CITY OF COLLEGE PARK PILOT TREE INVENTORY – FINAL REPORT

Project Summary:

The City of College Park Tree and Landscape Board made a proposal in 2007 to the Mayor and City Council, in conjunction with the creation of the Vegetation Management Plan, to conduct a pilot Tree Inventory within the City of College Park. The goal of this project, in consultation with Mr. Bob Stumpff (Director, Public Works) and Ms. Brenda Alexander (Deputy Director, Public Works) was to help the Department of Public Works and The City make informed decisions about trees on Public rights-of-way. The long-term goal is to identify species diversity, tree health and benefits associated with trees on public lands and rights-of-way, so City staff responsible for the City's urban tree canopy can be more proactive managing, maintaining and replacing trees for future generations.

This project was designed to inventory a limited number of trees in various neighborhoods that represented a cross section of trees within the City. Initial consultations were held with members of the Casey Tree Foundation in Washington, DC to determine the most effective manner in which to proceed. The methodology described below represented the outcome of those discussions, based upon an initial budget allocation for the project

Project Funding:

The Mayor and City Council approved $1,200 for the project, which was supplemented by additional funding of $2,500 from the Committee for a Better Environment. This allowed the scope of the project to be expanded, and to pay eight graduate student 'team leaders' from the University of Maryland Department of Plant Sciences and Landscape Architecture, who had the skills necessary for tree identification and assessment of tree health during the Inventory. Four of these graduate students are associated with the Urban Forestry program in this Department.

Project Planning and Management:

It became clear early on in the project planning discussions that the most effective manner to develop this project would be to capture the tree inventory data immediately into a Geographic Information System (GIS) database. A tree location layer would be developed to provide visualization of the trees managed by the City's public works department. This data collection method allows for rapid data entry, quick updating of the tree inventory information in the field using a hand-held computer, and the creation of cross-referenced reports form the database.

We were fortunate to engage Mr. Taylor Keen as the project manager, whose GIS skills enabled us to capture a substantial amount of information collected by the student teams on the day of the inventory. Mr. Keen's experience developing the University of Maryland tree inventory database was the single most important factor in the success of this project. He worked diligently with Dr. Lea-Cox planning the project through to implementation, and was responsible for the summary report data that is included in this report.

Briefly, the tree inventory was conducted on a single day (29th September, 2007) in eight City districts (see page 3), by eight three-person student teams (each consisting of a team leader and two undergraduate student volunteers). The graduate team leader was responsible for identifying tree species, the tree health assessment and entering the data into a hand-held computer, using ArcPad 7.0 software. The undergraduate volunteers were responsible for the tree diameter, crown and tree height measurements.

GIS Database:

Mr. Keen developed the GIS maps for each area prior to the inventory day using Prince George's county topographical data at 3-foot resolution; Mr. Steven Halpern (City Engineer), assisted Mr. Keen with right-of-way delineations for the maps. Each team had a small-scale map of each area to be assessed loaded into their hand-held computer. Trees were assigned a number to spatially locate them on the map and the data for each tree was entered into an attribute table for that specific tree. The location for each tree was then entered into the GIS database after the inventory was completed, with the associated tree information. A paper backup plan was also developed, in case the computer batteries were exhausted during data collection, which happened with a couple of the hand-held devices. These devices were loaned to the City from Faculty in the Department of Plant Sciences and Landscape Architecture, the Department of Urban Planning and the University of Maryland Facilities Management.

Summary of Results:

Our goal was to inventory approximately 75 trees per team between 8am and 2pm on Saturday, 29th September. At final count, the teams assessed a total of 667 trees (an average of 83 trees per team), encompassing 12.5% of the total city right-of-way on this one day, which exceeded our expectations.

A variety of preliminary statistics are given in the following pages, including a map of the areas assessed (page 4), a species composition overview (page 5) and a breakdown of the species, by area (page 6). Mean trunk diameters (tree size) and mean health ratings are broken down by area on page 7.

A frequency distribution of tree size and health rating for each area is given on page 8, together with the detailed hazard assessments on pages 9 and 10. Pictorial pie charts are given for each area on pages 11 and 12.

Of note was the fact that a large proportion of the trees assessed were Maples (43%), which greatly outnumbered any other species. This may have been in part due to the actual areas assessed, and may not be a true representation of the whole City. However, it does point out a relative lack of diversity in the areas assessed. Also of note was the relative health of the majority of the trees. Only a small proportion of the trees assessed were in poor condition, which indicates the City's dedication to ongoing tree maintenance.

Outcomes:

The Board believes that we achieved our objectives with this project, which was to conduct an initial pilot tree inventory, as a basis for completing a full tree inventory for the City in the next couple of years. We recommend that the Public Works Department continue this initiative by implementing the following recommendations:

1. Purchase a tablet PC, so that the initial tree inventory and GIS database can easily be ground-truthed in the field, and updated on a continuous basis, by a Public Works staff person.
2. Retain Mr. Taylor Keen who is currently responsible for the University of Maryland Tree inventory as an *ad-hoc* consultant;
3. Create a student internship position to assess additional trees/areas in the City. This work opportunity would also offer the opportunity for an undergraduate student from UMCP to fulfill internship requirements for graduation.
4. Plan an additional medium-scale volunteer effort in the Fall of 2008 to finish the tree inventory begun in the College Park Woods and Lakeland neighborhoods and to complete Crystal Springs, Yarrow and The College Park Estates and Calvert Hills neighborhoods.

The intention is to use the tree inventory for day-to-day management decisions by Public Works staff for tree removal and replacement, consultations with contractors regarding tree pruning and vegetation management and for proactive pest management decisions (e.g. Gypsy moth and Emerald Ash borer scouting).

Acknowledgements:

We gratefully acknowledge the funding and assistance provided by the City of College Park, the Director and Deputy Director of Public Works and the Committee for a Better Environment.

In addition, thanks go to Ms. Jackie Kelly, Dr. Amelia Murdoch of the Tree and Landscape Board, Dr. Joe Sullivan, Dr. Marla McIntosh and Dr. Maile Neel from the Department of Plant Science and Landscape Architecture and Dr. Alex Chen from the Department of Urban Planning at the University of Maryland, who helped with organizing volunteers and equipment.

Special thanks go to Holli Howard of the Casey Tree Foundation in Washington DC for giving us invaluable advice and guidance for this project. Lastly, but most importantly, I would like to recognize Mr. Taylor Keen, since without his skills, this project would have never have been possible.

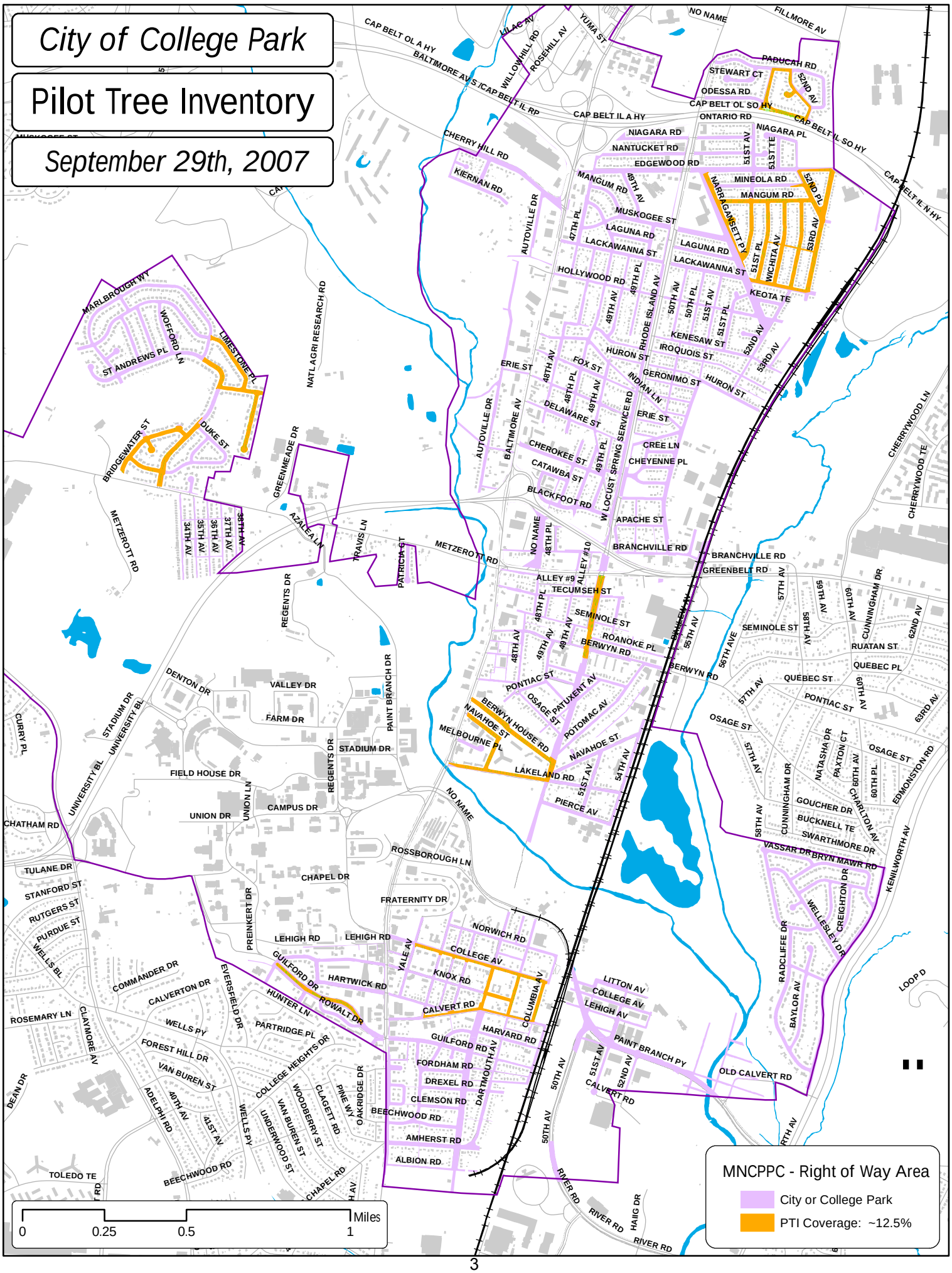
Dr. John Lea-Cox
City Forester, Chair –Tree and Landscape Board
City of College Park

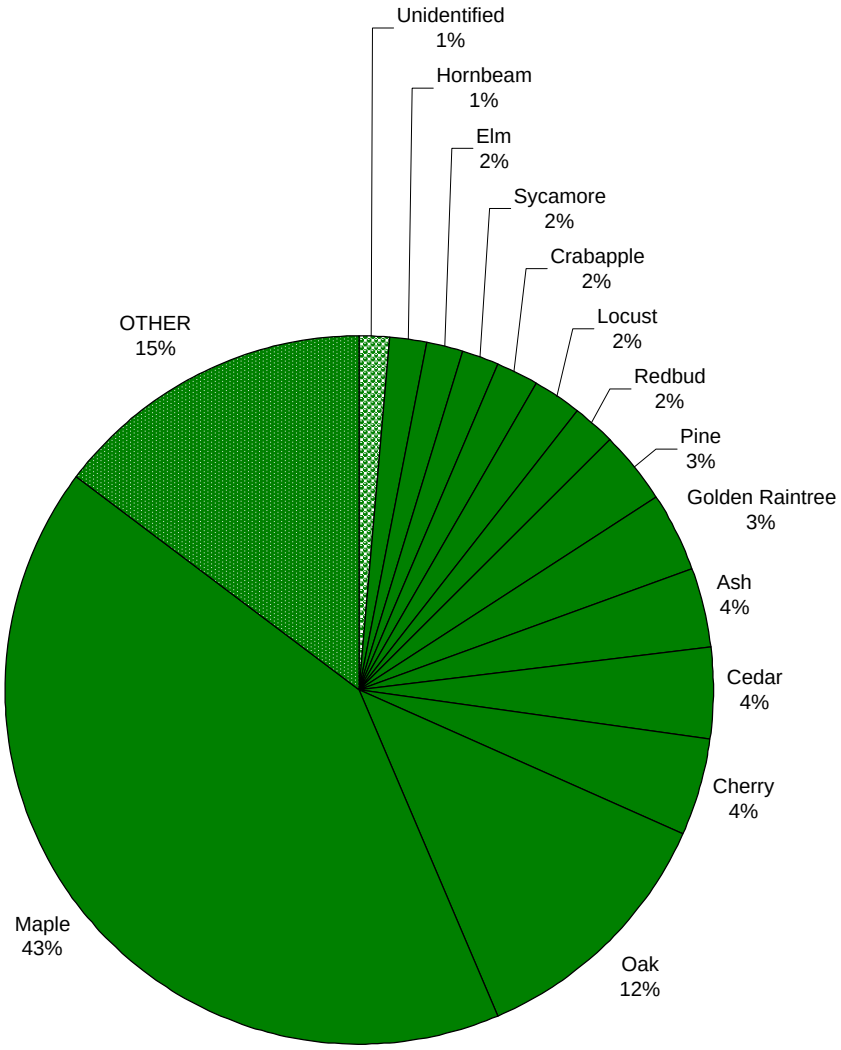
15 March, 2008

City of College Park

Pilot Tree Inventory

September 29th, 2007





P.T.I. - Species Composition Overview

City of College Park - Pilot Tree Inventory

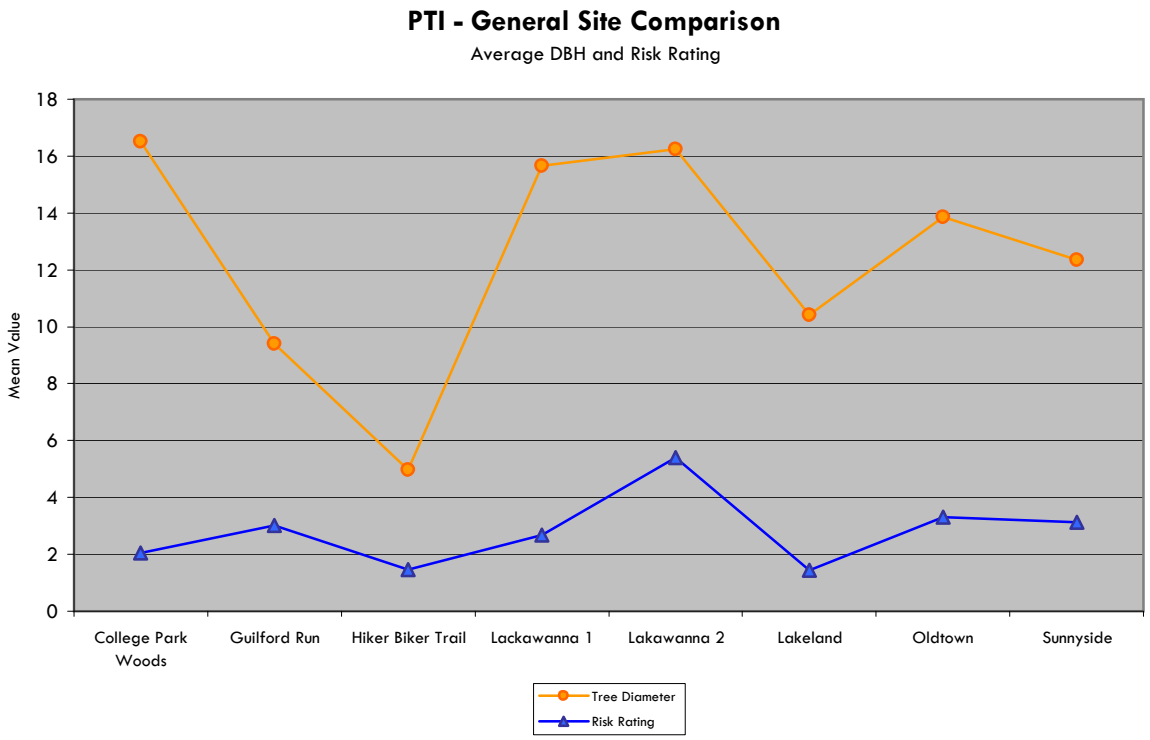
9/29/2007

Species Composition Summary

SPECIES	Tree Count	Site Present
Unidentified	10	C, G, H, L2, O, S
Apple	1	L2
Ash	25	C, G, H, LL, O
Basswood	6	G, LL
Birch	5	G, H
Caltapa	4	G, H, O
Cedar	27	C, G, O, S
Cherry	30	C, G, H, L1, L2, LL, S
Chestnut	1	S
Crabapple	14	G, H
Dogwood	6	G, H, O
Elm	11	G, H, L1, L2, S
Ginkgo	2	G
Golden Raintree	23	C, H, L1, LL, O
Hawthorne	4	G, L1
Hickory	1	S
Holly	6	H, S
Hophornbeam	1	C, S
Hornbeam	10	H
Linden	4	O
Locust	14	G, L1, S
Magnolia	5	H, L1, S
Maple	279	***ALL SITES***
Mulberry	6	G, S
Oak	79	***ALL SITES***
Russian Olive	5	G
Bradford Pear	8	C, S
Pine	22	H, S
Redbud	14	G, H, L1, O, S
Serviceberry	8	H
Spruce	4	C, S
Sweetgum	6	G, H, L1, O, S
Sycamore	11	G, H, L1, L2
Tree of Heaven	2	G, S
Black Walnut	4	G, O
Yellowwood	4	O
Japense Zelkova	5	L2

Site Name Key

1	C	College Park Woods
2	G	Guilford Run
3	H	Hiker Biker Trail
4	L1	Lackawanna 1
5	L2	Lackawanna 2
6	LL	Lakeland
7	O	Old Town
8	S	Sunnyside


PTI - General Site Comparison
Average DBH and Risk Rating
Mean Value
18
16
14
12
10
8
6
4
2
0
College Park Woods
Guilford Run
Hiker Biker Trail
Lackawanna 1
Lakawanna 2
Lakeland
Oldtown
Sunnyside
Tree Diameter
Risk Rating

City of College Park - Pilot Tree Inventory

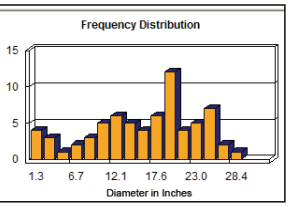
Site Comparison

TREE SIZE | **RISK RATING**

College Park Woods

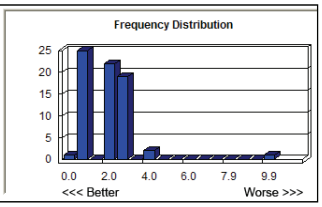
Tree Diameter (DBH)

Count:	70
Minimum:	1.300000
Maximum:	28.600000
Sum:	1156.500000
Mean:	16.521429
Standard Deviation:	7.127209



Hazard / Risk Assessment

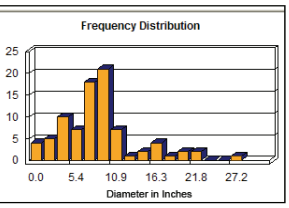
Count:	70
Minimum:	0.000000
Maximum:	10.000000
Sum:	144.000000
Mean:	2.057143
Standard Deviation:	1.308060



Guilford Run

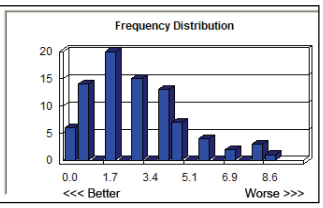
Tree Diameter (DBH)

Count:	85
Minimum:	0.000000
Maximum:	28.600000
Sum:	799.910000
Mean:	9.410706
Standard Deviation:	5.174652



Hazard / Risk Assessment

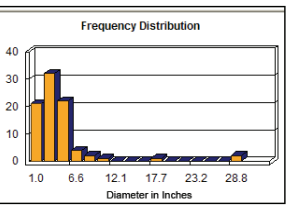
Count:	85
Minimum:	0.000000
Maximum:	9.000000
Sum:	257.000000
Mean:	3.023529
Standard Deviation:	2.029062



Hiker Biker Trail

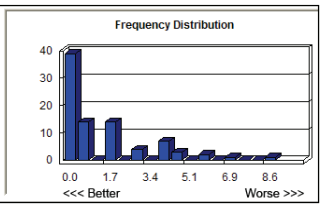
Tree Diameter (DBH)

Count:	85
Minimum:	1.000000
Maximum:	30.200000
Sum:	423.100000
Mean:	4.977647
Standard Deviation:	4.563026



Hazard / Risk Assessment

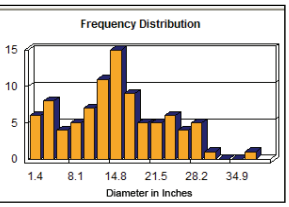
Count:	85
Minimum:	0.000000
Maximum:	9.000000
Sum:	125.000000
Mean:	1.470588
Standard Deviation:	1.913348



Lackawanna 1

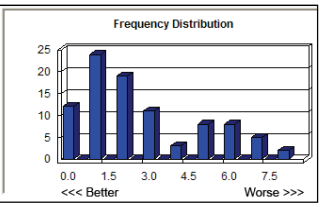
Tree Diameter (DBH)

Count:	92
Minimum:	1.400000
Maximum:	37.200000
Sum:	1440.300000
Mean:	15.655435
Standard Deviation:	7.900101



Hazard / Risk Assessment

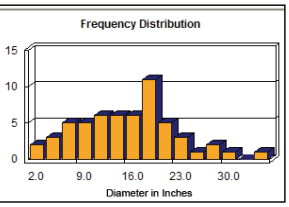
Count:	92
Minimum:	0.000000
Maximum:	8.000000
Sum:	246.000000
Mean:	2.673913
Standard Deviation:	2.212163



Lackawanna 2

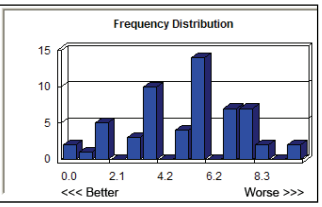
Tree Diameter (DBH)

Count:	57
Minimum:	2.000000
Maximum:	35.700000
Sum:	926.400000
Mean:	16.252632
Standard Deviation:	6.999451



Hazard / Risk Assessment

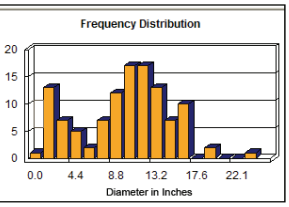
Count:	57
Minimum:	0.000000
Maximum:	10.000000
Sum:	307.000000
Mean:	5.385965
Standard Deviation:	2.337748



Lakeland

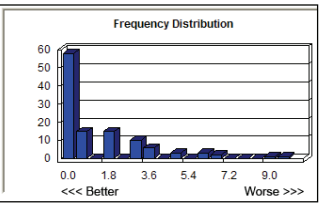
Tree Diameter (DBH)

Count:	114
Minimum:	0.000000
Maximum:	24.600000
Sum:	1186.600000
Mean:	10.408772
Standard Deviation:	4.876448



Hazard / Risk Assessment

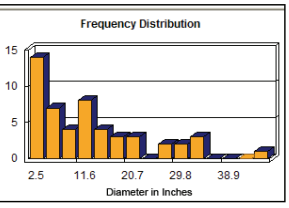
Count:	114
Minimum:	0.000000
Maximum:	10.000000
Sum:	165.000000
Mean:	1.447368
Standard Deviation:	2.060881



Old Town

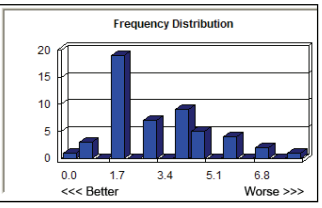
Tree Diameter (DBH)

Count:	51
Minimum:	2.500000
Maximum:	45.100000
Sum:	707.400000
Mean:	13.870588
Standard Deviation:	9.898193



Hazard / Risk Assessment

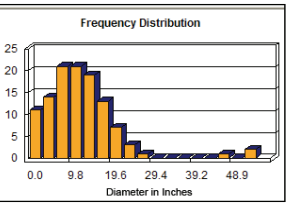
Count:	51
Minimum:	0.000000
Maximum:	8.000000
Sum:	169.000000
Mean:	3.313725
Standard Deviation:	1.754436



Sunnyside

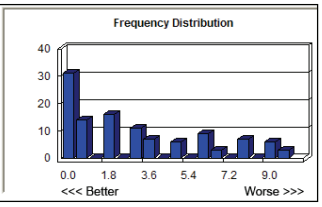
Tree Diameter (DBH)

Count:	113
Minimum:	0.000000
Maximum:	54.500000
Sum:	1395.900000
Mean:	12.353097
Standard Deviation:	8.964414



Hazard / Risk Assessment

Count:	113
Minimum:	0.000000
Maximum:	10.000000
Sum:	352.000000
Mean:	3.115044
Standard Deviation:	3.044659



City of College Park - Pilot Tree Inventory

9/29/07 *Risk / Hazard Assessment*

PTI Team Tree Counts

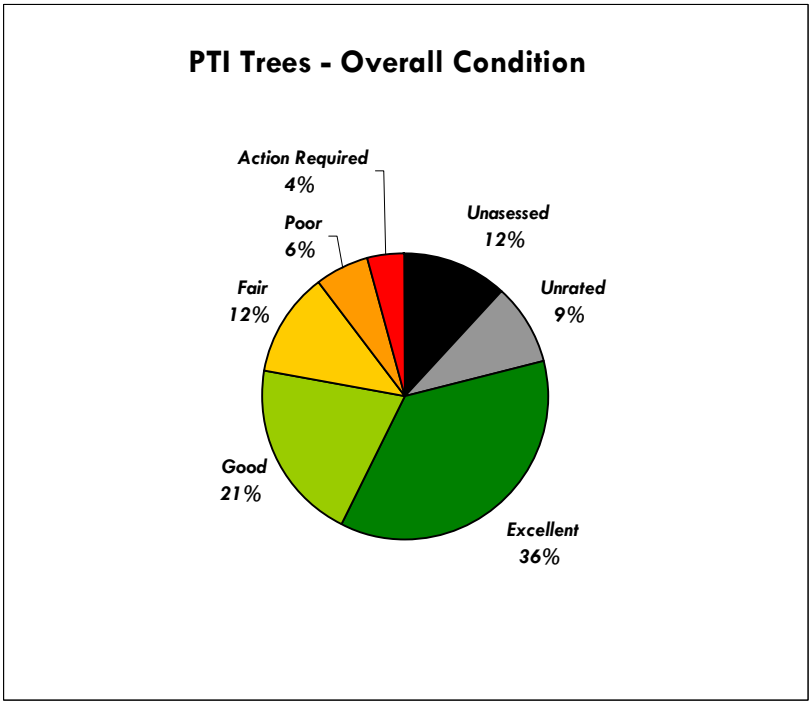
# Trees Surveyed	*Team Name*
70	College Park Woods
85	Guilford Run
85	Hiker Biker Trail
92	Lackawanna 1
57	Lackawanna 2
114	Lakeland
51	Old Town
113	Sunnyside

667	**TOTAL***

* *1 Duplicate Tree in Lackawanna*

Health / Risk Assessment Summary

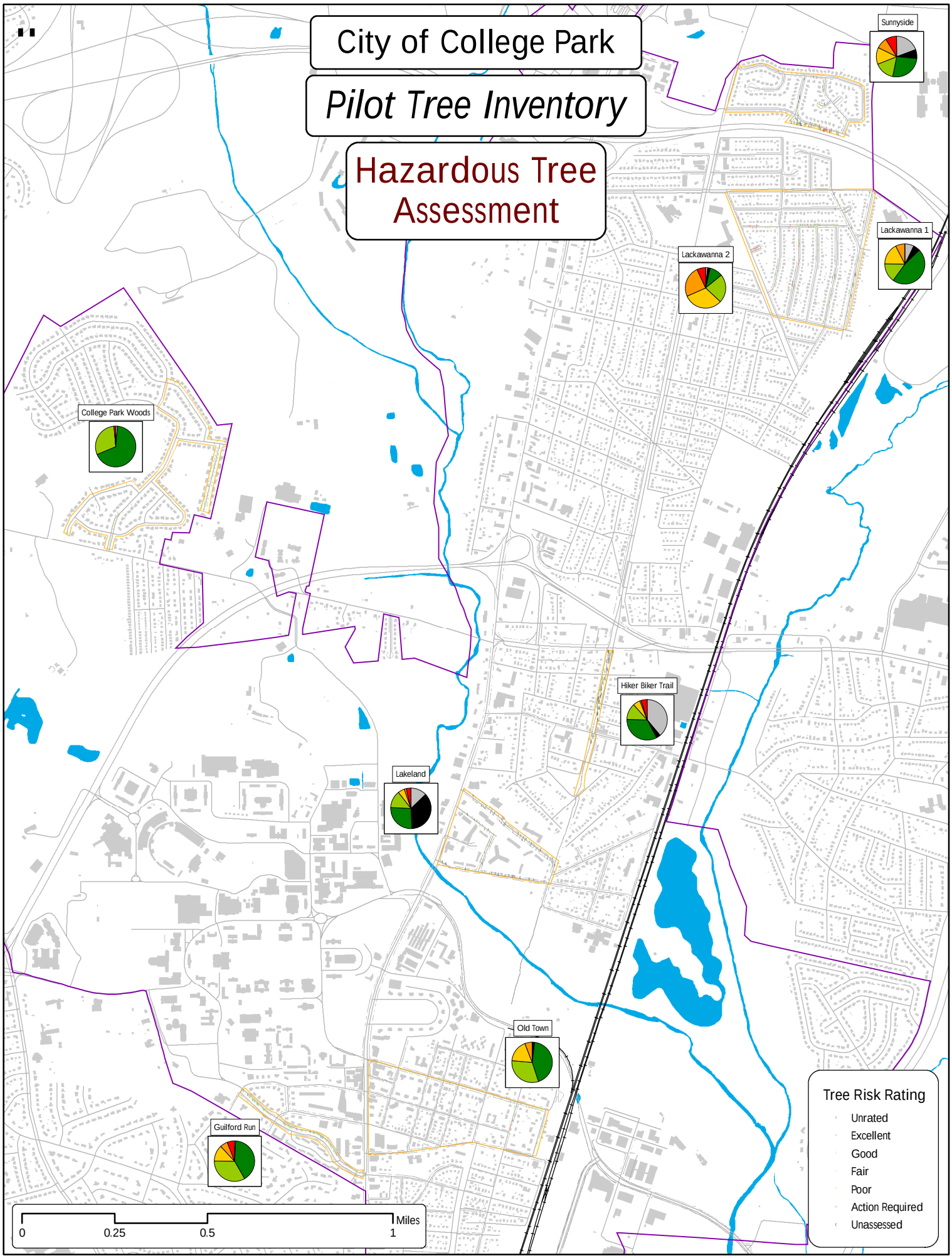
Risk Rating	*Condition Implied*	*Tree Count*
---	*Unasessed*	80
0	*Unrated*	60
1 - 2	*Excellent*	241
3 - 4	*Good*	137
5 - 6	*Fair*	80
7 - 8	*Poor*	42
9 - 10	*Action Required*	27

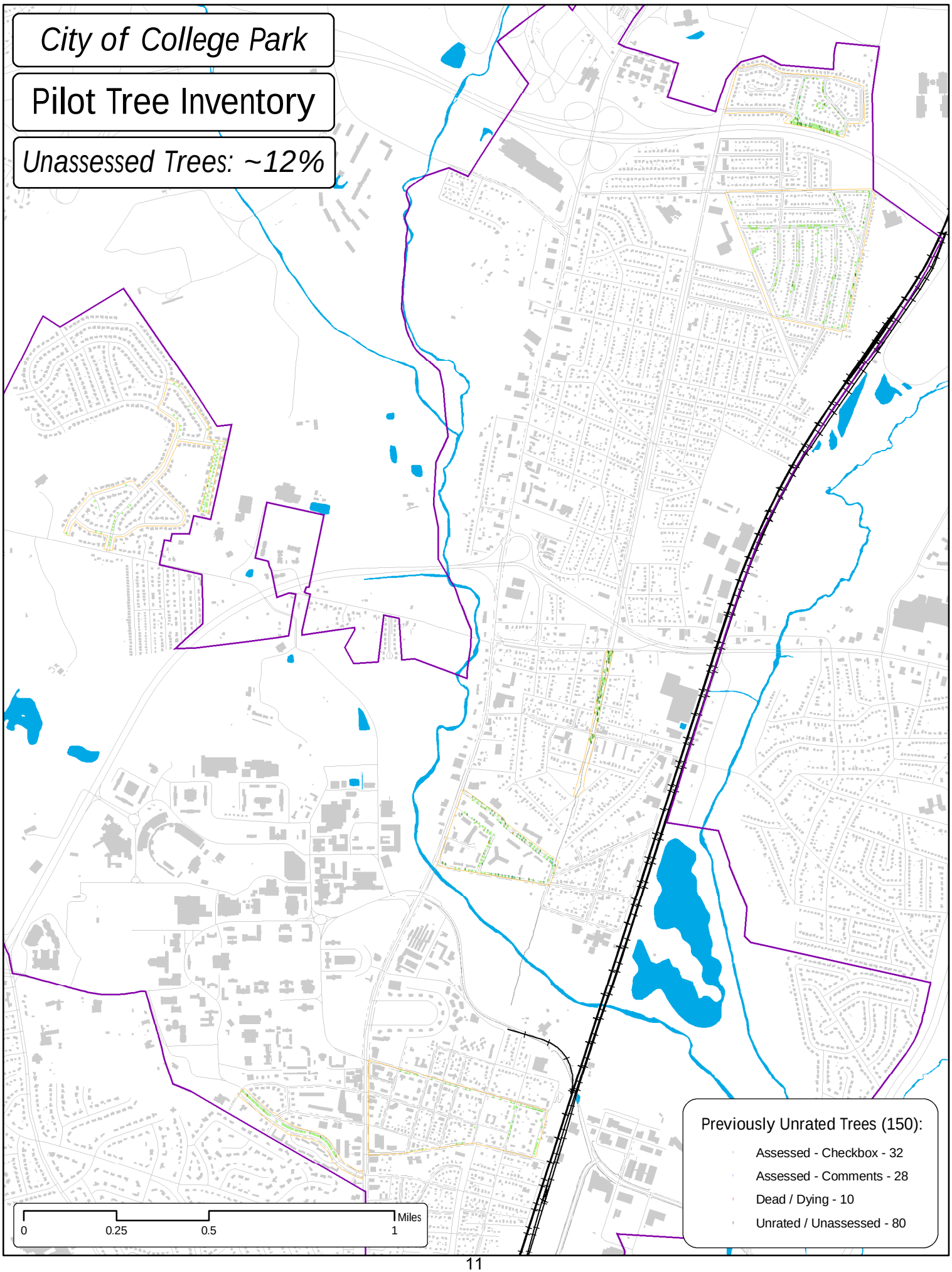


NOTE: THESE ARE SUBJECTIVE VALUATIONS ASSIGNED BY THE TEAM LEADERS AND NO GROUND VALIDATION HAS BEEN CONDUCTED.

SITE BREAKDOWN:

	RISK RATING TREE COUNT							
Site	**---**	**0**	**1 - 2**	**3 - 4**	**5 - 6**	**7 - 8**	**9 - 10**	***Total***
College Park Woods	1	0	47	21	0	0	1	**70**
Guilford Run	1	0	34	28	11	5	5	**84**
Hiker Biker Trail	33	3	28	11	5	1	4	**85**
Lackawanna 1	7	5	43	14	16	7	0	**92**
Lackawanna 2	1	1	6	13	18	14	4	**57**
Lakeland	15	41	30	16	6	2	4	**114**
Old Town	0	1	22	16	9	3	0	**51**
Sunnyside	22	8	30	18	15	10	10	**113**


City of College Park
Pilot Tree Inventory
Hazardous Tree Assessment
Sunnyside
Lackawanna 1
Lackawanna 2
College Park Woods
Hiker Biker Trail
Lakeland
Old Town
Guilford Run
Tree Risk Rating
Unrated
Excellent
Good
Fair
Poor
Action Required
Unassessed
0
0.25
0.5
1
Miles


City of College Park
Pilot Tree Inventory
Unassessed Trees: ~12%
Previously Unrated Trees (150):
Assessed - Checkbox - 32
Assessed - Comments - 28
Dead / Dying - 10
Unrated / Unassessed - 80
0
0.25
0.5
1
Miles