

## Appendix B

### How to Plant with a Purpose: Trees for Neighborhood Equity

“Right Tree, Right Place” is an urban forestry concept typically associated with planting around utilities. However, this concept should guide decisions and planning for *every* planting project. What do we want our trees to do? What benefits do we need to realize from this planting project? Why are we planting trees? Planting trees purposefully (meeting a benefit need) ensures that trees provide the greatest benefits to communities with the highest need.

**Strategies for Purposeful Planting.** For each tree planting project, desired outcomes should be defined in advance and link to improvements in city quality of life.

Davey Resource Group has developed this tree planting strategy guide based on data from the 2013 urban tree canopy analysis, demographic data, and i-Tree benefit models. Potential tree planting project objectives needing improvement in Cleveland include existing tree canopy, stormwater retention, energy savings, urban heat island mitigation, human health, economic development potential, equity, use of available vacant land, large land ownership cooperation, and neighborhood support. As shown in Table 1, the results were ranked by neighborhood and also grouped into three categories that reflect the degree of need (*red* suggests high need, *green* suggests moderate need, and *yellow* suggests low need). For example, air quality improvements and asthma reduction are two social benefits of trees (Table 1). Objective-based planting may mitigate air pollutants and yield lesser rates of asthma.

The following sections shed light on potential needs by neighborhood. Tree planting activity that is guided by clear objectives will help Cleveland strategically determine why and where tree planting efforts should be concentrated. Purposeful planting means that Cleveland’s urban forestry partners will use this information to prioritize needs that can be improved through tree planting, match neighborhood needs to funders’ missions and work to narrow the gap between neighborhood canopy cover and the need for benefits.

Different species can provide more efficient benefits and the i-Tree Species tool can assist with selecting suitable tree species for the desired tree function. Table 2 lists the top 10% of tree species (out of 1,600 in i-Tree Species database) recommended for planting in Cleveland, Ohio. A more comprehensive list can be created in i-Tree Species, but not all listed species should be planted in the northeast region of Ohio. Special consideration should be made for planting tree species suited for the northeast region of Ohio. Each of the species listed in Table 2 is included in the recommended Species Selection list provided in this plan (see Appendix A).

**Table 1. Cleveland Neighborhood Canopy Cover Compared to Purposeful Planting Objectives and the Relative Need for Benefits**

Neighborhoods	HIGH NEED	MEDIUM NEED	LOW NEED	Socio-Economic Factors			Risk of Stormwater Runoff Ranking	Energy Savings	Urban Heat Island Ranking	Human Health			Increases in Property Value from Canopy	Median Household Income
	Canopy Cover	Relative Canopy Cover	Population Density (pp per sq mi)	% of Workforce Unemployed	Child Poverty Rate	Combined Needs/Equity Ranking				Value of Air Quality Benefits from Trees	Population with Asthma	% Elderly Population		
Bellaire-Puritas	15%	21%	1,242	16%	33%	9	21	\$114,537	6	\$49,269	11%	21%	\$168,371	\$32,861
Broadway-Slavic Village	18%	25%	921	29%	35%	20	24	\$205,774	15	\$79,590	11%	16%	\$252,807	\$23,332
Brooklyn Centre	24%	32%	4,476	19%	39%	24	22	\$78,192	18	\$33,720	13%	14%	\$89,266	\$27,152
Buckeye-Shaker Square	25%	35%	9,052	13%	26%	13	3	\$70,632	34	\$28,101	14%	23%	\$108,067	\$31,191
Buckeye-Woodhill	24%	33%	5,036	41%	47%	34	5	\$46,395	24	\$28,333	14%	21%	\$96,566	\$15,013
Central	13%	18%	2,036	41%	50%	32	7	\$13,683	8	\$28,981	14%	12%	\$66,759	\$10,258
Clark-Fulton	20%	29%	8,630	26%	36%	26	9	\$71,804	19	\$17,893	13%	15%	\$57,919	\$26,456
Collinwood-Nottingham	14%	19%	1,197	22%	34%	12	19	\$76,410	5	\$42,312	11%	19%	\$149,325	\$27,168
Cudell	16%	24%	7,625	23%	37%	27	14	\$46,520	7	\$16,572	15%	11%	\$58,637	\$24,082
Cuyahoga Valley	5%	7%	354	17%	36%	7	33	\$3,908	2	\$17,831	15%	9%	\$18,802	\$19,811
Detroit Shoreway	19%	27%	4,295	18%	29%	16	16	\$67,157	22	\$26,864	15%	17%	\$80,934	\$24,430
Downtown	4%	8%	1,257	13%	10%	3	32	\$353	3	\$10,891	14%	9%	\$12,613	\$37,393
Edgewater	30%	40%	8,850	10%	21%	8	25	\$43,748	30	\$23,429	15%	14%	\$76,371	\$32,405
Euclid-Green	39%	50%	4,125	18%	33%	11	31	\$75,405	23	\$42,556	11%	18	\$197,542	\$41,660
Fairfax	18%	25%	2,210	28%	44%	22	10	\$42,307	14	\$27,195	14%	32%	\$95,162	\$19,934
Glenville	26%	35%	1,800	26%	39%	29	18	\$323,668	28	\$94,394	11%	28%	\$321,309	\$20,998
Goodrich-Kirtland Park	8%	15%	1,381	14%	28%	4	27	\$9,224	4	\$13,696	14%	23%	\$25,930	\$24,092
Airport (Hopkins)	9%	17%	165	18%	49%	14	34	\$10,701	1	\$33,850	11%	22%	\$39,735	\$33,310
Hough	24%	33%	4,631	28%	43%	33	8	\$97,169	31	\$39,018	14%	26%	\$157,976	\$22,223
Jefferson	17%	24%	2,346	12%	38%	18	4	\$171,045	11	\$42,664	11%	18%	\$142,677	\$40,560
Kamm's	34%	44%	1,027	10%	26%	5	28	\$403,185	29	\$160,761	11%	20%	\$459,043	\$49,377
Kinsman	22%	29%	2,871	32%	45%	30	1	\$49,363	16	\$34,805	14%	23%	\$111,817	\$13,899
Lee-Harvard	20%	26%	3,605	20%	37%	21	2	\$134,957	32	\$31,222	11%	41%	\$109,730	\$39,142
Lee-Seville	21%	26%	2,421	30%	33%	17	26	\$67,533	10	\$28,020	11%	35%	\$102,304	\$35,563
Mount Pleasant	22%	31%	3,348	25%	35%	23	6	\$162,431	33	\$46,822	11%	26%	\$192,622	\$23,772
North Shore Collinwood	22%	31%	2,977	17%	30%	15	20	\$123,889	26	\$48,065	11%	22%	\$177,095	\$36,293
Ohio City	22%	34%	5,180	14%	32%	10	13	\$42,323	21	\$23,657	15%	13%	\$63,575	\$20,655
Old Brooklyn	22%	29%	961	12%	31%	6	23	\$358,912	17	\$126,266	13%	20%	\$350,141	\$40,890
St. Clair-Superior	19%	27%	2,519	28%	34%	19	29	\$57,261	12	\$29,723	14%	18%	\$84,734	\$21,434
Stockyards	16%	22%	3,755	27%	37%	25	12	\$64,264	13	\$25,501	13%	17%	\$75,968	\$22,896
Tremont	17%	24%	1,987	9%	26%	1	15	\$33,937	9	\$26,154	15%	12%	\$68,706	\$25,994
Union-Miles	22%	29%	1,849	30%	40%	31	17	\$255,206	25	\$66,627	11%	30%	\$263,988	\$25,973
University	26%	38%	2,675	10%	6%	2	30	\$16,822	20	\$37,833	14%	22%	\$61,769	\$10,609
West Boulevard	20%	29%	5,287	18%	38%	28	11	\$145,758	27	\$36,801	13%	14%	\$131,073	\$33,659

**Table 2. Top 10% of Species for Selected Benefit Functions for Cleveland, Ohio**

Tree Species	Streamflow Reduction	Building Energy Reduction	Wind Reduction	Air Temperature Reduction	UV Radiation Reduction	Overall Air Pollutant Removal	Specific Air Pollutant Removal					Carbon Storage	Low VOC Emissions	Low Allergenicity
							Carbon Monoxide	Nitrogen Dioxide	Sulfur Dioxide	Ozone	Particulate Matter			
<i>Abies concolor</i>			X		X						X			
<i>Abies nordmanniana</i>			X								X			X
<i>Acer × freemanii</i>	X	X		X		X		X	X	X		X		
<i>Aesculus flava</i>	X	X		X		X	X	X	X	X		X		
<i>Aesculus glabra</i>	X	X		X		X	X	X	X	X				
<i>Asimina triloba</i>														X
<i>Carpinus betulus</i>						X	X			X			X	
<i>Celtis laevigata</i>		X			X		X			X		X		
<i>Cercidiphyllum japonicum</i>														X
<i>Cladrastis kentukea</i>												X		
<i>Diospyros virginiana</i>														X
<i>Fagus sylvatica</i>		X			X	X	X			X		X		
<i>Halesia tetraptera</i>							X						X	X
<i>Ginkgo biloba</i>	X	X							X	X		X		
<i>Gymnocladus dioicus</i>												X		
<i>Liquidambar styraciflua</i>	X	X		X					X	X				
<i>Liriodendron tulipifera</i>	X	X	X	X		X	X	X	X	X		X		
<i>Magnolia acuminata</i>	X	X	X	X		X		X	X			X		
<i>Metasequoia glyptostroboides</i>	X	X		X		X		X	X	X				
<i>Ostrya virginiana</i>						X				X				
<i>Pinus rigida</i>			X		X									
<i>Pinus virginiana</i>					X									
<i>Platanus × acerifolia</i>	X	X		X	X			X	X			X		
<i>Quercus bicolor</i>												X		
<i>Quercus imbricaria</i>												X		
<i>Quercus macrocarpa</i>					X							X		
<i>Quercus meuhlenbergii</i>					X							X		
<i>Quercus palustris</i>												X		
<i>Quercus robur</i>					X							X		
<i>Quercus rubra</i>					X							X		
<i>Quercus shumardii</i>	X	X		X				X	X			X		
<i>Taxodium distichum</i>	X							X	X					
<i>Tilia americana</i>	X	X	X	X		X	X	X	X	X		X		
<i>Tilia cordata</i>	X	X		X		X		X	X					
<i>Tilia tomentosa</i>	X	X		X		X	X	X	X	X				
<i>Ulmus americana</i>	X	X	X	X		X	X	X	X	X		X	X	
<i>Ulmus parvifolia</i>						X	X		X				X	
<i>Zelkova serrata</i>	X	X		X		X	X	X	X	X		X		









## Stormwater Retention

Trees play a significant role in stormwater management (alongside watershed topography, soil type, and prevalence of impervious surfaces). Trees can reduce the amount of stormwater that enters into sewer systems by acting as mini-reservoirs, which is especially important in highly developed urban areas like Cleveland. One hundred mature trees can intercept roughly 100,000 gallons of rainfall per year (USFS 2003). And for every 5% of tree cover added to a community, stormwater runoff is reduced by approximately 2% (Coder 1996). Trees also trap contaminants (oils, solvents, pesticides, and fertilizers), which often mix with rainwater after flowing across parking lots or lawns, thus reducing pollutants that enter waterways. The amounts of tree canopy and impervious surface within an urban watershed influence the quantity of stormwater that needs to be managed.

**Where to Plant.** Factoring in many of these considerations for the watershed, Figure 6 illustrates the need for stormwater management by neighborhood. Cleveland neighborhoods with the greatest need for stormwater management improvements (increasing canopy and decreasing impervious surfaces) include Buckeye-Shaker Square, Buckeye-Woodhill, Central, Clark-Fulton, Collinwood-Nottingham, Cudell, Detroit Shoreway, Fairfax, Glenville, Hough, Jefferson, Kinsman, Lee-Harvard, North Shore Collinwood, Ohio City, Stockyards, Tremont, Union-Miles, and West Boulevard. These neighborhoods may warrant financial, technical, and implementation assistance towards increasing canopy.

**What to Plant.** Trees reduce the volume and speed of rainwater during a rain event due to the amount of surface area in their trunk, branches, and leaves and their water-absorbing capabilities from the roots (directly) and surrounding soil (indirectly). Generally, planting large-growing trees creates the greatest stormwater management impact. There are a few tree species which perform this function best, and the top 10% for Cleveland are listed in Table 3. Planting trees on public and private land within industrial, commercial, and institutional land uses of Cleveland may lead to the greatest change in water retention.

**Table 3. Top 10% of Species that Contribute Stormwater Retention Benefits for Cleveland, Ohio**

<i>Acer × freemanii</i>
<i>Aesculus flava</i>
<i>Aesculus glabra</i>
<i>Ginkgo biloba</i>
<i>Liquidambar styraciflua</i>
<i>Liriodendron tulipifera</i>
<i>Magnolia acuminata</i>
<i>Metasequoia glyptostroboides</i>
<i>Platanus × acerifolia</i>
<i>Quercus shumardii</i>
<i>Taxodium distichum</i>
<i>Tilia americana</i>
<i>Tilia cordata</i>
<i>Tilia tomentosa</i>
<i>Ulmus americana</i>
<i>Zelkova serrata</i>

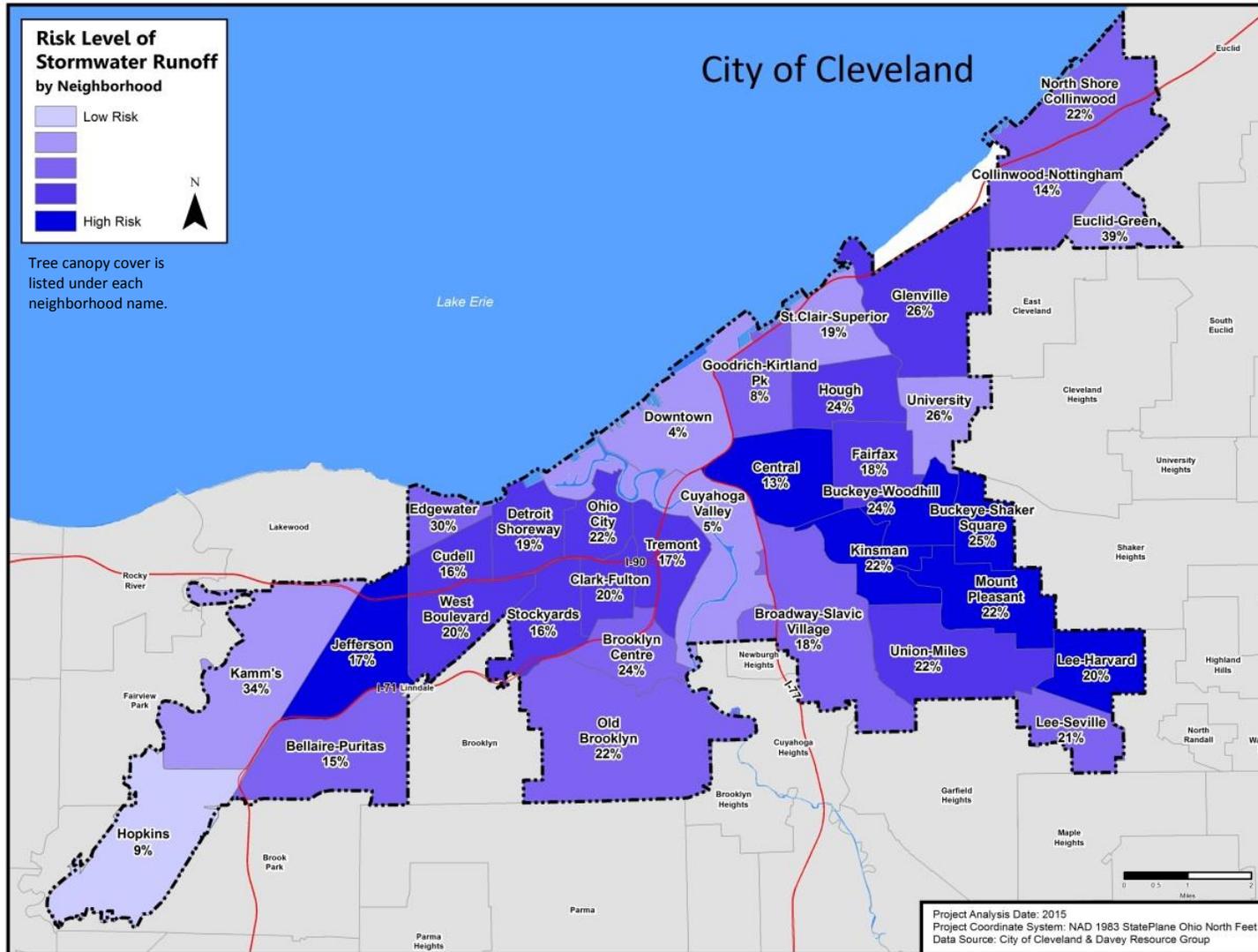


Figure 6. Stormwater retention needs by neighborhood.

## Energy Savings

When trees are properly placed around houses, offices, and businesses, their shade and windbreak can reduce cooling and heating energy uses. Trees also reduce surrounding air temperatures by releasing water vapor, which further reduces the need for air conditioning.

**Where to Plant.** Factoring in the prevalence of real estate in correlation to the prevalence of canopy, Figure 7 illustrates estimated energy conservation benefits through tree canopy by neighborhood. Cleveland neighborhoods with the greatest need to increase canopy near buildings include Buckeye-Woodhill, Central, Cudell, Cuyahoga Valley, Downtown, Edgewater, Fairfax, Goodrich-Kirtland Park, Kinsman, Ohio City, St.Clair-Superior, Tremont, and University. These neighborhoods may warrant greater planning, and more financial and technical assistance to strategically implement more tree canopy.

**What to Plant.** Planting large-growing trees will generally create the greatest impact because those trees provide the highest amount of shade and wind block for air conditioned and heated spaces. The top 10% of species that best perform this function for Cleveland are listed in Table 4. Planting trees on public and private land within residential, commercial, and institutional land uses of Cleveland may lead to the greatest change in energy savings.

**Table 4. Top 10% of Species that Can Improve Energy Savings for Cleveland, Ohio**

Species that Reduce Energy Usage Best for Improved Performance in Energy Savings.	Species Best Used to Break Penetrating Winds for Improved Performance in Energy Savings.
<i>Acer × freemanii</i>	<i>Abies concolor</i>
<i>Aesculus flava</i>	<i>Abies nordmanniana</i>
<i>Aesculus glabra</i>	<i>Liriodendron tulipifera</i>
<i>Celtis laevigata</i>	<i>Magnolia acuminata</i>
<i>Fagus sylvatica</i>	<i>Pinus rigida</i>
<i>Ginkgo biloba</i>	<i>Ulmus americana</i>
<i>Liquidambar styraciflua</i>	<i>Tilia americana</i>
<i>Liriodendron tulipifera</i>	
<i>Magnolia acuminata</i>	
<i>Metasequoia glyptostroboides</i>	
<i>Platanus × acerifolia</i>	
<i>Quercus shumardii</i>	
<i>Tilia americana</i>	
<i>Tilia cordata</i>	
<i>Tilia tomentosa</i>	
<i>Ulmus americana</i>	
<i>Zelkova serrata</i>	

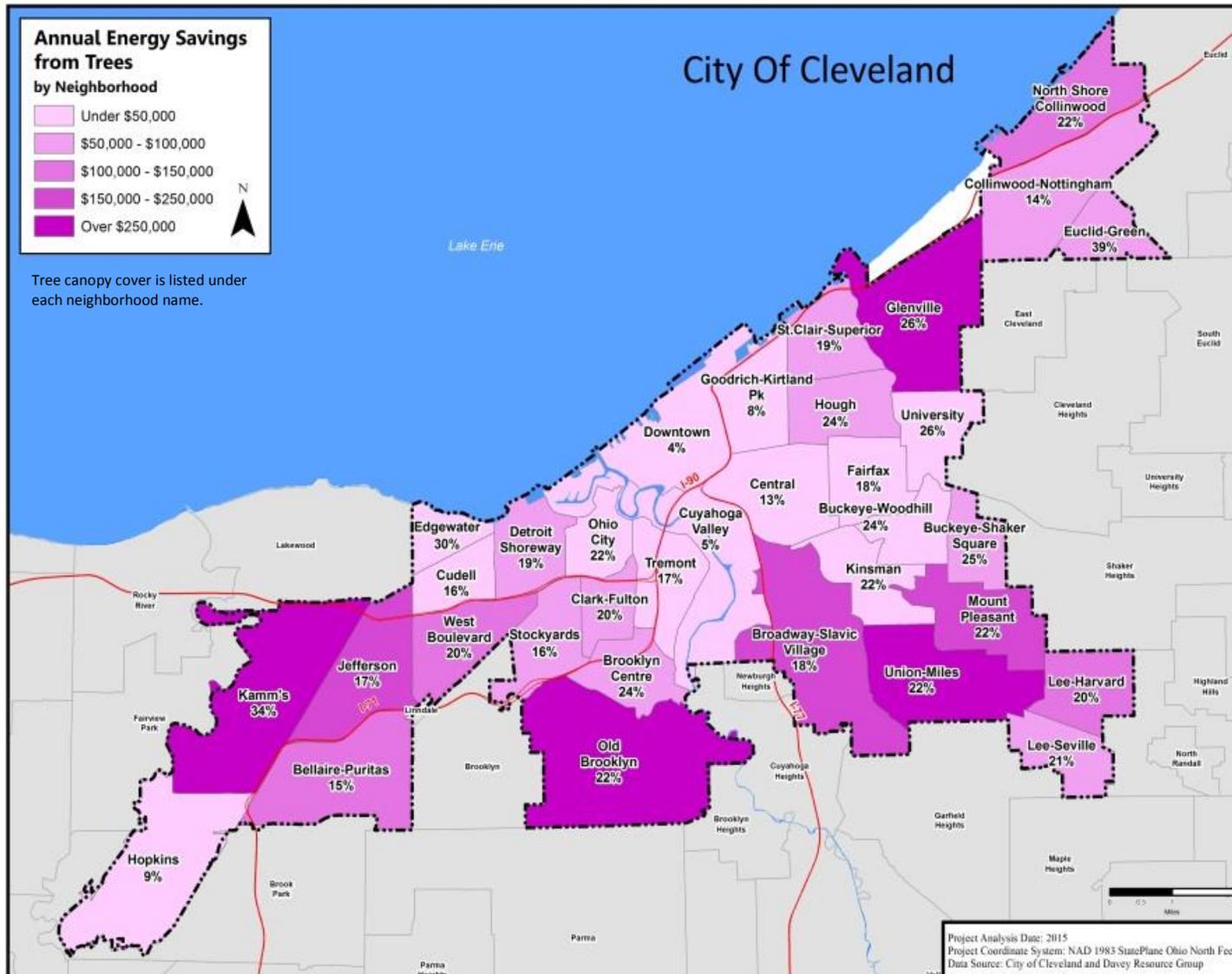


Figure 7. Annual energy savings from trees by neighborhood.

## Mitigating Urban Heat Island Effect

Heat islands are caused by impervious surfaces including buildings, streets, driveways, and parking lots. Within one urban geographical area, large concentrations of impervious surface types and small concentrations of tree canopy cover negatively affect ambient air temperatures. When little to no shade is cast over heat-absorbing surfaces, the area is prone to prolonged higher temperatures throughout the night; and if temperatures are high the following day, the issue can be compounded because the air has not had the proper time to cool.

**Where to Plant.** Figure 9 illustrates where heat islands are greatest and lowest within Cleveland by neighborhood. Cleveland neighborhoods with the greatest need to reduce their heat island over impervious surfaces include: Collinwood-Nottingham, Cuyahoga Valley, Downtown, and Goodrich-Kirtland Park. The neighborhoods with a high need to lower their heat island hot spots may warrant greater planning, and more financial and technical assistance to strategically implement more tree canopy.

**What to Plant.** Planting large-growing trees will generally create the greatest impact because those trees will provide the greatest amount of shade over impervious surfaces. The top 10% of species that perform this function the best for Cleveland are listed in Table 5. Planting trees on public and private land within residential, recreational open spaces, and commercial land uses of Cleveland may lead to the greatest change in heat island.

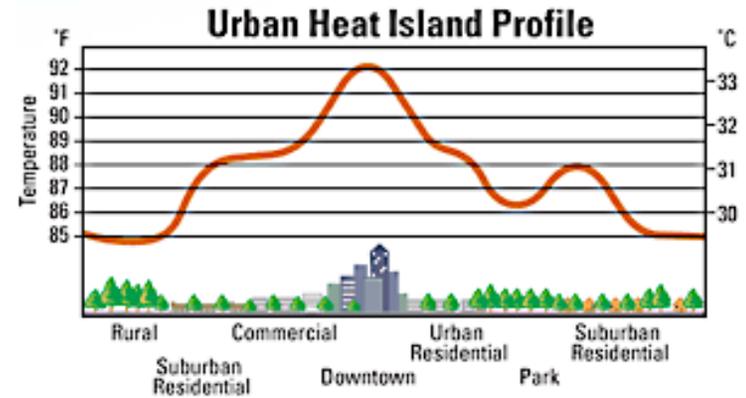


Figure 8. Urban heat island profile for typical urban-rural transect

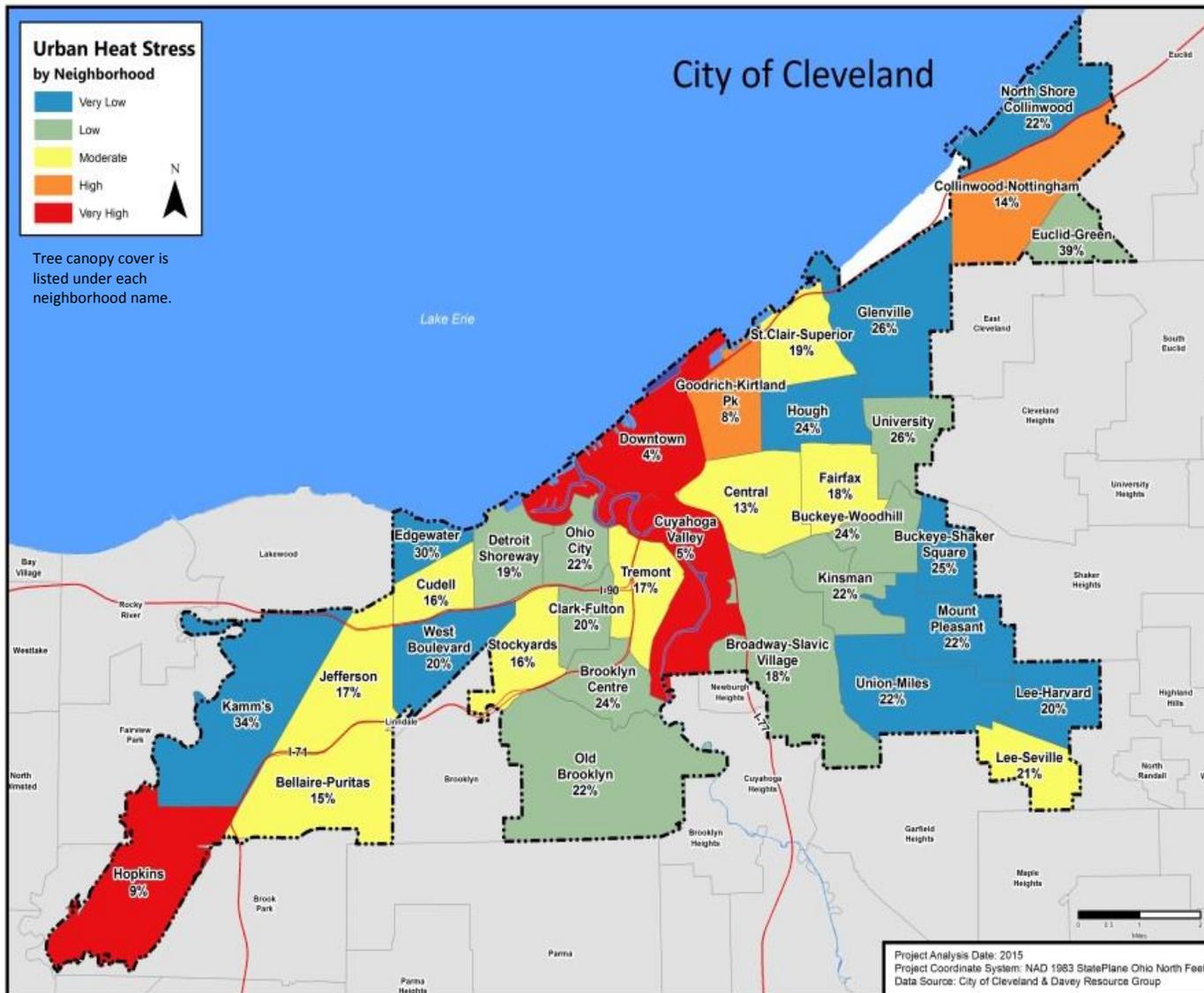


Figure 9. Urban heat island intensity by neighborhood.

**Table 5. Top 10% of Species That Can Mitigate Urban Heat Island Effect for Cleveland, Ohio**

Top Shade-Providing Species that Cool Air Temperatures	Top Species in Reducing UV Radiation
<i>Acer × freemanii</i>	<i>Abies concolor</i>
<i>Aesculus flava</i>	<i>Celtis laevigata</i>
<i>Aesculus glabra</i>	<i>Pinus rigida</i>
<i>Liquidambar styraciflua</i>	<i>Pinus virginiana</i>
<i>Liriodendron tulipifera</i>	<i>Platanus × acerifolia</i>
<i>Magnolia acuminata</i>	<i>Quercus macrocarpa</i>
<i>Metasequoia glyptostroboides</i>	<i>Quercus meuhlenbergii</i>
<i>Platanus × acerifolia</i>	<i>Quercus robur</i>
<i>Quercus shumardii</i>	<i>Quercus rubra</i>
<i>Tilia americana</i>	
<i>Tilia cordata</i>	
<i>Tilia tomentosa</i>	
<i>Ulmus americana</i>	
<i>Zelkova serrata</i>	

**What to Plant.** Generally, planting large-growing trees creates the greatest impact because those trees provide the most cooling effects, store the most carbon, collect the most pollutants, and produce the most oxygen. The top 10% of species that perform this function the best for Cleveland are listed in Table 5. Planting trees on public and private land within residential, recreational, and industrial land uses of Cleveland may lead to the greatest improvements in air quality and, thus, human health.

Additionally, trees largely influence the social health of the community. Trees create a natural calming effect on people and have been found to reduce incidence of domestic violence, crime, and abuse. Also, social ties with neighbors are strengthened because trees bring people outside and more frequent outdoor visits reinforce stronger bonds between neighbors. Trees benefit the neighborhood by making streets safer. Large-growing trees can cause moving vehicles to slow speeds. Tree-lined streets guard sidewalks and pedestrians from vehicles traveling off the road.

## Human Health

Trees create a healthier environment for people by improving air quality. Reductions in ozone, carbon, particulate matter, and other air pollutants lower incidence of respiratory illnesses and hospital visits.

**Where to Plant.** The Cleveland neighborhoods with the greatest needs for air quality improvement include: Buckeye-Woodhill, Clark-Fulton, Cudell, Detroit Shoreway, Downtown, Edgewater, Stockyards, and Tremont. Additional consideration for increased canopy could be in neighborhoods where asthma rates are highest. Figures 10 and 11 illustrate neighborhoods in high need of increasing tree canopy, and thus improving air quality. These neighborhoods may warrant greater planning, along with additional financial and technical assistance in strategically implementing more canopy.

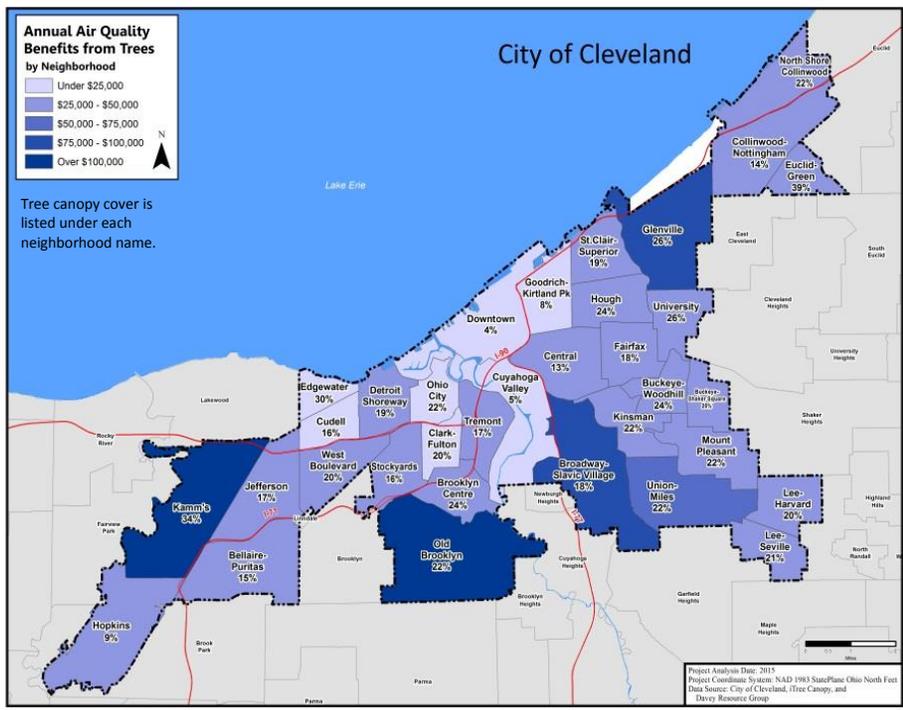


Figure 10. Air quality benefits by neighborhood.

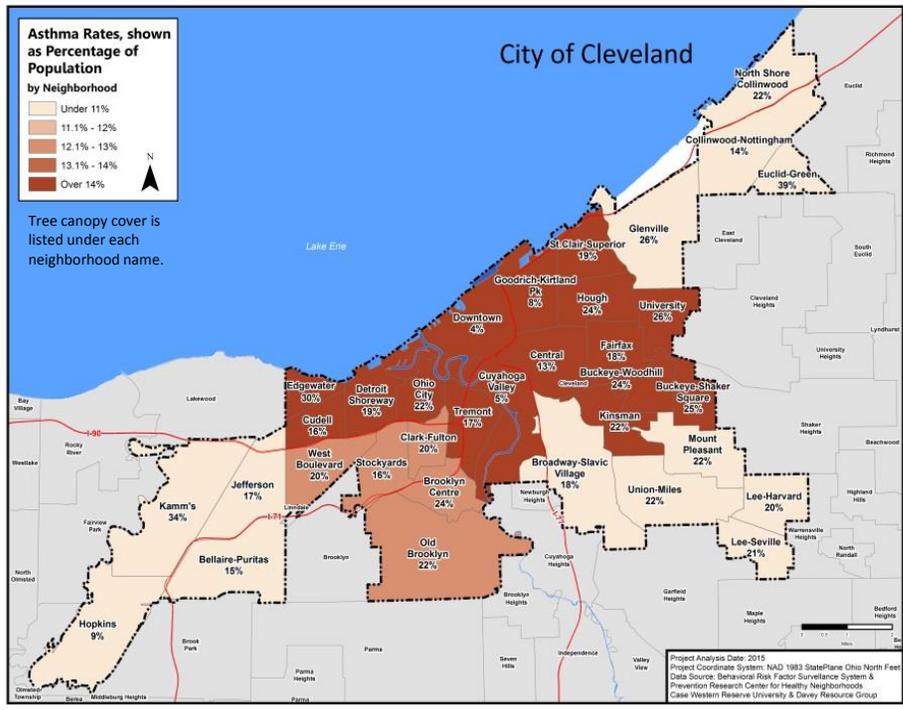


Figure 11. Asthma prevalence by neighborhood.

## Economic Development Potential

Trees have an influence on a community's economy by way of job creation, worker productivity, frequency of shoppers and duration or time shopping, business or home vacancy prevalence, and property value increases. Studies show that the simple presence of trees around workers decreases the number of work days missed and alleviates work-related stress at a quicker rate compared to workers who do not see trees during the workday. The occurrence of vacant homes and businesses may be less due to the demand to live where trees are present in the landscape. Landscapes with trees also increase a buyer's willingness to pay more for a home than one without trees. Shoppers also spend more and potentially buy more merchandise or services in canopy-covered commercial districts.

**Where to Plant.** Figure 12 illustrates where Cleveland may want to concentrate on tree planting to increase property values. Cleveland neighborhoods with the greatest need to increase property values include: Brooklyn Centre, Buckeye-Woodhill, Central, Clark-Fulton, Collinwood-Nottingham, Cudell, Cuyahoga Valley, Detroit Shoreway, Downtown, Edgewater, Fairfax, Goodrich-Kirtland Park, Ohio City, St. Clair-Superior, Stockyards, Tremont, and University. Neighborhoods with a high need to increase property values may warrant greater planning, and more financial and technical assistance to strategically implement more tree canopy.

Cleveland neighborhoods with the lowest average annual household income are illustrated in Figure 13 and include: Broadway-Slavic Village, Buckeye-Woodhill, Central, Cudell, Cuyahoga Valley, Detroit Shoreway, Fairfax, Glenville, Goodrich-Kirtland Park, Hough, Kinsman, Mount Pleasant, Ohio City, St. Clair-Superior, Stockyards, and University. These neighborhoods may also warrant increased attention for tree planting based on the influence tree canopy can have on economic development potential.

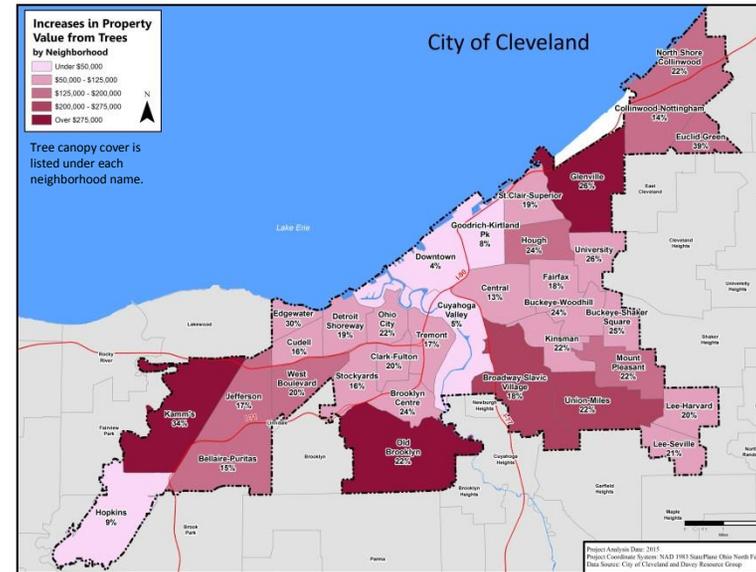


Figure 12. Property value increases attributed to canopy cover by neighborhood.

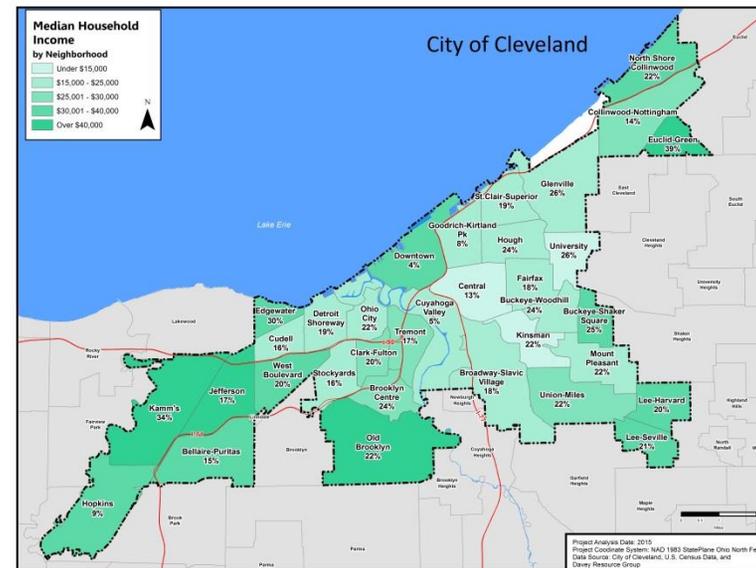


Figure 13. Median income by neighborhood.

**What to Plant.** Planting a mix of large-growing and small- or medium-growing ornamental/flowering trees will create the greatest impact. Trees planted on public and private land within commercial, industrial, and institutional land uses of Cleveland may lead to the greatest changes in economic development.

### *Availability of Vacant Land*

The urban ecosystem is extremely complex. Small, functional ecosystems together form a larger diverse system, each of which may need to be managed differently. The overall health of the urban ecosystem depends on the ability of trees, plants, wildlife, insects, and humans to coexist as a whole. Often, the health and diversity of the overall canopy can be greatly improved by creating connections between multiple patches of forest. Planting vacant lands adjacent to contiguous canopy may help improve the distribution and composition of the canopy.

Davey Resource Group analyzed Cleveland’s existing urban tree canopy for fragmentation. The analysis found the following:

- 862 acres of Core Canopy. Tree canopy that exists within and relatively far from the forest/non-forest boundary (i.e., forested areas surrounded by more forested areas).
- 144 acres of Perforated Canopy. Tree canopy that defines the boundary between core forests and relatively small clearings (perforations) within the forest landscape.

- 2,342 acres of Edge Canopy. Tree canopy that defines the boundary between core forests and large non-forested land cover features. When large enough, edge canopy may appear to be unassociated with core forests.
- 6,159 acres of Patch Canopy. Tree canopy that comprises a small forested area that is surrounded by non-forested land cover.

**Where to Plant.** Using this forest fragmentation analysis, Davey Resource Group prioritized Cleveland’s parcels of vacant land by adjacency to core, edge, perforated, and patch forests. Table 6 illustrates this prioritization of available land by land use. Figure 14 shows the availability of land by neighborhood. Neighborhoods with higher priority planting should plant native large-growing species within vacant parcels and determine whether parcels should be part of the maintained landscape (park-like area) or if natural forest regeneration should take place. Cleveland neighborhoods with the greatest potential to increase canopy by foresting vacant land include: Bellaire-Puritas, Broadway-Slavic Village, Brooklyn, Central, Collinwood-Nottingham, Cuyahoga Valley, Fairfax, Glenville, Hough, Kinsman, Old Brooklyn, and Union-Miles. The neighborhoods with high potential to increase tree canopy through planting vacant land may warrant greater planning and more financial and technical assistance to strategically implement more canopy.

Additionally, private landowners who own large tracts of land comprise 21% (11,092 acres) of all the land in Cleveland. Landowners are a mix of city, state, park, rail, civic, health, and utility organizations. The cooperation and partnerships with these organizations to plant trees on their properties will play a major role in reaching canopy goals. Large landowners could use the same principles as stated above to determine where and what to plant.

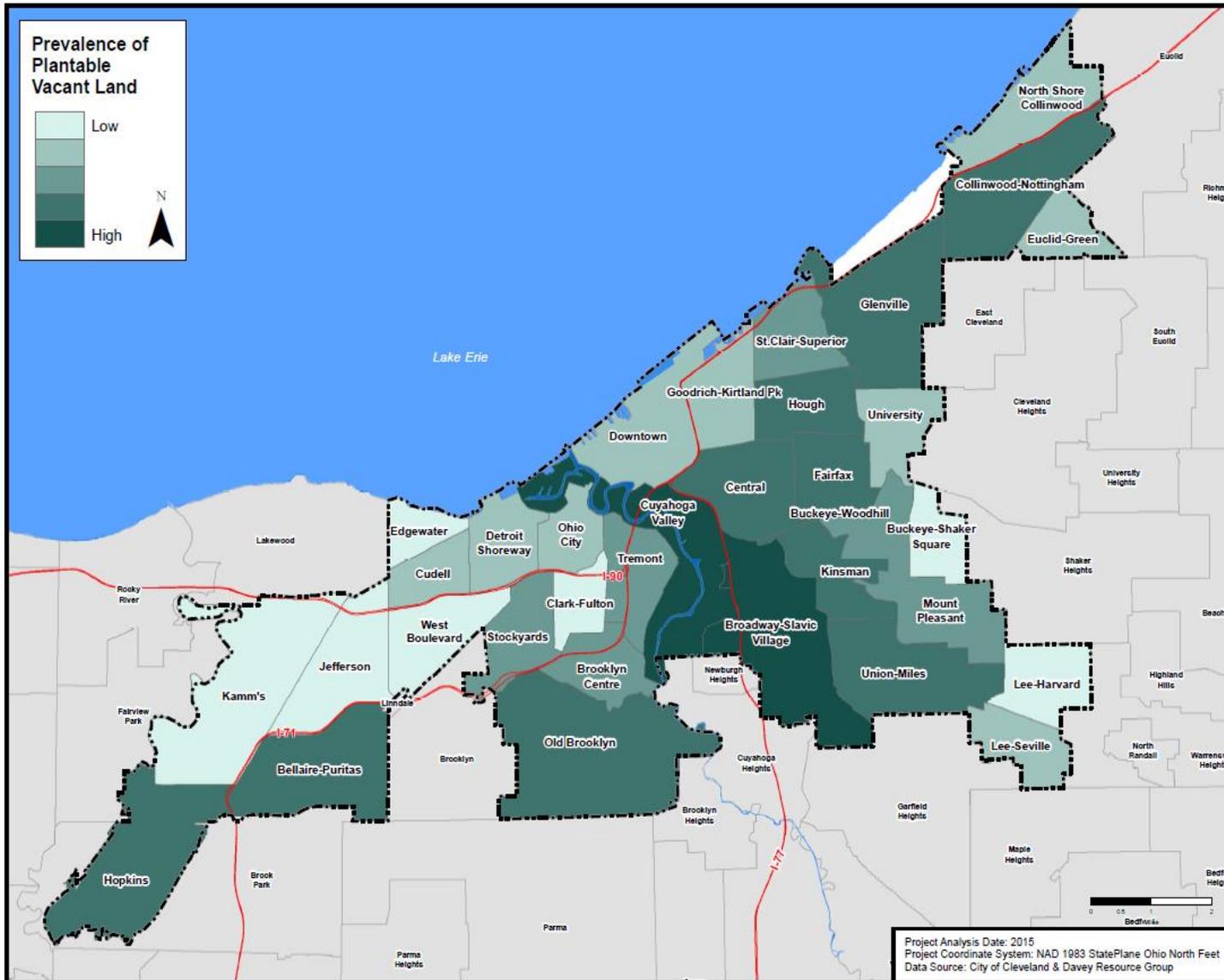
**What to Plant.** Planting a mix of large-growing and small- or medium-growing ornamental/flowering trees will create the greatest impact. The city, neighborhood organizations, and future funders could determine what tree species to plant for what beneficial purpose (maintained landscape versus natural area).

## Conclusion

Achieving significant increases in canopy cover over the next 25 years will be challenging, which is why establishing canopy goals is essential for Cleveland. All partners will need to work together in the development of new and innovative planting programs based on a unified vision to achieve a canopy goal. The six neighborhoods with the highest need (Central, Clark-Fulton, Cudell, Fairfax, Stockyards, and West Boulevard) present the greatest potential for increased canopy cover. Neighborhoods can individually utilize these maps and data to strategically determine and prioritize tree planting needs. The services trees provide far exceed the investment of time and money in planting and maintaining the city's existing trees.

**Table 6. Acres of Vacant Parcels by Land Use**

General Land Use	Very Low Priority	Low Priority	Moderate Priority	High Priority	Very High Priority	Total
Agricultural	0	0	0	0	2	2
Commercial	122	246	109	250	221	948
Industrial	169	336	197	351	919	1,972
Institutional	12	20	14	14	23	83
Recreation/Open Space	6	4	1	3	47	61
Residential - Multifamily	43	102	61	133	227	566
Residential - Single Family	307	602	367	427	463	2,166
ROW	5	4	8	13	0	30
Transportation/Utilities	14	2	12	8	23	59
Total	678	1,316	769	1,199	1,925	



*Figure 14. Prevalence of vacant land available for planting by neighborhood.*