Tree Evaluation Report 1

Town of Southborough, MA

John T Campanini, Jr, Consultant, *Tree Technologies, LLC*

TABLE OF CONTENTS

PART 1. INTRODUCTION

OBJECTIVE

In winter 2021 *Tree Technologies, LLC.*, North Smithfield, RI, was contracted by the Public Works Department Superintendent- Karen Galligan to conduct a tree inventory along six roads in the Town of Southborough, Massachusetts. The scope of the inventory was limited to public trees or, more specifically, trees growing in the public right of way. The inventory's purpose was (1) to determine the structure, composition and size of the tree population, (2) to identify any hazardous trees and (3) to recommend tree mitigation actions, if feasible. The name, portion and length of each road selected for this inventory project is presented in the following table:

ROAD	START-END	LENGTH IN MILES/FEET
Edgewood Road	Oregon Rd -	0.54 / 2,851
Marlboro Road	Railroad Tressle – Main Street	0.92 / 4,858
Oregon Road	Breakneck Hill Rd – Lincoln Rd	0.77 / 4,066
Parkerville Road	RTE 30 – Southville Rd	1.50 / 7,920
Parmenter Road	Broadmeadow St – Pine Hill Rd	0.60 / 3,168
Pine Hill Road	Parmenter Rd – Pleasant St	1.70 / 8,976
TOTAL		6.03 / 31,844

METHODOLOGY

The majority of the conclusions in this report are based on field inspection of roadside trees held during March and April 2021. The tree inspections were limited to an external review of major plant parts. A rubber mallet and knife were also used to determine the possible existence of wood decay under the bark of accessible plant parts of each tree. A clinometer was used to measure tree height. Trunk circumference and crown spread measurements were taken with diameter tapes. GPS locations were found using iPhone Google Map Compass Application. Guiding principles found in *Tree Risk Assessment Manual* published by the International Society of Arboriculture- Champaign, IL was used to identify and assess the extent and severity of tree structural defect(s) and to assign condition rating and recommendations of surveyed trees.

INVENTORY RESULTS

Tree survey results are presented in two parts of this report. They are Part 2. Findings and Part 3. Appendices. Part 2. Findings is further divided into two sections. The first section provides a comprehensive analysis of the tree data generated from each road survey. The results are reported by category (i.e, species, size, condition rating, etc.,) using Tables to show easy to follow value totals and percentages. Also, a brief narrative follows each table. The narrative is used to highlight any information of significance found in the table. The final Findings section shows photographic evidence of typical tree and road conditions encountered during the survey. These include tree structural defects, hazardous trees and the potential targets (road, utilities, private property, etc.,) located along the public right of way that could be vulnerable to damage in the event of tree failure.

The Appendices section is composed of Appendix A, B and C1-6. The most important of these is Appendix C1-6. This is where the complete tree inventory for each road can be found. Appendix C is organized in alpha-numeric fashion. For example, the Edgewood Road tree inventory is found in Appendix C1 while Pine Hill Road in Appendix C6. Each inventory datasheet in Appendix C was formatted using Microsoft EXCEL application. The datasheet has eleven column headings and the data for each tree is recorded in rows under each heading.

PART 1. INTRODUCTION

INVENTORY RESULT (continued from page 1).
The column headings are:
- ADDRESS- tree location by various benchmarks)
- TYPE- species
- GPS
- TRC- tree trunk circumference
- HT- tree height
- SPR- tree crown spread
- TFZ- tree fall zone
- TARGETS- area vulnerable to tree strike
- DEFECTS- tree structural defects
- CR- tree condition rating
- REC- tree recommendation

Appendix A and B provide a full description of the column headings and data values. They should be used as companion documents to Appendix C1-6.

Appendix A-Species Code is used to identify the species of tree found during the survey. The datasheet records each tree species using a two letter value (Ex. RO= Red Oak). Appendix A. links the two letter code to the plants common and Latin names (species and genus).

Appendix B- Legend is used to describe and define the column headings (more comprehensively) and the data values. The definitions include formulae (TFZ), and, in the case of Condition Rating, the rationale for the selected values. Finally, for clarity, tree structural defects (DEFECTS) are described in the body of the inventory report for each road in Appendix C1-6.

<div align="center">END OF THIS SECTION</div>

PART 2. FINDINGS – EDGEWOOD ROAD

SPECIES: The species composition and number of trees per species in the Edgewood Road tree population is itemized by common and Latin name below:

TABLE 1: Species Composition

Common Name	Latin name	# of Trees	% of Total
Red maple	Acer rubrum	02	03%
White pine	Pinus strobus	02	03%
White ash	Fraxinus americana	05	08%
White oak	Quercus alba	07	12%
Pignut hickory	Carya glabra	16	27%
Red oak	Q. rubra	28	47%
Total		60	100%

Summary: Survey results indicate there are a total 60 trees growing along Edgewood Road. This total is spread among six tree species. Of this number, five are deciduous species and one is evergreen. The dominant species, at 47% of the tree population, is the Red oak. Next in abundance is the Pignut hickory 27%. The third most populous tree with 7 individuals is the White oak.

TREE SIZE: Tree size can be useful in assessing the general stage of development of individual trees as well as the entire tree stock. Tree height and crown spread are also important for evaluating potential property damage associated with failing trees or their parts. Tables 2, 3, and 4 show results for tree trunk circumference, height and crown spread.

TABLE 2: Tree Trunk Circumference

Size Class In Inches	# of Trees	% of Total	Age Class
≤20"	00	00%	Juvenile
20 – 60"	25	42%	Juvenile
61 – 100"	24	40%	Maturing
101 – 140"	10	17%	Mature
≥141"	01	01%	Post-Mature
Total	60	100%	

Summary: Trunk circumference results indicate that most trees are relatively young and still developing as evidenced by the fact that 82% are less than 101" in girth. The tree with the largest girth is a 150" Red oak located near Pole 12 on Edgewood Road.

TABLE 3: Tree Height

Height Class In Feet	# of Trees	% of Total
≤30'	05	08%
31 – 50'	33	55%
51 – 70'	22	37%
>70'	00	00%
Total	60	100%

Summary: Sixty-three percent of the tree population is less than 51' in height. There are 22 trees, or 37%, taller than 50'. Datasheets show there 3 trees on Edgewood Road measuring 70' in height.

PART 2. FINDINGS – EDGEWOOD ROAD

TABLE 4: Average Crown Spread

Canopy Spread in Feet	# of Trees	% of Total
≤40'	58	97%
41 – 60'	02	03%
61 – 80'	00	00%
Total	60	100%

Summary: Table 4 figures reveal that an overwhelming majority of the trees 97% have a canopy spread less than 40 feet. This fact is a bit surprising given the wide-spreading nature of many of the species discovered on Edgewood Road. Competition for sunlight, especially in the more rural tracts of this road, is suggested as the leading cause of the restricted crown development in most trees.

TREE FALL ZONE: The potential area in square feet that could be impacted should the tree fail or topple from the base is defined as the Tree Fall Zone (TFZ). It is used to help evaluate targets at risk of injury or damage near the tree. The TFZ is calculated by multiplying the tree height by tree average crown spread (TH x SPR = TFZ). Table 5 shows TFZ results for the Edgewood Road inventory.

TABLE 5: Tree Fall Zone

TFZ in Square Feet	# of Trees	% of Total
≤1,000	13	22%
1,001 – 2,000	32	53%
2,001 – 3,000	14	23%
>3,000	01	01%
Total	60	100%

Summary: The findings indicate that 77% of the trees (47 trees) register tree fall zones greater than 1,000 square feet (Table 5). Of this grouping, 14 trees, or 23%, have TFZ exceeding 2,500sf. These trees have TFZ's large enough in area to place the majority of public targets on Edgewood Road (roads, utility wires, traffic signs, etc.,) within striking distance of them should they fail at the base. The public targets most at risk are roads and utility infrastructure (wires, traffic signs and poles). Vehicles and citizens using the roads are also at risk from any tree regardless of its TFZ. Private sector targets are more limited. Most homes have very deep set-backs. They are beyond the reach of even those trees with the largest TFZ's. Finally, many driveways and mailboxes are located near inventoried trees. They remain the most vulnerable private sector targets on Edgewood Road.

STRUCTURAL DEFECTS – Only major structural defects affecting the mechanical integrity of the tree were recorded during the survey. They were classified by their location on major tree part- root, trunk, and crown. Four major structural defects were identified on trees along Edgewood Road. They are: deadwood (DW), trunk-root canker and/or cavity (TC) and co-dominant or multi-stem trunked trees (COD). The deadwood classification includes five values to more accurately portray the percentage of dead, dying, diseased, broken and missing branches in the tree crown (see Appendix B. Legend). The values are: DW1, DW2, DW3, DW4 and DW5 with the percentage and, therefore, the extent and severity of deadwood increasing with the increase in number. In some cases, trees were found to have more than one, or multiple defects. For statistical purposes each of the multiple defects were recorded separately in the appropriate category. This recording procedure results in more total defects than total

PART 2. FINDINGS – EDGEWOOD ROAD

trees and the sum of all defect categories exceeding 100%. This is not an error. The key is to remember these results are based on the number of structural defects found in the tree population and not on a per tree basis. Finally, when no defect was discovered, the tree was assigned the value 'None'.

TABLE 6: Structural Defects

Description	# of Trees	% of Total
DW1	19	33%
DW2	01	01%
DW3	06	10%
DW4	07	12%
DW5	02	02%
TC	16	27%
COD	03	05%
NONE	19	32%

Summary: The good news is that two-thirds (66%) of the tree pool on Edgewood Road had no (NONE) or only minor structural defects (DW1 + DW2). But there were 15 trees (24%), by definition, with more than 20% deadwood (DW3+DW4+DW5). Also, almost one out of every 3 trees (27%) exhibited stem cavities or cankers (TC). Most were located at the base or middle of the tree trunk with some more serious than others. Finally, 13 out of 60 trees, or 27%, exhibited multiple defects (not shown).

TREE CONDITION RATING - The Tree Condition Rating (CR) is used to evaluate the mechanical stability of the entire tree at the time of inspection. The CR is based on the extent and severity of tree structural defects and how they affect the mechanical stability of the tree. There are four possible tree ratings. They are Good, Fair, Poor and Dead. They are described below:
Good = no major structural defects; tree is mechanically stable.
Fair = one or more structural defects, mostly minor, which are hazardous but with proper treatment can be mitigated; tree is mechanically stable.
Poor = one of more structural defects, mostly major, which are hazardous and beyond mitigation by treatment; tree is mechanically unstable.
Dead = tree is non-living and demonstrates evidence of major structural failure; tree is hazardous and mechanically unstable.

TABLE 6: Tree Condition Rating

Description	# of Trees	% of Population
Good	35	58%
Fair	08	13%
Poor	13	23%
Dead	04	06%
Total	60	100%

Summary: According to survey results 71% of the total tree population (43 trees) was assigned a Fair or better Condition Rating; some have minor structural defects but all are mechanically stable. Findings also indicate the presence of 17 trees assigned a Poor or worse condition rating; all have serious structural defects and are mechanically unstable.

PART 2. FINDINGS – EDGEWOOD ROAD

<u>RECOMMENDATIONS:</u> Five actions are proposed for the Edgewood Road tree population. They include: Sanitation Pruning, Monitoring, Removal, No Action and Sanitation Pruning/Monitoring. They are described below:

No Action = no action needed at this time.
Monitoring = inspect tree annually (August-September) to assess change in tree's mechanical stability.
Sanitation Pruning = eliminate deadwood, broken branches and stubs by pruning.
Sanitation Pruning/Monitoring = conduct annual tree inspection after sanitation pruning has been completed.
Removal = remove tree.

TABLE 7: Recommendations

Description	# of Trees	% of Total
No Action (NA)	20	33%
Monitor (M)	03	05%
Sanitation Pruning (PR)	18	30%
PR/Monitor (PR/M)	02	03%
Removal (REM)	17	29%
Total	60	100%

Summary: Findings show (Table 7) there are 17 (29%) mechanically unstable trees which cannot be mitigated by arboricultural treatment. It's recommended they be removed by felling. There are also 20 trees with minor structural defects, mostly deadwood, making them unsafe. The action calls for eliminating their hazardous nature by sanitation pruning. The rest of the tree population calls for either no action (20 trees; 33%) or an annual inspection to monitor (5 trees; 8%) any change in their Condition Rating.

Photographic evidence of major findings (i.e., road conditions, tree structural defects, recommendations, etc.,) are presented in the next section of this report.

<div align="center">END OF THIS SECTION</div>

Part 2. Edgewood Road Findings Photo Interpretation
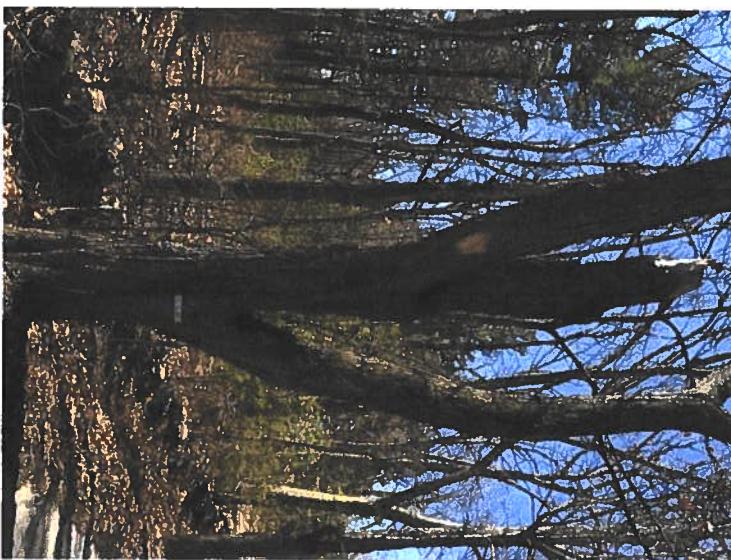
16 trees, or 27% of population, have hazardous trunk cavities.
Left: #2 Pignut hickory. Right: #7 Pignut hickory between 31-37 Edgewood Road.

7

Part 2. Edgewood Road Findings Photo Interpretation

Several trees with multiple structural defects (co-dominate stems and deadwood) are unstable and hazardous. Left: #3 White ash. Right: #38 Red oak near 22 Edgewood Road.

Part 2. Edgewood Road Findings Photo Interpretation

17 trees, or 29% of total tree count, have significant defects and like these trees are unstable. Left: #17 Red oak at 19 Edgewood Road. Right: #51 Red oak near 52 Edgewood Road.

PART 2. FINDINGS – MARLBORO ROAD

SPECIES: The species composition and number of trees per species in the MARLBORO Road tree population is itemized by common and Latin name below:

TABLE 1: Species Composition

Common Name	Latin name	# of Trees	% of Total
American Elm	Ulmus americana	01	01%
Cherry Birch	Betula lenta	01	01%
Norway Spruce	Picea abies	01	01%
Red Maple	Acer rubrum	05	07%
Callery Pear	Pyrus calleryana	06	09%
Norway Maple	Acer platanoides	06	09%
White Ash	Fraxinus americana	06	09%
White Oak	Quercus alba	09	13%
Red Oak	Quercus rubra	33	49%
Total		68	100%

Summary: Survey results indicate there are a total 68 trees growing along MARLBORO Road. This total is spread among nine tree species. At 49% of total trees the Red oak is the most abundant species. Next in abundance is the White oak-9 trees, followed by Callery Pear, Norway maple and White ash with 6 trees each. There is only one evergreen, a Norway spruce, in the tree population.

TREE SIZE: Tree size can be useful in assessing the general stage of development of individual trees as well as the entire tree stock. Tree height and crown spread are also important for evaluating potential property damage associated with failing trees or their parts. Tables 2, 3, and 4 show results for tree trunk circumference, height and crown spread.

TABLE 2: Tree Trunk Circumference

Size Class In Inches	# of Trees	% of Total	Age Class
≤20"	01	02%	Juvenile
21 – 60"	35	53%	Juvenile
61 – 100"	26	39%	Maturing
101 – 140"	06	17%	Mature
≥141"	00	00%	Post-Mature
Total	68	100%	

Summary: The majority of MARLBORO Road trees 36 (55%) measure less than 61 inches in trunk circumference. They are relatively small in girth and young in age. The next largest grouping, at 39%, are trees over 61" but less than 100". They are in the mid-age of their development and still maturing. The leader in this category is a Red maple. It measures 120" in trunk circumference.

PART 2. FINDINGS – MARLBORO ROAD

TABLE 3: Tree Height

Height Class In Feet	# of Trees	% of Total
≤30'	17	25%
31 – 50'	49	72%
51 – 70'	03	03%
>70'	00	00%
Total	68	100%

Summary: Findings reveal few very tall trees growing along MARLBORO Road. Only 3 were recorded over 51' in height. The vast majority are less than 50' tall (65 trees; 97%).

TABLE 4: Average Crown Spread

Canopy Spread in Feet	# of Trees	% of Total
≤40'	54	79%
41 – 60'	14	21%
61 – 80'	00	00%
Total	68	100%

Summary: Only 14 trees (21%) on Marlboro Road have crown spreads greater than 41'. Datasheets also indicate that most of these trees registered figures on the low side of this size group. Finally, trees under 41' dominate this category and is further evidence of the overall juvenility of the tree stock on this road.

TREE FALL ZONE: The potential area in square feet that could be impacted should the tree fail or topple from the base is defined as the Tree Fall Zone (TFZ). It is used to help evaluate targets at risk of injury or damage near the tree. The TFZ is calculated by multiplying the tree height by tree average crown spread (TH x SPR = TFZ).

TABLE 5: Tree Fall Zone

TFZ in Square Feet	# of Trees	% of Total
≤1,000	14	21%
1,001 – 2,000	45	66%
2,001 – 3,000	09	13%
>3,000	00	00%
Total	68	100%

Summary: The findings indicate that 79% of the trees (54 trees) register tree fall zones greater than 1,000 square feet. Of this grouping, 9 trees, or 13%, have TFZ exceeding 2,500sf. These trees have TFZ's large enough in area to place the majority of public targets on Marlboro Road (roads, utility wires, traffic signs, etc.,) within striking distance of them should they fail at the base. The public targets most at risk are roads and utility infrastructure (wires, traffic signs and poles). Vehicles and citizens using the roads are also at risk from any tree regardless of its TFZ. Major private property targets include homes, driveways, and mailboxes.

PART 2. FINDINGS – MARLBORO ROAD

STRUCTURAL DEFECTS – Only major structural defects affecting the mechanical integrity of the tree were recorded during the survey. They were classified by their location on major tree part- root, trunk, and crown. Four major structural defects were identified on trees along Edgewood Road. They are: deadwood (DW), trunk-root canker and/or cavity (TC) and co-dominant or multi-stem trunked trees (COD). The deadwood classification includes five values to more accurately portray the percentage of dead, dying, diseased, broken and missing branches in the tree crown (see Appendix B. Legend). The values are: DW1, DW2, DW3, DW4 and DW5 with the percentage and, therefore, the extent and severity of deadwood increasing with the increase in number. In some cases, trees were found to have more than one or multiple defects. For statistical purposes each of the multiple defects were recorded separately in the appropriate category. This recording procedure results in more total defects than total trees and the sum of all defect categories exceeding 100%. This is not an error. The key is to remember these results are based on the number of structural defects found in the tree population and not on a per tree basis. Finally, when no defect was discovered, the tree was assigned the value 'None'.

TABLE 6: Structural Defects

Description	# of Trees	% of Total
DW1	16	24%
DW2	11	16%
DW3	05	07%
DW4	14	21%
DW5	02	03%
TC	14	21%
COD	03	04%
NONE	12	18%

Summary: The good news is that 58% of the trees on Marlboro Road had no (NONE) or only minor structural defects (DW1 + DW2). But there were 21 trees (31%), by definition, with more than 20% deadwood (DW3 + DW4 + DW5). Another 21%, or 14 trees, exhibited stem cankers or cavities (TC). Finally, 9 out of the 68 trees inventoried were found to have multiple defects 13% (not shown).

TREE CONDITION RATING - The Tree Condition Rating (CR) is used to evaluate the mechanical stability of the entire tree at the time of inspection. The CR is based on the extent and severity of tree structural defects and how they affect the mechanical stability of the tree. There are four possible tree ratings. They are Good, Fair, Poor and Dead. They are described below:

Good = no major structural defects; tree is mechanically stable.

Fair = one or more structural defects, mostly minor, which are hazardous but with proper treatment can be mitigated; tree is mechanically stable.

Poor = one of more structural defects, mostly major, which are hazardous and beyond mitigation by treatment; tree is mechanically unstable.

Dead = tree is non-living and demonstrates evidence of major structural failure; tree is hazardous and mechanically unstable.

PART 2. FINDINGS – MARLBORO ROAD

TABLE 6: Tree Condition Rating

Description	# of Trees	% of Population
Good	29	43%
Fair	12	18%
Poor	25	37%
Dead	02	02%
Total	68	100%

Summary: According to survey results 61% of the total tree population (41 trees) was assigned a Fair or better Condition Rating; some have minor structural defects but all are mechanically stable. Findings also indicate the presence of 27 trees assigned a Poor or worse condition rating; all have serious structural defects and are mechanically unstable.

RECOMMENDATIONS: Five actions are proposed for the Marlboro Road tree population. They include: Sanitation Pruning, Monitoring, Removal, No Action and Sanitation Pruning/Monitoring. They are described below:

No Action = no action needed at this time.
Monitoring = inspect tree annually (August-September) to assess change in tree's mechanical stability.
Sanitation Pruning = eliminate deadwood, broken branches and stubs by pruning.
Sanitation Pruning/Monitoring = conduct annual tree inspection after sanitation pruning has been completed.
Removal = remove tree.

TABLE 7: Recommendations

Description	# of Trees	% of Total
No Action (NA)	12	18%
Monitor (M)	03	04%
Sanitation Pruning (PR)	26	38%
PR/Monitor (PR/M)	02	03%
Removal (REM)	25	37%
Total	68	100%

Summary: Findings show there are 25 (37%) mechanically unstable trees which cannot be mitigated by arboricultural treatment. It's recommended they be removed by felling. There are also 28 trees with minor structural defects, mostly deadwood, making them unsafe. The action calls for eliminating their hazardous nature by sanitation pruning. The rest of the tree population calls for either no action (12 trees; 18%) or an annual inspection to monitor (5 trees; 7%) any change in their Condition Rating.

Photographic evidence of major findings (i.e., road conditions, tree structural defects, recommendations, etc.,) are presented in the next section of this report.

END OF THIS SECTION

Part 2. Marlboro Road Findings Photo Interpretation

27 trees, or 40% of population have dead branches overhanging utility wires and roadway. Left: Several oaks northeast of Autumn Hills. Right: Oaks after 64 Marlboro Road, Pole 51.

Part 2. Marlboro Road Findings Photo Interpretation

Dead trees with major parts or crown missing are very dangerous.
Left: #31 White oak north of Ledge Road. Right: #42 White oak near #44 Marlboro Road.

Part 2. Findings Marlboro Road Photo Interpretation

25 trees, or 40% of population, were rated poor or dead. They are unstable and unsafe.
Left: #43 Norway maple northeast Library. Right: #60 Red maple at 65 Marlboro Road

16

Part 2. Findings Marlboro Road Photo Interpretation

There are numerous private property trees with serious structural defects located along Marlboro Road. Left: St. Mark's East Campus at tennis court. Right: Callery pear trees abutting Foley Memorial Bridge.

Part 2. Findings Marlboro Road Photo Interpretation

Left: #26 Red oak with 3,000sf TFZ has several major defects and is unsafe. Right: There are 5 large oaks located at 34 Marlboro Rd. Two need to be removed #38 & #41, three need pruning #39, #40 & 42.

PART 2. FINDINGS – OREGON ROAD

SPECIES: The species composition and number of trees per species in the Oregon Road tree population is itemized by common and Latin name below:

TABLE 1: Species Composition

Common Name	Latin name	# of Trees	% of Total
Blue spruce	Picea glauca	02	02%
White ash	Fraxinus americana	03	04%
White pine	Pinus strobus	03	04%
Red maple	Acer rubrum	04	05%
Black cherry	Prunus serotina	06	07%
American elm	Ulmus americana	07	09%
White oak	Quercus alba	10	12%
Pignut hickory	Carya glabra	20	25%
Red oak	Quercus rubra	26	32%
Total		81	100%

Summary: Survey results indicate there are a total of 81 trees growing along Oregon Road. This total is spread among nine tree species. Of this number, seven are deciduous species and two are evergreen. The Red oak (26 trees) and the Pignut hickory (20 trees) account for 57% of the tree stock. The only other species to register in double figures (10 trees; 12%) is the White oak. The rest of the species account for 27 trees or 31% of the tree population, no single species having more than 9 members.

TREE SIZE: Tree size can be useful in assessing the general stage of development of individual trees as well as the entire tree stock. Tree height and crown spread are also important for evaluating potential property damage associated with failing trees or their parts. Tables 2, 3, and 4 show results for tree trunk circumference, height and crown spread.

TABLE 2: Tree Trunk Circumference

Size Class In Inches	# of Trees	% of Total	Age Class
≤20"	05	06%	Juvenile
20 – 60"	27	33%	Juvenile
61 – 100"	35	44%	Maturing
101 – 140"	08	10%	Mature
≥141"	06	07%	Post-Mature
Total	81	100%	

Summary: Table 2 results show that many old trees large in girth can be found on Oregon Road. There are 14 trees with a trunk circumference over 101"; 6 greater than 141". The largest recorded trunk girth at 204" was a Red oak located at 26 Oregon Road. Seventy-seven percent of trees (62) measured between 21 and 100" in trunk circumference.

PART 2. FINDINGS – OREGON ROAD

TABLE 3: Tree Height

Height Class In Feet	# of Trees	% of Total
≤30'	09	11%
31 – 50'	45	56%
51 – 70'	25	31%
>70'	02	02%
Total	81	100%

Summary: The findings show two trees exceeding 70' in height. The tallest of these a 90' tall Red oak located at 26 Oregon Road. On the contrary, there were a total of 9 trees measuring under 30' in height. A big percentage of trees 87% (70 trees) book-ended these two extremes, measuring between 31' and 70' tall.

TABLE 4: Average Crown Spread

Canopy Spread in Feet	# of Trees	% of Total
≤40'	65	80%
41 – 60'	14	17%
61 – 80'	02	03%
Total	81	100%

Summary: While the majority of trees 80% have crown spreads less than 41 feet, there are many others with greater branch spreads (16 trees). The largest of these is an American elm with a crown spread of 75 feet.

TREE FALL ZONE: The potential area in square feet that could be impacted should the tree fail or topple from the base is defined as the Tree Fall Zone (TFZ). It is used to help evaluate targets at risk of injury or damage near the tree. The TFZ is calculated by multiplying the tree height by tree average crown spread (TH x SPR = TFZ).

TABLE 5: Tree Fall Zone

TFZ in Square Feet	# of Trees	% of Total
≤1,000	15	18%
1,001 – 2,000	48	59%
2,001 – 3,000	11	14%
>3,000	07	09%
Total	81	100%

Summary: Some of the largest TFZ's were recorded from trees on Oregon Road. Eighteen trees measured over 2,000sf. Of this total, 7 were over 3,000sf. Leading this category is a Red oak at 5,400sf followed by a Pignut hickory 3,900sf located at 49 Oregon Road. The findings also indicate that 59% of the trees (48 trees) register tree fall zones greater than 1,000 sf. These trees as well as the others with larger TFZs have the potential to impact many targets on Oregon Road. Most vulnerable targets are roads, walls and utility infrastructure. Vehicles and citizens using the roads are also at risk from any tree regardless of its TFZ.

PART 2. FINDINGS – OREGON ROAD

<u>STRUCTURAL DEFECTS</u> – Only major structural defects affecting the mechanical integrity of the tree were recorded during the survey. They were classified by their location on major tree part- root, trunk, and crown. Four major structural defects were identified on trees along Edgewood Road. They are: deadwood (DW), trunk-root canker and/or cavity (TC) and co-dominant or multi-stem trunked trees (COD). The deadwood classification includes five values to more accurately portray the percentage of dead, dying, diseased, broken and missing branches in the tree crown (see Appendix B. Legend). The values are: DW1, DW2, DW3, DW4 and DW5 with the percentage and, therefore, the extent and severity of deadwood increasing with the increase in number. In some cases, trees were found to have more than one, or multiple defects. For statistical purposes each of the multiple defects were recorded separately in the appropriate category. This recording procedure results in more total defects than total trees and the sum of all defect categories exceeding 100%. This is not an error. The key is to remember these results are based on the number of structural defects found in the tree population and not on a per tree basis. Finally, when no defect was discovered, the tree was assigned the value 'None'.

TABLE 6: Structural Defects

Description	# of Trees	% of Total
DW1	19	24%
DW2	04	05%
DW3	05	06%
DW4	14	18%
DW5	13	16%
TC	19	24%
COD	06	07%
NONE	13	16%

Summary: The good news is that 45% of the tree pool on Oregon Road had no (NONE) or only minor structural defects (DW1 + DW2). But there were 32 trees (40%), by definition, with more than 20% deadwood (DW3+DW4+DW5). Also, there were 19 trees that exhibited stem cavities or cankers (TC). Most were located at the base or middle of the tree trunk with some more serious than others. Finally, 12 out of 81 trees, or 15%, exhibited multiple defects (not shown).

<u>TREE CONDITION RATING</u> - The Tree Condition Rating (CR) is used to evaluate the mechanical stability of the entire tree at the time of inspection. The CR is based on the extent and severity of tree structural defects and how they affect the mechanical stability of the tree. There are four possible tree ratings. They are Good, Fair, Poor and Dead. They are described below:
Good = no major structural defects; tree is mechanically stable.
Fair = one or more structural defects, mostly minor, which are hazardous but with proper treatment can be mitigated; tree is mechanically stable.
Poor = one of more structural defects, mostly major, which are hazardous and beyond mitigation by treatment; tree is mechanically unstable.
Dead = tree is non-living and demonstrates evidence of major structural failure; tree is hazardous and mechanically unstable.

PART 2. FINDINGS – OREGON ROAD

TABLE 6: Tree Condition Rating

Description	# of Trees	% of Population
Good	32	39%
Fair	12	15%
Poor	29	36%
Dead	08	10%
Total	81	100%

Summary: According to survey results 54% of the total tree population (44 trees) was assigned a Fair or better Condition Rating; some have minor structural defects but all are mechanically stable. Findings also indicate the presence of 37 trees assigned a Poor or worse condition rating; all have serious structural defects and are mechanically unstable.

RECOMMENDATIONS: Five actions are proposed for the Oregon Road tree population. They include: Sanitation Pruning, Monitoring, Removal, No Action and Sanitation Pruning/Monitoring. They are described below:

No Action = no action needed at this time.
Monitoring = inspect tree annually (August-September) to assess change in tree's mechanical stability.
Sanitation Pruning = eliminate deadwood, broken branches and stubs by pruning.
Sanitation Pruning/Monitoring = conduct annual tree inspection after sanitation pruning has been completed.
Removal = remove tree.

TABLE 7: Recommendations

Description	# of Trees	% of Total
No Action (NA)	13	16%
Monitor (M)	02	03%
Sanitation Pruning (PR)	25	31%
PR/Monitor (PR/M)	02	03%
Removal (REM)	39	47%
Total	81	100%

Summary: Findings show there are 39 (47%) mechanically unstable trees which cannot be mitigated by arboricultural treatment. It's recommended they be removed by felling. There are also 27 trees with minor structural defects, mostly deadwood, making them unsafe. The action calls for eliminating their hazardous nature by sanitation pruning. The rest of the tree population calls for either no action (13 trees; 16%) or an annual inspection to monitor (5 trees; 6%) any change in their Condition Rating.

Photographic evidence of major findings (i.e., road conditions, tree structural defects, recommendations, etc.,) are presented in the next section of this report.

END OF THIS SECTION

Part 2. Oregon Road Findings Photo Interpretation

23

- 34% of tree population like this White Oak #27 have minor deficiencies that require sanitation pruning.

Part 2. Oregon Road Findings Photo Interpretation

Many small trees are located inside woodlands or on private property. Their branches overhang the roadway. Many trees and/or limbs should be removed to avoid future problems.

Part 2. Oregon Road Findings Photo Interpretation

19 trees, or 24%, of tree population have trunk cavities that make them unstable and unsafe. Left: #74- Red oak at 48 Oregon Rd. Right: #77 White ash located at 50 Oregon Rd.

Part 2. Oregon Road Findings Photo Interpretation

#53 Red Oak near 22 Oregon Road (Right) and #47 Pignut hickory near 52 Oregon Road are dead and are marked for removal by the Town.

PART 2. FINDINGS – PARKERVILLE ROAD

SPECIES: The species composition and number of trees per species in the Parkerville Road tree population is itemized by common and Latin name below:

TABLE 1: Species Composition

Common Name	Latin name	# of Trees	% of Total
Pin oak	Quercus palustris	01	00.5%
Black cherry	Prunus serotina	01	00.5%
Norway maple	Acer platanoides	03	02.0%
Sugar maple	Acer saccharum	04	02.0%
White ash	Fraxinus americana	06	03.0%
Red maple	Acer rubrum	23	12.0%
White oak	Quercus alba	23	12.0%
Pignut hickory	Carya glabra	25	13.0%
White pine	Pinus strobus	41	22.0
Red oak	Quercus rubra	59	33.0%
Total		186	100.0%

Summary: Survey results indicate there are a total of 186 trees growing along Parkerville Road. This total is spread among ten tree species. Of this number, nine are deciduous species and one is evergreen. The Red oak with 59 trees is the most abundant species. Next highest is the White pine (41 trees; 22%) followed by the Pignut hickory (25 trees; 13%). Five of the ten species account for only 15 trees or 8% of the tree population, no single species having more than 6 members.

TREE SIZE: Tree size can be useful in assessing the general stage of development of individual trees as well as the entire tree stock. Tree height and crown spread are also important for evaluating potential property damage associated with failing trees or their parts. Tables 2, 3, and 4 show results for tree trunk circumference, height and crown spread.

TABLE 2: Tree Trunk Circumference

Size Class In Inches	# of Trees	% of Total	Age Class
≤20"	03	01%	Juvenile
20 – 60"	62	33%	Juvenile
61 – 100"	98	54%	Maturing
101 – 140"	20	11%	Mature
≥141"	03	01%	Post-Mature
Total	186	100%	

Summary: Figures show that developing trees dominate the Parkerville tree population. They are trees measuring under 101" in girth (163 trees; 88%). Also, there are 14 trees with a trunk circumference over 101"; 6 greater than 141". They constitute the oldest members of the Parkerville Road tree population. The largest recorded trunk girth at 180" was a Red oak located across from 39 Parkerville Road.

PART 2. FINDINGS – PARKERVILLE ROAD

TABLE 3: Tree Height

Height Class In Feet	# of Trees	% of Total
<30'	15	08%
31 – 50'	116	62%
51 – 70'	52	28%
>70'	03	02%
Total	186	100%

Summary: Seventy percent of the total tree count on Parkerville Road is under 51' in height. The remainder are taller (55 trees; 30%). The tallest trees in the population, at 80' tall, are White pines.

TABLE 4: Average Crown Spread

Canopy Spread in Feet	# of Trees	% of Total
<40'	169	91%
41 – 60'	17	09%
61 – 80'	00	00%
Total	186	100%

Summary: While many trees on this road are tall, few are truly wide-spreading. Only 17 out of 186 have crowns greater than 41' in length. The balance, or 91%, is less than this figure. Close growing quarters and fierce competition for limited resources have definitely influenced tree crown shape and width along this road.

TREE FALL ZONE: The potential area in square feet that could be impacted should the tree fail or topple from the base is defined as the Tree Fall Zone (TFZ). It is used to help evaluate targets at risk of injury or damage near the tree. The TFZ is calculated by multiplying the tree height by tree average crown spread (TH x SPR = TFZ).

TABLE 5: Tree Fall Zone

TFZ in Square Feet	# of Trees	% of Total
<1,000	27	14%
1,001 – 2,000	111	60%
2,001 – 3,000	40	22%
>3,000	08	04%
Total	186	100%

Summary: Except for trees in the smallest segment of this category (27 trees), the rest register TFZ's greater than 1,000sf. These trees definitely have the potential to cause damage should they fail. But, given the rural road character, at risk targets are not as numerous as they are on the other roads in this study. Observations indicate vehicles and selective utility poles and wires are the most at risk targets.

PART 2. FINDINGS – PARKERVILLE ROAD

STRUCTURAL DEFECTS – Only major structural defects affecting the mechanical integrity of the tree were recorded during the survey. They were classified by their location on major tree part- root, trunk, and crown. Four major structural defects were identified on trees along Edgewood Road. They are: deadwood (DW), trunk-root canker and/or cavity (TC) and co-dominant or multi-stem trunked trees (COD). The deadwood classification includes five values to more accurately portray the percentage of dead, dying, diseased, broken and missing branches in the tree crown (see Appendix B. Legend). The values are: DW1, DW2, DW3, DW4 and DW5 with the percentage and, therefore, the extent and severity of deadwood increasing with the increase in number. In some cases, trees were found to have more than one, or multiple defects. For statistical purposes each of the multiple defects were recorded separately in the appropriate category. This recording procedure results in more total defects than total trees and the sum of all defect categories exceeding 100%. This is not an error. The key is to remember these results are based on the number of structural defects found in the tree population and not on a per tree basis. Finally, when no defect was discovered, the tree was assigned the value 'None'.

TABLE 6: Structural Defects

Description	# of Trees	% of Total
DW1	41	30%
DW2	19	14%
DW3	07	05%
DW4	17	12%
DW5	07	05%
TC	33	24%
COD	13	09%
NONE	68	37%

Summary: The good news is that 128 trees, or 81% of the tree pool on Parkerville Road had no (NONE) or only minor structural defects (DW1 + DW2). But there were 31 trees (22%), by definition, with more than 20% deadwood (DW3+DW4+DW5). Also, there were 33 trees that exhibited stem cavities or cankers (TC). Most were located at the base or middle of the tree trunk with some more serious than others. Finally, 22 out of 186 trees, or 12%, exhibited multiple defects (not shown).

TREE CONDITION RATING - The Tree Condition Rating (CR) is used to evaluate the mechanical stability of the entire tree at the time of inspection. The CR is based on the extent and severity of tree structural defects and how they affect the mechanical stability of the tree. There are four possible tree ratings. They are Good, Fair, Poor and Dead. They are described below:
Good = no major structural defects; tree is mechanically stable.
Fair = one or more structural defects, mostly minor, which are hazardous but with proper treatment can be mitigated; tree is mechanically stable.
Poor = one of more structural defects, mostly major, which are hazardous and beyond mitigation by treatment; tree is mechanically unstable.
Dead = tree is non-living and demonstrates evidence of major structural failure; tree is hazardous and mechanically unstable.

PART 2. FINDINGS – PARKERVILLE ROAD

TABLE 6: Tree Condition Rating

Description	# of Trees	% of Population
Good	118	64%
Fair	28	15%
Poor	35	19%
Dead	05	02%
Total	186	100%

Summary: According to survey results 79% of the total tree population (147 trees) was assigned a Fair or better Condition Rating; some have minor structural defects but all are mechanically stable. Findings also indicate the presence of 40 trees assigned a Poor or worse condition rating; all have serious structural defects and are mechanically unstable.

RECOMMENDATIONS: Five actions are proposed for the Parkerville Road tree population. They include: Sanitation Pruning, Monitoring, Removal, No Action and Sanitation Pruning/Monitoring. They are described below:

No Action = no action needed at this time.
Monitoring = inspect tree annually (August-September) to assess change in tree's mechanical stability.
Sanitation Pruning = eliminate deadwood, broken branches and stubs by pruning.
Sanitation Pruning/Monitoring = conduct annual tree inspection after sanitation pruning has been completed.
Removal = remove tree.

TABLE 7: Recommendations

Description	# of Trees	% of Total
No Action (NA)	73	39%
Monitor (M)	13	07%
Sanitation Pruning (PR)	59	32%
PR/Monitor (PR/M)	01	0.5%
Removal (REM)	40	22%
Total	186	100%

Summary: Findings show there are 40 (47%) mechanically unstable trees which cannot be mitigated by arboricultural treatment. It's recommended they be removed by felling. There are also 60 trees with minor structural defects, mostly deadwood, making them unsafe. The action calls for eliminating their hazardous nature by sanitation pruning. The rest of the tree population calls for either no action (73 trees; 39%) or an annual inspection to monitor (14 trees; 7.5%) any change in their Condition Rating.

Photographic evidence of major findings (i.e., road conditions, tree structural defects, recommendations, etc.,) are presented in the next section of this report.

END OF THIS SECTION

Part 2. Findings Parkerville Road Photo Interpretation
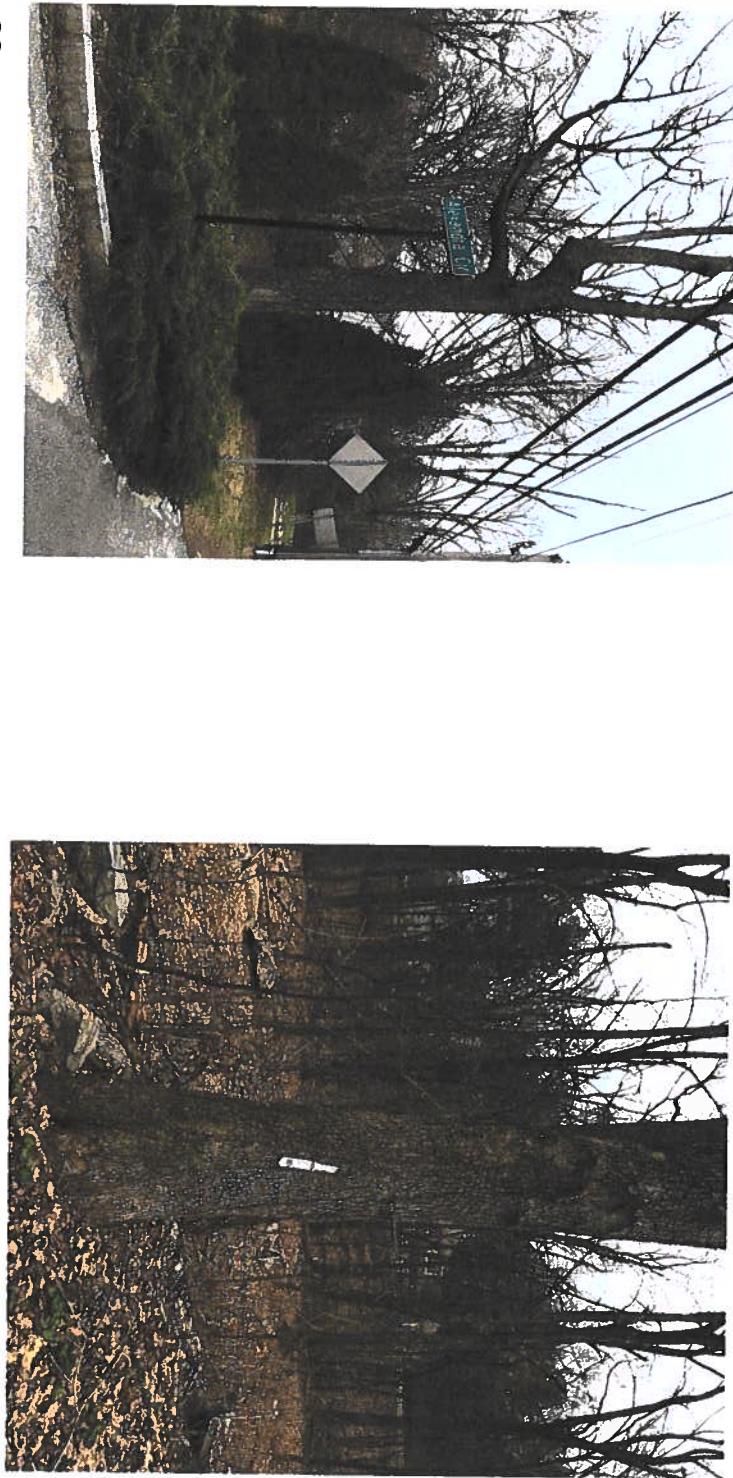
33 trees, or 24% of population, have trunk cavities which compromise their mechanical stability. Many like these two are hazardous and require removal.
Left: #131-Red maple. Right: #172- White oak near 150 Parkerville Road.

Part 2. Findings Parkerville Road Photo Interpretation

Utility infrastructure abutting woodlands are potential targets for many roadside trees with large diameter deadwood. Both photos taken north of school grounds.

Part 2. Findings Parkerville Road Photo Interpretation

40 trees, or 22% of the tree population, have serious structural defects. They are unstable and were recommended for removal. Left: #14 White pine. Right: #42 White oak.

Part 2. Findings Parkerville Road Photo Interpretation

Most White pines are relatively healthy. They are among the 132 trees, or 71% of the population, that exhibited only minor deadwood or no structural defects at study time.

34

PART 2. FINDINGS – PARMENTER ROAD

SPECIES: The species composition and number of trees per species in the Parmenter Road tree population is itemized by common and Latin name below:

TABLE 1: Species Composition

Common Name	Latin name	# of Trees	% of Total
Apple	Malus x domestica	01	03%
Red maple	Acer rubrum	01	03%
Pignut hickory	Carya glabra	02	06%
White pine	Pinus strobus	05	16%
White oak	Quercus alba	06	19%
Red oak	Quercus rubra	17	53%
Total		32	100%

Summary: Survey results indicate there are a total of 32 trees growing along Parmenter Road. This total is spread among 7 tree species, six deciduous and one evergreen. The Red oak with 17 trees is the most abundant species.

TREE SIZE: Tree size can be useful in assessing the general stage of development of individual trees as well as the entire tree stock. Tree height and crown spread are also important for evaluating potential property damage associated with failing trees or their parts. Tables 2, 3, and 4 show results for tree trunk circumference, height and crown spread.

TABLE 2: Tree Trunk Circumference

Size Class In Inches	# of Trees	% of Total	Age Class
≤20"	00	00%	Juvenile
20 – 60"	12	38%	Juvenile
61 – 100"	18	56%	Maturing
101 – 140"	01	03%	Mature
≥141"	01	03%	Post-Mature
Total	32	100%	

Summary: Figures show that developing trees dominate the Parmenter Road tree population. They measure 21-100" in girth and are in the majority (18 trees; 94%) of this category. The largest recorded trunk girth, at 210", was a Red oak located near utility pole 9 on Parmenter Road.

TABLE 3: Tree Height

Height Class In Feet	# of Trees	% of Total
≤30'	01	03%
31 – 50'	27	84%
51 – 70'	04	13%
>70'	00	00%
Total	32	100%

Summary: The tallest trees on Parmenter Road measure 60' in height (2-Red oak & 2-White pine). Figures show the rest of the trees (28 trees), or 87% of the population, are under 51' in height.

PART 2. FINDINGS – PARMENTER ROAD

TABLE 4: Average Crown Spread

Canopy Spread in Feet	# of Trees	% of Total
≤40'	24	75%
41 – 60'	08	25%
61 – 80'	00	00%
Total	32	100%

Summary: Three-quarters of the tree stock have a crown spread under 41 feet. Eight trees (25%) have wider crowns. A Red oak at Pole 9 and a White pine south of 3 Parmenter Road, at 60', are tops in this category.

TREE FALL ZONE: The potential area in square feet that could be impacted should the tree fail or topple from the base is defined as the Tree Fall Zone (TFZ). It is used to help evaluate targets at risk of injury or damage near the tree. The TFZ is calculated by multiplying the tree height by tree average crown spread (TH x SPR = TFZ).

TABLE 5: Tree Fall Zone

TFZ in Square Feet	# of Trees	% of Total
≤1,000	05	16%
1,001 – 2,000	18	56%
2,001 – 3,000	09	28%
>3,000	00	00%
Total	32	100%

Summary: Only two trees out of the total count registered TFZ's at 3,000sf. As the figures show, most trees 23 (72%) had TFZ's less than 2,001sf. Parmenter Road is rural with few homes. Observations indicate vehicles and selective utility poles and wires are the most at risk targets.

STRUCTURAL DEFECTS – Only major structural defects affecting the mechanical integrity of the tree were recorded during the survey. They were classified by their location on major tree part- root, trunk, and crown. Four major structural defects were identified on trees along Edgewood Road. They are: deadwood (DW), trunk-root canker and/or cavity (TC) and co-dominant or multi-stem trunked trees (COD). The deadwood classification includes five values to more accurately portray the percentage of dead, dying, diseased, broken and missing branches in the tree crown (see Appendix B. Legend). The values are: DW1, DW2, DW3, DW4 and DW5 with the percentage and, therefore, the extent and severity of deadwood increasing with the increase in number. In some cases, trees were found to have more than one, or multiple defects. For statistical purposes each of the multiple defects were recorded separately in the appropriate category. This recording procedure results in more total defects than total trees and the sum of all defect categories exceeding 100%. This is not an error. The key is to remember these results are based on the number of structural defects found in the tree population and not on a per tree basis. Finally, when no defect was discovered, the tree was assigned the value 'None'.

PART 2. FINDINGS – PARMENTER ROAD

TABLE 6: Structural Defects

Description	# of Trees	% of Total
DW1	02	06%
DW2	05	16%
DW3	06	19%
DW4	08	25%
DW5	00	00%
TC	15	47%
COD	00	00%
NONE	05	16%

Summary: Nearly half the trees surveyed had stem cavities or cankers (TC-15 trees; 47%). Although the small sample size may have skewed these numbers, that's still a high count. Twelve trees, or 38%, of the tree pool had no (NONE) or only minor structural defects (DW1 + DW2). A total of 14 trees recorded, by definition, more than 20% deadwood (DW3+DW4+DW5). Finally, 7 out of 32 trees, or 23%, exhibited multiple defects (not shown).

TREE CONDITION RATING - The Tree Condition Rating (CR) is used to evaluate the mechanical stability of the entire tree at the time of inspection. The CR is based on the extent and severity of tree structural defects and how they affect the mechanical stability of the tree. There are four possible tree ratings. They are Good, Fair, Poor and Dead. They are described below:
Good = no major structural defects; tree is mechanically stable.
Fair = one or more structural defects, mostly minor, which are hazardous but with proper treatment can be mitigated; tree is mechanically stable.
Poor = one of more structural defects, mostly major, which are hazardous and beyond mitigation by treatment; tree is mechanically unstable.
Dead = tree is non-living and demonstrates evidence of major structural failure; tree is hazardous and mechanically unstable.

TABLE 6: Tree Condition Rating

Description	# of Trees	% of Population
Good	07	22%
Fair	09	28%
Poor	16	50%
Dead	00	00%
Total	32	100%

Summary: According to survey results 50% of the total tree population (16 trees) was assigned a Fair or better Condition Rating; some have minor structural defects but all are mechanically stable. Findings also indicate the presence of 16 trees assigned a Poor or worse condition rating; all have serious structural defects and are mechanically unstable.

PART 2. FINDINGS – PARMENTER ROAD

<u>RECOMMENDATIONS:</u> Five actions are proposed for the Parmenter Road tree population. They include: Sanitation Pruning, Monitoring, Removal, No Action and Sanitation Pruning/Monitoring. They are described below:

No Action = no action needed at this time.
Monitoring = inspect tree annually (August-September) to assess change in tree's mechanical stability.
Sanitation Pruning = eliminate deadwood, broken branches and stubs by pruning.
Sanitation Pruning/Monitoring = conduct annual tree inspection after sanitation pruning has been completed.
Removal = remove tree.

TABLE 7: Recommendations

Description	# of Trees	% of Total
No Action (NA)	05	16%
Monitor (M)	02	06%
Sanitation Pruning (PR)	06	19%
PR/Monitor (PR/M)	03	09%
Removal (REM)	16	50%
Total	32	100%

Summary: Findings show there are 16 (50%) mechanically unstable trees which cannot be mitigated by arboricultural treatment. It's recommended they be removed by felling. There are also 9 trees with minor structural defects, mostly deadwood, making them unsafe. The action calls for eliminating their hazardous nature by sanitation pruning. The rest of the tree population calls for either no action (5 trees; 16%) or an annual inspection to monitor (5 trees; 16%) any change in their Condition Rating.

IMPORTANT NOTE: There are 43 trees located on private property along a heavily wooded section of Parmenter Road from the northern edge of Sudbury Reservoir to Pine Hill Drive. The GPS coordinates for this stretch is as follows: N 41°20.56' x W 71°30.25' to N 41°20.14' x W 71°30.22'. They are a mix of White pine (23 trees) and Red and White oak (19 trees). They are not very large in trunk girth (most under 80") and most average about 30 to 50 feet in height. But most trees have dead branches in their crown that overhang the roadway. Vehicles would be most at risk from the failure of these trees.

Photographic evidence of major findings (i.e., road conditions, tree structural defects, recommendations, etc.,) are presented in the next section of this report.

<div align="center">

END OF THIS SECTION

</div>

Part 2. Findings Parmenter Road Photo Interpretation
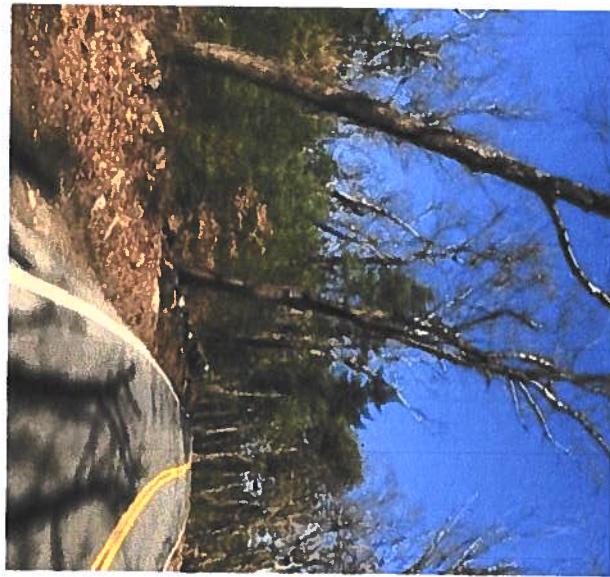
Survey identified 43 hazardous trees located on private property with the potential to impact targets on Parmenter Road.

Part 2. Findings Parmenter Road Photo Interpretation

16 trees, or 50% of the population, have serious structural defects, are unsafe and recommended for removal. Left: #31 White pine. Center: #6 Red oak. Right: #25 White oak

Part 2. Findings Parmenter Road Photo Interpretation

11 trees, or 34% of the population, like these trees have deadwood that require either santitation pruning or future inspection to monitor their condition.

PART 2. FINDINGS – PINE HILL ROAD

SPECIES: The species composition and number of trees per species in the Pine Hill Road tree population is itemized by common and Latin name below:

TABLE 1: Species Composition

Common Name	Latin name	# of Trees	% of Total
Red cedar	Juniperus virginiana	01	00.5%
White pine	Pinus strobus	03	03.0%
White ash	Fraxinus Americana	04	03.0%
Pignut hickory	Carya glabra	07	06.0%
White oak	Quercus alba	09	07.0%
Red maple	Acer rubrum	28	23.5%
Norway maple	Acer platanoides	30	25.0%
Red oak	Quercus rubra	37	32.0%
Total		119	100.0%

Summary: Survey results indicate there are a total of 119 trees growing along Pine Hill Road. This total is spread among eight tree species. Of this number, six are deciduous species and two are evergreen. The Red oak (37 trees), Norway maple (30 trees) and Red maple (28 trees) comprise 80% of the tree population.

TREE SIZE: Tree size can be useful in assessing the general stage of development of individual trees as well as the entire tree stock. Tree height and crown spread are also important for evaluating potential property damage associated with failing trees or their parts. Tables 2, 3, and 4 show results for tree trunk circumference, height and crown spread.

TABLE 2: Tree Trunk Circumference

Size Class In Inches	# of Trees	% of Total	Age Class
<20"	00	00%	Juvenile
20 – 60"	45	38%	Juvenile
61 – 100"	62	52%	Maturing
101 – 140"	10	08%	Mature
≥141"	02	02%	Post-Mature
Total	119	100%	

Summary: Figures show that developing trees dominate the Pine Hill Road tree population. They are trees measuring under 101" in girth (107 trees; 90%). Also, there are 12 trees with a trunk circumference over 101". They constitute the oldest members of the tree stock. The largest recorded trunk girth at 180" was a Red oak located at 74 Pine Hill Road.

PART 2. FINDINGS – PINE HILL ROAD

TABLE 3: Tree Height

Height Class In Feet	# of Trees	% of Total
≤30'	19	16%
31 – 50'	95	80%
51 – 70'	05	04%
>70'	00	00%
Total	119	100%

Summary: Ninety-six percent (114 trees) of the total tree count on Pine Hill Road is under 51' in height. Only 5 fives are taller. The tallest trees in the population measure 60' in height. They are Pignut hickories.

TABLE 4: Average Crown Spread

Canopy Spread in Feet	# of Trees	% of Total
≤40'	110	92%
41 – 60'	09	08%
61 – 80'	00	00%
Total	119	100%

Summary: While many trees on this road are tall, few are truly wide-spreading. Only 9 out of 119 have crowns greater than 41' in length. The widest spreading crown of any tree in this group was 50'. Close growing quarters and fierce competition for limited resources have definitely influenced tree crown shape and width along this road.

TREE FALL ZONE: The potential area in square feet that could be impacted should the tree fail or topple from the base is defined as the Tree Fall Zone (TFZ). It is used to help evaluate targets at risk of injury or damage near the tree. The TFZ is calculated by multiplying the tree height by tree average crown spread (TH x SPR = TFZ).

TABLE 5: Tree Fall Zone

TFZ in Square Feet	# of Trees	% of Total
≤1,000	22	18%
1,001 – 2,000	84	71%
2,001 – 3,000	13	11%
>3,000	00	00%
Total	119	100%

Summary: What's significant about Table 5 figures is the fact that there are not may trees with very large TFZ's. The tree recording the largest, at 3,000sf, is a Red oak at 74 Pine Hill Road. Interesting note is that while Pine Hill Road is rural in character it is more developed than Parkerville and Parmenter Roads. As a result, there are more at-risk targets like utilities and driveways than on the other roads.

PART 2. FINDINGS – PINE HILL ROAD

STRUCTURAL DEFECTS – Only major structural defects affecting the mechanical integrity of the tree were recorded during the survey. They were classified by their location on major tree part- root, trunk, and crown. Four major structural defects were identified on trees along Edgewood Road. They are: deadwood (DW), trunk-root canker and/or cavity (TC) and co-dominant or multi-stem trunked trees (COD). The deadwood classification includes five values to more accurately portray the percentage of dead, dying, diseased, broken and missing branches in the tree crown (see Appendix B. Legend). The values are: DW1, DW2, DW3, DW4 and DW5 with the percentage and, therefore, the extent and severity of deadwood increasing with the increase in number. In some cases, trees were found to have more than one, or multiple defects. For statistical purposes each of the multiple defects were recorded separately in the appropriate category. This recording procedure results in more total defects than total trees and the sum of all defect categories exceeding 100%. This is not an error. The key is to remember these results are based on the number of structural defects found in the tree population and not on a per tree basis. Finally, when no defect was discovered, the tree was assigned the value 'None'.

TABLE 6: Structural Defects

Description	# of Trees	% of Total
DW1	31	26.0%
DW2	10	08.0%
DW3	07	06.0%
DW4	09	08.0%
DW5	01	00.5%
TC	27	23.0%
COD	03	02.5%
NONE	40	37.0%

Summary: The good news is that 81 trees, or 71% of the tree pool on Pine Hill Road had no (NONE) or only minor structural defects (DW1 + DW2). But there were 17 trees (14.5%), by definition, with more than 20% deadwood (DW3+DW4+DW5). Also, there were 27 trees that exhibited stem cavities or cankers (TC). Most were located at the base or middle of the tree trunk with some more serious than others. Finally, less than 10% of the tree pool (10 trees) exhibited multiple defects (not shown).

TREE CONDITION RATING - The Tree Condition Rating (CR) is used to evaluate the mechanical stability of the entire tree at the time of inspection. The CR is based on the extent and severity of tree structural defects and how they affect the mechanical stability of the tree. There are four possible tree ratings. They are Good, Fair, Poor and Dead. They are described below:

Good = no major structural defects; tree is mechanically stable.

Fair = one or more structural defects, mostly minor, which are hazardous but with proper treatment can be mitigated; tree is mechanically stable.

Poor = one of more structural defects, mostly major, which are hazardous and beyond mitigation by treatment; tree is mechanically unstable.

Dead = tree is non-living and demonstrates evidence of major structural failure; tree is hazardous and mechanically unstable.

PART 2. FINDINGS – PINE HILL ROAD

TABLE 6: Tree Condition Rating

Description	# of Trees	% of Population
Good	73	62.0%
Fair	20	16.5%
Poor	25	21.0%
Dead	01	00.5%
Total	119	100.0%

Summary: According to survey results 78% of the total tree population (93 trees) was assigned a Fair or better Condition Rating; some have minor structural defects but all are mechanically stable. Findings also indicate the presence of 26 trees assigned a Poor or worse condition rating; all have serious structural defects and are mechanically unstable.

RECOMMENDATIONS: Five actions are proposed for the Pine Hill Road Road tree population. They include: Sanitation Pruning, Monitoring, Removal, No Action and Sanitation Pruning/Monitoring. They are described below:

No Action = no action needed at this time.
Monitoring = inspect tree annually (August-September) to assess change in tree's mechanical stability.
Sanitation Pruning = eliminate deadwood, broken branches and stubs by pruning.
Sanitation Pruning/Monitoring = conduct annual tree inspection after sanitation pruning has been completed.
Removal = remove tree.

TABLE 7: Recommendations

Description	# of Trees	% of Total
No Action (NA)	40	34%
Monitor (M)	10	08%
Sanitation Pruning (PR)	43	36%
PR/Monitor (PR/M)	00	00%
Removal (REM)	26	22%
Total		100%

Summary: Findings show there are 26 (22%) mechanically unstable trees which cannot be mitigated by arboricultural treatment. It's recommended they be removed by felling. There are also 43 trees with minor structural defects, mostly deadwood, making them unsafe. The action calls for eliminating their hazardous nature by sanitation pruning. A total of 40 trees (34%) are problem free, mechanically stable and require no action at this time.
IMPORTANT NOTE: There are 23 trees located on private property along a heavily wooded section of Pine Hill Road from Nichols Street to Clemmons Street. They are a mix of White and Red oak and White Pine. They are not very large in trunk girth (most under 80"). They also average about 30-50 feet in height. But most trees have dead branches that overhang the roadway. Vehicles would be most at risk from the failure of these trees.
Photographic evidence of major findings (i.e., road conditions, tree structural defects, recommendations, etc.,) are presented in the next section of this report.

<div align="center">END OF THIS SECTION</div>

Part 2. Findings Pine Hill Road Photo Interpretation
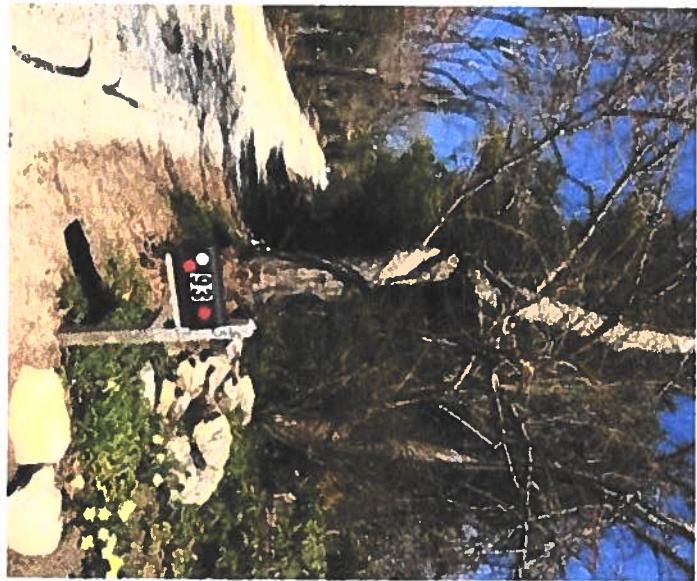
26 trees, or 22% of the population, are unsafe and recommended for removal.
Left: #24 Red maple. Right: #72 Norway maple.

46

Part 2. Findings Pine Hill Road Photo Interpretation

Trunk cavities were recorded on 27 of the 119 trees on Pine Hill Road. Some were very serious and led to the tree's being recommended for condemnation.
Left: #34 White oak. Center: #35 & #36 Red maple. Right #92Norway maple

Part 2. Findings Pine Hill Road Road Photo Interpretation

Many dead trees and those with basal trunk cavities are tall and wide enough to pose a danger to utilities located on both sides of the roadway if they failed.

DATA CODE	COMMON NAME	GENUS	SPECIES
AE	American Elm	Ulmus	americana
AP	Common Apple	Malus	X domestica
BC	Black Cherry	Prunus	serotina
BS	Colorado Blue Spruce	Picea	glauca
CB	Sweet or Cherry Birch	Betula	lenta
CP	Callery Pear	Pyrus	calleryana
JV	Red cedar	Juniperus	virginiana
NM	Norway Maple	Acer	platanoides
NS	Norway Spruce	Picea	abies
PH	Pignut Hickory	Carya	glabra
PO	Pin Oak	Quercus	palustris
RC	Red Cedar	Juniperus	virginiana
RM	Red Maple	Acer	rubrum
RO	Red Oak	Quercus	rubra
SM	Sugar Maple	Acer	saccharum
WA	White Ash	Fraxinus	americana
WO	White Oak	Quercus	alba
WP	Eastern White Pine	Pinus	strobus

APPENDIX B. LEGEND FOR USE WITH APPENDIX C

Column 1. Address showing nearest road address or special marker (service pole, etc.,) to numbered tree.

Column 2. GPS. Global position system coordinates of numbered tree (latitude and longitude).

Column 3 & 4 TID/SPECIES. Showing tree identification number and two letter tree identification code. See Appendix A. for complete list of specie codes.

Column 5. TRC. Tree trunk circumference in inches as measured at 54" above base of tree.

Column 5. HT. Tree height in feet as measured from bottom to top of tree.

Column 7. SPR. Average crown spread of tree. Calculated by taking the sum of the canopy length in two directions (N-S and E-W) and dividing by 2.

Column 8. TFZ. Tree Fall Zone. The potential area in square feet that could be impacted should the tree fail or topple from the base. The TFZ is calculated by multiplying the tree height by tree average crown spread (TH x SPR = TFZ).

Column 8. CR. Tree Condition Rating. The Tree Condition Rating (CR) is used to evaluate the mechanical stability of the entire tree at the time of inspection. The CR is based on the extent and severity of tree structural defects and how they affect the mechanical stability of the tree. There are four possible tree ratings. They are described below:
Good = no major structural defects; tree is mechanically stable.
Fair = one or more structural defects, mostly minor, which are hazardous but with proper treatment can be mitigated; tree is mechanically stable.
Poor = one of more structural defects, mostly major, which are hazardous and beyond mitigation by treatment; tree is mechanically unstable.
Dead = tree is non-living and demonstrates evidence of major structural failure; tree is hazardous and mechanically unstable.

Column 10. TARGET. Any object within the TFZ vulnerable to damage or injury should a tree part of the entire tree fail. W=utility infrastructure; R=road right of way; SP=utility service pole; SMS=speed monitor signal.

Column 11. DEFECT. Finding of the major tree structural defect(s) discovered during survey. See report for full description of each structural defect.

Column 12. Recommendation. REC. Consultant's recommended action for each tree. Four options are proposed based on findings. They are: NA=No action; PR=prune to mitigate; M= monitor tree via routine inspection; REM=tree removal.

EDGEWOOD ROAD

TREE EVALUATION MAY 2021

C1 ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
Heading NE	42.273122 x -71.505893	1	PH	90	55	40	2200	U-R	N	G	NA
#61/ P22		2	PH	66	60	30	1800	U-R	DW4	P	REM
#59/P22		3	WA	50	40	10	400	R	DW5	D	REM
#41	42.274402 x -71.506442	4	RO	130	50	40	2000	U-R	DW2	F	PR
#41-37		5	RO	90	50	40	2000	U-R	N	G	NA
#37-31		6	PH	54	35	20	700	R	TC/DW4	P	REM
#37-31	42.276653 x -71.506466	7	PH	75	35	20	700	R	TC/DW4	P	REM
#37-31		8	PH	48	35	20	700	R	TC/DW5	D	REM
#31-25		9	RO	75	50	40	2000	U-R	COD/DW1	G	PR
#31-25		10	PH	39	25	20	500	R	TC	D	REM
#31-25	42.277431 x -71.508662	11	WO	84	50	20	1000	U-R	DW4	P	REM
#25		12	WO	60	40	30	1200	U-R	N	G	NA
#25		13	WA	72	50	40	2000	U-R	DW1	G	NA
#19	42.277703 x -71.509364	14	WA	48	50	20	1000	U-R	TC	P	REM
#19-11		15	PH	63	70	40	2800	U-R	DW1	G	PR
#19-11		16	PH	48	50	30	1500	U-R	TC/DW1	F	M-PR
#19-11	42.277729 x -71.509852	17	RO	69	50	20	1000	U-R	TC	D	REM
#19-11		18	WA	48	65	40	2600	U-R	TC/DW1	F	M-PR
#19-11		19	WA	60	60	40	2400	U-R	DW1	G	PR
#19-11		20	PH	60	60	30	1800	U-R	DW1	G	PR
#7		21	WP	108	70	40	2800	U-R	N	G	NA
#7/P4	42.278131 x -71.510507	22	WO	84	45	30	1350	U-R	DW4	P	REM
#7		23	PH	32	30	30	900	U-R	N	G	NA
#7		24	PH	30	30	30	900	U-R	DW1	G	PR
#7		25	PH	32	30	30	900	U-R	N	G	NA
#7		26	PH	30	30	30	900	U-R	N	G	NA
#7		27	RO	45	50	30	1500	U-R	N	G	NA
#7-5		28	RO	63	50	30	1500	R	N	G	NA
#7-5		29	WO	68	50	40	2000	R	DW1	G	PR
WELLSLN		30	WP	39	60	40	2400	R	N	G	NA
WELLSLN	42.278555 x -71.511127	31	PH	75	70	40	2800	R	N	G	NA

EDGEWOOD ROAD

ADDRESS Heading SW	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
#8	42.278421 x - 71.510829	32	PH	51	60	50	3000	U-R	N	G	NA
#8		33	WO	75	50	40	2000	U-R	DW1	G	PR
#8		34	WO	45	35	30	1050	U-R	N	G	NA
#8/P7-8		35	RO	76	50	30	1500	U-R	DW1	G	PR
#8-22/P7-8		36	PH	30	40	30	1200	U-R	TC/DW3	P	REM
#8-22/P7-8		37	WO	90	60	30	1800	U-R	N	G	NA
#8-22/P7-8		38	RO	150	55	40	2200	U-R	COD/DW1	F	PR
#8-22/P7-8		39	RO	132	60	50	3000	U-R	DW1	G	PR
#22-26/P10-11		40	RO	108	60	40	2400	U-R	TC	F	M
#22-26	42.277263 x - 71.508633	41	RO	99	60	30	1800	U-R	TC/DW3	P	REM
#22-26		42	RO	108	60	40	2400	U-R	DW1	G	PR
#22-26		43	RO	90	50	35	1750	U-R	N	G	NA
#26-38		44	RO	108	60	30	1800	U-R	DW1	G	PR
P13	42.276671 x - 71.507259	45	RM	72	50	25	1250	U-R	DW4	P	REM
#50		46	RM	33	35	30	1050	R	N	G	NA
#50-52		47	RO	108	50	50	2500	U-R	N	G	NA
#50-52		48	RO	75	45	40	1800	U-R	DW1	G	PR
#50-52	42.274211 x - 71.506146	49	RO	126	50	25	1250	U-R	TC/DW3	P	REM
#50-52		50	RO	60	60	30	1800	U-R	N	G	NA
#50-52	42.273823 x - 71.506047	51	RO	60	45	35	1575	U-R	TC/DW3	P	REM
#50-52		52	RO	48	40	40	1600	R	N	G	NA
#50-52	42.273727 x - 71.506034	53	RO	90	60	40	2400	U-R	TC	F	M
#50-52		54	RO	120	55	40	2200	U-R	TC/DW3	P	REM
#50-52		55	RO	63	50	25	1250	U-R	DW1	G	PR
#50-52		56	RO	46	55	25	1375	U-R	COD/DW1	F	PR
#50-52		57	RO	66	55	25	1375	U-R	DW1	G	PR
#50-52		58	RO	75	45	30	1350	U-R	DW3	F	PR
#50-52	42.273314 x - 71.505848	59	RO	46	40	30	1200	U-R	DW4	P	REM
#50-52	42.273239 x - 71.505757	60	RO	133	50	50	2500	U-R	TC	G	M

C2 — MARLBORO ROAD (Heading SE, Sears Ave)

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
166/P5-7	42.327085 x -71.536085	1	RO	75	40	30	1200	W-R	TC	F	M
164/P8-12		2	RO	90	35	50	1750	W-R	N	G	NA
160	42.323757 x -71.531934	3	RO	90	40	40	1600	W-R	DW5	D	REM
158		4	RO	40	35	30	1650	W-R	N	G	NA
140		5	NM	45	35	30	1050	W-R	DW2	F	PR/M
P12		6	NS	66	50	40	2000	W-R	TC	F	M
108		7	RM	54	30	40	1200	W-R	N	G	NA
106	42.320207 x -71.530271	8	CP	51	25	30	750	W-R	TC	F	M
106		9	CP	48	30	30	900	W-R	TC/DW4	P	REM
106		10	CP	48	30	30	900	W-R	TC/DW4	P	REM
104		11	CP	45	30	30	900	W-R	DW1	G	PR/M
104		12	CP	45	25	30	750		N	G	NA
104		13	CP	29	25	25	625	W-R	TC	P	REM
P35-45	Bridge Span 42.319624 x -71.530214	14	WA	54	30	40	1200	W-R	DW4	P	REM
P35-45	42.319341 x -71.530587	15	RO	105	40	50	2000	W-R	DW4	P	REM
P35-45	42.318682 x -71.530461	16	RM	60	60	40	2400	W-R	DW2	F	PR/M
90/P50		17	RO	80	40	50	2000	W-R	N	G	NA
1 LEDGE RD	42.3156061 x -71.531097	18	RO	90	45	50	2250	W-R	DW4	P	REM
1 LEDGE RD		19	RO	60	40	40	1600	W-R	DW2	F	PR
1 LEDGE RD		20	RO	60	40	45	1800	W-R	DW2	F	PR
1 LEDGE RD		21	RO	60	40	40	1600	W-R	DW1	G	PR
1 LEDGE RD		22	RO	60	40	40	1600	W-R	DW2	G	PR
1 LEDGE RD		23	RO	60	40	40	1600	W-R	DW2	F	PR
2 LEDGE RD	42.314364 x -71.531293	24	RO	99	25	30	750	W-R	DW4	P	REM
P54	42.314410 x -71.531228	25	RO	99	35	40	1400	W-R	DW4	P	REM
P58	42.312432 x -71.531739	26	RO	75	60	50	3000	W-R	DW4	P	REM
St Mark's SE 64-44/P58		27	RO	85	50	40	2000	W-R	TC	P	REM

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
64-44/P58	42.311937 x -71.531818	28	WO	35	30	40	1200	W-R	DW4	P	REM
64-44/P58		29	WO	60	45	40	1800	W-R	DW2	F	PR
64-44/P58-59		30	WA	60	30	30	900	W-R	DW4	P	REM
64-44/P58-59		31	WO	72	50	50	2500	W-R	DW4	P	REM
64-44/P58-59		32	RO	60	50	35	1750	W-R	TC/DW3	P	REM
64-44/P58-59		33	WO	72	50	40	2000	W-R	DW2	P	PR
64-44/P58-59		34	WO	51	40	40	1800	W-R	TC/DW3	P	REM
64-44/P58-59		35	RO	75	45	40	1800	W-R	DW1	G	PR
36	42.310816 x -71.531613	36	RO	60	45	40	1800	W-R	DW2	G	PR
36		37	RO	105	50	55	2750	W-R	DW2	G	PR
P59		38	RO	90	20	30	600	R	TC/DW3	P	REM
34		39	WO	75	50	40	2000	W-R	DW1	G	PR
34		40	WO	72	45	40	1800	W-R	DW1	G	PR
34	42.310476 x -71.531492	41	WO	60	40	40	1600	W-R	DW4	P	PR
34/P58		42	WO	90	40	40	1600	W-R	DW1	G	PR
St Mark's SW	West Campus Entrance	43	NM	15	20	20	400	R	N	G	NA
44-Library	42.307880 x -71.530331	44	RO	48	40	40	1600	W-R	N	G	NA
44-Library		45	RO	45	35	35	1225	W-R	DW1	G	PR
44-Library	42.307688 x -71.530247	46	WA	36	20	25	500	R	COD/TC	P	REM
44-Library		47	RO	72	50	45	2250	R	DW1	G	PR
44-Library		48	RO	72	50	40	2000	R	DW1	G	PR
44-Library		49	RO	72	40	40	1600	R	N	G	NA
44-Library	End St Mark's School SE	50	CB	24	20	20	400	R	N	G	NA
LIBRARY SW	42.370192 x -71.529962	51	WA	30	25	30	750	R	DW4	P	REM
Heading NE	Main St to Soccer Complex	52	NM	40	20	25	500	R	TC	P	REM
St Mark's	42.312243 x -71.5317541	53	RM	120	40	50	2000	W-R	COD/TC	P	REM
St Mark's	Track	54	NM	64	40	40	1600	W-R	DW1	G	PR
St Mark's/P57	Track	55	WA	60	35	35	1225	W-R	DW1	G	PR
St Mark's/P57	Track	56	NM	66	40	30	1200	W-R	DW1	G	PR
St Mark's /P57	Track	57	RO	72	40	40	1600	W-R	DW1	G	PR
65-67	Track	58	RM	48	40	30	1200		N	G	NA

ADDRESS	GPS (Track)	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
P65-67		59	NM	45	40	35	1400		N	G	NA
65	42.313825 x -71.531382	60	RM	51	40	35	1400		DW5	D	REM
65		61	RO	78	40	40	1600		DW1	G	PR
67		62	RO	75	40	40	1600		DW1	G	PR
67		63	RO	60	40	40	1600		DW2	G	PR
School St	42.315120 x -71.531029	64	RO	120	50	50	2500		DW1	G	PR
77-109		65	RO	120	40	60	2400		COD/DW4	P	REM
77-109		66	RO	99	40	50	2000		DW3	F	PR/M
77-109	42.316600 x -71.530692	67	RO	132	40	60	2400		TC/DW3	P	REM
Bridge Span	42.318450 x -71.530417										
109 Rd Split	42.320725 x -71.530217										
Acre Bridge Rd	42.323458 x -71.531479										
P1584	42.327914 x -71.534570	68	AE	45	40	30	1200		N	G	NA
Opp Sears Rd	42.327914 x -71.537200										

C3 OREGON ROAD

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGETS	DEFECTS	CR	REC
Heading NW	Toward Ashland										
Oregon Club/117	42°17.04' x -71°29.42'										
105/P23		1	RO	64	65	45	2925	W-R	TC/DW1	F	PR
105/P22		2	RO	105	65	60	3900	W-R	N	G	NA
P21-20	42°17.04' x -71°29.30'	3	RO	111	75	40	3000	W-R	DW1	G	PR
P20-19	42°17.04' x -71°29.19'	4	AE	78	40	30	1200	W-R	COD	F	PR
89/P19-18		5A	BC	8	20	10	200	R	DW4	P	REM
89/P19-18		5B	AE	45	30	30	900	W-R	DW4	P	REM
85/P18-17	Private Property	6	SPRUCE(9)	40	60	40	2400	W-R	COD	G	PR
P18-17	42°17.02' - 71°29.15'	7	PH	16	20	20	400	R	DW5	D	REM
P18-17	42°17.02' - 71°29.15'	8	BS	16	15	20	300	R	DW5	D	REM
P12-10		9	PH	63	60	65	3900	W-R	N	G	NA
P12-10		10	PH	43	35	40	1400	W-R	N	G	NA
47/P11-10		11	PH	66	60	50	3000	W-R	DW1	P	PR
P11-10		<12	SAPLINGS(7)	<12	<20	<20	200	R	TC	P	REM
49/P7	42°17.06' - 71°29.05'	<12	SAPLINGS(3)	<12	<20	<20	200	R	VOL	P	REM
37											
15/P3											
Salem Road	Heading SE										
T-FOREST	42°17.05' - 71°29.49'	12	PH	60	45	25	1125	W-R	DW5	D	REM
10	42°17.04' - 71°28.50'	13	PH	45	35	30	1050	R	DW5	P	REM
10		13C	AE	48	35	50	1750	W-R	DW4	P	REM
10		13B	AE	42	35	70	2450	W-R	DW4	P	REM
24	42°17.04' - 71°28.55'	14	RO	210	55	60	3300	W-R	COD/DW4	P	REM
24		15	RO	42	50	50	2500	W-R	COD/DW4	F	REM
T-FOREST/opp19	42°17.04' - 71°28.56'	16	RO	126	50	30	1500	W-R	COD/DW3	P	REM
End T-FOREST	42°17.05' - 71°28.58'	17	PH	40	35	15	525	W-R	DW5	D	REM
OPP37		18	RM	99	45	30	1350	W-R	COD/DW3	P	REM
OPP37		19	WO	48	45	45	1350	W-R	N	G	NA
OPP43	42°17.04' - 71°29.01'	20	AE	45	35	40	1400	W-R	DW1	F	PR
OPP43	42°17.05' - 71°29.01'	21	RM	36	35	30	1050	W-R	DW1	G	PR

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGETS	DEFECTS	CR	REC
OPP43	42°17.05' - 71°29.02'	22	RO	93	50	35	1750	W-R	DW4	P	REM
44		23	RO	63	40	35	1400	W-R	DW1	G	PR
44	42°17.06' - 71°29.03'	24	PH	102	45	35	1575	W-R	COD	G	M
		25	PH	72	55	30	1650	W-R	TC	G	M
48		26	PH	66	60	30	1800	W-R	DW1	G	PR
88	42°17.04' - 71°29.17'	27	WO	153	60	60	3600	W-R	TC/DW1	F	M/PR
96	42°17.04' - 71°29.19'	28	RO	144	70	60	4200	W-R	DW1	G	PR
96		29	WO	96	60	50	3000	W-R	N	G	NA
98	42°17.03' - 71°29.21'	30	WO	84	40	30	1200	W-R	DW1	G	PR
P20	South Wilson Court	31	WO	74	40	35	1400	W-R	DW1	G	PR
P20		32	WO	66	40	30	1200	W-R	TC/DW4	P	REM
North West											
117/P25 P26-30	Oregon Club Private Property		NS(7- private) SAPLINGS	42	40	20	800	W-R	VOL	F	M
150	near Oak Street	33	AE	60	40	35	1400	W-R	DW4	P	REM
208	before Independence Lr	34	WO	75	55	30	1925	W-R	TC	F	REM
216	after Independence Ln	35	RO	111	35	30	1050	W-R	TC/COD	D	REM
224	42°16.55' - 71°30.02'	36	PH	72	40	30	1200	W-R	DW5	P	REM
opp58	before Kennel Club	37	WO	84	50	50	2500	W-R	DW4	P	REM
opp58	before Kennel Club	38	WO	84	50	30	1500	W-R	N	G	NA
at Fire Hydrant		39	BC	36	30	20	600	R	DW4	P	REM
P29		40	WP	135	70	30	2100	W-R	DW2	G	PR
P28		41	RM	30	40	20	800	R	TC	P	REM
54		42	RO	72	60	20	1200	W-R	DW5	D	REM
54		43	RO	72	45	40	1800	W-R	DW5	P	REM
P26		44	BC	48	50	40	2000	W-R	DW1	F	PR
P26-25	42°16.52' - 71°30.12'	45	BC	20	45	30	1350	W-R	TC	P	PR
Garrison Lane		46	PH	66	45	20	900	W-R	DW5	D	REM
OPP52	Tagged/Town Removal	47	PH	75	60	30	1800	W-R	TC/DW3	P	REM
OPP52		48	PH	63	60	30	1800	W-R	TC/DW3	P	REM
opp48	42°16.51' - 71°30.18'	49	PH	96	50	30	1500	W-R	TC/DW4	P	REM
47	Kennel Club	50	WA	162	45	40	1800	W-R	DW5	D	REM
P8 1/2		51	RO	12	60	40	2400	W-R	DW1	G	PR

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGETS	DEFECTS	CR	REC
OPP24/P13		52	BC	30	20	20	400	R	TC	P	REM
27-25	Tagged/Town Removal	53	RO	30	20	30	600	W-R	TC/DW4	P	REM
19		54	WP	48	55	60	3300	W-R	DW1	G	PR
19		55	PH	45	25	30	750	W-R	DW4	P	REM
Rte 90	HEADING NW	56	WO	66	35	40	1400	W-R	N	G	NA
10	North-Stonebrook Crt	57	BC	72	40	30	1200	R	TC	F	M
12		58	RM	75	45	40	1800	W-R	TC/DW3	P	REM
14	42°16.45' - 71°30.43'	59	RO	132	65	30	1950	W-R	DW2	F	PR
20/P12		60	RO	96	60	30	1800	W-R	TC	F	M
20		61	RO	141	65	30	1950	W-R	DW1	G	PR
24/P13		62	WP	60	40	20	800	W-R	DW4	P	REM
24/P13		63	RO	204	90	60	5400	W-R	TC/DW2	F	M/PR
26		64	RO	90	60	30	1800	W-R	DW1	G	PR
30		65	RO	84	60	30	1800	W-R	DW2	G	PR
30		66	RO	60	50	40	2000	W-R	DW1	G	PR
34		67	PH	45	40	20	800	W-R	N	G	NA
44		68	AE	60	40	40	1600	W-R	N	G	NA
Across	Powder Mill Lane	69	RO	90	45	40	1800	W-R	DW1	G	PR
48		70	PH	70	60	30	1800	W-R	N	G	NA
48		71	PH	48	40	30	1200	R	N	G	NA
48		72	PH	39	40	30	1200	R	N	G	NA
48	42°16.51' - 71°30.18'	73	RO	75	40	30	1200	W-R	TC	P	REM
48		74	RO	75	40	30	1200	W-R	DW4	P	REM
48		75	WA	36	25	30	750	R	DW5	P	REM
48		76	RO	108	60	40	2400	W-R	DW5	P	REM
50		77	WA	63	50	20	1000	R	DW5	P	REM
52	Garrison Lane	78	RO	72	40	30	1200	W-R	DW1	F	PR

C4 — PARKERVILLE ROAD — MAIN ST -RTE 30

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
Heading SW											
1	42.305623 x -71.539355	1	SM	24	20	20	400	R	DW2	F	PR
1/oppP94		2	WA	54	40	20	800	R	N	G	NA
9	42.304567 x -71.539178	3	WA	45	40	20	800	R	N	G	NA
P94		4	WA	66	30	30	900	W-R	COD/DW4	P	REM
11	42.304427 x -71.539115	5	WP	100	65	40	2600	W-R	DW1	G	PR
		6	RM	60	50	20	1000	W-R	DW1	G	PR
		7	RM	50	50	20	1000	W-R	COD/DW5	P	REM
17/P91	42.302654 x -71.538849	8	RM	90	40	40	3200	W-R	DW1	G	PR
		9	WP	90	80	30	1500	W-R	DW1	G	NA
		10	PO	36	50	30	1500	W-R	N	F	NA
		11	WA	64	50	40	2000	W-R	COD	G	PR
		12	WP	120	80	40	3200	W-R	N	G	NA
17/P90	42.302179 x -71.538772	13	WP	130	70	40	2800	W-R	DW4	P	REM
17	42.301167 x .71.538555	14	WP	105	70	40	2800	W-R	TC/DW4	P	REM
17/P89		15	WA	33	35	20	700	R	DW2	F	PR
Heading SE											
12/oppP87	42.301231 x -71.538461	16	WP	96	70	25	1750	W-R	DW1	G	PR
12		17	RM	90	40	30	1200	R	TC/DW4	P	REM
14	42.300366 x -71.538275	18	NM	63	40	30	1200	R	N	G	NA
14	42.300606 x -71.538284	19	WP	90	50	30	1500	R	N	G	NA
14		20	WP	108	50	30	1500	R	COD	G	NA
14		21	WP	75	50	30	1500	R	N	G	NA
14		22	WP	72	45	25	1125	R	DW1	G	PR
16/P85		23	WP	108	80	30	2400	R	COD	G	NA
16		24	WP	90	45	30	1350	W-R	DW2	G	PR
16		25	WP	108	60	30	1800	R	TC	G	M
16	42.300186 x -71.538209	26	RO	81	40	25	1000	R	COD/TC	P	REM
16		27	PH	40	40	25	1000	R	N	G	NA
16		28	WP	90	50	30	1500	R	TC	G	M
16		29	WP	90	50	30	1500	R	N	G	NA
		30	BC	40	40	25	1000	R	N	G	NA

PARKERVILLE ROAD

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
18	42.299957 x -71.538013	31	WP	90	50	30	1500	R	DW1	G	PR
18		32	WP	90	50	30	1500	R	N	G	NA
18		33	WP(4)	8	12	10	120	R	N	G	NA
OPP29		34	NM	18	20	15	300	R	N	G	NA
20/P83	42.299390 x -71.537903	35	WP	105	70	30	2100	W-R	TC	F	M
20		36	WP	90	60	30	1800	W-R	TC	G	NA
20/P82		37	WP	90	70	30	2100	W-R	N	G	NA
22	42.299124 x -71.537804	38	RM	72	20	30	600	W-R	TC/DW3	P	REM
22/P87	42.298886 x -71.537705	39	WO	90	45	30	1350	W-R	DW2	F	PR
24		40	RO	156	70	40	2800	W-R	DW1	G	PR
24/P86		41	RO	105	70	50	3500	W-R	DW1	G	PR
24		42	WO	90	45	40	1800	W-R	COD	G	NA
P86	42.298370 x -71.537496	43	WO	75	40	40	1600	W-R	TC/DW3	P	REM
24		44	WO	72	40	35	1400	W-R	DW2	F	PR
24		45	PH	96	60	30	1800	W-R	DW1	G	PR
24		46	RO	98	70	45	3150	W-R	TC	F	M
OPP39		47	PH	30	35	25	875	W-R	TC	P	REM
	woodlands	48	RO	180	60	30	1800	W-R	DW3	F	PR
	42.297644 x -71.537195	49	RO	75	50	30	1500	W-R	DW5	P	REM
OppSchool		50	PH	72	60	20	1200	W-R	N	G	N
OPP41	42.297475 x -71.537128	51	RO	71	45	30	1350	W-R	DW4	P	REM
28-OPP49		52	RO	81	60	30	1800	W-R	TC/DW4	P	REM
28-OPP49	42.297518 x -71.536911	53	RO	96	60	45	2700	W-R	DW2	F	PR
30-OPP49		54	WO	90	55	40	2200	W-R	DW2	G	PR
30-OPP49		55	RO	75	55	40	2200	W-R	DW1	G	PR
30-OPP49	42.296443 x -71.536796	56	RO	84	50	40	2000	W-R	DW2	G	PR
30/P83		57	WO	36	35	30	1050	W-R	DW1	G	PR
30		58	RO	75	40	35	1400	W-R	DW2	G	PR
P82		59	RO	66	45	40	1800	W-R	N	G	NA
P82		60	RO	50	30	25	875	R	N	G	NA
34		61	WO	90	45	40	1800	W-R	DW1	G	PR
34/P81	42.296249 x -71.536635	62	RO	75	55	35	1925	W-R	N	G	NA
34		63	RO	54	60	30	1800	W-R	N	G	NA

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
34		64	PH	51	50	25	1250	W-R	N	G	NA
34		65	RO	60	50	30	1500	W-R	N	G	NA
P80		66	RO	50	50	30	1250	W-R	DW1	P	REM
	42.295548 x -71.536478	67	RO	48	50	30	1500	W-R	N	G	PR
	42.295190 x -71.536433	68	RO	45	50	40	1600	W-R	DW5	P	REM
P79		69	RO	63	35	30	1050	W-R	TC/DW3	P	REM
P79		70	RO	60	60	30	2400	W-R	TC	G	NA
P79		71	RO	60	60	30	1800	W-R	DW1	G	PR
OPP55	42.294434 x -71.536211	72	RO	40	60	40	2400	W-R	N	G	NA
P78		73	RO	54	50	35	1750	W-R	N	G	NA
		74	WO	60	50	45	2250	W-R	N	G	NA
P73		75	PH	30	40	20	800	W-R	N	G	NA
P72		76	PH	45	40	20	800	W-R	N	G	NA
P71	42.294797 x -71.536141	77	RM	75	50	40	2000	W-R	TC/DW1	F	M/PR
		78	WO	72	40	40	1600	W-R	N	G	NA
GenKnoxRd	42.294638 x -71.536188	79A	WO	90	50	50	2500	W-R	COD	G	NA
Heading NW		79B	WO	108	50	50	2500	W-R	DW1	G	PR
49-59	42.294740 x -71.536147	80	WO	80	30	30	900	R	DW2	F	PR
49-59		81	PH	30	30	20	600	R	N	G	NA
OPP62	42.292953 x -71.536142	82	PH	75	50	40	2000	W-R	DW1	G	PR
65		83	WO	60	50	40	2000	W-R	DW2	G	PR
65		84	RM	93	50	40	2000	W-R	DW1	G	PR
61	42.293410 x -71.536161	85	WO	96	50	40	2000	W-R	DW1	G	PR
61		86	RO	96	60	40	2400	W-R	DW1	G	PR
59	42.293857 x -71.536621	87	RO	66	60	30	1800	W-R	N	G	NA
59		88	RO	99	60	45	2700	W-R	DW2	F	PR
59	42.294326 x -71.536294	89	RO	81	50	30	1500	W-R	DW4	P	REM
59		90	PH	75	60	30	1800	W-R	DW1	G	NA
55	42.294546 x -71.536222	91	RO	108	50	50	2500	W-R	DW2	G	NA
OPP34	42.296223 x -71.536746	92	RO	120	50	50	2500	W-R	TC	F	PR
OPP34/School	SCHOOL/oppP80	93	WP	75	50	40	2000	W-R	N	G	M
OPP34	42.296556 x -71.536774	94	RO	75	50	30	1500	W-R	GALLS	M	NA

PARKERVILLE ROAD

TREE EVALUATION MAY 2021

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
43/P83	42.296884 x -71.536883	95	RO	60	40	30	1200	W-R	DW1	G	PR
43/P84		96	RO	78	50	30	1500	W-R	DW4	P	REM
OPP44		97	RO	72	60	30	1800	W-R	DW2	F	PR
39	42.297818 x -71.537265	98	RO	50	50	30	1500	W-R	TC	P	REM
39		99	RO	66	50	40	1500	W-R	N	G	NA
OPP35/P85		100	RO	66	50	40	2000	W-R	N	G	NA
OPP35/P85		101	RO	72	50	40	2000	W-R	N	G	NA
OPP35/P85		102	RM	72	30	30	900	R	DW5	D	REM
OppP86		103	RO	75	50	40	2000	W-R	N	G	NA
OPP24-20	Woodland/P85-91	104	WP	99	15	50	2000	R	VOL	M	
25	42.300455 x -71.538309	105	WP	93	70	40	2800	W-R	COD/DW1	G	PR
25		106	WP	82	70	35	2450	W-R	N	G	NA
25		107	WP	105	70	40	2800	W-R	COD/DW1	G	PR
25		108	WP	120	70	40	2800	W-R	COD/DW2	F	PR
23/86		109	WP	152	70	50	3500	W-R	DW1	G	PR
23		110	WP	96	70	30	2100	W-R	N	G	NA
23		111	WP	90	60	30	1800	W-R	DW1	G	PR
23		112	WP	78	60	30	1800	W-R	N	G	NA
SPEED SIGN	42.301126 x -71.538585	113	WP	90	70	40	2800	W-R	DW1	G	PR
19		114	WP	105	60	40	2400	W-R	DW2	F	PR
19		115	WP	90	70	35	2450	W-R	DW1	G	PR
19		116	WP	96	60	35	2100	W-R	N	G	NA
19	42.301722 x -71.538690	117	WP	90	50	30	1500	W-R	DW1	G	PR
OPP55		118	WP	120	70	50	3500	W-R	N	G	NA
17	42.302554 x -71.538833	119	WP	99	70	40	2800	W-R	N	G	NA
17		120	WP	108	70	40	2800	W-R	N	G	NA
10	42.303314 x 71.538959	121	WP	120	70	40	2800	W-R	COD/DW1	G	PR
10		122	WP	108	70	45	3150	W-R	COD/DW1	G	NA
10		123	WP	90	60	30	1800	W-R	N	G	NA
10		124	WP	60	30	30	900	W-R	N	G	NA
10	42.304957 x -71.539161	125	WP	108	70	40	2800	W-R	TC/DW3	P	REM
10/P95		126	WP	96	70	40	2800	W-R	N	G	NA

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
Southville Road heading NW to Rte 90 NORTH/P1-West	42.266689 x -71.536526										
OPP225	CAIN CIRCLE	127	RM	90	45	40	1800	R	TC/DW4	P	REM
OPP227/P15	42.266836 x -71.536534	128	RM	42	40	30	1200	W-R	DW1	G	PR
OPP256/P15		129	NM	51	30	30	900	W-R	N	G	NA
P31		130	RM	60	40	40	1600	W-R	N	G	NA
Rte90/Overpass Heading NW	42.275341 x -71.535861										
ALEXCIRC/P43	42.280018 x -71.536859	131	RM	99	30	40	1200	W-R	TC	D	REM
179	42.280114 x -71.536873	132	RM	72	40	40	1600	W-R	TC/DW4	P	REM
179		133	RM	60	40	35	1400	W-R	DW3	F	PR
179		134	RM	30	40	30	1200	W-R	DW4	P	REM
175	42.281249 x -71.537027	135	RM	30	40	30	1200	W-R	DW4	P	REM
175		136	RM	60	40	40	1600	W-R	DW4	P	REM
173	42.282176 x -71.537107	137	RM	72	35	40	1400	W-R	DW5	D	REM
169		138	PH	64	50	40	2000	W-R	N	G	NA
169		139	PH	72	50	40	2000	W-R	N	G	NA
169		140	WO	60	50	45	2000	W-R	TC	F	M
169		141	RO	96	50	50	2250	W-R	DW1	G	PR
165/P53	42.284199 x -71.536575	142	RO	90	50	50	2500	W-R	DW1	G	PR
P56		143	RM	45	40	30	1200	W-R	TC/DW5	P	REM
147		144	RM	70	40	40	1600	W-R	DW4	P	REM
139		145	RO	70	50	40	2000	W-R	DW1	G	PR
139		146	WP	115	70	50	3500	W-R	DW1	G	PR
139		147	RO	60	40	30	1200	W-R	DW5	P	REM
SKYLAR Drive	42.287236 x -71.536062	148	WA	66	40	30	1200	W-R	DW1	G	PR
147	42.287771 x -71.536053	149	WO	90	40	40	1600	W-R	DW1	G	PR
131		150	WO	96	50	40	2000	W-R	DW2	F	PR
129		151	RO	81	50	35	1750	W-R	DW1	G	PR
129		152	RO	36	30	25	750	R	N	N	N
129		153	RO	90	45	40	1800	W-R	DW2	F	PR
129		154	WO	90	40	30	1200	W-R	DW1	G	PR
	42.290088 x -71.536088	155	RM	50	40	30	1200	W-R	DW4	P	REM

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
P67		156	PH	75	70	40	2800	W-R	N	G	N
129		157	PH	60	70	40	2800	W-R	N	G	N
129		158	PH	45	50	30	1500	W-R	TC	F	M
South Rte9	Turnpike Heading SE	159	PH	75	50	40	2000	W-R	N	G	N
124	42.290649 x -71.536129	160	RO	60	40	35	1400	W-R	DW4	P	REM
Woods-SE	42.290458 x -71.536089	161	RM	75	50	40	2000	W-R	COD/DW2	F	PR
OPP65		162	RO	36	40	20	800	W-R	N	G	NA
OPP65		163	RO	42	40	20	800	W-R	DW4	D	REM
OPP65		164	RO	60	50	20	1000	W-R	N	G	NA
P65	42.288718 x -71.536051	165	PH	36	50	20	1000	W-R	DW4	P	REM
OPP129/P64		166	RO	51	50	30	1500	W-R	TC	P	REM
		167	RO	75	50	35	1750	W-R	TC	P	REM
		168	PH	36	50	30	1500	W-R	N	G	NA
		169	PH	60	50	30	1500	W-R	DW1	G	PR
OPP147		170	PH	60	50	30	1500	W-R	N	G	NA
		171	PH	60	50	40	2000	W-R	N	G	NA
150	42.286388 x -71.536168	172	WO	60	50	40	2000	W-R	TC	G	REM
150/P62		173	RO	80	40	35	1400	W-R	TC/DW3	P	REM
150	near Trestle Pass	174	PH	45	50	25	1250	W-R	N	G	NA
150/P61		175	PH	15	50	20	1000	W-R	N	G	N
150/P61		176	WP	90	70	40	2800	W-R	DW1	G	PR
150/P61		177	WO	63	40	35	1400	W-R	DW2	F	PR
156		178	PH	63	40	30	1200	W-R	N	G	NA
SMITHLN	42.284243 x -71.53665	179	PH	39	40	25	1000	W-R	N	G	NA
P48		180	RO	60	35	30	1050	W-R	N	F	M
163-165		181	RO	30	35	25	875	R	TC	F	M
OPP173	42.281341 x -71.537039	182	RO	30	35	25	875	R	TC	F	M
OPP173		183	RO	30	35	25	875	R	TC	F	M
196		184	RO	75	50	35	1750	W-R	TC	F	M
OPP173		185	RM	48	35	30	1050	W-R	N	G	NA
Near Rte 9	42.275697 x -71.535812	186	WO	40	30	40	1200	W-R	TC/DW4	P	REM

PARMENTER ROAD — TREE EVALUATION MAY 2021

C5

ADDRESS	GPS	ROAD TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
West Loop Trail RESERVOIR Heading NW	42°20.00' - 71°30.07'	1	RO	54	50	40	2000	R	TC/DW3	P	REM
"	42°20.01' - 71°30.09'	2	RO	52	50	40	2000	R	TC/DW4	P	REM
"		3	RO	54	50	45	2250	R	TC/DW4	P	REM
"	42°20.01' - 71°30.09'	4	WP	78	50	50	2500	R	TC	F	PR/M
"	42°15.20' - 71°30.10'	5	RO	45	50	30	1500	R	DW4	P	REM
"	42°20.00' - 71°30.04'	6	RO	96	60	45	2700	R	TC	P	REM
"		7	RO	72	40	40	2800	R	TC	P	REM
"	42°20.02' - 71°30.18'	8	RO	42	40	25	1000	R	DW4	P	REM
"	42°20.05' - 71°30.24'	9	WO	30	40	20	800	R	DW4	P	REM
"		10	RO	60	50	30	1500	R	TC/DW3	P	REM
"	42°20.17' - 71°30.22'	11	WP	100	60	40	2400	R	DW1	G	PR
BROADMEADOW Heading SE	42°20.03' - 71°30.21'	12	WO	84	40	30	1200	R	TC	P	REM
	42°19.47' - 71°29.18'	13	RO	84	50	40	2000	R	N	G	NA
		14	RO	76	50	35	1750	N	DW2	F	PR
1/P5	42°19.07' - 71°29.30'	15	PH	52	35	40	1400	W-R	N	G	NA
		16	RO	64	40	30	1200	W-R	N	G	NA
		17	WO	96	50	40	2000	R	DW2	F	PR
OppP4		18	RO	96	60	50	3000	W-R	N	G	NA
OppP4		19	PH	60	50	40	2000	W-R	DW3	F	PR
3/P9		20	RO	210	40	60	2400	W-R	N	F	M
	42°19.44' - 71°29.31'	21	AP	62	35	25	875	R	TC	F	M
	42°19.50' - 71°29.38'	22	RO	97	40	30	1200	W-R	DW2	F	PR
	42°19.50' - 71°29.44'	23	WO	90	40	40	1600	W-R	DW4	P	REM
		24	RO	66	30	30	900	R	TC/DW3	P	REM
	42°19.52' - 71°29.46'	25	WP	120	50	50	2500	W-R	TC	G	M
		26	RO	45	40	25	1000	W-R	DW4	P	REM
	42°19.54' - 71°29.48'	27	WO	36	35	30	1050	W-R	DW4	P	REM
		28	WO	36	35	30	1050	W-R	TC/DW3	P	REM
	42°19.53' - 71°29.49'	29	WP	70	50	40	2000	W-R	TC	P	REM
		30	WP	100	60	50	3000	W-R	DW2	F	PR/M

PARMENTER ROAD

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC	
PINE HILL Road	42°19.69' - 71°29.57'	31	RM	62	40	30	1200	W-R	TC/DW1	F	PR/M	
	42.332193 x -71.499039	32	RO	82	40	40	1600	W-R	DW2	F	PR	66

C5. ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
OPP107	42°19.47' - 71°29.17'	1	RO	75	45	35	1575	R	N	G	NA
		2	RO	75	40	40	1800	R	N	G	NA
		3	RO	70	30	30	1200	R	DW1	G	PR
OPP105	42°19.47' - 71°29.23'	4	RO	70	45	30	1400	R	DW1	G	PR
		5	RO	62	40	30	1200	R	N	G	NA
	42°19.45' - 71°29.16'	6	RO	100	45	40	1800	R	TC	P	REM
		7	RO	90	40	40	1600	R	N	G	NA
116		8	RO	99	40	40	1600	R	DW2	F	PR
		9	WO	66	35	30	1050	R	DW1	F	PR
		10	RO	120	45	50	2250	W-R	DW1	G	PR
		11	RO	90	40	35	1400	W-R	TC	F	M
		12	RO	45	35	30	1050	W-R	DW1	G	PR
103		13	RO	45	35	30	1050	W-R	N	G	NA
		14	RO	66	40	30	1200	W-R	N	G	NA
OPP112		15	RM	78	35	35	1225	W-R	DW2	F	PR
		16	RM	72	40	35	1400	W-R	DW1	G	PR
	42°19.42' - 71°29.17'	17	RO	90	40	40	1600	W-R	DW4	P	REM
112		18	RO	120	40	45	1800	W-R	TC/DW3	P	REM
99		19	RM	90	40	40	1600	W-R	N	G	NA
97		20	RM	69	35	30	1050	W-R	N	G	NA
97		21	RM	32	30	30	900	W-R	DW1	G	PR
97		22	RM	45	30	30	900	W-R	N	G	NA
108		23	PH	48	60	35	2100	W-R	TC	F	M
93	42°19.37' - 71°29.16'	24	RM	50	25	20	500	W-R	TC/DW3	P	REM
91		25	RM	90	35	40	1400	W-R	DW1	G	PR
	WEST SIDE RD	26	RM	60	30	30	900	W-R	DW2	F	PR
	42°19.34' - 71°29.15'	27	RM	60	30	30	900	W-R	TC	P	REM
OPP39		28	RM	50	50	40	2000	W-R	TC	P	REM
89		29	PH	90	40	40	1600	W-R	DW1	G	PR
87		30	PH	78	60	35	2100	W-R	TC	G	PR
85/P37		31	RO	85	50	40	2000	W-R	N	G	NA
85/P37	42°19.30' - 71°29.13'	32	RO	120	50	50	2500	W-R	N	G	NA

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
85/P37		33	WO	60	45	30	1350	W-R	N	G	NA
		34	WO	66	40	25	1000	W-R	N	G	REM
83	42°19.29' - 71°29.18'	35	RM	102	40	40	1600	W-R	DW4	P	REM
		36	RM	45	40	30	1200	W-R	TC/DW4	P	REM
81		37	RM	66	35	30	1050	W-R	N	G	NA
81	42°19.29' - 71°29.13'	38	RM	66	35	30	1050	W-R	TC/DW4	P	REM
79		39	RM	66	35	30	1050	W-R	TC/DW4	P	NA
79		40	RM	66	30	30	1050	W-R	N	G	NA
		41	WA	32	25	30	900	W-R	N	G	NA
		42	WA	45	25	30	750	R	TC	P	REM
P35		43	WO	36	40	30	1200	R	TC	P	NA
		44	WO	42	40	30	1200	W-R	N	G	NA
79	42°19.26' - 71°29.19'	45	WO	66	40	35	1400	W-R	DW1	G	PR
P35		46	RM	50	35	30	1050	W-R	N	G	NA
P34		47	RM	60	40	30	1200	W-R	DW1	G	PR
		48	RM	45	40	30	1200	W-R	DW1	G	PR
74		49	RO	150	40	50	2000	W-R	DW2	F	PR
74		50	RO	76	40	40	1600	W-R	DW1	G	PR
74	42°19.25' - 71°29.31'	51	WO	82	40	35	1400	W-R	DW1	G	PR
74		52	RO	76	40	40	1600	W-R	N	G	NA
		53	RO	180	50	50	2500	W-R	DW1	G	PR
		54	RO	120	60	50	3000	W-R	DW1	G	PR
OPP74	42°19.24' - 71°29.17'	55	WA	105	50	40	2000	W-R	DW1	G	PR
74		56	RO	76	50	35	1750	W-R	N	G	NA
P29		57	WO	66	40	35	1400	W-R	TC	F	M
P30-29		58	RO	120	45	45	2025	W-R	N	G	NA
P30-29		59	RO	70	30	35	1050	R	DW5	D	REM
64		60	PH	60	60	40	2400	R	N	G	NA
65		61	RM	75	40	30	1200	R	N	G	NA
65		62	RO	45	35	30	1050	R	N	G	NA
63		63	RO	42	30	30	900	R	N	G	NA
P27		64	PH	30	25	20	500	R	N	G	
62		65	RO	66	30	30	900	R	DW1	G	PR

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
54/P24 55/P20	42°18.95' - 71°29.26'	66	JV	75	35	20	500	R	N	G	NA
32/P17		67	NM	45	35	30	1050	W-R	N	G	NA
32		68	NM	45	35	30	1050	W-R	N	G	NA
32		69	NM	48	35	30	1050	W-R	TC	F	M
32		70	NM	60	40	30	1200	W-R	N	G	NA
32		71	NM	78	40	35	1400	W-R	COD	G	NA
32		72	NM	39	30	30	900	W-R	DW2	F	PR
32	42°18.58' - 71°29.20'	73	NM	33	25	25	625	R	TC	P	REM
32		74	NM	27	20	25	500	R	DW1	G	PR
32		75	NM	40	30	30	900	W-R	TC/DW3	P	REM
32		76	NM	57	30	30	900	W-R	TC	F	M
30		77	RO	82	50	40	2000	W-R	N	G	NA
30		78	NM	60	35	25	875	W-R	COD	G	PR
30	42°18.57' - 71°29.29'	79	NM	96	40	40	1600	W-R	COD	G	NA
30		80	WP	111	50	50	2500	W-R	DW2	P	PR
30		81	RM	92	40	30	1200	W-R	DW4	F	REM
P14	42°18.52' - 71°29.19'	82	WO	72	50	40	2000	W-R	DW4	P	REM
OPP16		83	WP	70	40	40	1600	W-R	TC/DW3	F	REM
OPP16		84	RM	54	30	30	900	W-R	TC	F	M
P13		85	RM	51	35	30	1050	R	DW2	F	PR
16	42°18.50' - 71°29.18'	86	RM	75	40	35	1400	W-R	DW4	P	REM
OPP16		87	RO	80	40	35	1400	R	TC	G	PR
OPP16		88	RO	86	45	35	1575	W-R	DW1	G	PR
OPP16	42°18.50' - 71°29.17'	89	RM	54	35	30	1050	W-R	TC/DW3	P	REM
16		90	RM	52	30	30	900	W-R	N	G	NA
12		91	NM	72	50	40	2000	R	DW1	G	PR
16		92	NM	120	50	50	2500	R	TC/DW3	P	REM
10		93	NM	72	40	40	1600	R	TC	F	M
10		94	RO	48	40	35	1400	R	N	G	NA
10		95	PH	99	60	40	2400	R	DW4	P	REM
SOUTH PLEASANT STREET APP 23 TREES		PP	PH/RO/WP	40-80	20-50	30-50	1600	R	DW1	P	PR
CLEMMONS	42°18.40' - 71°29.14'										

ADDRESS	GPS	TID	SPECIES	TRC	HT	SPR	TFZ	TARGET	DEFECT	CR	REC
P3	42°18.38' - 71°29.14'	96	PH	86	50	40	2000	W-R	TC	F	M
P3		97	NM	81	40	40	1600	W-R	DW1	G	PR
P3		98	NM	126	60	60	2400	W-R	TC	F	M
P1		99	NM	33	40	30	1200	R	N	G	NA
P4		100	RM	90	40	40	1600	W-R	TC/DW3	P	REM
AT FRAMINGHAM OWN LINE				SOUTH ON PINE HILL RD							
19	42°18.48' - 71°29.23'	101	NM	33	35	30	1050	R	DW4	P	REM
P7		102	NM	72	40	35	1575	W-R	TC	P	REM
19		103	NM	81	45	40	1800	W-R	DW1	G	PR
17		104	NM	66	40	30	1200	W-R	DW2	F	PR
P6		105	NM	60	40	30	1200	W-R	DW1	G	PR
15		106	NM	69	50	40	2000	W-R	DW1	G	PR
13		107	NM	75	35	30	1050	R	TC	F	M
11		108	NM	80	40	35	1575	W-R	DW1	G	PR
9		109	NM	54	50	30	1500	W-R	N	G	NA
7	42°18.29' - 71°29.20'	110	NM	45	35	30	1050	W-R	DW2	G	NA
7		111	NM	45	35	30	1050	W-R	N	G	NA
7	42°18.21' - 71°29.12'	112	NM	60	45	35	1575	W-R	N	G	NA
1											
AT PINE HILL ROAD-S HEADING NORTH											
2		113	RO	80	40	40	1600	W-R	DW1	G	PR
6		114	WP	51	40	30	1200	W-R	N	G	NA
8	42°18.25' - 71°29.11'	115	WA	33	40	30	1200	W-R	DW1	G	PR
OPP15		116	RO	96	45	40	1800	W-R	DW1	G	PR
OPP17		117	RO	92	55	40	2200	W-R	DW1	G	PR
OPP15		118	RO	86	50	40	2000	W-R	N	G	PR
OPP14	42°18.29' - 71°29.20'	119	RO	66	40	35	1575	W-R	N	G	PR

70

THIS PAGE INTENTIONALLY LEFT BLANK