

# CITY OF VALPARAISO PUBLIC TREE INVENTORY SUMMARY

*Prepared through the Department of Public Works and the  
Department of Parks and Recreation.*

*Date: 10/2009.*

## ***Executive Summary***

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The City of Valparaiso is a thriving city with beautiful neighborhoods, parks, and recreational facilities combined to create an attractive community and a great place to live, work, and play. The economic health of Valparaiso, as with many communities, is closely related to the ability of the municipal government to supply its citizens with efficient services, safe public spaces, and properly maintained infrastructure. Trees are an integral component of this urban environment. Their shade and beauty contribute to the community's quality of life and soften the hard appearance of concrete structures and streets. They help stabilize the soil by controlling wind and water erosion. Trees also help reduce noise levels, cleanse pollutants from the air, produce oxygen and absorb carbon dioxide, and provide habitat for wildlife.

Trees also provide significant economic benefits, including increased real estate values and more attractive settings in which to locate commercial businesses. Trees provide shade and act as windbreaks, helping to decrease residential energy consumption. Unlike other components of the City's infrastructure, the tree population, with proper care, will actually continue to increase in value with each passing year. When properly maintained, trees return overall benefits and value to the community far in excess of the time and money invested in them for planting, pruning, protection, and removal.

Managing natural resources in urban areas is definitely challenging. Providing adequate maintenance for public trees within a budget is a common concern among many communities. **A successful urban forestry program requires a combination of organized leadership, comprehensive information about the tree population, dedicated personnel, and effective public relations.**

The City of Valparaiso has commissioned a study of its entire street tree resource and a portion of park tree resource to inventory and evaluate the current condition of City-maintained trees to establish an effective planning and management program for this valuable resource. This document summarizes the current forest conditions.



**A diverse and healthy urban forest is a valuable asset.**

## ***The Valparaiso Public Tree Population***

From 2007 to 2009, Davey Resource Group performed a three-phase inventory of trees, stumps, and planting sites along Valparaiso's streets and within City cemeteries and parks. Tree data were collected and analyzed, providing information about the species composition, relative size, health, and maintenance recommendations for the urban forest. Along with the analysis, this report also recommends best management practices and provides long-term planning strategies that will improve maintenance efficiency and tree health.

The major findings of Valparaiso's *Public Tree Inventory Management Plan* include the following:

- Davey Resource Group inventoried 17,206 total trees, stumps, and planting sites. Of these, 16,247 (94.43%) are sites along Streets and 959 (5.57%) are sites within Park/Public Space areas. Of the Park/Public Space trees, 847 (88.32%) are park trees and stumps and 112 (13.22%) are cemetery trees and stumps.
- The total value of Valparaiso's entire inventoried tree population is estimated to be \$19,194,225.29 and the average value per tree is \$1,973.29. This value is not intended, nor should it be used, as a substitute for a detailed inspection and appraisal by a qualified arborist. These amounts are based on a generalized application of the trunk formula method found in the Council of Tree and Landscape Appraisers' publication, *Guide for Plant Appraisal* (2000, 9th Edition).
- Valparaiso's street tree population is comprised of 151 species representing 67 genera. The park/public space tree population is composed of 70 species representing 40 genera.
- Considering only the street tree population, the genus *Acer* (maple) comprises 43.11% of the total street tree population, followed by *Fraxinus* (ash) 6.98%, *Quercus* (oak) 6.56%, *Malus* (apple/crabapple) 5.43%, *Picea* (spruce) 4.65%, *Pyrus* (pear) 4.62%, *Thuja* (arborvitae) 2.78%, *Gleditsia* (honeylocust) 2.41%, *Prunus* (cherry/plum) 2.26%, and *Pinus* (pine) contributing 1.80%.
- The inventoried street tree population is dominated by medium-sized trees (diameter at breast height [DBH] between 7 and 25 inches). Medium-sized trees comprise 48.24% of the population. Small-sized trees (with a DBH less than 6 inches) represent 36.40% of the population and the remaining 15.36% of the street tree population are large-sized trees (DBH 25 inches and greater).
- There are 3 (0.03%) inventoried street trees rated in Excellent condition, 134 (1.52%) street trees are in Very Good condition, 2,065 (23.44%) street trees are in Good condition, 5,333 (60.53%) street trees are in Fair condition, 1,046 (11.87%) street trees are in Poor condition, and 140 (1.59%) street trees are in Critical condition. There are 90 (1.02%) Dead trees along the City's streets.
- Along streets and within cemeteries, there are 2,027 trees (22.72%) recommended for priority maintenance work. Of these, 274 (13.52%) are recommended for Priority 1 Removal, 206 (10.16%) are recommended for Priority 2 Removal, and 207 (10.21%) are recommended for Priority 3 Removal. There are 528 (26.05%) street trees recommended for Priority 1 Prune, and 812 (40.06%) recommended for Priority 2 Prune. Additionally, Large Tree Routine Prune is recommended for 4,134 (46.34%) trees, Small Tree Routine Prune is recommended for 765 (8.58%) trees, and Training Prune is recommended for 1,995 (22.36%) trees.

- Within the three parks inventoried, there are 428 trees (53.04%) recommended for priority maintenance work. Of these, 58 (13.55%) are recommended for Priority 1 Removal, 56 (13.08%) are recommended for Priority 2 Removal, and 7 (1.64%) are recommended for Priority 3 Removal. There are 139 (32.48%) street trees recommended for Priority 1 Prune, and 168 (39.25%) recommended for Priority 2 Prune. Large Tree Routine Prune is recommended for 295 (36.56%) park trees, Small Tree Routine Prune is recommended for 14 (1.73%) park trees, and Training Prune is recommended for 69 (8.55%) park trees.

# City of Valparaiso Inventory Summary

The City of Valparaiso, Indiana combines a charming downtown district with beautiful neighborhoods and delightful recreational facilities to create an attractive community and a great place to live, work, play, and study. The economic health of Valparaiso, as with many communities, is closely related to the ability of the municipal government to supply its citizens with efficient services, safe public spaces, and properly maintained infrastructure. Trees are an integral component of this urban environment. Their shade and beauty contribute to the community's quality of life and soften the hard appearance of concrete and brick structures and streets. They help stabilize the soil by controlling wind and water erosion. Trees also help reduce noise levels, cleanse atmospheric pollutants, produce oxygen and absorb carbon dioxide, and provide habitat for wildlife.

Trees also provide significant economical benefits, including increased real estate values and more attractive settings in which to locate commercial businesses. Trees provide shade and act as windbreaks, helping to decrease residential energy consumption. Unlike other components of the City's infrastructure, the tree population, with proper care, will actually continue to increase in value with each passing year. When properly maintained, trees return overall benefits and value to the community far in excess of the time and money invested in them for planting, pruning, protection, and removal.

Managing natural resources in urban areas is challenging at best. For many communities, finding suitable space for trees among roads, buildings, sewers, utility, and gas lines is difficult. Frequently, a greater concern is providing adequate maintenance within budget constraints. A combination of organized leadership coupled with comprehensive information about the City's public tree population, dedicated personnel, and effective public relations will lead to a successful urban forestry program.

The Department of Public Works played an instrumental role in advocating the benefits of an inventory to help better manage Valparaiso's urban forest resource. Coordinated by Public Works staff, the City of Valparaiso sought out grant monies for 2009 to be used toward funding the City's current public tree inventory. The City was rewarded by the Community and Urban Forestry Program, Indiana Department of Natural Resources, Division of Forestry, for a third phase of their inventory. The purpose of an inventory is to study and evaluate the current condition of public trees ultimately establishing an effective planning and management program for this valuable resource. This document only summarizes the findings from the third phase.



**Managing a public urban forest by means of a successful urban forestry program requires a combination of organized leadership, comprehensive information about the tree population, dedicated personnel, and effective public relations.**

## ***The City of Valparaiso's Public Tree Inventory, Phase III***

Davey Resource Group recorded 3,035 trees, stumps, and planting sites during the final phase of a three-phased inventory. Tree data were collected and analyzed, providing information on species composition, relative size, and health of the urban forest. The numbers in this document only reflect data collected in the third phase.

The major findings of Valparaiso's third phase public tree inventory include the following:

- There are 2,076 (68.40%) sites located along streets, 112 (3.69%) trees and stumps inventoried in cemeteries, and 847 (27.91%) trees and stumps inventoried in parks.
- Of the sites inventoried along streets, there are 810 (39.02%) trees, 9 (0.43%) stumps, and 1,257 (60.55%) vacant planting spaces.
- The third phase tree inventory is comprised of 82 species representing 45 genera.
- The genus *Quercus* (oak) comprises 23.51% of this tree population, followed by *Acer* (maple) 22.50%, *Fraxinus* (ash) 14.68%, *Picea* (spruce) 4.11%, *Carya* (hickory) 3.66%, *Pyrus* (pear) 3.43%, *Tilia* (linden) 3.04%, *Malus* (apple) 2.47%, *Pinus* (pine) 1.97%, and *Prunus* (cherry/plum) contributing 1.86%. Stumps make up 2.92% of the total tree population along streets and in parks.
- The latest inventoried tree population has high percentages, 37.68% and 47.42%, respectively, of small- and medium-sized trees. Small trees are 6 inches and less in diameter at breast height (DBH) and medium-sized trees are 7 to 24 inches DBH. Of the inventoried street and park trees, 14.90% are large sized (25 inches and greater DBH).
- Of the 1,726 trees inventoried, there are 0 trees in Excellent condition, 26 (1.51%) in Very Good condition, 156 (9.04%) in Good condition, 1,124 (65.12%) in Fair condition, 331 (19.18%) in Poor condition, and 69 (4.00%) in Critical condition. There are 20 trees (1.16%) rated as Dead.
- For all streets, cemeteries, and parks, there are 228 trees (12.82%) recommended for removal. Of these, 82 are recommended for Priority 1 Removal, 79 are recommended for Priority 2 Removal, and 67 are recommended for Priority 3 Removal. There are 52 stumps that are in need of grinding.
- There are 176 (9.90%) trees recommended for Priority 1 Prune and 228 (12.82%) recommended for Priority 2 Prune. Large Tree Routine Prune is recommended for 597 (33.58%) trees, Small Tree Routine Prune is recommended for 46 (2.59%) trees, and Training Prune is recommended for 451 (25.37%) trees.
- There are 1,257 sites recommended for planting along streets. Of these, 452 (35.96%) sites are Vacant Small Sites, 225 (17.90%) are Vacant Medium Sites, and 580 (46.14%) are Vacant Large Sites.

The public tree inventory provides comprehensive information about Valparaiso's urban forest resource. The following frequency reports only include tree data from the third inventory phase. The reports illustrate the urban forest's species composition, genus and size distribution, tree condition, and maintenance recommendations. With the long-awaited acquired combination of the first, second, and third phase and a *Public Tree Inventory Management Plan* based on inventory data, Valparaiso has shown a strong commitment to a comprehensive public tree inventory and a successful forestry program.

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***Attachment A***  
***Frequency Reports***

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**Valparaiso, IN**  
**Quantity Report: Common**

<i>Common</i>	<i>Total</i>	<i>Percentage of Entire Population</i>
oak, white	212	11.92%
maple, red	194	10.91%
ash, white	165	9.28%
oak, northern red	131	7.37%
maple, sugar	99	5.57%
ash, green	83	4.67%
pear, callery	61	3.43%
maple, silver	61	3.43%
stump	52	2.92%
spruce, Colorado	50	2.81%
linden, American	47	2.64%
crabapple, flowering	43	2.42%
hickory, shagbark	38	2.14%
hawthorn, spp.	30	1.69%
cherry, black	29	1.63%
maple, Norway	25	1.41%
spruce, Norway	23	1.29%
arborvitae, eastern	23	1.29%
walnut, black	20	1.12%
oak, pin	20	1.12%
elm, slippery	19	1.07%
oak, black	18	1.01%
pine, eastern white	16	0.90%
mulberry, white	16	0.90%
hickory, pignut	16	0.90%
oak, bur	15	0.84%
boxelder	14	0.79%
locust, black	13	0.73%
hophornbeam, American	13	0.73%
honeylocust, thornless	13	0.73%
birch, river	13	0.73%
ash, European	13	0.73%
oak, swamp white	12	0.67%
douglas-fir	12	0.67%
serviceberry, spp.	10	0.56%



<i>Common</i>	<i>Total</i>	<i>Percentage of Entire Population</i>
tree-of-heaven	8	0.45%
pine, Scotch	8	0.45%
oak, shingle	8	0.45%
hickory, mockernut	8	0.45%
redbud, eastern	7	0.39%
linden, littleleaf	7	0.39%
beech, American	7	0.39%
tuliptree	6	0.34%
pine, jack	6	0.34%
Kentucky coffeetree	6	0.34%
dogwood, flowering	6	0.34%
cottonwood, eastern	6	0.34%
sycamore, American	4	0.22%
hackberry, common	4	0.22%
elm, American	4	0.22%
beech, European	4	0.22%
redcedar, eastern	3	0.17%
pine, red	3	0.17%
maple, black	3	0.17%
hickory, bitternut	3	0.17%
hemlock, eastern	3	0.17%
ginkgo	3	0.17%
elm, Siberian	3	0.17%
catalpa, northern	3	0.17%
buckeye, Ohio	3	0.17%
autumn-olive	3	0.17%
willow, spp.	2	0.11%
unknown	2	0.11%
pine, Austrian	2	0.11%
peach, common	2	0.11%
oak, willow	2	0.11%
maple, spp.	2	0.11%
maple, Japanese	2	0.11%
magnolia, saucer	2	0.11%
blackgum	2	0.11%
smoketree, American	1	0.06%
serviceberry, downy	1	0.06%
sassafras	1	0.06%

<i>Common</i>	<i>Total</i>	<i>Percentage of Entire Population</i>
plum, American	1	0.06%
magnolia, star	1	0.06%
hornbeam, American	1	0.06%
fir, balsam	1	0.06%
dogwood, spp.	1	0.06%
dogwood, pagoda	1	0.06%
dogwood, Kousa	1	0.06%
cherry/plum, spp.	1	0.06%
apple, common	1	0.06%
<b>Grand Total</b>	1778	100%



**Valparaiso, IN**  
**Quantity Report: Botanical**

<i>Botanical</i>	<i>Total</i>	<i>Percentage of Entire Population</i>
Quercus alba	212	11.92%
Acer rubrum	194	10.91%
Fraxinus americana	165	9.28%
Quercus rubra	131	7.37%
Acer saccharum	99	5.57%
Fraxinus pennsylvanica	83	4.67%
Pyrus calleryana	61	3.43%
Acer saccharinum	61	3.43%
stump	52	2.92%
Picea pungens	50	2.81%
Tilia americana	47	2.64%
Malus spp.	43	2.42%
Carya ovata	38	2.14%
Crataegus spp.	30	1.69%
Prunus serotina	29	1.63%
Acer platanoides	25	1.41%
Thuja occidentalis	23	1.29%
Picea abies	23	1.29%
Quercus palustris	20	1.12%
Juglans nigra	20	1.12%
Ulmus rubra	19	1.07%
Quercus velutina	18	1.01%
Pinus strobus	16	0.90%
Morus alba	16	0.90%
Carya glabra	16	0.90%
Quercus macrocarpa	15	0.84%
Acer negundo	14	0.79%
Robinia pseudoacacia	13	0.73%
Ostrya virginiana	13	0.73%
Gleditsia triacanthos inermis	13	0.73%
Fraxinus excelsior	13	0.73%
Betula nigra	13	0.73%
Quercus bicolor	12	0.67%
Pseudotsuga menziesii	12	0.67%
Amelanchier spp.	10	0.56%

<i>Botanical</i>	<i>Total</i>	<i>Percentage of Entire Population</i>
Quercus imbricaria	8	0.45%
Pinus sylvestris	8	0.45%
Carya tomentosa	8	0.45%
Ailanthus altissima	8	0.45%
Tilia cordata	7	0.39%
Fagus grandifolia	7	0.39%
Cercis canadensis	7	0.39%
Populus deltoides	6	0.34%
Pinus banksiana	6	0.34%
Liriodendron tulipifera	6	0.34%
Gymnocladus dioica	6	0.34%
Cornus florida	6	0.34%
Ulmus americana	4	0.22%
Platanus occidentalis	4	0.22%
Fagus sylvatica	4	0.22%
Celtis occidentalis	4	0.22%
Ulmus pumila	3	0.17%
Tsuga canadensis	3	0.17%
Pinus resinosa	3	0.17%
Juniperus virginiana	3	0.17%
Ginkgo biloba	3	0.17%
Elaeagnus umbellata	3	0.17%
Catalpa speciosa	3	0.17%
Carya cordiformis	3	0.17%
Aesculus glabra	3	0.17%
Acer nigrum	3	0.17%
unknown	2	0.11%
Salix spp.	2	0.11%
Quercus phellos	2	0.11%
Prunus persica	2	0.11%
Pinus nigra	2	0.11%
Nyssa sylvatica	2	0.11%
Magnolia x soulangiana	2	0.11%
Acer spp.	2	0.11%
Acer palmatum	2	0.11%
Sassafras albidum	1	0.06%
Prunus spp.	1	0.06%
Prunus americana	1	0.06%

<i>Botanical</i>	<i>Total</i>	<i>Percentage of Entire Population</i>
Malus pumila	1	0.06%
Magnolia stellata	1	0.06%
Cotinus obovatus	1	0.06%
Cornus spp.	1	0.06%
Cornus kousa	1	0.06%
Cornus alternifolia	1	0.06%
Carpinus caroliniana	1	0.06%
Amelanchier arborea	1	0.06%
Abies balsamea	1	0.06%
<b>Grand Total</b>	1778	100%



**Valparaiso, IN**  
**Quantity Report: Genus**

<i>Genus</i>	<i>Total</i>	<i>Percentage of Entire Population</i>
Quercus	418	23.51%
Acer	400	22.50%
Fraxinus	261	14.68%
Picea	73	4.11%
Carya	65	3.66%
Pyrus	61	3.43%
Tilia	54	3.04%
stump	52	2.92%
Malus	44	2.47%
Pinus	35	1.97%
Prunus	33	1.86%
Crataegus	30	1.69%
Ulmus	26	1.46%
Thuja	23	1.29%
Juglans	20	1.12%
Morus	16	0.90%
Robinia	13	0.73%
Ostrya	13	0.73%
Gleditsia	13	0.73%
Betula	13	0.73%
Pseudotsuga	12	0.67%
Fagus	11	0.62%
Amelanchier	11	0.62%
Cornus	9	0.51%
Ailanthus	8	0.45%
Cercis	7	0.39%
Populus	6	0.34%
Liriodendron	6	0.34%
Gymnocladus	6	0.34%
Platanus	4	0.22%
Celtis	4	0.22%
Tsuga	3	0.17%
Magnolia	3	0.17%
Juniperus	3	0.17%
Ginkgo	3	0.17%

<i>Genus</i>	<i>Total</i>	<i>Percentage of Entire Population</i>
Elaeagnus	3	0.17%
Catalpa	3	0.17%
Aesculus	3	0.17%
unknown	2	0.11%
Salix	2	0.11%
Nyssa	2	0.11%
Sassafras	1	0.06%
Cotinus	1	0.06%
Carpinus	1	0.06%
Abies	1	0.06%
<b>Grand Total</b>	<b>1778</b>	<b>100%</b>



**Valparaiso, IN**  
**Quantity Report: Diameter Class**

<i>Diameter Class</i>	<i>Total</i>	<i>Percentage of Entire Population</i>
1 - 3	383	21.54%
7 - 12	307	17.27%
4 - 6	287	16.14%
19 - 24	286	16.09%
13 - 18	250	14.06%
25 - 30	129	7.26%
31 - 36	79	4.44%
37 - 42	44	2.47%
43 +	13	0.73%
<b>Grand Total</b>	<b>1778</b>	<b>100%</b>





**Valparaiso, IN**  
**Quantity Report: Condition**

<i>Condition</i>	<i>Total</i>	<i>Percentage of Entire Population</i>
Fair	1124	65.12%
Poor	331	19.18%
Good	156	9.04%
Critical	69	4.00%
Very Good	26	1.51%
Dead	20	1.16%
<b>Grand Total</b>	<b>1726</b>	<b>100%</b>



**Valparaiso, IN**  
**Quantity Report: Common**

<i>Common</i>	<i>Total</i>	<i>Percentage of Entire Population</i>
vacant site, large	580	46.14%
vacant site, small	452	35.96%
vacant site, medium	225	17.90%
<b>Grand Total</b>	<b>1257</b>	<b>100%</b>



**Valparaiso, IN**  
**Quantity Report: Maintenance**

<i>Maintenance</i>	<i>Total</i>	<i>Percentage of Entire Population</i>
Large Tree Routine Prune	597	33.58%
Training Prune	451	25.37%
Priority 2 Prune	228	12.82%
Priority 1 Prune	176	9.90%
Priority 1 Removal	82	4.61%
Priority 2 Removal	79	4.44%
Priority 3 Removal	67	3.77%
Stump Removal	52	2.92%
Small Tree Routine Prune	46	2.59%
<b>Grand Total</b>	<b>1778</b>	<b>100%</b>