

# Street Tree Inventory for the City of Greenbelt (Fall 2013)

## SUMMARY REPORT

### Project Summary:

The Street Tree Inventory for the City of Greenbelt, which was conducted in September, October, and November 2013 by the Public Works Department, was a city-wide mapping and data collection initiative focused on the city's right-of-way street trees (excluding parklands) using a new mobile- and cloud-based GIS mapping system. Surveying was conducted over 8 full surveying days by teams of 22 University of Maryland students and city affiliated volunteers that were led by 5 paid student field team leaders who mapped and collected data on the City of Greenbelt's right-of-way street trees using mobile (smart phone) devices running Esri Collector for ArcGIS software.

Survey day coordination and inventory data collection was also assisted by several Greenbelt Public Works and CHEARS employees. The ArcGIS Online-based inventory system and project parameters were designed and managed by Taylor Keen, GIS Coordinator at the University of Maryland, who worked as an hourly consultant for the city.

The initial field data collection was completed on November 3<sup>rd</sup> and the total number of right-of-way street trees individually surveyed reached **2,756**, which had a total canopy area of 39.76 acres and a basal area of 2,360 feet<sup>2</sup>. In all, over 14.8 miles of city streets were surveyed during the project. Many of these trees were then rechecked by Public Works staff for species identification accuracy and measurement accuracy and completeness in the following months.

Date	Activity	New Trees Surveyed
9/29/2013	Orientation Day	9
10/5/2013	Survey Day 1	272
10/8/2013	Survey Day 2 (canceled)	-
10/9/2013	Public Works Data Check	5
10/13/2013	Survey Day 3	198
10/19/2013	Survey Day 4	375
10/20/2013	Survey Day 5	262
10/26/2013	Survey Day 6	463
10/27/2013	Survey Day 7	417
11/2/2013	Survey Day 8	551
11/3/2013	Survey Day 9	204
<b>All 2013 Surveyed Street Trees</b>		<b>2,756</b>

Note: Only right-of-way city owned street trees were inventoried.

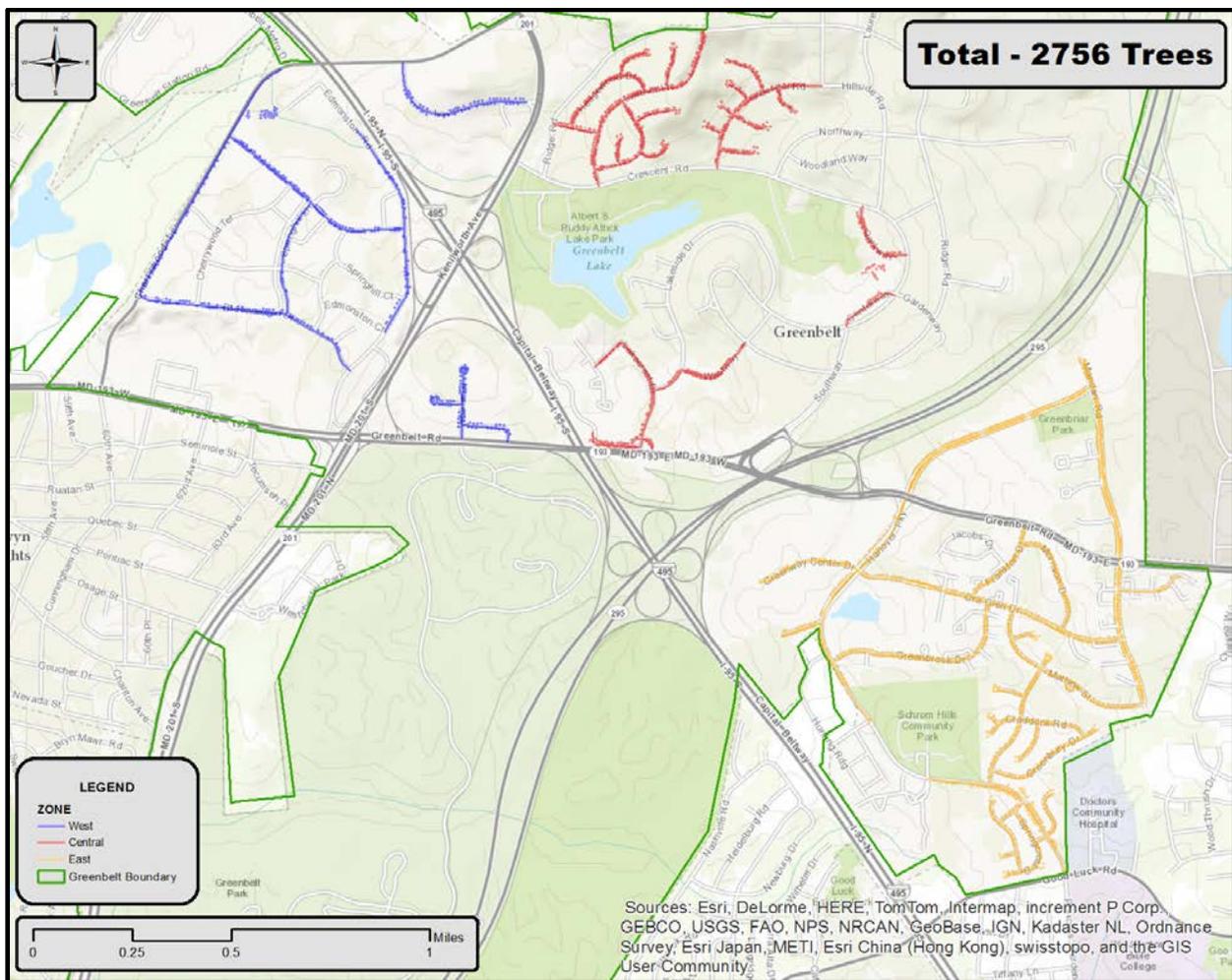
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## Fall 2013 Street Tree Inventory - Survey Coverage Characteristics

Total length of city roadways surveyed:

Survey Site	Approximate Roadway Length (Miles)	Surveyed Street Tree Count
West	3.54	428
Central	3.88	741
East	7.38	1587
<b>Total</b>	<b>14.80</b>	<b>2756</b>



**NOTE:** Reported city roadway totals only include named mapped street centerlines (courtesy of the City of Greenbelt Planning Office) and are not counted multiple times where both sides of the street or street medians contain surveyed street trees.

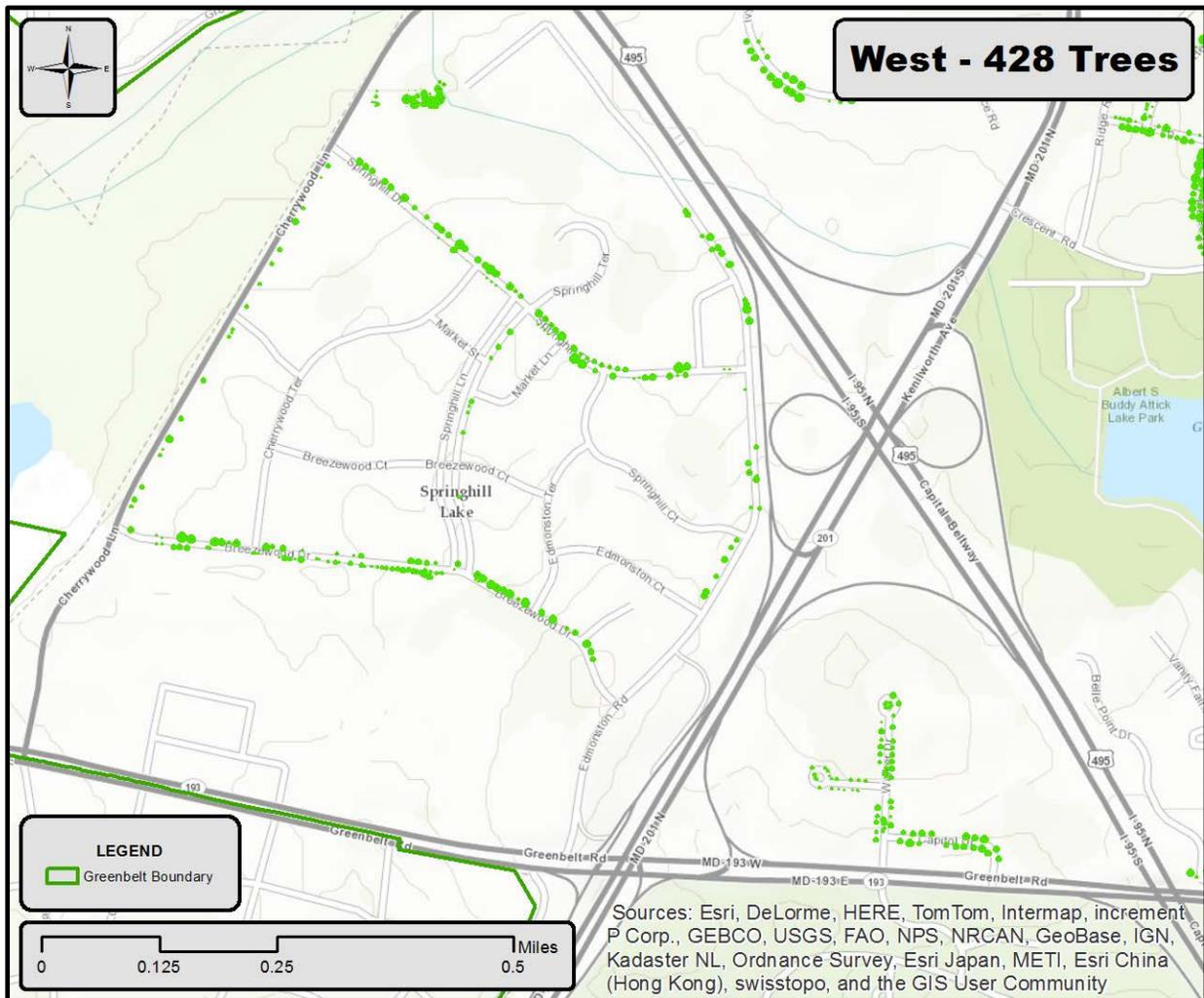
## Fall 2013 Street Tree Inventory - Measured Specimen Characteristics

### Biometry:

Site	Measured Trees (Count)	Canopy Area (Acres)	Basal Area (ft. <sup>2</sup> )
West	414	7.25	490.1
Central	732	11.67	695.3
East	1567	20.84	1174.8
<b>Total</b>	<b>2713</b>	<b>39.76</b>	<b>2360.2</b>

Canopy area calculated from averaged measured crown radii.  
Basal area calculated from measured trunk diameters (DBH).

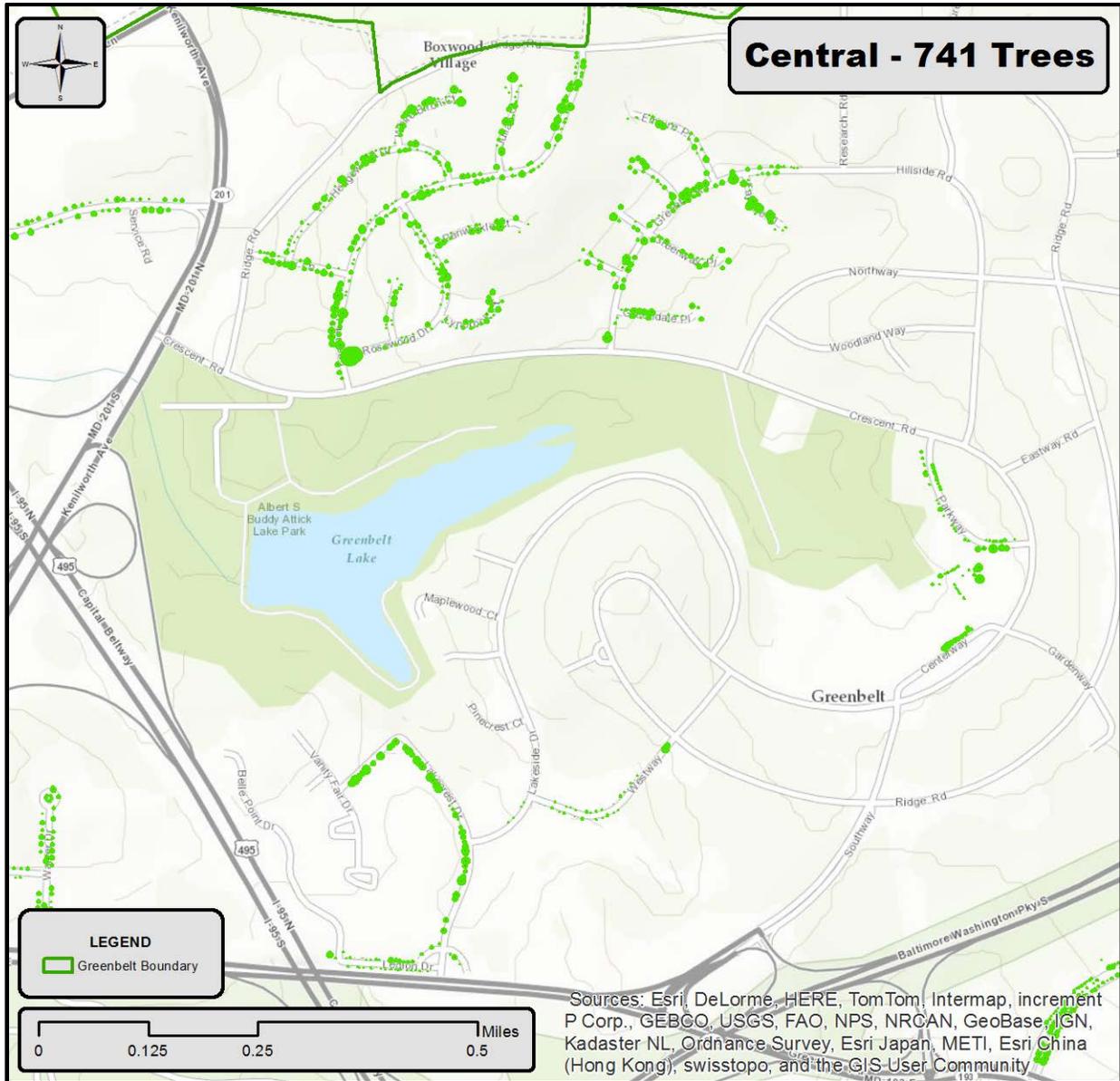
### GREENBELT WEST – Tree Canopy



### Average Tree Canopy Displayed (Derived from 2 measured Crown Radii)

# Fall 2013 Street Tree Inventory - Measured Specimen Characteristics

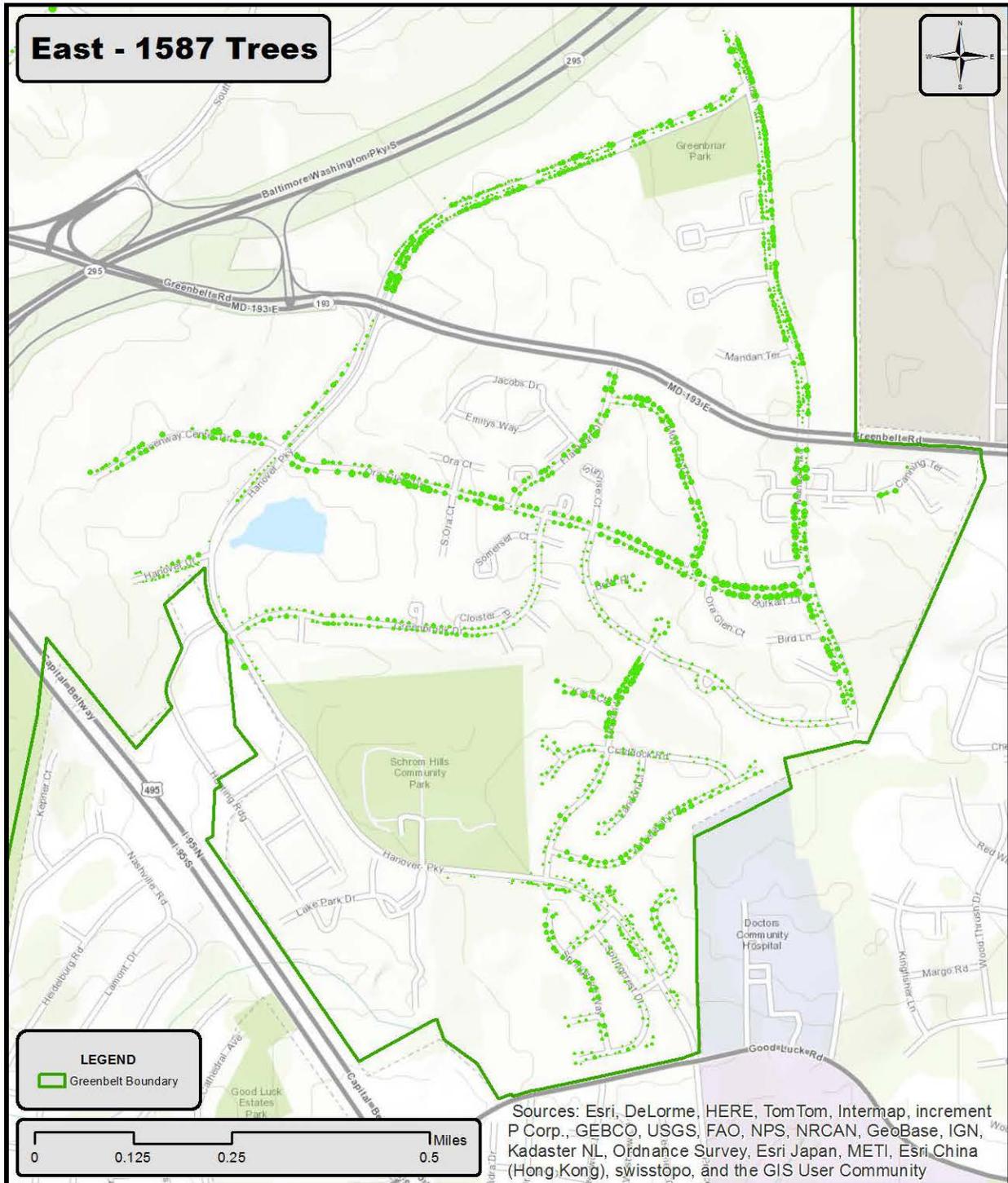
## GREENBELT CENTRAL – Tree Canopy



### Average Tree Canopy Displayed (Derived from 2 measured Crown Radii)

# Fall 2013 Street Tree Inventory - Measured Specimen Characteristics

## GREENBELT EAST – Tree Canopy



Average Tree Canopy Displayed (Derived from 2 measured Crown Radii)

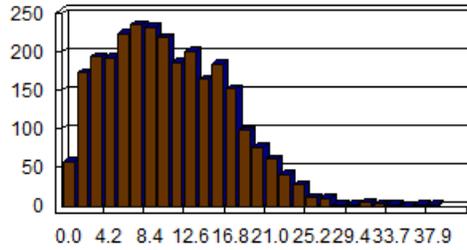
# City of Greenbelt - Fall 2013 Street Tree Inventory - Measured Specimen Characteristics

## DBH (Trunk Diameter) (Inches)

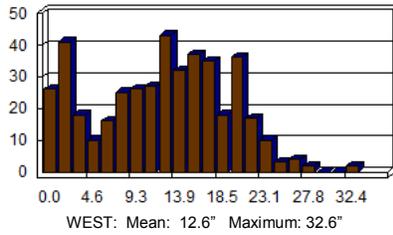
Mean: 10.9"

Maximum: 38.3"

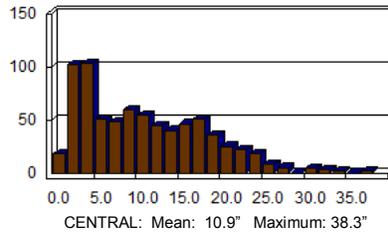
Frequency Distribution



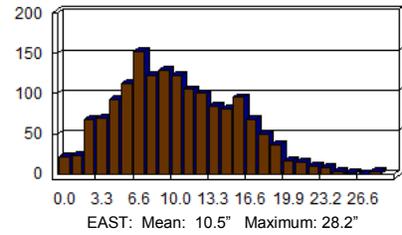
Frequency Distribution



Frequency Distribution



Frequency Distribution

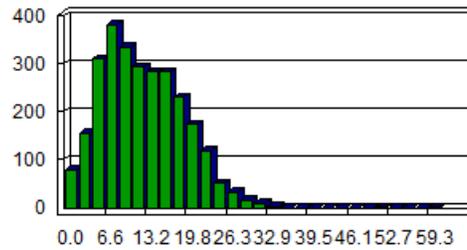


## Average Canopy Radius (Feet)

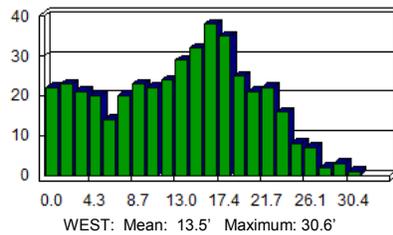
Mean: 12.5'

Maximum: 60.0'

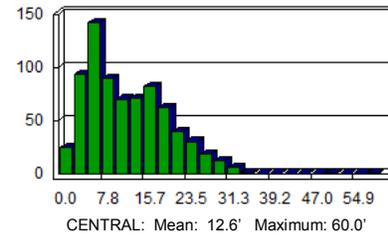
Frequency Distribution



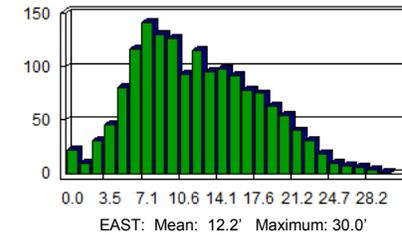
Frequency Distribution



Frequency Distribution



Frequency Distribution

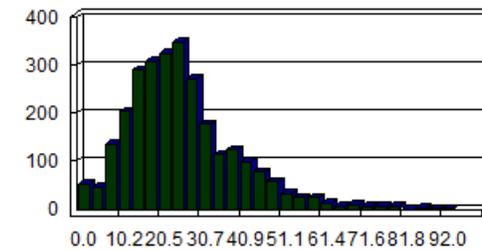


## Total Tree Height (Feet)

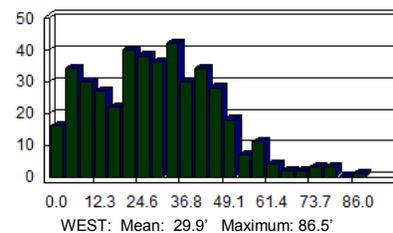
Mean: 25.9'

Maximum: 93.1'

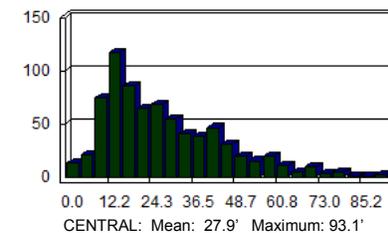
Frequency Distribution



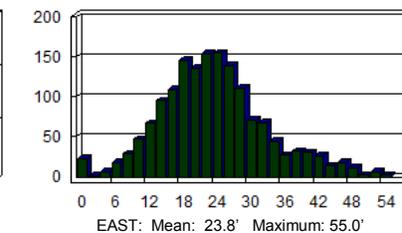
Frequency Distribution



Frequency Distribution



Frequency Distribution



## City of Greenbelt - Fall 2013 Street Tree Survey – Surveyed Condition

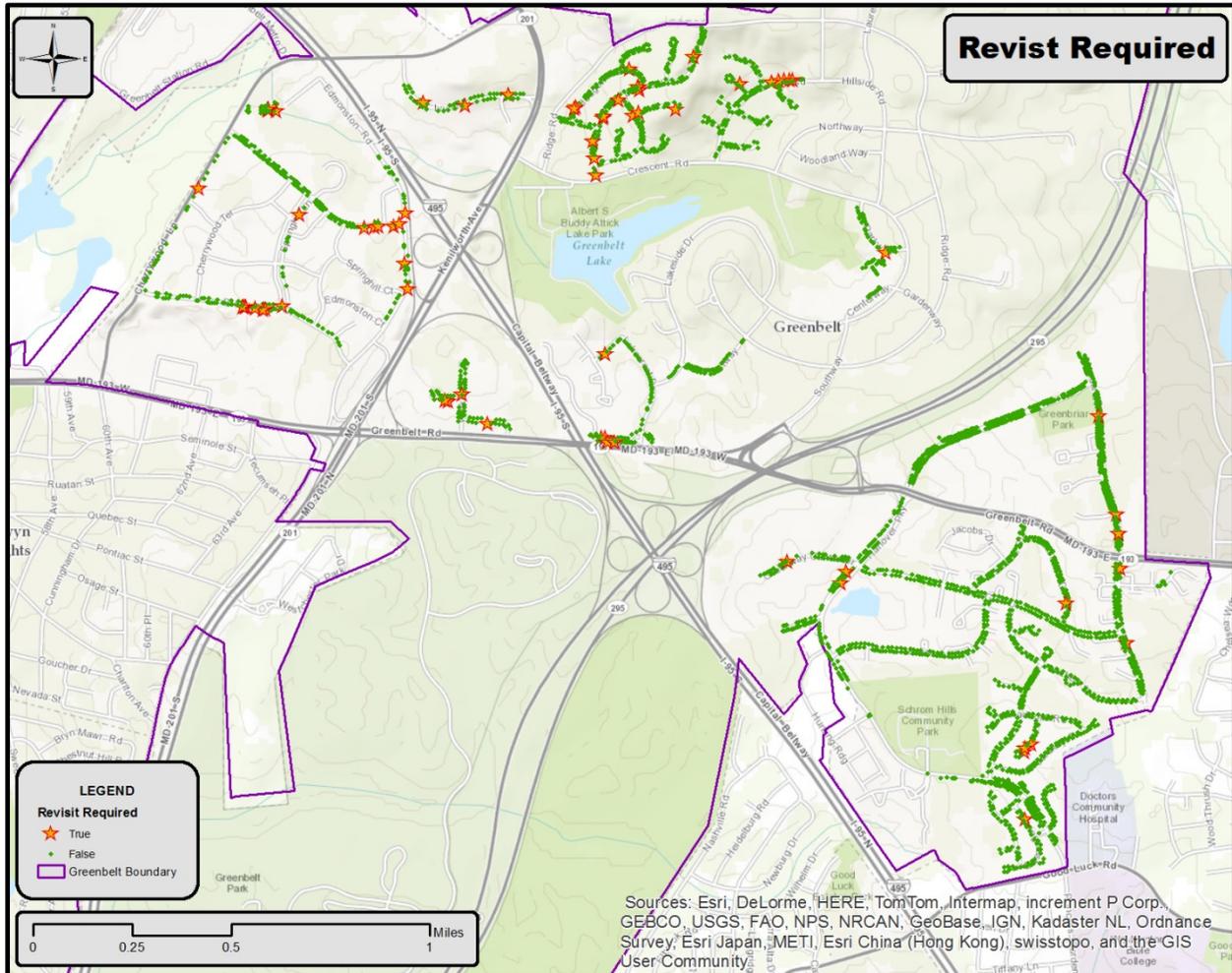
Condition	West	Central	East	Greenbelt
Great	50	116	199	365
Good	263	414	1126	1803
Fair	64	110	134	308
Poor	7	29	46	82
Dying	1	3	7	11
Attention Required	4	4	2	10
Removed	16	24	24	64
NO DATA	23	41	49	113



**NOTE: These are subjective valuations assigned by the survey team leaders and no significant field validation has been conducted to date.**

# City of Greenbelt - Fall 2013 Street Tree Survey – Revisit Required

West	Central	East	Greenbelt
30	28	13	71



**NOTE: Revisit Required Trees indicate trees that are dying, need pruning or require other maintenance attention.**

## City of Greenbelt - Fall 2013 Street Tree Survey – Species Characteristics

All recorded taxa – 64 Unique Species

		ZONE			
	SPECIES	Central	East	West	Greenbelt
1	Acer buergerianum	41	0	0	41
2	Acer campestre	8	20	22	50
3	Acer ginnala	27	1	0	28
4	Acer japonica	1	0	0	1
5	Acer platanoides	2	0	7	9
6	Acer rubrum	219	112	62	393
7	Acer saccharinum	34	0	0	34
8	Acer saccharum	5	13	0	18
9	Betula nigra	0	7	3	10
10	Carya ovata	0	0	1	1
11	Catalpa speciosa	1	0	0	1
12	Cercis canadensis	3	3	0	6
13	Cornus florida	2	0	0	2
14	Crataegus viridis	36	14	0	50
15	Cupressus leylandii	0	3	0	3
16	Fraxinus pennsylvanica	2	46	3	51
17	Ginkgo biloba	2	0	0	2
18	Gleditsia triacanthos	0	51	0	51
19	Gleditsia triacanthos var. inermis	0	12	0	12
20	Hibiscus syriacus	1	0	0	1
21	Ilex opaca	1	0	0	1
24	Lagerstroemia	58	89	42	189
25	Liquidambar styraciflua	6	46	2	54
26	Magnolia acuminata	1	0	0	1
27	Magnolia grandiflora	1	0	0	1
28	Magnolia virginiana	2	0	0	2
29	Magnolia x loebneri	5	0	3	8
30	Magnolia x soulangeana	1	0	0	1
31	Malus pumila	1	0	0	1
32	Malus sp.	17	0	0	17
33	Nyssa sylvatica	1	39	0	40
34	Pinus densiflora	0	2	0	2
35	Pinus nigra	1	12	0	13
36	Pinus rigida	0	1	0	1

	SPECIES	ZONE			
		Central	East	West	Greenbelt
37	Pinus strobus	0	37	0	37
38	Pinus thunbergii	0	7	1	8
39	Pinus virginiana	3	0	0	3
40	Platanus x acerifolia	21	113	1	135
41	Prunus cerasifera	0	0	6	6
42	Prunus pensylvanica	0	0	5	5
43	Prunus serotina	1	0	0	1
44	Prunus sp.	4	8	0	12
45	Prunus virginiana	1	0	1	2
46	Prunus x yedoensis	11	0	0	11
47	Pyrus calleryana	77	554	81	712
48	Pyrus sylvatica	0	1	0	1
49	Quercus acutissima	1	11	0	12
50	Quercus alba	6	0	0	6
51	Quercus coccinea	1	1	0	2
52	Quercus falcata	1	0	0	1
53	Quercus palustris	42	57	136	235
54	Quercus phellos	36	96	11	143
55	Quercus prinus	1	0	0	1
56	Quercus rubra	7	5	14	26
57	Rhus typhina	1	0	0	1
58	Salix matsudana	2	0	0	2
59	Styrax japonicus	1	0	0	1
60	Taxodium distichum	0	11	1	12
61	Tilia cordata	0	132	1	133
62	Ulmus americana	0	1	0	1
63	Ulmus carpinifolia x parvifolia	14	18	0	32
64	Zelkova serrata	2	37	0	39

## City of Greenbelt - Fall 2013 Street Tree Survey – Species Characteristics

### Genera List (City-wide) – All Genera

	Genus	Common Name	ZONE			
			Central	East	West	Greenbelt
1	<i>Acer</i>	maple	337	146	91	574
2	<i>Betula</i>	birch	0	7	3	10
3	<i>Carya</i>	hickory	0	0	1	1
4	<i>Catalpa</i>	catalpa	1	0	0	1
5	<i>Cercis</i>	redbud	3	3	0	6
6	<i>Cornus</i>	dogwood	2	0	0	2
7	<i>Crataegus</i>	hawthorn	36	14	0	50
8	<i>Cupressus</i>	Leyland cypress	0	3	0	3
9	<i>Fraxinus</i>	ash	2	46	3	51
10	<i>Ginkgo</i>	ginkgo	2	0	0	2
11	<i>Gleditsia</i>	locust	0	63	0	63
12	<i>Hibiscus</i>	Rose of Sharon	1	0	0	1
13	<i>Ilex</i>	holly	1	0	0	1
14	<i>Lagerstroemia</i>	crape myrtle	58	89	42	189
15	<i>Liquidambar</i>	sweetgum	6	46	2	54
16	<i>Magnolia</i>	magnolia	10	0	3	13
17	<i>Malus</i>	crabapple	18	0	0	18
18	<i>Nyssa</i>	black gum	1	39	0	40
19	<i>Pinus</i>	pine	4	59	1	64
20	<i>Platanus</i>	London planetree	21	113	1	135
21	<i>Prunus</i>	cherry	17	8	12	37
22	<i>Pyrus</i>	pear	77	555	81	713
23	<i>Quercus</i>	oak	95	170	161	426
24	<i>Rhus</i>	sumac	1	0	0	1
25	<i>Salix</i>	willow	2	0	0	2
26	<i>Styrax</i>	snowbell	1	0	0	1
27	<i>Taxodium</i>	baldcypress	0	11	1	12
28	<i>Tilia</i>	linden	0	132	1	133
29	<i>Ulmus</i>	elm	14	19	0	33
30	<i>Zelkova</i>	zelkova	2	37	0	39

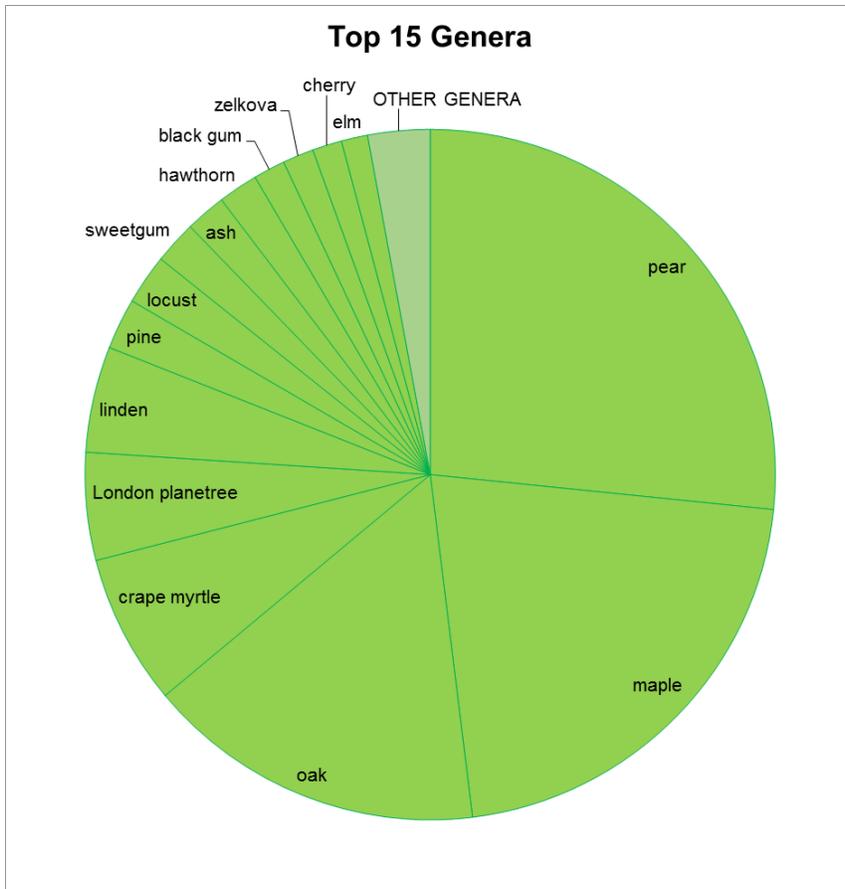
## City of Greenbelt - Fall 2013 Street Tree Survey – Species Characteristics

### Top Genera (City-wide) – Prevalence by Genus

	Genus	Common Name	ZONE			City of Greenbelt	
			Central	East	West	Total	%
1	<i>Pyrus</i>	pear	77	555	81	713	27.7%
2	<i>Acer</i>	maple	337	146	91	574	22.3%
3	<i>Quercus</i>	oak	95	170	161	426	16.5%
4	<i>Lagerstroemia</i>	crape myrtle	58	89	42	189	7.3%
5	<i>Platanus</i>	London planetree	21	113	1	135	5.2%
6	<i>Tilia</i>	linden	0	132	1	133	5.2%
7	<i>Pinus</i>	pine	4	59	1	64	2.5%
8	<i>Gleditsia</i>	locust	0	63	0	63	2.4%
9	<i>Liquidambar</i>	sweetgum	6	46	2	54	2.1%
10	<i>Fraxinus</i>	ash	2	46	3	51	2.0%
11	<i>Crataegus</i>	hawthorn	36	14	0	50	1.9%
12	<i>Nyssa</i>	black gum	1	39	0	40	1.6%
13	<i>Zelkova</i>	zelkova	2	37	0	39	1.5%
14	<i>Prunus</i>	cherry	17	8	12	37	1.4%
15	<i>Ulmus</i>	elm	14	19	0	33	1.3%
16	<i>Malus</i>	crabapple	18	0	0	18	0.7%
17	<i>Magnolia</i>	magnolia	10	0	3	13	0.5%
18	<i>Taxodium</i>	baldcypress	0	11	1	12	0.5%
19	<i>Betula</i>	birch	0	7	3	10	0.4%
20	<i>Cercis</i>	redbud	3	3	0	6	0.2%
21	<i>Cupressus</i>	Leyland cypress	0	3	0	3	0.1%
22	<i>Cornus</i>	dogwood	2	0	0	2	0.1%
23	<i>Ginkgo</i>	ginkgo	2	0	0	2	0.1%
24	<i>Salix</i>	willow	2	0	0	2	0.1%
25	<i>Carya</i>	hickory	0	0	1	1	0.0%
26	<i>Catalpa</i>	catalpa	1	0	0	1	0.0%
27	<i>Hibiscus</i>	Rose of Sharon	1	0	0	1	0.0%
28	<i>Ilex</i>	holly	1	0	0	1	0.0%
29	<i>Rhus</i>	sumac	1	0	0	1	0.0%
30	<i>Styrax</i>	snowbell	1	0	0	1	0.0%

# City of Greenbelt - Fall 2013 Street Tree Survey – Species Characteristics

## Top 15 Genera (City-wide)



Common Name	Total	%
pear	713	27.7%
maple	574	22.3%
oak	426	16.5%
crape myrtle	189	7.3%
London planetree	135	5.2%
linden	133	5.2%
pine	64	2.5%
locust	63	2.4%
sweetgum	54	2.1%
ash	51	2.0%
hawthorn	50	1.9%
black gum	40	1.6%
zelkova	39	1.5%
cherry	37	1.4%
elm	33	1.3%
OTHER GENERA	78	3.0%