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Neighborhood Planting Plan

West Park-Kamms Neighborhood Development
Cleveland, Ohio

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ACKNOWLEDGMENTS

This project supports West Park Kamms Neighborhood Development's ongoing tree planting efforts by providing a roadmap for sustainable future work, standard operating procedures, species selection, and planting guides. This *Neighborhood Tree Planting Plan* is a handbook to support the success of future tree plantings at West Park Kamms' service footprint.

Funding for this project was provided by the Cuyahoga County *Healthy Urban Tree Canopy Grant Program*, which:

- Provides funding to protect and expand Cuyahoga County's tree canopy.
- Is a joint program of the Cuyahoga County Department of Sustainability, the Cuyahoga County Planning Commission, and the Cuyahoga Soil & Water Conservation District.

EXECUTIVE SUMMARY

The West Park Kamms Neighborhood Development *Neighborhood Tree Planting Plan*, written by Davey Resource Group, Inc. (DRG), focuses on quantifying and analyzing available planting areas within the organization's service footprint to provide a roadmap for future planting projects. DRG completed a survey of available right-of-way and greenspace planting locations in November and analyzed the data to put together a plan that can be utilized as a resource when applying for grant funding for tree planting, partnering with community organizations, or working with contractors to plant trees in the neighborhood. DRG also provided a list of recommended tree species by planting space type and recommended specifications for tree planting and establishment maintenance.

INTRODUCTION

West Park Kamms Neighborhood Development is a Community Development Corporation in the City of Cleveland that supports neighborhood planning and engagement in the West Park and Kamm's Corners neighborhoods in Cleveland's Ward 17.

Tree canopy cover in West Park Kamms' service footprint was 30.7% in the 2019 urban tree canopy assessment, higher than the city average of approximately 18%. The CDC has been involved in efforts to maintain and continue to grow canopy in the neighborhood by hosting neighborhood tree giveaways and recruiting residents to attend Tree Steward Training with Western Reserve Land Conservancy.

Recent funding opportunities have allowed West Park Kamms Neighborhood Development to increase programming for tree planting by collaborating with local partners to plant trees at Cleveland Municipal Housing Authority (CMHA) residences. This planting plan lays out a roadmap of available planting locations in this Area of Interest as well as proper planting methods, establishment, and recommended species.

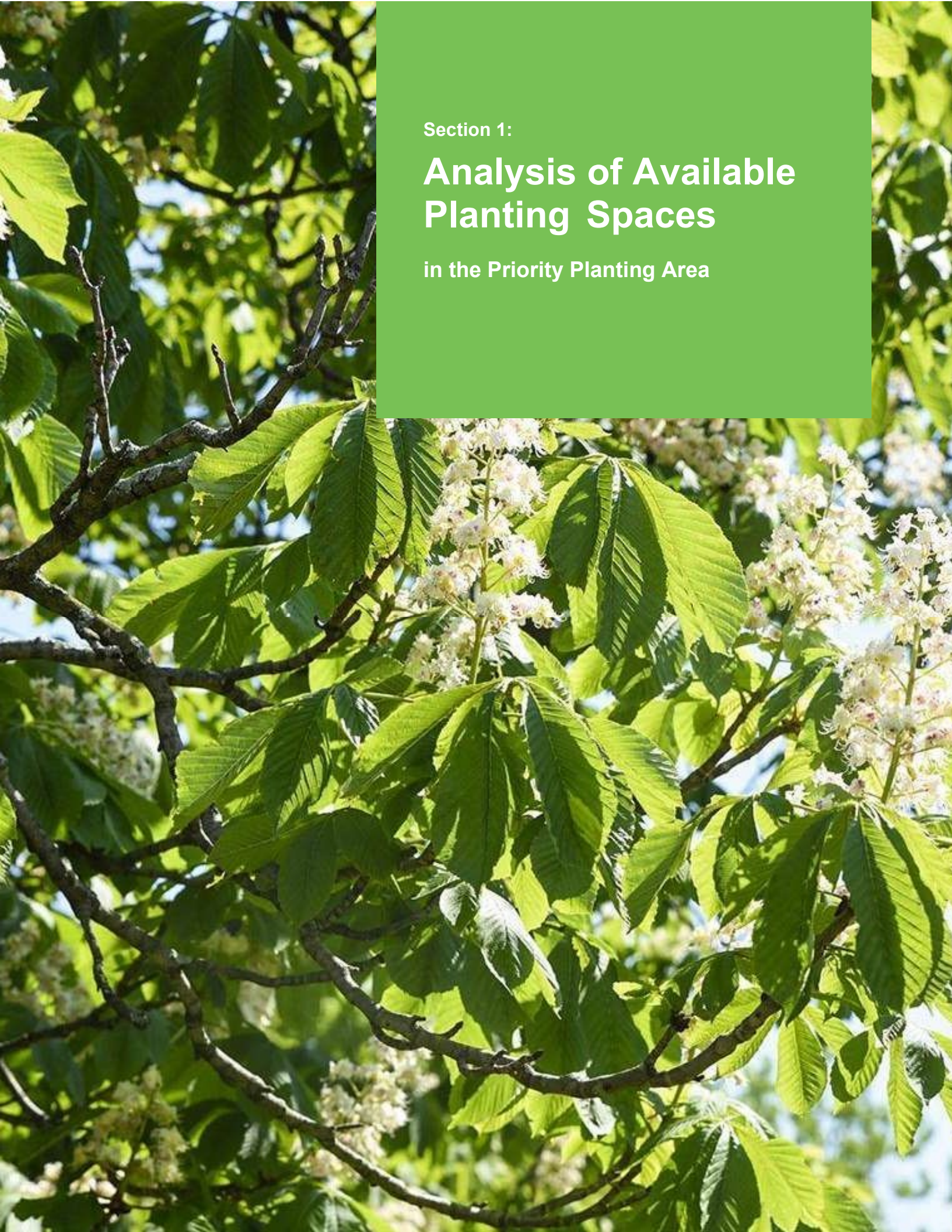
West Park Kamms' dedicated commitment to sustaining the public tree resource by planting trees in the neighborhood with a focus on equity is critical to the well-being of the neighborhood's urban forest and benefits the City of Cleveland at large. Utilizing a planting plan provides continuity that can guide grant applications and planting plans over the course of several years.

RECOMMENDED APPROACH TO TREE PLANTING

An effective approach to tree planting follows an initiative-taking and systematic program that sets clear and realistic goals, prescribes future action, and periodically measures progress.

In November 2024, West Park Kamms Neighborhood Development worked with DRG to identify tree planting locations in the neighborhood around the Riverside Homes residences. Using this data, DRG has compiled this planting guide with the following sections:

- *Section 1: Analysis of Available Planting Spaces in the Priority Planting Area* describes the types of available planting spaces inventoried.
- *Section 2: Species Selection and Establishment* details choosing the Right Tree for the Right Place and maintaining young trees through establishment to protect the investment made at time of planting.
- *Section 3: Successful Neighborhood Planting* discusses the importance of understanding what is needed for tree plantings to be successful, makes recommendations for connecting to existing citywide efforts to support equity goals, and shows the distribution of planting spaces geographically in the neighborhood.



Section 1:

Analysis of Available Planting Spaces

in the Priority Planting Area

SECTION 1: ANALYSIS OF AVAILABLE PLANTING SPACES

In November 2024, DRG staff collected site data on planting sites along the street ROW and in public spaces for a planting site analysis contracted by West Park Kamms Neighborhood Development. A total of 739 sites were collected during the inventory. Sites collected outside of the public right-of-way are in parks and other large green spaces in the neighborhood. Figure 1 provides a detailed breakdown of the number and type of sites inventoried.

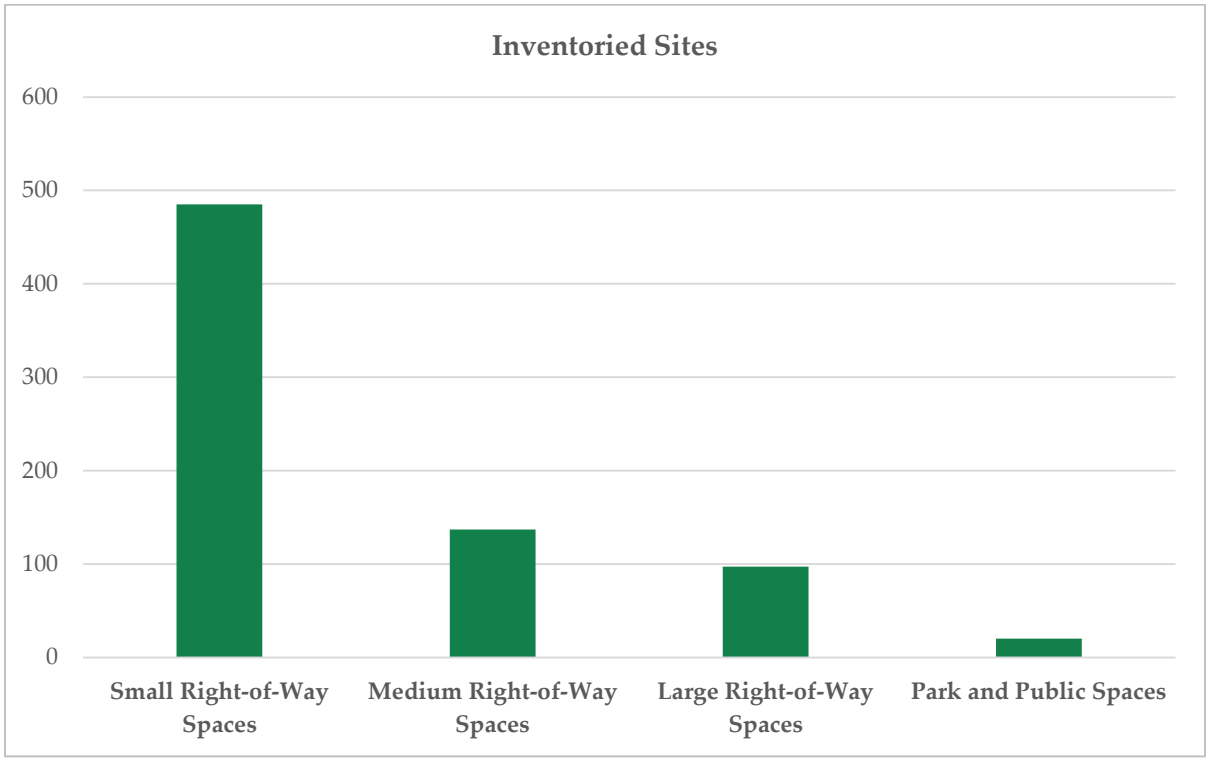


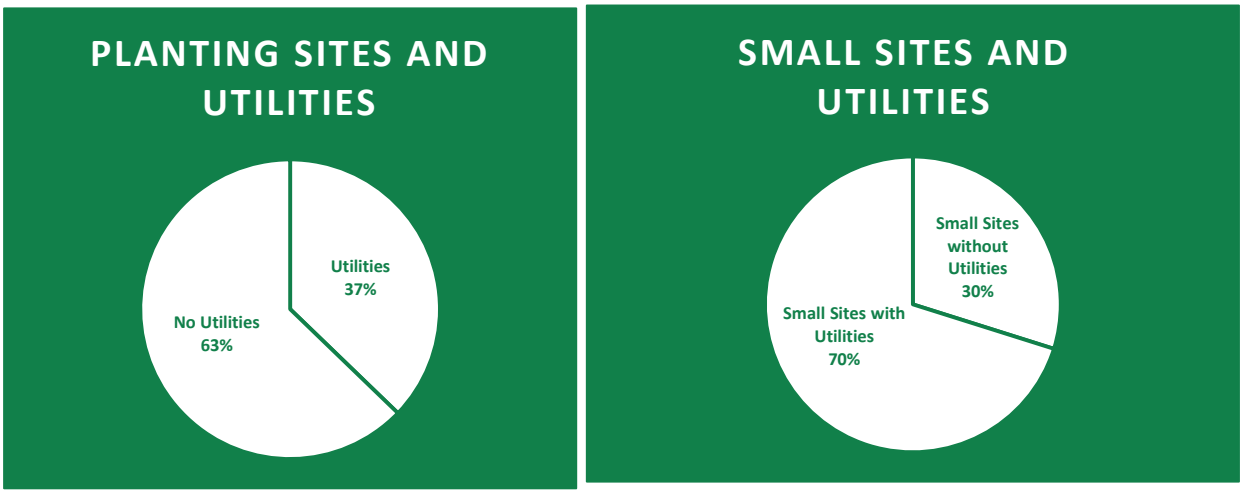
Figure 1. Sites collected during the 2024 inventory.

STREET TREE LOCATIONS

Street tree locations refer to planting sites in the public right-of-way or tree lawn. Right-of-way planting spaces are defined by the constraints of the growing area and proximity to utility infrastructure such as overhead wires.

The City of Cleveland regulates the size of trees that can be planted in tree lawns dependent on the width of the strip and presence of overhead wires. The minimum width for tree planting is 4 ft. The presence of overhead wires automatically makes a site only suitable for a small tree that has a maximum height of 30 feet at maturity to minimize conflicts with wires. Medium trees, maturing to about 50 ft., can be planted in tree lawns that are at least 6 ft. wide; large trees that mature to over 50 ft. can be planted in tree lawns wider than 8 ft.

Overhead utilities were noted at 275 planting sites. All of these locations are suitable for small trees and may be in tree lawns wider than 4 feet; 117 small locations have no presence of overhead wires. Figures 2 and 3 show the breakdown of planting sites with overhead wires by size.



Figures 2 and 3. These figures show the breakdown of right-of-way spaces and park tree and related overhead utilities.

Street tree locations are also located relationally to other conflicts in the right-of-way, such as driveway aprons, walkways, traffic signs, and fire hydrants. More information on the City of Cleveland's guidelines on street tree planting can be found in Appendix A.

PARK TREE LOCATIONS

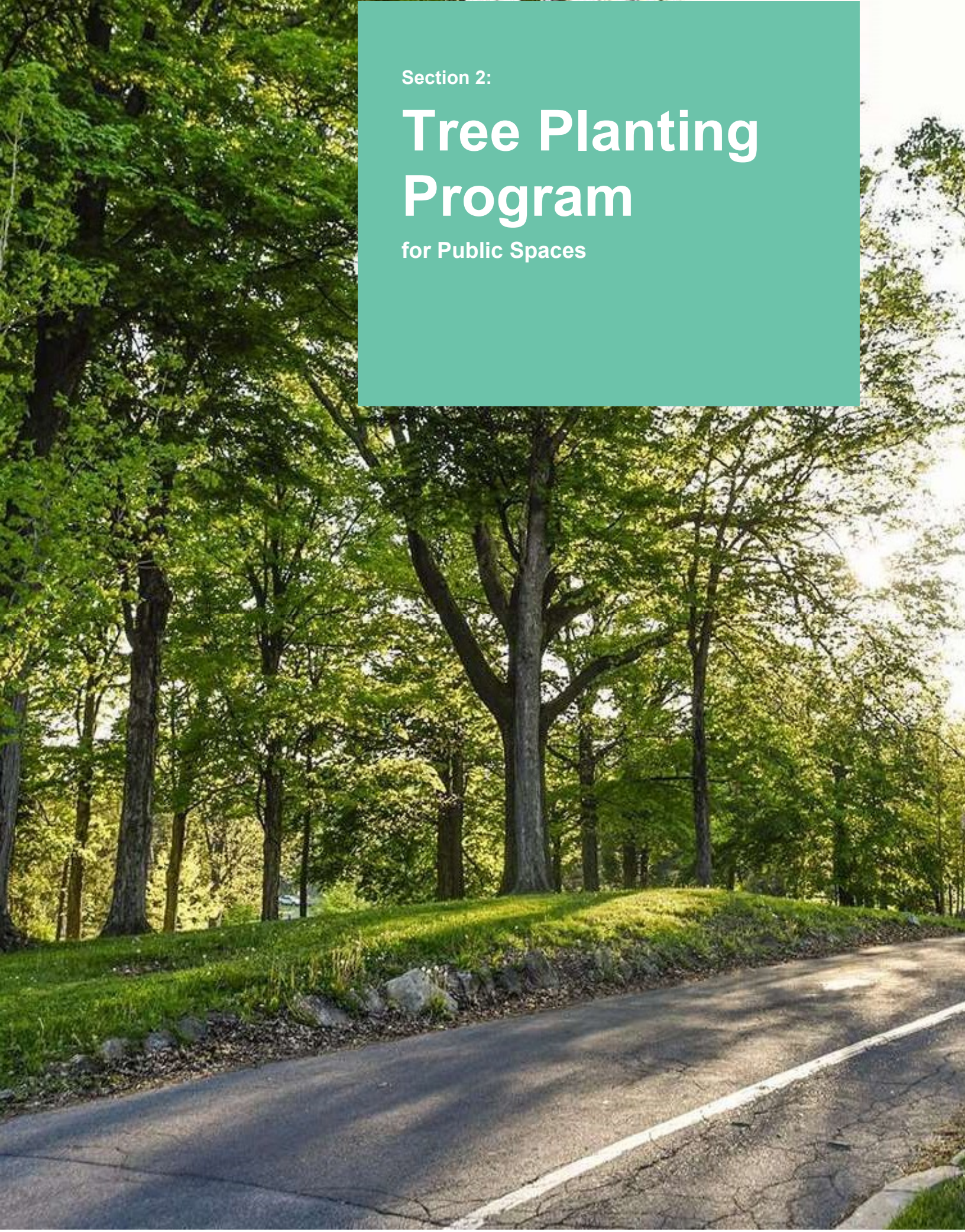
Planting sites in public greenspaces and/or city parks provide an opportunity to plant large shade trees that are too big for most right-of-way locations. Twenty park and public space planting locations were surveyed during this inventory. These locations provide a roadmap to where additional park trees can be located rather than a comprehensive plan for a fully stocked park planting. Additionally, trees planted in parks and public spaces can be trees of any size. For the purpose of this inventory, DRG assigned these as the largest tree the space could accommodate.

PARK AND GREENSPACE SPACE LOCATIONS

Public planting spaces in parks or on CMHA residential greenspaces typically allow for larger shade trees to be planted to create and enhance a forested park setting. In parks and greenspaces, 20 planting sites were identified which are all suitable for large trees.

The sites identified show a representative of how trees in park and greenspace settings can be arranged but are not prescriptive; there is more freedom on plant arrangement and selection in park settings than in tree lawns. DRG recommends that West Park Kamms work to produce a planting plan for parks and greenspaces that is complementary to existing park designs in the neighborhood, prioritizing but not constrained to selecting large shade trees such as oak.

Please see the Map Booklet for a detailed overview of park and greenspace planting locations.



Section 2:

Tree Planting Program

for Public Spaces

SECTION 2: SPECIES SELECTION AND ESTABLISHMENT

Successful tree planting programs utilize tree inventory data, industry standard tree planting specifications, and stakeholder goals to set sustainable planting goals. Stakeholders can include the neighborhood development planning team, regional tree planting partners, and neighborhood residents. Sustainable tree plantings plant a number of trees appropriate to the available budget and establishment capacity of the project team.

THE RIGHT TREE IN THE RIGHT PLACE

The right tree in the right place is a mantra for tree planting used by the Arbor Day Foundation and many utility companies nationwide. Trees come in many different shapes and sizes, and often change dramatically over their lifetimes. Before selecting a tree for planting, make sure it is the right tree—know how tall, wide, and deep it will be at maturity. Equally important to selecting the right tree is choosing the right spot to plant it. Blocking an unsightly view or creating some shade may be a priority, but it is important to consider how a tree may impact existing utility lines and hardscape as it grows taller, wider, and deeper. If the tree at maturity will reach overhead lines, or conflict with sidewalks and curbs, it is best to choose another tree or a different location.

Photograph 1. Trees should be selected to improve species diversity and plant the right tree in the right place. Here, volunteers are adding new trees to the West Park-Kamms neighborhood.

SPECIES SELECTION

Selecting a limited number of species could simplify decision-making processes; however, careful deliberation and selection of a wide variety of species is more beneficial and can save money. Planting a variety of species can decrease the impact of species-specific pests and diseases by limiting the number of susceptible trees in a population. This reduces time and money spent to mitigate pest- or disease-related problems. A wide variety of tree species can help limit the impacts from physical events, as different tree species react differently to stress. Species diversity helps withstand drought, ice, flooding, strong storms, and wind.

Diversity

Healthy urban forests are managed for diversity. A diverse tree population is widely viewed as a key component in the resilience of street tree populations to pests, diseases, and climate change.

Species diversity affects maintenance costs, planting goals, canopy continuity, and the forestry program's ability to respond to threats from invasive pests or diseases. Monocultures or low species diversity (considerable number of trees of the same species) can lead to severe losses in the event of species-specific epidemics. Emerald ash borer (EAB, *Agrilus planipennis*) and Asian

longhorned beetle (ALB, *Anoplophora glabripennis*) are non-native insect pests that attack some of the most prevalent urban shade trees and certain agricultural trees throughout the country. Their devastating effects are due to their attack of not only weaker trees but also the ability to kill healthy, thriving trees.

Resilience

The urban environment is a challenging one for young trees. Right-of-way planting locations pose challenges to growing trees because of constraints on soil volume, sun exposure, and soil chemistry. In Cleveland, street trees planted in tree lawns need to be adapted to tolerate road salt, full sun exposure, and potentially poor soil texture.

While the benefits of native trees are great, many species of small native trees are sensitive to full sun exposure and road salt. Selecting trees that will thrive in tough conditions is important to protect the investment made in tree planting. It is also important to consider the growing climate, both now and in the future. Selecting trees that can thrive in USDA Hardiness Zone 6b, which is identified as a climatic region with average annual minimum temperatures between −5°F and 0°F, is crucial to establishment, and selecting trees that are not at the top of their heat tolerance is critical as hardiness zones continue to change with global warming.

A list of recommended species can be found in Appendix B.

Functionality

Tree species should be selected for their durability and low-maintenance characteristics. These attributes are highly dependent on site characteristics below ground (soil texture, soil structure, drainage, soil pH, nutrients, road salt, and root spacing). Matching a species to its favored soil conditions is the most important task when planning for a low-maintenance landscape. Plants that are well matched to their environmental site conditions are much more likely to resist pathogens and insect pests and will, therefore, require less maintenance overall.

A major consideration for street trees is the amount of litter dropped by mature trees. Trees such as *Acer saccharinum* (silver maple) have weak wood and typically drop many small branches during a growing season. Others, such as *Liquidambar styraciflua* (American sweetgum), drop high volumes of fruit. In certain species, such as *Ginkgo biloba* (ginkgo), female trees produce large odorous fruit; male ginkgo trees, however, do not produce fruit. Furthermore, a few species of trees, including *Crataegus* spp. (hawthorn) and *Gleditsia triacanthos* (honeylocust), may have substantial thorns. These species should be avoided in high traffic areas.

Aesthetics

Seasonal color should also be considered when planning tree plantings. Flowering varieties are particularly welcome in the spring, and deciduous trees that display bright colors in autumn can add a great deal of appeal to surrounding landscapes. Choosing cultivars based on aesthetic characteristics is often important to residents and business owners in planting project areas, and species selection can be done to complement other landscaping.

INFRASTRUCTURE CONFLICTS

Planting only small-growing trees within 20 feet of overhead utilities, medium-size trees within 20–40 feet, and large-growing trees outside 40 feet will help improve future tree conditions, minimize future utility line conflicts, and reduce the costs of maintaining trees under utility lines.

Before tree planting, the project implementer must call Ohio Utility Protection Services (OUPS), or Call Before You Dig. It is a state law to keep workers and residents safe and to protect utility infrastructure from damage before digging. OUPS will locate underground utilities and mark them prior to work.

LARGER TREES PROVIDE GREATER BENEFITS

Creating larger growing sites for trees in the municipal ROW can be the single most beneficial management practice to improve the survival rate of planted and developing trees. Increasing planting space can also reduce the amount of tree-related infrastructure conflicts, as the trees will be planted further from curbs and sidewalks. Depending on the site, there are several methods available to create and/or increase the growing space for newly planted trees:

Photograph 2. Selecting trees that will maximize the available growspace will help increase the overall canopy of the village and maximize the benefits the new tree provides now and into the future. (stock photo)

- Planting trees 4 feet behind a curb without a sidewalk, or 4 feet behind an existing sidewalk, can be a low-cost alternative to more construction intensive methods. This can result in less damage to the sidewalk and give tree roots room to grow into the open soil. This is an option that can be explored on school campuses in partnership with Cleveland Municipal School District (CMSD).

- Re-routing the sidewalk around an area to create designated large tree sites is a relatively cost-effective method to increase growing spaces. This method can also be applied to existing large tree sites, where tree roots have already come in conflict with the sidewalk.

- A landscape bump-out/curb extension is a vegetative area that protrudes into the parking lane of a street, to provide a growing space for plants or trees. These spaces can be used quite effectively by municipalities to beautify a streetscape, provide greater storm water retention, along with the added benefit of slowing car speeds at the bump-out location.

- Planting new trees in areas where there is sparse canopy already is the most important. It is also important to plant more trees in areas with poor canopy continuity or gaps in existing canopy.

Tips for Planting Trees

To ensure a successful tree planting effort, the following measures should be taken:

- Manage trees with care. Trees are living organisms and are perishable. Protect trees from damage during transport and when loading and unloading. Use care not to break branches, and do not lift trees by the trunk.
- If trees are stored prior to planting, keep the roots moist.
- Dig the planting hole according to the climate. Generally, the planting hole is two to three times wider and not quite as deep as the root ball. The root flair is at or just above ground level.
- Fill the hole with native soil unless it is undesirable, in which case soil amendments should be added as appropriate for local conditions. Gently tamp and add water during filling to reduce large air pockets and ensure a consistent medium of soil, oxygen, and water.
- Stake the tree as necessary to prevent it from shifting too much in the wind.
- Add a thin layer (2-3 inches) of mulch to help prevent weeds and keep the soil moist around the tree. Do not allow mulch to touch the trunk.

NEWLY PLANTED AND YOUNG TREE MAINTENANCE

Caring for trees is just as important as planting them. When trees are planted, they go through a period of transplant shock and require specialized establishment care to ensure they recover from this shock and establish in the space. The first two growing seasons are the most important, although some trees may take three or four growing seasons to fully establish depending on species of tree, condition at planting, and size of tree at time of planting. Typically, the younger a tree is at time of planting, the less severe the transplant shock. For example, a 1.25-inch caliper tree recovers from transplant shock faster than a 4-inch caliper tree.

Watering

Initially, watering is the key to survival. Newly planted trees require watering at time of planting, and consistently throughout the growing season (June-September). Planning to water trees weekly for the first year is usually enough to ensure they are receiving sufficient water. At time of watering, newly planted trees should be watered slowly with 10–15 gallons of water.

Ohio rainfall is not enough to replace weekly watering throughout the summer due to the inconsistency of summer rain. Project implementers should plan to water weekly and adjust based on weather conditions.

Mulching

Mulch can be applied to the growspace around a newly planted tree (or even a more mature tree) to ensure that no weeds grow, that the tree is protected from mechanical damage, and that the

growspace is moist. Mulch should be applied in a thin layer, generally 1 to 2 inches, and the growing area should be covered. Mulch should not touch the tree trunk or be piled up around the tree.

Lifelong Tree Care

After the tree is established, it will require routine tree care, which includes inspections, routine pruning, watering, plant health care, and integrated pest management as needed.

The neighborhood should employ qualified arborists to provide most of the routine tree care. An arborist can determine the type of pruning necessary to maintain or improve the health, appearance, and safety of trees. These techniques may include: eliminating branches that rub against each other; removing limbs that interfere with wires and buildings or that obstruct streets, sidewalks, or signage; removing dead, damaged, or weak limbs that pose a hazard or may lead to decay; removing diseased or insect-infested limbs; creating better structure to reduce wind resistance and minimize the potential for storm damage; and removing branches—or thinning—to increase light penetration.

An arborist can help decide whether a tree should be removed and, if so, to what extent removal is needed. Additionally, an arborist can perform—and provide advice on—tree maintenance when disasters such as storms or droughts occur. Storm-damaged trees can often be dangerous to remove or trim. An arborist can assist in advising or performing the job in a safe manner while reducing further risk of damage to property.

Plant Health Care, a preventive maintenance process that keeps trees in good health, helps a tree better defend itself against insects, disease, and site problems. Arborists can help determine proper plant health so that the neighborhood's tree population will remain healthy and provide benefits to the community for as long as possible.

Integrated Pest Management is a process that involves common sense and sound solutions for treating and controlling pests. These solutions incorporate basic steps: identifying the problem, understanding pest biology, monitoring trees, and determining action thresholds. The practice of Integrated Pest Management can vary depending on the site and based on each individual tree. A qualified arborist will be able to make sure that the neighborhood's trees are accurately diagnosed and that a beneficial and realistic action plan is developed.

The arborist can also help with cabling or bracing for added support to branches with weak attachment, aeration to improve root growth, and installation of lightning protection systems.

Educating the community on basic tree care is an effective way to promote the neighborhood's urban forestry program and encourage tree planting on private property. The neighborhood should encourage citizens to water trees on the ROW adjacent to their homes and to reach out to the neighborhood if they notice any changes in the trees, such as signs or symptoms of pests, early fall foliage, or new mechanical or vehicle damage.

YOUNG TREE TRAINING CYCLE

Trees included in the Young Tree Training cycle are generally less than 8 inches DBH. These younger trees sometimes have branch structures that can lead to potential problems as the tree ages. Potential structural problems include codominant leaders, multiple limbs attaching at the same point on the trunk or crossing/interfering limbs. If these problems are not corrected, they may worsen as the tree grows, increasing its risk and creating potential liability. The recommended length of a Young Tree Training cycle is three years because young trees tend to grow at faster rates than mature trees.

The Young Tree Training cycle differs from the Routine Pruning cycle in that the Young Tree Training cycle generally only includes trees that can be pruned from the ground with a pole pruner or pruning shear.

When new trees are planted, they should enter the Young Tree Training cycle after establishment, typically within 2–3 years after planting. In future years, the number of trees in the Young Tree Training cycle will be based on tree planting efforts and growth rates of young trees. Each neighborhood should strive to prune approximately one-third of its young trees each year.

TREE PLANTING PRIORITIZATION

It is not enough to simply plant more trees to increase canopy cover and benefits. Planning and funding for tree care and management, public outreach, and education must complement planting efforts to ensure the success of new plantings. Community organizations only have direct influence over a component of urban forest. To help ensure the benefits desired are being realized, a management strategy towards maintaining a healthy urban forest must involve partnerships in both public and private sectors. To be effective, West Park Kamms Neighborhood Development, residents, and partners can support the community forestry program by promoting the benefits that trees offer to the community, fulfilling routine maintenance for both public and private trees, and maximizing the space available for new trees.

Regional nonprofit organizations like WRLC and Holden Forests & Gardens (HFG) have a strong history of tree-planting programs that include community outreach and education, volunteer stewardship, and young tree maintenance. West Park Kamms is encouraged to work alongside these organizations to maximize resources to plant trees in a variety of sites in the neighborhood, including private residential property, public greenspaces, and the public right-of-way. Additionally, resident participation in programs like WRLC's Trees4Cle, Sherwick Tree Stewards, and HFG's Tree Corps will encourage stewardship and appreciation for urban trees from a neighborhood level. Tapping into the volunteer network of existing neighborhood Tree Stewards can contribute to outreach and planting capacities for organizations.

The distribution of tree canopy varies across the neighborhood, and has changed over the decades, sometimes gradually, and sometimes abruptly due to weather, climate, disease, economics, and development factors. This variability leads to an inequitable distribution of tree canopy, meaning streets with lower tree canopy receive less benefits. Comparing social equity factors (like median income gathered from census data) and the distribution of tree canopy across the neighborhood can help prioritize tree planting and care in neighborhoods with fewer trees

that can stand to benefit the most from additional trees and tree care (Attachment A). It is recommended that planting projects concentrate on transforming streets, i.e., taking a street that is understocked with trees and working to plant trees in as many vacant sites as possible or maximizing planting in greenspaces before moving on to additional blocks.

PLANTING LIST

A list of suggested tree species is provided in Appendix B. These tree species are specifically selected for the climate of these three neighborhoods. This list is not exhaustive but can be used as a guideline for species that meet community objectives and to enhance any existing list of approved species.

Section 3:

Successful Neighborhood Planting

SECTION 3: SUCCESSFUL NEIGHBORHOOD PLANTING

Sustainability is key to long-term tree planting success. It is the responsibility of the lead planting organization to determine what constitutes a sustainable planting program, and many factors may go into this. West Park Kamms Neighborhood Development should consider their capacity to apply for and manage grant funding, ability to conduct community outreach ahead of planting site selection, manage the administrative work of applying for and receiving permits, and determining whether volunteers or contractors will plant trees. Additionally, before any trees are ordered, it is crucial to consider the necessity of watering trees for the next three growing seasons. A sustainable tree planting program plants as many trees as the planting entity has capacity to plant and maintain.

A crucial part of planning a tree planting is determining a goal for the tree planting and selecting planting locations. For example, a goal to revitalize park green spaces can lead a planting team to select locations in Maplewood Park.

In the study area, a variety of zoning patterns such as public housing developments, streets of single-family housing, parks, and school campuses provide planners a wealth of opportunities to develop planting projects that can serve additional goals. Utilizing the attached Map Book, West Park Kamms Neighborhood Development can prioritize planting locations based on neighborhood demographics and equity goals.

Often, tree planting goals dovetail with complementary neighborhood projects and plans. It is important to connect with other planning groups and their goals early in the process for success on both sides. Tree planting goals can be incorporated into street redesigns, bicycle infrastructure expansion projects, construction and development, and recreational plans.

DRG recommends utilizing existing planning documents to produce planting project goals that support ongoing efforts in the neighborhood to improve livability and promote better health outcomes. For example, Cleveland Metropolitan School District (CMSD) and Cleveland City Planning have Safe Routes to School maps that can be utilized by West Park Kamms Neighborhood Development to identify priority streets for street tree planting to benefit students walking or biking to Clara E. Westropp Elementary School. Connecting to existing planning documents and goals can potentially open up additional funding opportunities or add capacity to planting implementation.

The attached mapbook shows the density of planting sites and locations and can be used to guide planting project development.

CONCLUSION

Embarking on expanding a neighborhood tree planting program is a resource-intensive and challenging endeavor. Utilizing geographic data about the location, size, and condition of planting spaces is important to developing and implementing successful tree planting projects. Understanding the maintenance requirements of young trees through establishment helps organizations plan for the entirety of the project---from project inception to successful establishment of young trees through three growing seasons.

As trees are planted and the urban forest grows, the benefits enjoyed by the residents of Wet Park-Kamms residents will increase as well. In addition to surveyed planting locations, there are opportunities to plant on private residential property, partner with CMSD and other public institutions, and to host plantings with local volunteer organizations. This provides a solid foundation for West Park Kamms Development to plan for future tree plantings with a wealth of support and resources.

This plan can be updated and expanded to encompass more of the organization's service footprint and should serve as a roadmap and living document for tree planting resources and support.

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APPENDIX A
DATA COLLECTION AND SITE LOCATION METHODS

DATA COLLECTION METHODS

DRG collects planting site data using their proprietary GIS software, called Rover, loaded onto pen-based field computers. At each site, the following data fields were collected:

- Address
- Comments
- Date of Inventory
- Planting Site Size
- Street/On Street
- Overhead Utilities
- X and Y Coordinates
- Hardscape Damage

According to City of Cleveland specifications

The knowledge, experience, and professional judgment of DRG's arborists ensure the high quality of inventory data.

SITE LOCATION METHODS

Equipment and Base Maps

Inventory arborists use FZ-G1 Panasonic Toughpad® units with internal GPS receivers. Geographic information system (GIS) map layers are loaded onto these units to help locate sites during the inventory.

STREET ROW SITE LOCATION

Individual street ROW sites were located using a methodology that identifies sites by *address number*, *street name*, *side*, and *on street*. This methodology was used to help ensure consistent assignment of location, Address Number, and Street Name.

Where there was no GIS parcel addressing data available for sites located adjacent to a vacant lot, or adjacent to an occupied lot without a posted address number, the arborist used their best judgment to assign an address number based on nearby addresses. An "X" was then added to the number in the database to indicate that it was assigned, for example, "37X Choice Avenue."

Sites in medians were assigned an address number by the arborist in Rover using parcel and streets geographical data. Each segment was numbered with an assigned address that was interpolated from addresses facing that median and addressed on that same street as the median. If there were multiple medians between cross streets, each segment was assigned its own address. The *street name* assigned to a site was determined by street centerline information.

PARK AND PUBLIC SPACE SITE LOCATION

Park and/or public space planting locations were collected using the same methodology as street ROW sites, however nearly all of them have the "Assigned Address" field set to 'X' and have the "Park Name" data field filled.

CITY OF CLEVELAND PLANTING SPECS

- Minimum width of tree lawn required to plant a tree is 4 feet.
- Do not plant in front of building entrances in order to permit easy access by the Fire Department.
- Do not plant within bus stops.
- Minimum distance between trees (trunk to trunk) shall be 20 feet to 30 feet (depending upon the tree species and other local conditions).
- Minimum distance from a streetlight or utility pole to the tree trunk is 25 feet (this may vary with tree species).
- Minimum distance from a stop sign to the tree trunk is 30 feet.
- Minimum distance from other traffic signs to the tree trunk is 6 feet.
- Where there is on street parking, the distance from a parked car to tree trunk should be 5 feet, to allow for the swing of car doors.
- Minimum distance from a gas or water valve to the tree trunk is 6 feet.
- Minimum distance from a fire hydrant to the tree trunk is 10 feet.
- Minimum distance from the corner of a street intersection to the tree trunk is 40 feet.
- Minimum distance from the edge of the tree pit to any opposite obstruction (building wall, stoop, railing, property line etc.) is from 4 to 6 feet, depending upon local conditions and the amount of sidewalk traffic.
- Site Size
    - For trees 30 feet at maturity, tree lawns must be a minimum of 4-6 feet wide.
    - For trees 50 feet at maturity, tree lawns must be a minimum of 6+ - 8 feet.
    - For trees 60+ feet at maturity, tree lawns must be a minimum of 9+ feet.

APPENDIX B
SUGGESTED TREE SPECIES FOR USDA HARDINESS ZONE 6B

Proper landscaping and tree planting are critical components of the atmosphere, livability, and ecological quality of a community's urban forest. The tree species listed below have been evaluated for factors such as size, disease and pest resistance, seed or fruit set, and availability. The following list is offered to assist all relevant community personnel in selecting appropriate tree species. These trees have been selected because of their aesthetic and functional characteristics and their ability to thrive in the soil and climate conditions throughout Zones 5 and 6 on the USDA Plant Hardiness Zone Map.

DECIDUOUS TREES

Large Trees (greater than 50 feet in height when mature)

Scientific Name	Common Name	Cultivar
Betula nigra	river birch	'Dura Heat'
*Betula papyrifera**	paper birch	
Carpinus betulus	European hornbeam	'Emerald Avenue'
Carya cordiformis	bitternut hickory	
*Carya laciniosa**	shellbark hickory	
*Carya ovata**	shagbark hickory	
Catalpa speciosa	northern catalpa	
Celtis occidentalis	common hackberry	'Prairie Pride'
Ginkgo biloba	ginkgo	'Autumn Gold' 'Princeton Sentry'
Gleditsia triacanthos var. *inermis*	thornless honeylocust	'Shademaster' 'Skyline'
Gymnocladus dioicus	Kentucky coffeetree	'Espresso'
*Juglans nigra**	black walnut	'Laciniata'
Metasequoia glyptostroboides	dawn redwood	'Jade Prince' 'National' 'Urban Spire'
Quercus bicolor	swamp white oak	
Quercus coccinea	scarlet oak	
Quercus frainetto	Hungarian oak	'Forest Green'
Quercus lyrata	overcup oak	
Quercus macrocarpa	bur oak	
Quercus phellos	willow oak	
Quercus rubra	northern red oak	
Quercus shumardii	Shumard oak	
Taxodium distichum	bald cypress	'Shawnee Brave'
Tilia americana	American linden	'Redmond'
Tilia cordata	littleleaf linden	'Greenspire'
Zelkova serrata	Japanese zelkova	

Medium Trees (26 to 50 feet in height when mature)

Scientific Name	Common Name	Cultivar
Aesculus glabra	Ohio buckeye	
Celtis occidentalis	hackberry	'Prairie Pride'
*Cladrastis kentukea**	American yellowwood	'Perkins Pink'
Eucommia ulmoides	hardy rubber tree	
Gleditsia triacanthos var. *inermis*	thornless honeylocust	'Imperial'
Maclura pomifera	osage orange	'White Shield' 'Wichita'
Nyssa sylvatica	black tupelo	'David Odom' 'Wildfire' 'Tupelo Tower'
Ostrya virginiana	American hophornbeam	
Parrotia persica	Persian ironwood	'Vanessa'
Phellodendron amurense	Amur corktree	'His Majesty'
Prunus cerasus	sour cherry	'Montmorency' 'Northstar'
Styphnolobium japonicum	Japanese pagodatree	'Regent'
Sorbus aucuparia	European mountainash	'Beissneri'
Zelkova serrata	Japanese zelkova	'Halka' 'Urban Ruby' 'Village Green'

Small Trees (10 to 25 feet in height when mature)

Scientific Name	Common Name	Cultivar
Acer ginnala	amur maple	
Acer griseum	paperbark maple	
Acer tataricum	Tatarian maple	
Aesculus × *carnea*	red horsechestnut	'Briotii'
Carpinus caroliniana	American hornbeam	'Firespire' 'Native Flame'
Cercis canadensis	eastern redbud	'Black Pearl' 'Forest Pansy' 'Merlot'
Chionanthus virginicus	fringetree	
Cornus controversa	giant dogwood	'June Snow'
*Cornus florida**	flowering dogwood	
Cornus kousa	Chinese dogwood	'Empire' 'Mandarin Jewel'
Cornus x	hybrid dogwood	'Venus'
Crataegus viridis	green hawthorn	'Winter King'
Halesia tetraptera	Carolina silverbell	
Maackia amurensis	Amur maackia	'Maacnificent'

Small Trees (10 to 25 feet in height when mature) (Continued)

Scientific Name	Common Name	Cultivar
Malus spp.	crabapple spp.	'Centennial' 'David' 'Harvest Gold' 'Madonna' 'Prairiefire' 'Spring Snow'
Prunus virginiana	common chokecherry	'Canada Red'
Styrax japonicus	Japanese snowbell	'Pink Chimes' 'Snowcone' 'Snow Charm'
Syringa reticulata	Japanese tree lilac	'Ivory Silk'
Tulipifera liriodendron	Tuliptree 'Little Volunteer'	'Little Volunteer'
Zelkova serrata	Japanese zelkova	'City Sprite' 'Schmidtlow'

CONIFEROUS AND EVERGREEN TREES

Large Trees (greater than 50 feet in height when mature)

Scientific Name	Common Name	Cultivar
Larix deciduas	European larch	
Picea glauca	white spruce	
Picea pungens var. *glauca*	Colorado blue spruce	'Thompsenii'
Pinus nigra	Austrian pine	
Pinus sylvestris	Scot's pine	

Medium Trees (26 to 50 feet in height when mature)

Scientific Name	Common Name	Cultivar
Juniperus virginiana	eastern redcedar	
Picea glauca var. *densata*	Black Hills spruce	
Pinus flexilis	limber pine	'Glauca'

Dirr's Hardy Trees and Shrubs (Dirr 2013) and *Manual of Woody Landscape Plants (5th Edition)* (Dirr 1988) were consulted to compile this suggested species list. Cultivar selections are recommendations only and are based on DRG's experience. Tree availability will vary based on availability in the nursery trade.