**0**	**49**
OTHER	1		1							2
Other Subtotals	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Totals	**18**	**26**	**206**	**304**	**301**	**240**	**138**	**50**	**24**	**1307**

EXISTING CONDITIONS

Branch Brook Park's famed cherry blossom collection is severely degraded, both in the number of trees and their condition, and is continuing to deteriorate rapidly.

The collection currently consists of 984 individually inventoried trees, primarily in mass planting in lawn areas in the Extension. An additional number of scattered trees also exist in unmaintained and woodlot areas throughout the Park.

The majority (77.8%) of the ornamental flowering cherries are various cultivars of Japanese flowering cherry *(Prunus serrulata)*. The remainder are primarily Yoshino cherry *(Prunus yedoensis, 16.8%)* and Higan cherry *(Prunus subhirtella, 5.4%)*.

Clearly, there has been an over-reliance on Japanese flowering cherry. Just as it is important to maintain species diversity in the tree population overall, diversity should be developed and maintained within important subsets.

While ornamental flowering cherries have the capacity to live 80 or more years with some regularity, as some in Branch Brook Park have, the more typical service life expectancy in an urban park is 30 to 40.

The planting of even-aged monocultures of short-lived species will result in a collection of trees that grow into their prime quickly, then begin to decline and collapse as a group just as fast. The original cherry tree plantings in Branch Brook Park occurred within a short period of time, resulting in a very even-aged stand of trees. The current diameter distribution and age structure suggests that there have been periodic waves of replanting in response to "crashes" in the original and subsequent plantings.

Long-term management must be based on a shorter "rotation" and more aggressive and more frequent and consistent tree replacement efforts. Certainly, individual trees should be allowed to live as long as they may, but replanting should anticipate their inevitable loss, rather than follow it.

Species Composition Ornamental Cherries

Japanese Flowering Cherry — 766
Higan Cherry — 53
Yoshino Cherry — 165
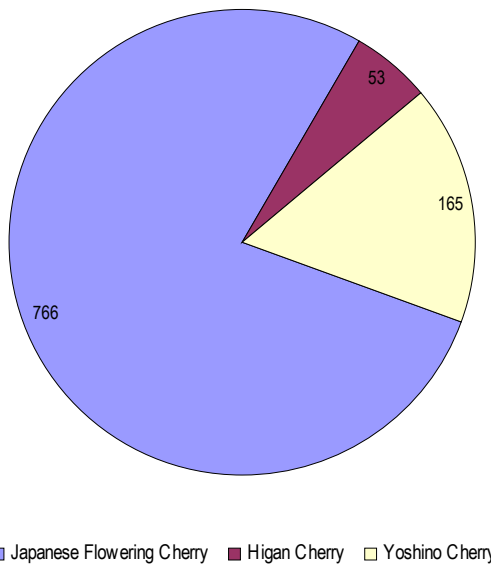
Diameter Distribution Ornamental Cherries

Diameter	Count
1"-3"	107
4"-6"	182
7"-12"	384
13"-18"	222
19"-24"	77
25"-30"	10
31"-36"	0
37"-42"	1
43+"	1
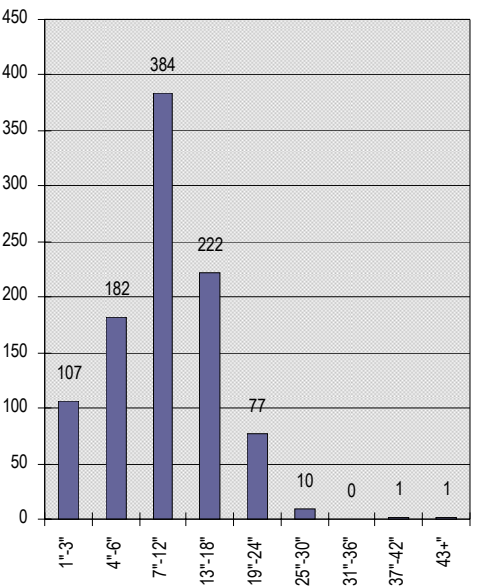
The ultimate goal should be to convert the collection from an even aged stand to a more balanced, uneven population containing similar numbers of young, middle aged and old trees. This will minimize the inevitable "rise and fall" of the collection every 30 to 40 years and help spread removal and replacement demands over time.

Tree Condition Ornamental Cherries

Good 281 | Fair 369 | Poor 315 | Dead 19

The health and structural condition of the flowering cherry tree collection is poor and deteriorating. 28.6% were rated in 'Good' condition, 37.5% in 'Fair' condition, 32.0% in 'Poor' condition, and 1.9% are dead.

The deteriorating condition of the collection is attributed to the advanced age of many of the trees, unfavorable growing conditions, and insufficient maintenance. In particular, soils in many areas of the Extension of heavy in texture, compacted and poorly drained and aerated and not ideal for the species. Wounding from lawn maintenance equipment is a major problem throughout the collection. Deicing salt impacts were also noted in areas adjacent to pavement.

Conversely, insect and disease problems common to cherry were not found to be widespread in Branch Brook Park. Only limited, localized infestations of white prunicola scale, caterpillars, aphids, and leaf spot fungi were noted. Peach tree borer and lesser peach tree borer infestations were generally limited to trees suffering from transplant stress, aged-related decline and mechanical bark wounds.

89 of the individually inventoried flowering cherry trees were identified as requiring removal because they are dead, dying or found to be structurally unsound at the time they were inventoried.
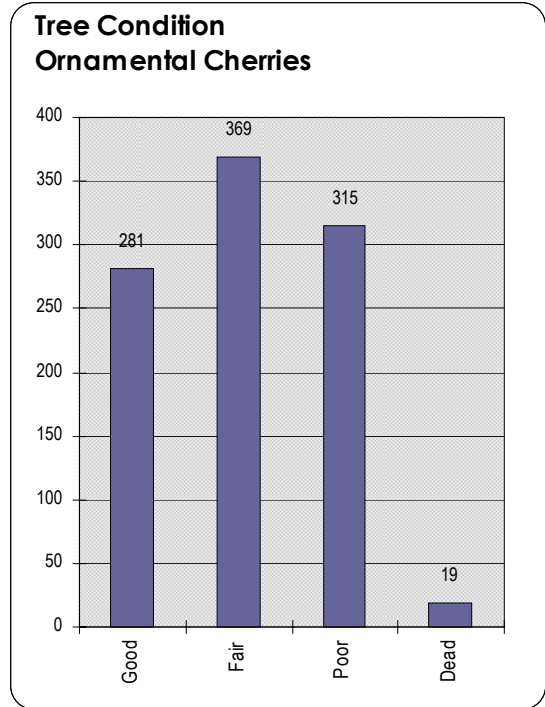
Work Type (Priority)	01-03	04-06	07-12	13-18	19-24	25-30	31-36	37-42	43+	Total
REMOVE (EMERGENCY)				1						1
REMOVE (HIGH)		1	1	2		1				5
REMOVE (MEDIUM)	2	7	22	20	4	1				56
REMOVE (LOW)	10	3	7	5	2					27
Remove Subtotals	**12**	**11**	**30**	**28**	**6**	**2**	**0**	**0**	**0**	**89**
PRUNE (EMERGENCY)										0
PRUNE (HIGH)			2	3						5
PRUNE (MEDIUM)		1	4	9	5	2				21
PRUNE (LOW)	1		3							4
Prune Subtotals	**1**	**1**	**9**	**12**	**5**	**2**	**0**	**0**	**0**	**30**
CLEAR/ELEVATE (HIGH)			2	1						3
CLEAR/ELEVATE (MEDIUM)		2	14	10	1					27
CLEAR/ELEVATE (LOW)		3	22	8	2				1	36
Clear/Elevate Subtotals	**0**	**5**	**38**	**19**	**3**	**0**	**0**	**0**	**1**	**66**
REMOVE STUMP (LOW)										0
Remove Stump Subtotals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
OTHER	1									1
Other Subtotals	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Totals	**14**	**17**	**77**	**59**	**14**	**4**	**0**	**0**	**1**	**186**

WOODLOT OVERVIEW

In addition to the 6401 individually inventoried shade and ornamental trees, Branch Brook Park's vegetative resource includes tens of thousands of additional trees and associated woody and herbaceous vegetation in unmaintained "woodlots."

In most of the woodlots, oaks and maples predominate in the overstory and intermediate understory. Other significant genera include ash, sycamore, Ailanthus, black cherry, and elm, black locust, Norway maple, and sycamore maple.

Many of the tree populations contain significant numbers of undesirable exotic invasive species including Norway maple, mulberry, Ailanthus, and sycamore maple. The presence of these species is the result of both designed planting in previously maintained landscapes, natural regeneration, and invasion via seeding from adjacent areas.

The understory layers generally contain a mix of a variety of tree saplings, woody shrubs and vines, and herbaceous plants. Though there is evidence of native tree regeneration, most notably ash, red maple, red and pin oak, and beech, the understory is more frequently comprised of invasive species common in disturbed landscapes, such as Norway maple, sycamore maple, Ailanthus, and mulberry. Invasive and colonizing species, such as poison ivy, grape, Wisteria, Virginia creeper, and mugwort are also present in many areas.

Tree populations in most of the woodlot units are "irregular, uneven-aged," meaning that they are comprised of trees in multiple age classes, but not all age classes are evenly represented. Further, there is wide variation in the age and successional development between woodlots throughout the Park.

The age structure and species composition among older trees suggest that many of the woodlots areas were originally designed, planted and maintained landscapes in which maintenance ceased at various points in time.

Some individual trees within the woodlots appear to be remnants of the original or early plantings based on the species and age. Without maintenance, volunteer vegetation colonized the areas, natural succession progressed, and the areas gradually reverted back to a "natural" state.

Of the woodlot areas evaluated, 15.6% were rated in 'Good' condition, 31.3% in 'Fair' condition, and 53.1% in 'Poor condition.

Woodlot areas found to be in good condition are generally in areas where the terrain is relatively flat, the soil is moist, but sufficiently drained, and public use is limited.

The poor condition of most of the woodlot areas is primarily attributed to:

1. The displacement of desirable native vegetation by exotic invasives.
2. The impact of climbing vines and colonizing species on the health of canopy trees and understory vegetation.
3. Insufficient regeneration of desirable species.
4. Indiscriminate clearing of understory vegetation.
5. Insufficient tree maintenance in use areas.

TREE INVENTORY & ASSESSMENT GOALS & OBJECTIVES

It is strongly recommended that this Vegetation Survey and accompanying shade and ornamental tree inventory database be used and updated on an ongoing basis to:

1. Provide accurate and updateable baseline data from which comprehensive, long-term tree management strategies and proactive management programs can be established, implemented and evaluated.

2. Monitor and evaluate trends in the tree resource.

3. Improve the efficiency of day-to-day tree management activities by identifying, prioritizing and scheduling planting, replanting, maintenance, and hazard abatement needs.

4. Track management activities and evaluate their long-term impact on the tree populations and progress toward the overall goals and objectives for the Park.

5. Maintain planting and maintenance records for individual shade and ornamental trees.

Specific efforts that will help achieve these goals include:

1. Producing and reviewing summary reports at least once per year to document the current status of the tree population, to review existing maintenance needs, and to evaluate the impact that past maintenance efforts have had.

2. Reviewing the inventory prior to planning any planting and area renovation projects.

3. Continually recording tree plantings by utilizing the tree tagging system established and updating the shade and ornamental tree inventory database accordingly.

4. Continually utilizing the shade and ornamental tree inventory database to schedule and record tree monitoring and maintenance activities.

TREE PLANTING GOALS & OBJECTIVES

It is recommended that all tree planting efforts in Branch Brook Park be directed toward the following long-term goals:

1. Achieve and perpetuate a desired level of tree cover Park-wide, and maintain desired variations in tree cover in different areas of the Park.

2. Maximize long-term stability in the tree population by optimizing and maintaining tree species and age diversity.

3. Minimize future maintenance needs and costs.

4. Minimize conflicts between trees and sidewalks, buildings, utilities and other fixtures.

5. Provide stream bank protection and minimize erosion in sensitive areas.

6. Minimize the occurrence of undesirable invasive species within the Park.

7. Improve aesthetic appeal, seasonal variation and physical benefits to the Park and the community overall.

Specific efforts that will help achieve these goals include:

1. *Planting Frequency*

   a) Planting and replanting on a consistent and continuous basis and permitting

the natural regeneration of desirable species, where appropriate.

b) Pacing the rate of planting by scheduling planting projects so that the number of trees planted during each five-year period is fairly consistent. Doing so will eventually create a more balanced, uneven-aged structure and help reduce future cycles of high demand for removal and replacement due to age attrition in the future.

c) Scheduling plantings so that age diversity is maintained throughout the four Divisions, to the extent that design objectives permit.

d) Where appropriate, planting desirable trees and other vegetation in the woodlots where voids exist naturally, or as a result of efforts to clear invasives.

2. *Species Selection*

a) Carefully selecting species with knowledge of how the planting will change the composition of the tree population over the short and long terms. Generally:

   i) No single genus should comprise more than 15% of an urban tree population.

   ii) No single species should comprise more than 5% - 10%.

   iii) No single cultivar should comprise more than 2%.

   iv) Local monocultures may be planted if appropriate for the design – Park-wide diversity should be the primary goals.

b) Varying the species planted from year to year to maintain species diversity over all of the age classes.

c) Favoring species that are currently growing well in northern New Jersey and in the Park.

d) Using a number of different insect and disease cutivars of each species whenever available.

e) Increasing the use of minor species (less than 1%-2% of the tree population) that are currently performing well in the Park.

3. *Tree Placement*

a) Conducting pre-planting site inspections to determine each planting site's soil structure and chemistry, soil drainage and aeration rates, exposure, physical limitations, etc. and planting only those species whose site requirements and growth characteristics match the site.

b) Placing new plantings in a manner that will minimize future conflicts with overhead and underground utilities, sidewalks, structures and other hardscape fixtures based on the mature size of the species planted.

c) Favoring native species with an inherent tolerance of reduced soil drainage and aeration versus more sensitive, "upland" species.

d) Minimizing or eliminating the planting of exotic invasive species.

4. *Tree Installation*

a) Developing detailed planting specifications for all tree plantings based on current arboricultural standards and best management practices and ensuring that all work is completed accordingly.

5. *Inventory Database Use & Maintenance*

a) Developing and continually implementing procedures to tag and map trees and to update the inventory database to reflect trees removed and planted.

b) Continually utilizing the vegetation survey data to make sound decisions regarding species selection and tree placement and to monitor progress toward overall goals.

It is recommended that tree maintenance efforts in Branch Brook Park be ongoing and directed toward the following long-term goals:

1. Minimize the risk of trees to public safety.

2. Improve and maintain the long-term health and structural condition of the tree population at a level that is appropriate and reasonable for the design and intended use of each area.

3. Optimize the benefits that trees provide to the community relative to the cost of maintaining them.

4. Maximize the service life of existing trees.

5. Implement maintenance programs to reduce the development of structural defects in young trees and to provide ongoing proactive care for mature trees.

6. Maximize the cost-efficiency of tree maintenance activities.

7. Minimize the time required to identify, respond to and resolve tree maintenance needs.

Specific efforts that will help achieve these goals include:

1. *Woodlot Objectives*

    a) Setting area-specific woodlot management goals and objectives based on the intended design and use for each area.

        i) Area-specific design objectives were not available for the various woodlots at the time this survey was completed. Therefore, only general recommendations are provided below and in the printed woodlot records at the end of this report. These are generally aimed at improving and maintaining tree and forest health and maintaining public safety.

        ii) Clear management objectives should be clearly defined for each area before applying any treatments beyond those outlined below (e.g. clearing understory vegetation) and specifications for each treatment should be developed by a qualified forester in accordance with a long-term, Park-wide plan. Misdirected and misapplied treatments can have negative and irreversible long-term effects.

2. *Staffing*

    a) Increasing the staff and equipment allocated for tree maintenance to a level that is capable of meeting the current and ongoing future needs.

    b) Supplementing the work of the existing crew with outside contracts on a regular basis.

    c) Organizing a corps of community "Tree Watchers" to assist in monitoring, protecting and maintaining the Park's trees.

    d) Providing the necessary training for Park employees and volunteers on a continuous basis.

3. *Existing Priority Maintenance Needs*

    a) Completing all tree pruning, removal, stump removal, and other treatment recommendations identified during this Vegetation Survey in order of priority.

        i) Emergency and High Priority recommendations were assigned to trees that pose the greatest safety and liability risks and should be completed as soon as possible.

        ii) Medium Priority recommendations were assigned to trees that pose moderate safety and liability risks and should be complete as soon as possible, but not before the Emergency and High Priority recommendations.

iii) Low Priority recommendations were assigned to trees that appear to pose little or safety risk and should be completed as time and resources permit.

b) Nearly all woodlot areas contain trees along their perimeters, trails and other use areas that require high or medium priority pruning and removal. These should be identified and addressed on an area-by-area basis.

4. *Tree Monitoring*

a) Developing procedures and schedules for monitoring the condition of the trees to detect changes in their condition and the emergence of potentially hazardous conditions.

i) The frequency of monitoring and the extent of subsequent maintenance is dependent upon the origin of the trees (planted trees carry a higher level of legal responsibility than indigenous trees) and the level and type of use (areas that encourage Park users to congregate frequently demand a higher level of attention than areas where use is transitory and/or infrequent).

b) Developing standardized and concise procedures for reporting and mitigating the problems identified in a timely fashion.

c) Developing procedures for updating the shade and ornamental tree inventory database.

5. *Post-Planting Maintenance*

a) Ensuring that newly planted trees are adequately watered, mulched and protected during the post-planting establishment period. It is recommended that provisions be included in the specifications and budget for each project.

b) Removing all planting stakes and stake ties one year after planting or after the root system has become sufficiently established.

c) Investing in developmental pruning approximately 3 to 5 years after planting and again after approximately 10 years to correct existing branch defects and to help encourage the development of a strong, structural sound branch scaffold. Many of the existing hazardous defects in mature trees could have been corrected with proper pruning early in the trees' life.

6. *Ongoing Maintenance*

a) Continually identifying and immediately addressing maintenance needs in order of priority.

b) Developing a proactive, systematic program for pruning and inspecting all shade and ornamental trees and key woodlot trees on a routine, set-rotation basis.

c) Developing detailed specifications for all tree pruning, removal, and other treatments based on current arboricultural standards and best management practices and ensuring that all work is completed accordingly.

d) Maintaining woodlot trees, primarily pruning and removal to minimize potential hazards, at a level that is appropriate for the level and type of use for the area.

e) Gaining and maintaining control over aggressive vine growth in the unmaintained woodlots and semi-maintained landscape areas via ongoing use of both mechanical and chemical control techniques.

f) Gaining and maintaining control over invasive species in the unmaintained woodlots and semi-maintained landscape areas via ongoing use of both mechanical and chemical control techniques.

g) Providing wildlife benefits by leaving safe portions of trunks standing in seldom accessed, interior areas of the woodlots, leaving logs lie on the ground, and stacking brush to create ground level cover where it is lacking.

h) Continually updating the shade and ornamental tree survey maps and

inventory database to reflect trees removed and to record tree maintenance activities.

7. *Tree Health Care*

a) Training lawn maintenance crews and Park users to understand the impact that mechanical wounding has on the health and long-term safety of trees and how to avoid it.

b) Mulching trees wherever possible to help maintain root health and to help minimize damage from lawn maintenance equipment.

c) Providing fertilizer and other supplements to high value trees, if justified (e.g. flowering cherries). All fertilizer treatments should be based on soil test results.

d) Improving soil drainage and/or alleviating soil compaction to improve subsurface aeration, where necessary and feasible.

e) Treating insect and disease problems on high value trees, if justified.

WOODLOT WS-27

Location of woodlot:	Southern Division, Section 27
Date evaluated:	10/5/04
Woodlot structure and species composition:	• Dominant trees: red oak, white oak • Co-dominant trees: red maple, sweetgum, ash • Understory: mixed herbaceous plants, mugwort, Norway maple
Overall condition:	Fair
Slope:	Moderately steep
Overstory density:	Thin
Understory density:	Moderately thin
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	Norway maple, mugwort
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Raise tree crowns along edges as needed • Prune trees along edges as needed • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Southern Division, Section 31
Date evaluated:	10/5/04
Woodlot structure and species composition:	• Dominant tree: tree-of-heaven • Co-dominant trees: no distinct co-dominant trees • Understory: mixed herbaceous plants, Virginia creeper, Japanese knotweed
Overall condition:	Poor
Slope:	Moderately flat
Overstory density:	Moderately dense
Understory density:	Very dense
Age distribution:	Even aged
Successional stage:	Early succession
Invasive species:	Tree-of-heaven, Japanese knotweed, Virginia creeper
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Southern Division, Section 33
Date evaluated:	10/5/04
Woodlot structure and species composition:	• Dominant trees: red maple, white ash • Co-dominant trees: black cherry, oak spp. • Understory: Tree-of-heaven, mulberry, mugwort
Overall condition:	Poor
Slope:	Moderately steep
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Tree-of-heaven, mulberry, mugwort
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Southern Division, Section 40
Date evaluated:	10/5/04
Woodlot structure and species composition:	• Dominant trees: green ash, white ash • Co-dominant trees: no distinct co-dominant trees • Understory: tree-of-heaven, mixed herbaceous plants
Overall condition:	Poor
Slope:	Moderate
Overstory density:	Thin
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Tree-of-heaven
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Raise tree crowns along edges as needed • Prune trees along edges as needed • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Southern Division, Section 40
Date evaluated:	10/05/04
Woodlot structure and species composition:	- Dominant tree: pin oak - Co-dominant trees: black cherry, Norway maple - Understory: woody shrubs, mixed herbaceous plants, Japanese knotweed
Overall condition:	Fair
Slope:	Moderate
Overstory density:	Thin
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	Japanese knotweed
Observations:	Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	*To be determined during detailed design*
Recommendations:	- Remove invasive species - Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting - Raise tree crowns along edges as needed - Prune trees along edges as needed - Other treatments that may be necessary to address client's objectives

Location of woodlot:	Southern Division, Section 40
Date evaluated:	10/05/04
Woodlot structure and species composition:	• Dominant tree: pin oak • Co-dominant trees: no distinct co-dominant trees • Understory: black cherry, Japanese knotweed, mugwort
Overall condition:	Fair
Slope:	Very steep
Overstory density:	Moderately thin
Understory density:	Moderately dense
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Japanese knotweed, mugwort
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Take no action given steep slopes Or • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Southern Division, Section 49
Date evaluated:	10/05/04
Woodlot structure and species composition:	• Dominant tree: Japanese maple • Co-dominant trees: Japanese maple, American hornbeam, black cherry • Understory: Japanese maple, Norway maple
Overall condition:	Fair
Slope:	Moderately steep
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Balanced uneven aged
Successional stage:	Early succession
Invasive species:	Norway maple
Observations:	• Small homeless encampment noted in the woodlot
Management objectives:	• To be determined during detailed design
Recommendations:	• Remove invasive species • Increase visibility into area by selectively removing Japanese maple • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 5
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: white ash, red oak, Austrian pine • Co-dominant tree: Austrian pine • Understory: black cherry, red maple
Overall condition:	Fair
Slope:	Steep
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	No invasive species noted
Observations:	• The presence of Austrian pine indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove dead/dying Austrian pine • Raise tree crowns along edges as needed • Prune trees along edges as needed • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 5
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: red oak, pin oak • Co-dominant trees: white pine, American sycamore, hemlock, white ash • Understory: mixed herbaceous plants, black cherry, flowering dogwood, forsythia, hawthorn
Overall condition:	Fair
Slope:	Steep
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	No invasive species noted
Observations:	• The presence of hemlock, white pine, flowering dogwood and forsythia indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove dead/dying hemlock • Other treatments that may be necessary to address client's objectives

Location of woodlot:	• Extension Division, Section 11
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: pin oak • Co-dominant tree: red maple • Understory: black cherry
Overall condition:	Poor
Slope:	Very steep
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Mid to late succession
Invasive species:	No invasive species noted
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Take no action given steep slopes Or • Apply treatments that may be necessary to address client's objectives

**WOODLOT
WE-11B**

Location of woodlot:	Extension Division, Section 11
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: red oak, tulip • Co-dominant trees: red maple, hickory, river birch • Understory: red oak, black cherry, ash
Overall condition:	Good
Slope:	Very steep
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	No invasive species noted
Observations:	• Erosion noted on hillside
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Stabilize slopes by constructing log "cribs" in eroded areas • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 11
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: red oak, American sycamore • Co-dominant tree: beech • Understory: mountain laurel, black cherry
Overall condition:	Good
Slope:	Very steep
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	No invasive species noted
Observations:	• Erosion noted on hillside
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Stabilize slopes by constructing log "cribs" in eroded areas • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 12
Date evaluated:	10/08/04
Woodlot structure and species composition:	• Dominant tree: pin oak • Co-dominant trees: black cherry, elm • Understory: black cherry, Japanese flowering cherry, mixed herbaceous plants
Overall condition:	Poor
Slope:	Moderate
Overstory density:	Dense
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	No invasive species noted
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 12
Date evaluated:	10/08/04
Woodlot structure and species composition:	• Dominant trees: pin oak, river birch • Co-dominant trees: no distinct co-dominant trees • Understory: scholar-tree, black cherry, mixed herbaceous plants
Overall condition:	Fair
Slope:	Steep
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	No invasive species noted
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Raise tree crowns along edges as needed • Prune trees along edges as needed • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 14
Date evaluated:	10/08/04
Woodlot structure and species composition:	• Dominant trees: Austrian pine, black locust • Co-dominant tree: ash • Understory: yews, black locust, Norway maple, Japanese flowering cherry, tree-of-heaven
Overall condition:	Poor
Slope:	Moderate
Overstory density:	Dense
Understory density:	Very dense
Age distribution:	Irregular uneven aged
Successional stage:	Early succession
Invasive species:	Norway maple, tree-of-heaven
Observations:	• The predominance of Austrian pine indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Clear and replant • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 14
Date evaluated:	10/08/04
Woodlot structure and species composition:	• Dominant tree: American sycamore • Co-dominant tree: black cherry • Understory: Japanese flowering cherry, flowering dogwood, mulberry, black cherry, hackberry
Overall condition:	Fair
Slope:	Steep
Overstory density:	Dense
Understory density:	Very dense
Age distribution:	Irregular uneven aged
Successional stage:	Early succession
Invasive species:	Mulberry
Observations:	• Large American sycamore noted in woodlot • The presence of Japanese flowering cherry indicates the woodlot was partially planted
Management objectives:	• To be determined during detailed design
Recommendations:	• Remove co-dominant and understory trees in the vicinity of the American sycamore in order to make visible • Other treatments that may be necessary to address client's objectives

WOODLOT WE-17

Location of woodlot:	Extension Division, Section 17
Date evaluated:	10/08/04
Woodlot structure and species composition:	• Dominant tree: oak pin • Co-dominant trees: Norway maple, tree-of-heaven, Austrian pine, ash • Understory: black cherry, flowering cherry, poison Ivy
Overall condition:	Poor
Slope:	Steep
Overstory density:	Thin
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Tree-of-heaven, Norway maple, poison Ivy
Observations:	• The presence of Austrian pine indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Raise tree crowns along edges as needed • Prune trees along edges as needed • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 30
Date evaluated:	10/08/04
Woodlot structure and species composition:	• Dominant trees: white ash, Norway maple • Co-dominant trees: no distinct co-dominants • Understory: black cherry, flowering cherry
Overall condition:	Poor
Slope:	Steep
Overstory density:	Moderate
Understory density:	Very thin
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Norway maple
Observations:	• Soil compacted and eroded on hillside • White ash in severe decline
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Stabilize slopes by constructing log "cribs" in eroded areas • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 30
Date evaluated:	10/08/04
Woodlot structure and species composition:	• Dominant tree: pin oak • Co-dominant tree: black locust • Understory: hickory, mixed herbaceous plants, Japanese knotweed, poison ivy
Overall condition:	Poor
Slope:	Very steep
Overstory density:	Thin
Understory density:	Moderate
Age distribution:	Balanced uneven aged
Successional stage:	Early succession
Invasive species:	Japanese knotweed, poison ivy
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Take no action given steep slopes Or • Apply treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 32
Date evaluated:	10/08/04
Woodlot structure and species composition:	• Dominant trees: red oak, American sycamore • Co-dominant trees: no distinct co-dominants • Understory: red oak, black cherry, ash
Overall condition:	Good
Slope:	Steep
Overstory density:	Thin
Understory density:	Thin
Age distribution:	Balanced uneven aged
Successional stage:	Late succession
Invasive species:	No invasive species noted
Observations:	• Good natural oak regeneration in the understory
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Raise tree crowns along edges as needed • Prune trees along edges as needed • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 33
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: American sycamore • Co-dominant tree: Norway maple • Understory: black cherry, witchhazel
Overall condition:	Fair
Slope:	Moderate
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Early succession
Invasive species:	Norway maple
Observations:	• 50" diameter American sycamore noted in woodlot
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Selectively remove trees surrounding the American sycamore in order to make visible • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 33
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: American sycamore • Co-dominant trees: Norway maple, river birch, hemlock • Understory: elm spp., black cherry
Overall condition:	Good
Slope:	Steep
Overstory density:	Moderate
Understory density:	Thin
Age distribution:	Irregular uneven aged
Successional stage:	Early succession
Invasive species:	Norway maple
Observations:	• Large American sycamore noted in the woodlot • Large river birch also noted in woodlot • The presence of the river birch and hemlock indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Selectively remove trees surrounding American sycamore and river birch in order to make visible • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 34
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: basswood, pin oak, American sycamore • Co-dominant trees: black cherry, scholar-tree, Norway maple • Understory: black cherry
Overall condition:	Fair
Slope:	Moderate
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	Norway maple
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through a series of forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 39
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: black locust • Co-dominant trees: hemlock, red maple, black cherry • Understory: red oak, mulberry, Norway maple
Overall condition:	Poor
Slope:	Very steep
Overstory density:	Dense
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Early succession
Invasive species:	Mulberry, Norway maple
Observations:	• The presence of hemlock indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Take no action given steep slopes Or • Apply treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 46
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: white ash • Co-dominant tree: tree-of-heaven • Understory: black birch, basswood
Overall condition:	Poor
Slope:	Moderate
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Early succession
Invasive species:	Tree-of-heaven
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance • Condition of ash is poor
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: white ash, pin oak • Co-dominant tree: Austrian pine • Understory: black cherry, hickory, tree-of-heaven
Overall condition:	Poor
Slope:	Moderately steep
Overstory density:	Dense
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Tree-of-heaven
Observations:	• The presence of Austrian pine indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 47
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: pin oak, American sycamore • Co-dominant trees: black cherry, pin oak • Understory: elm, Norway maple, mixed herbaceous plants, woody shrubs
Overall condition:	Poor
Slope:	Very steep
Overstory density:	Dense
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Norway maple
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Take no action given steep slopes Or • Apply treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 47
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: white ash • Co-dominant tree: Tree-of-heaven • Understory: black cherry, elm
Overall condition:	Poor
Slope:	Very steep
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Early succession
Invasive species:	Tree-of-heaven
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Take no action given steep slopes Or • Apply treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 52
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: hemlock, red oak, pin oak • Co-dominant tree: scotch pine • Understory: mountain laurel, black cherry, fern, red oak, woody shrubs, mixed herbaceous plants, common periwinkle
Overall condition:	Fair
Slope:	Moderate
Overstory density:	Moderate
Understory density:	Thin
Age distribution:	Balanced uneven aged
Successional stage:	Late succession
Invasive species:	Common periwinkle
Observations:	• Trees stumps indicate that there have been attempts to clear or control vegetative growth in this area • The presence of scotch pine indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 56
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: pin oak, hickory • Co-dominant tree: red maple • Understory: red maple, mountain laurel, red oak, woody shrubs
Overall condition:	Good
Slope:	Steep
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	No invasive species noted
Observations:	• There is healthy, regenerative growth of native trees in the understory
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Raise tree crowns along edges as needed • Prune trees along edges as needed • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 60
Date evaluated:	10/08/04
Woodlot structure and species composition:	• Dominant trees: Austrian pine, hemlock • Co-dominant tree: black cherry • Understory: tree-of-heaven, black cherry, Japanese flowering cherry, woody shrubs, mixed herbaceous plants, mugwort, Virginia creeper
Overall condition:	Poor
Slope:	Moderately steep
Overstory density:	Dense
Understory density:	Very dense
Age distribution:	Irregular uneven aged
Successional stage:	Early succession
Invasive species:	Tree-of-heaven, Virginia creeper, mugwort
Observations:	• The presence of Austrian pine and hemlock indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Clear and replant • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 70
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: red oak, white oak • Co-dominant tree: white oak • Understory: black cherry, hemlock, white ash, mountain laurel, woody shrubs
Overall condition:	Poor
Slope:	Very steep
Overstory density:	Thin
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	No invasive species noted
Observations:	• Woodlot generally inaccessible to public • Oaks in canopy are in fair to poor condition • Erosion noted on hillside • Tree debris and logs at top of hill pose potential hazard
Management objectives:	• To be determined during detailed design
Recommendations:	• Raise tree crowns along edges as needed • Prune trees along edges as needed • Remove trees interfering with pedestrian bridge • Remove large logs at top of hill or cut into small sections and leave in place. • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 70
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: Austrian pine • Co-dominant tree: basswood • Understory: black cherry, black locust
Overall condition:	Poor
Slope:	Very steep
Overstory density:	Dense
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Early succession
Invasive species:	No invasive species noted
Observations:	• The presence of Austrian pine indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Take no action given steep slopes Or • Apply treatments that may be necessary to address client's objectives

Location of woodlot:	Extension Division, Section 71
Date evaluated:	10/08/04
Woodlot structure and species composition:	• Dominant tree: pin oak • Co-dominant trees: white pine, Austrian pine, hemlock, mulberry • Understory: Norway maple, tree-of-heaven, black cherry, Japanese flowering cherry, mixed herbaceous plants
Overall condition:	Fair
Slope:	Moderate
Overstory density:	Dense
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Norway maple, tree-of-heaven, mulberry
Observations:	• The presence of Austrian pine, hemlock, and Japanese flowering cherry indicates the woodlot was partially planted • Erosion on hillside noted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Stabilize slopes by constructing log "cribs" in eroded areas • Remove hemlock and Austrian pine • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 1
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant tree: Norway maple, Austrian pine • Co-dominant tree: no distinct co-dominants • Understory: tree-of-heaven, mulberry, woody shrubs, mixed herbaceous plants
Overall condition:	Poor
Slope:	Moderate
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Balanced uneven aged
Successional stage:	Early succession
Invasive species:	Tree-of-heaven, Norway maple, mulberry
Observations:	• Trees within 3' of retaining wall and overpass • The presence of Austrian pine indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Clear and replant • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 17
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: white pine, shingle oak • Co-dominant tree: white birch • Understory: shingle oak, black birch, mixed herbaceous plants
Overall condition:	Good
Slope:	Moderate
Overstory density:	Thin
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	No invasive species noted
Observations:	• The presence of shingle oak, white pine, and white birch indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Take no action Or • Apply treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 17
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: white ash, pin oak • Co-dominant trees: Norway maple • Understory: Norway maple, white ash, black cherry, elm, mugwort
Overall condition:	Poor
Slope:	Flat
Overstory density:	Thin
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Norway maple, mugwort
Observations:	• Woodlot/buffer adjacent to Davenport Avenue entrance of Newark Subway • Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Clear and replant • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 19
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: red oak, swamp white oak • Co-dominant trees: red maple, American sycamore • Understory: tree-of-heaven, mimosa tree, black cherry, ash spp., mulberry, basswood, Norway maple, woody shrubs, mixed herbaceous plants, poison ivy
Overall condition:	Fair
Slope:	Flat
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	Mulberry, Norway maple, tree-of-heaven, poison ivy
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Raise tree crowns along edges as needed • Prune trees along edges as needed • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 19
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: red oak • Co-dominant trees: white ash, tree-of heaven, basswood • Understory: tree-of heaven, white ash, Norway maple, mixed herbaceous plants
Overall condition:	Fair
Slope:	Flat
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	Tree-of-heaven, Norway maple
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Raise tree crowns along edges as needed • Prune trees along edges as needed • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 20
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant trees: pin oak, white oak, sweetgum • Co-dominant trees: beech, tree-of-heaven • Understory: mulberry, sycamore maple, black cherry, mixed herbaceous plants
Overall condition:	Fair
Slope:	Flat
Overstory density:	Thin
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	Mulberry, sycamore maple, tree-of-heaven
Observations:	• Trees stumps indicate that there have been attempts to clear or control vegetative growth in this area • Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 20
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant trees: pin oak, sweetgum, black locust • Co-dominant tree: no distinct co-dominants • Understory: sweetgum, mixed herbaceous plants
Overall condition:	Fair
Slope:	Flat
Overstory density:	Dense
Understory density:	Dense
Age distribution:	Balanced uneven aged
Successional stage:	Mid succession
Invasive species:	No invasive species noted
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 20
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant trees: white ash, white oak • Co-dominant tree: white ash • Understory: black cherry, white ash, devil's walking stick, Norway maple, woody shrubs, mixed herbaceous plants, Japanese knotweed
Overall condition:	Fair
Slope:	Flat
Overstory density:	Dense
Understory density:	Dense
Age distribution:	Balanced uneven aged
Successional stage:	Late succession
Invasive species:	Norway maple, Japanese knotweed
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 21
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant tree: green ash, pin oak, white oak, tulip, sweetgum • Co-dominant tree: no distinct co-dominants • Understory: Norway maple, elm, Tree-of-heaven, American holly, woody shrubs, mixed herbaceous plants
Overall condition:	Good
Slope:	Flat
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Balanced uneven aged
Successional stage:	Late succession
Invasive species:	Norway maple, Tree-of-heaven
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Raise tree crowns along edges as needed • Prune trees along edges as needed • Remove invasive species • Other treatments that may be necessary to address client's objectives

WOODLOT WN-22A

Location of woodlot:	Northern Division, Section 22
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant trees: white ash, red oak • Co-dominant trees: Norway maple, elm, black cherry • Understory: black cherry
Overall condition:	Poor
Slope:	Moderate
Overstory density:	Thin
Understory density:	Very thin
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Norway maple
Observations:	• White ash in severe decline • There is a predominance of Norway maple in the woodlot
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Clear and replant • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 22
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant trees: white ash, pin oak • Co-dominant tree: black cherry • Understory: black cherry, Norway maple, woody shrubs, mixed herbaceous plants, vines spp.
Overall condition:	Poor
Slope:	Flat
Overstory density:	Thin
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	Norway maple, heavy vine infestation
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Clear and replant • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 22
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant tree: pin oak • Co-dominant tree: red maple, sweetgum, horse chestnut, Norway maple • Understory: sycamore maple, Norway maple, white ash, woody shrubs, mixed herbaceous plants
Overall condition:	Poor
Slope:	Flat
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Norway maple, sycamore maple
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 27
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: Norway maple • Co-dominant trees: red oak, Norway maple • Understory: tree-of-heaven, mulberry, goldenraintree, mixed herbaceous plants
Overall condition:	Poor
Slope:	Steep
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Balanced uneven aged
Successional stage:	Early succession
Invasive species:	Norway maple, tree-of-heaven
Observations:	• There are trees within 3' of the overpass
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Remove trees interfering with overpass • Raise tree crowns along edges as needed • Prune trees along edges as needed • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 32
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant tree: pin oak • Co-dominant trees: Norway maple, river birch, black cherry, white ash, elm • Understory: American hornbeam, black cherry, hawthorn, woody shrubs
Overall condition:	Fair
Slope:	Moderately flat
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Norway maple
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 35
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: green ash, white ash, elm, pin oak, swamp white oak, tulip • Co-dominant trees: beech, sweetgum, red oak • Understory: black cherry, poison ivy, tree-of-heaven, American hornbeam, woody shrubs, mixed herbaceous plants
Overall condition:	Fair
Slope:	Flat
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	Poison ivy, tree-of-heaven
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Remove trees interfering with footbridges • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 35
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant trees: pin oak, swamp white oak • Co-dominant tree: red maple • Understory: black cherry woody shrubs, mixed herbaceous plants
Overall condition:	Good
Slope:	Flat
Overstory density:	Thin
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	No invasive species noted
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 37
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: white ash, pin oak, sweetgum • Co-dominant trees: beech, red maple • Understory: black cherry, beech, woody shrubs, mixed herbaceous plants, Japanese knotweed
Overall condition:	Good
Slope:	Flat
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	Japanese knotweed
Observations:	• Healthy plant community with good structure and tree species composition
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Northern Division, Section 4
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: white ash, pin oak, willow oak, tulip • Co-dominant trees: red maple, tulip, elm, American sycamore, sweetgum, basswood • Understory: red maple, mulberry, black cherry, white ash, sycamore maple, woody shrubs, mixed herbaceous plants, Virginia creeper, poison ivy
Overall condition:	Poor
Slope:	Moderate
Overstory density:	Dense
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	Sycamore maple, mulberry, Virginia creeper, poison ivy
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance • White ash and pin oak in decline
Management objectives:	• *To be determined during detailed design*

Location of woodlot:	Northern Division, Section 41
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: pin oak • Co-dominant trees: ash, elm, • Understory: mulberry, back cherry, pin oak, catalpa, woody shrubs, mixed herbaceous plants, Virginia creeper
Overall condition:	Poor
Slope:	Flat
Overstory density:	Dense
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Mulberry, Virginia creeper
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance • Ash and pin oak trees in decline
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Middle Division, Section 1
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant trees: Norway maple, elm, red oak • Co-dominant tree: Norway maple • Understory: mulberry, mixed herbaceous plants
Overall condition:	Poor
Slope:	Steep
Overstory density:	Moderate
Understory density:	Thin
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Norway maple, mulberry
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance • Erosion noted on hillside
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Stabilize slopes by constructing log "cribs" in eroded areas • Raise tree crowns along edges as needed • Prune trees along edges as needed • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Middle Division, Section 6
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant tree: swamp white oak • Co-dominant trees: sugar maple, black cherry • Understory: Austrian pine, white pine, mixed herbaceous plants, woody shrubs
Overall condition:	Good
Slope:	Moderately steep
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	Japanese knotweed
Observations:	• The presence of Austrian pine indicates the woodlot was partially planted
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Raise tree crowns along edges as needed • Prune trees along edges as needed • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Middle Division, Section 6
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant trees: white ash, red oak • Co-dominant trees: sugar maple, yellowwood • Understory: winged euonymus, Norway maple, yellowwood, woody shrubs, mixed herbaceous plants, Japanese knotweed
Overall condition:	Poor
Slope:	Moderate
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Norway maple, Japanese knotweed, winged euonymus
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Middle Division, Section 6
Date evaluated:	10/06/04
Woodlot structure and species composition:	• Dominant tree: swamp white oak • Co-dominant trees: tree-of-heaven, ash • Understory: Norway maple, black cherry, elm, yew, pin oak, mulberry, and mixed herbaceous plants, Japanese knotweed
Overall condition:	Poor
Slope:	Moderate
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Irregular uneven aged
Successional stage:	Late succession
Invasive species:	Mulberry, Norway maple, tree-of-heaven, Japanese knotweed
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance • Only the swamp white oak in the canopy are worth preserving
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Middle Division, Section 8
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: Norway maple, elm, pin oak • Co-dominant trees: no distinct co-dominant trees • Understory: catalpa, red oak, black cherry, mulberry, woody shrubs, mixed herbaceous plants, Virginia creeper, Japanese knotweed, porcelain berry, poison ivy
Overall condition:	Poor
Slope:	Moderately steep
Overstory density:	Dense
Understory density:	Very dense
Age distribution:	Irregular uneven aged
Successional stage:	Early to mid succession
Invasive species:	Norway maple, Virginia creeper, Japanese knotweed, porcelain berry, poison ivy
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance • There are two trees of note in the woodlot: a 41" diameter silver maple (Tree #467) and 35" diameter American elm (tree #468)
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Selectively remove understory and invasive species in vicinity of Tree#467 and Tree #468 to increase their visibility • Raise tree crowns along edges as needed • Prune trees along edges as needed • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Middle Division, Section 8
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: white ash, pin oak, • Co-dominant tree: no distinct co-dominants • Understory: locust, tree-of-heaven, mulberry, basswood, bamboo
Overall condition:	Poor
Slope:	Moderate
Overstory density:	Moderate
Understory density:	Very dense
Age distribution:	Irregular uneven aged
Successional stage:	Early succession
Invasive species:	Tree-of-heaven, mulberry, bamboo
Observations:	• This was the only bamboo noted in the Park
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Middle Division, Section 9
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: pin oak, elm spp. • Co-dominant trees: Norway maple, swamp white oak, beech • Understory: mulberry, black cherry, white ash, red oak, woody shrubs, mixed herbaceous plants, poison ivy
Overall condition:	Fair
Slope:	Moderately steep
Overstory density:	Moderate
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Mid succession
Invasive species:	Mulberry, Norway maple, Japanese knotweed, poison ivy
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance • There is a tree of note in the southern portion of the woodlot: a 47" diameter American elm in "Good" condition (Tree #334)
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Selectively remove understory and invasive species in vicinity of tree #334 to increase visibility • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

**WOODLOT
WM-10**

Location of woodlot:	Middle Division, Section 10
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant tree: Norway maple, sycamore maple • Co-dominant tree: ash spp. • Understory: black cherry, black birch, hawthorn, woody shrubs
Overall condition:	Poor
Slope:	Moderately steep
Overstory density:	Dense
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Early succession
Invasive species:	Norway maple, sycamore maple
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Clear and replant • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Middle Division, Section 16
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: white ash, honey locust, yellowwood • Co-dominant tree: white ash, honey locust, yellowwood • Understory: American hophornbeam, black cherry, mulberry, mixed herbaceous plants, Oriental bittersweet
Overall condition:	Poor
Slope:	Moderately steep
Overstory density:	Thin
Understory density:	Dense
Age distribution:	Irregular uneven aged
Successional stage:	Early succession
Invasive species:	Mulberry, Oriental bittersweet
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Remove invasive species • Improve woodlot structure and species composition through forestry treatments that may include selective tree removal and/or tree planting • Other treatments that may be necessary to address client's objectives

WOODLOT WM-19

Location of woodlot:	Middle Division, Section 19
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: black locust, Norway maple • Co-dominant tree: scholar-tree • Understory: mulberry
Overall condition:	Poor
Slope:	Moderately steep
Overstory density:	Thin
Understory density:	Moderate
Age distribution:	Balanced uneven aged
Successional stage:	Early succession
Invasive species:	Norway maple, mulberry
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Clear and replant • Other treatments that may be necessary to address client's objectives

Location of woodlot:	Middle Division, Section 24
Date evaluated:	10/07/04
Woodlot structure and species composition:	• Dominant trees: white ash, elm, pin oak • Co-dominant trees: white ash, elm, pin oak • Understory: black cherry, mulberry, Norway maple, tree-of-heaven, locust, mixed herbaceous plants, Japanese knotweed, Oriental bittersweet
Overall condition:	Poor
Slope:	Steep
Overstory density:	Moderate
Understory density:	Moderate
Age distribution:	Balanced uneven aged
Successional stage:	Early succession
Invasive species:	Mulberry, Norway maple, Japanese knotweed, Oriental bittersweet
Observations:	• Current woodlot structure and species composition may be the result of past land clearing and/or lack of landscape maintenance
Management objectives:	• *To be determined during detailed design*
Recommendations:	• Clear and replant • If not cleared in entirety, trees should be elevated along Bloomfield Avenue • Other treatments that may be necessary to address client's objectives