

# Making Your Community Forest-Friendly

*A Worksheet for Review of Municipal Codes and Ordinances*  
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# About the Forest-Friendly Code and Ordinance Worksheet

This worksheet was designed to help communities review and revise their development regulations, so that future projects conserve and protect valuable trees and woodlands and encourage new plantings. It provides a set of questions to help local officials determine whether local codes require, allow, or prohibit “forest-friendly” development practices. These practices were developed with input from subject matter experts including foresters, planners, transportation engineers, homebuilders, and fire administration representatives, to ensure that they maximize tree cover protection without compromising other goals, such as public safety, visibility, access, and economic value.

*Following community “rules” for development often results in more pavement and fewer trees*

Development regulations in many communities today have changed little since the post-WWII-era when mass production of homes was the norm. Using simple, uniform layouts in large tracts—called subdivisions—housing developments resulted in wholesale clearing and grading of forested areas, expansive parking lots, and excessively wide streets in residential areas. These regulations often acted as barriers to conservation of trees during development, even when developers wished to employ innovative or “green” techniques.

For example, local codes often specify minimum street widths that reflect a blanket application of design standards developed for high traffic volume streets. What this means is that even residential neighborhoods with little traffic end up with very wide streets that are designed for a much greater traffic volume. Constructing wider streets requires more clearing, limiting the ability to save existing trees along roadway edges. What green space does remain in the right-of-way is often planted with grass because it is too narrow to support healthy trees.

*This assessment worksheet provides a tool to help bring trees and forests back into our neighborhoods*

The following codes and ordinances are the most common ones influencing how much tree/forest protection and tree planting happens at a development site. Examples of how these regulations can promote forest-friendly practices are also identified.





Type of Code	Description	Example Forest-Friendly Elements
Zoning	Divides a jurisdiction into different districts, and defines rules for each regarding allowable uses, density, building footprints and height, signage, parking, setbacks, landscaping, and more	Allow “open space design” that does not require special approval; require trees to be part of all landscaping; set parking standards based on local demand; establish minimum width for parking lot islands to support large trees
Forest Conservation or Tree Protection	Requires conservation and protection of some portion of existing forest or trees above a certain size at development sites	Establish conservation thresholds and require planting if existing forest is minimal to none
Subdivision/ Land Development	Defines standards for elements of a subdivision, such as street widths and layout, right-of-way widths, turnarounds, utilities, driveways, sidewalks, and management of open space	Ensure that street and right-of-way widths are the minimum needed; require planting of street trees in a minimum 6 foot wide planting strip; establish a funding source for long term open space management
Riparian Buffer	Requires preservation of the forested riparian zone within a specified distance from the stream	Establish a minimum 100 foot buffer width and identify allowable and prohibited uses
Erosion and Sediment Control or Grading	Define requirements for clearing, grading, and erosion and sediment control	Limit clearing on steep slopes; set maximum area that can be cleared at one time; ensure that limits of disturbance are on plan and clearly marked at site.
Stormwater Management	Define requirements for post-construction management of stormwater runoff	Provide developers “credit” towards meeting stormwater requirements if they conserve existing forest or plant trees

Completing the Forest-Friendly Code and Ordinance Worksheet is the first step in changing what development looks like in your community. If the questionnaire seems overwhelming, you can pick just one section as a place to start, and work your way through the rest at your own pace.

# Part 1: Introduction

“Forest-friendly” communities are those that protect trees and forests by:

1. Directing growth away from large, ecologically intact forest land using zoning, land use planning and Smart Growth techniques
2. Permanently protecting valuable forest land (e.g., riparian corridors) through purchase of land and conservation easements
3. Limiting overall forest loss during development through local regulations that:
  - a. Limit clearing of trees and forests
  - b. Require forest conservation
  - c. Require forested stream buffers
  - d. Promote open space development
  - e. Protect trees during construction
  - f. Provide stormwater credits for planting and tree conservation
  - g. Require tree planting as part of landscaping requirements
  - h. Require tree planting on Brownfield sites, agricultural land and vacant sites where old structures have been removed
4. Developing programs for community reforestation of public lands, providing incentives for planting trees on private property, and establishing municipal tree programs that support the long-term maintenance of the urban forest.
5. Promoting sustainable forest harvesting activities and management on working forest lands



*Figure 1: Land use planning and zoning in Baltimore County help to direct growth away from important forest lands such as those surrounding the County’s water supply reservoirs.*



*Figure 2: The Oak Terrace Preserve community in North Charleston, SC employed forest-friendly site design techniques that allowed existing mature trees to be preserved and protected.*



*Figure 3. Increases in urban tree canopy can be achieved through programs for reforestation of public lands, such as the Town of Leesburg, Virginia's efforts to reforest dry ponds.*



In most communities, a complex network of municipal plans, programs, and policies shape how much tree cover is present, and also influence the health and longevity of the urban forest. Table 1: *Key Municipal Plans, Programs and Policies to Promote Tree Protection and Planting* presents the vast menu of tools that municipalities can use to influence tree cover and health in their communities, while also addressing other local needs.

Part 2 of this document, the ***Forest-Friendly Code and Ordinance Worksheet***, focuses on the highlighted elements in Table 1—namely, regulations that govern local site development. A worksheet is provided for review of your community’s local development codes and ordinances to see how well these regulations reduce forest loss during development and encourage tree planting using best practices to promote tree growth. The worksheet can be used by municipal staff, non-governmental organizations and others who have an interest in promoting forest-friendly practices to evaluate their municipal development regulations and identify specific areas of improvement.

Part 3 of this document, ***Urban Forestry Best Practices and Resources***, provides additional resources, ideas, and guidance for developing a community forestry program beyond the regulatory changes addressed in the Forest-Friendly Code and Ordinance Worksheet. See the [Vibrant Cities Lab website](#).

**Table 1. Key Municipal Plans, Programs and Policies to Promote Tree Protection and Planting (Adapted from the [Vibrant Cities Lab](#))**

Policy	More Information	Examples
Comprehensive plans	The comprehensive plan—yours may be called a general plan or master plan—is the foundation policy document for local governments. They’re called “comprehensive” because they address many different community concerns—from land use and transportation to school boundaries and public health. These kinds of plans help guide specific policy decisions for a decade or more.	Include a natural resources element that identifies priority areas for protection; link to transfer of development rights program
Stormwater, water quality and watershed plans	Because of Federal and state requirements, your community almost certainly works under a similar plan or set of plans	Implement a municipal street sweeping or curbside leaf pickup program
Green infrastructure plans	The best begin with a comprehensive assessment of needs and wants, then proceed to lay out the case for why green infrastructure (including forestry) should be implemented, its costs and benefits. All crafted with the best available science at the core.	Identify priority tracts for conservation and priority planting sites; offer incentives for forest conservation such as property tax reduction



Policy	More Information	Examples
Transportation plans	Streets and roadways constitute the largest share of publicly-owned and controlled land. Consequently, they're one of the best places to implement municipal urban forestry plans. Many communities integrate green and gray infrastructure as part of their stormwater management on public streets.	Incorporate “green street” designs that use trees and other vegetation to reduce runoff
Sustainability plans	Many communities—large and small—have developed multi-dimensional sustainability plans. Virtually all embrace protecting and enhancing the natural resources that make urban spaces livable.	Adopt green purchasing policies that reduce environmental impact (e.g., FCS wood products, recycled paper)
Watershed plans	The most useful watershed plans transcend urban and rural boundaries. Viewing the watershed as a whole (i.e. “everybody lives downstream from somebody else”) enables planners to evaluate the impact of site-specific interventions, including urban forests.	Estimate forest loss with future watershed buildout; offer incentives to private landowners for tree planting (e.g., tree giveaways)
Disaster, hazard mitigation and climate adaptation plans	Particularly for cities subject to severe weather events, these types of plan—while aiming at resilience—also offer a framework to establish goals and develop policies to protect natural resources. Urban forests almost always can play a significant role in stormwater management and, to a lesser but still relevant extent, in flood control.	Consider how changes in expected rainfall and temperature may influence future species selection for planting projects
Stormwater ordinances	Though often constrained by state BMP manuals and other state or Federal rules, modifying your stormwater ordinances to incorporate trees and other forms of green infrastructure may be the most direct route to achieving your goal.	Provide stormwater credits for tree conservation and planting
Zoning, development, site and subdivision design ordinances	Whichever of these regulatory approaches one chooses, by applying low-impact design principles, communities can exercise significant influence on the extent of impervious cover in new developments and the practices required to manage on-site stormwater.	Allow open space subdivisions
Tree protection ordinances	These often form the core of a community’s urban forestry efforts—setting standards for tree removal, replacement and for protection of trees during construction.	Protect the critical root zone of trees to be preserved during construction



Policy	More Information	Examples
Urban forestry practices and protocols	These can include a wide range of tools—guidelines, ordinances, laws, regulations—concerning such things as public agency cooperation, green industry collaboration, cooperative arrangements with utilities, protection and preservation of large and/or private trees, use of native species, planting requirements, preferred soil specification, etc.	Outreach to forest landowners about management; ensure forestry activities are required to have an effective timber harvest plan that is reviewed/ approved by the municipality
Urban forestry budget and staffing	With a budget in place and protected, adequate staffing is essential for making progress toward a sustainable urban forest. Of course, municipal capacity can get a tremendous boost from independent nonprofits, community groups, and individual volunteers. And increasingly, formal arrangements with commercial contractors can be an economical way to supplement or even substitute for municipal staff. Without line items in the city budget, urban forestry activities are apt to be haphazard at best.	Dedicate source of funding for program; employ an arborist or urban forester to oversee the program; get assistance from local tree board or commission
Urban Forestry Maintenance Plans	These plans address operational processes involving individually managed trees on public property such as streets, recreation centers, and other public places.	Include periodic inspection of trees to evaluate health, pests and disease, potential risks, etc.
Regional and statewide plans and regulations	These could include existing plans or planning processes directly or indirectly related to aspects of the broader urban forest, such as open space, recreation trails, economic development, etc.	Collaborate with land trusts to acquire critical forested properties
Capital project plan and construction review	Charlotte, North Carolina for example requires sign-off (literally) from their urban forestry staff at every stage of every capital project. Needless to say, this makes it (much) easier to ensure natural elements are included in site and building plans.	Require review and approval of urban forestry staff for all projects
Neighborhood redevelopment projects	Many cities—small and not-so-small—are rebuilding themselves. Often, when large sites (even entire neighborhoods) are slated for renewal, many different municipal departments can come together to plan for a greener setting with more natural landscapes—satisfying many different objectives at once. Bonus: different agencies have their own funding streams that can contribute to the cost of the project.	Offer incentives for redevelopment to prevent forest loss on greenfield sites



## Part 2: Forest-Friendly Code and Ordinance Worksheet

### About the Forest-Friendly Code and Ordinance Worksheet

This worksheet is intended to help communities evaluate their local development regulations to identify revisions that will better promote protection and management of trees and forests as well as tree planting. It can inventory regulations that directly protect forests (such as forest conservation or stream buffer requirements) as well as ones that indirectly protect forests (by limiting development on steep slopes or promoting open space design). It can also identify potential barriers to forest conservation and tree planting that are often buried within local codes and ordinances related to land development. These barriers may not prohibit trees outright, but can still act as disincentives to tree conservation or planting, or otherwise affect tree health. For example, many communities' street and sidewalk design standards specify a four-foot-wide planting strip in between the street and sidewalk. When large street trees are planted in this small space, their health is compromised because they receive only a fraction of the soil volume needed to support healthy tree growth.

The worksheet can be completed by municipal staff who have a vested interest in protecting and increasing the urban forest (e.g., watershed or environmental planning staff, urban foresters, local tree boards) or by non-governmental organizations who wish to make their community more forest-friendly by working in concert with municipal officials who have the authority to make these regulatory changes. It is a tool that can be used by communities of all types (e.g., urban, suburban, rural) although not all questions will be relevant everywhere. The questions evaluate what is “on the books” and are not intended to assess how the current programs and regulations are implemented and enforced.

The Forest-Friendly Code and Ordinance Worksheet was originally created in 2006 by the Center for Watershed Protection through a grant from the USDA Forest Service. Updates were made based upon recent revisions to the Center for Watershed Protection's more comprehensive Code and Ordinance Worksheet (CWP, 2017), a tool to help communities evaluate and improve their local development regulations so they reduce impervious cover, conserve natural areas, and reduce stormwater pollution. Since its creation, the Code and Ordinance Worksheet has been used by the Center to conduct 13 local site planning roundtables and review local development regulations in over 75 communities in Maryland, Pennsylvania, Virginia, South Carolina, Ohio, Wisconsin, New York, Alabama, and the District of Columbia. Other organizations, such as the Cumberland River Compact, Southeast Watershed Forum, Pennsylvania Environmental Council, Potomac Conservancy, James River Association, and Tennessee Valley Authority have used the Better Site Design process to make updates to their local codes or to conduct their own roundtables. Additional changes were made based on input from the following reviewers:

- Danielle Fitzko, Vermont Department of Forests, Parks and Recreation
- Donna Marie Foster, USDA Forest Service, Northeastern Area State and Private Forestry
- Marian Honecny, Maryland Forest Service, Department of Natural Resources
- Julie Mawhorter, USDA Forest Service, Northeastern Area State and Private Forestry
- Phillip Rodbell, USDA Forest Service, Northeastern Area State and Private Forestry



## How to Complete the Forest-Friendly Code and Ordinance Worksheet

The worksheet includes a series of questions related to local land use and development regulations. The first step is to identify and gather the relevant codes, ordinances and program documents or website links. A list of potential documents to gather includes:

- Subdivision and Land Development Ordinance
- Zoning Ordinance
- Stormwater Management or Drainage Ordinance
- Buffer or Floodplain Regulations
- Wetland Protection Ordinance
- Tree Protection or Landscaping Ordinance
- Erosion and Sediment Control Ordinances
- Grading Ordinance
- Natural Resources Protection Regulations
- Street and Sidewalk Standards
- Parking Lot Design Standards
- Stormwater Best Management Practice (BMP) Design Manual

Few communities include all of their development rules in a single document. Rather, the development process is usually shaped by a mix of local regulations and policies, each of which may be administered by a different agency. In some cases, state and federal agencies may also exercise some authority over the local development process (e.g., wetlands, floodplain management). Where this is the case, the local code will reference these state or federal standards. The codes, ordinances, and other related documents you compile will be used to answer the review questions.

The worksheet is presented in the next section of this document and includes 52 questions organized around nine topic areas. Each question focuses on a specific forest protection or tree planting practice, aka “forest-friendly” practice. For each question, there are four possible answers:

Answer	Description
YES	The forest-friendly practice is required or allowed
NO	The forest-friendly practice is prohibited
CODES ARE SILENT	The regulations do not address the forest-friendly practice at all
N/A	The forest-friendly practice is not applicable in my community



For each question, check off the appropriate answer box. Use the Notes section to record details about your responses, such as specific code language, program details, or a reference to the specific document where the answer was found. The worksheet also includes a space on page 31 to list all the codes and ordinances reviewed (including date of publication, author and other relevant information) and to identify short and long term action items resulting from the review.

Once you have completed the Forest-Friendly Code and Ordinance Worksheet, go back and review your responses. For questions with “No” or “Codes are Silent” answers, you can use the worksheet on page 32 to identify short-term (1-3 years) and long-term (3-5 years) action items. Questions with “Yes” responses can also result in action items to improve forest protection. For example, a municipality may wish to revise their zoning ordinance to require open space design in certain zoning districts rather than simply offering it as one allowable option.

If there are many “No” or “Codes are Silent” responses, you may need to evaluate the relative importance of these practices in your community to help prioritize your action items. Some factors to consider in determining relative importance and whether actions are short or long term include:

- Time the revisions with planned updates to codes and ordinances
- Focus on the code changes that are under municipal control (as opposed to state or federal regulation)
- Focus on codes that give you the most bang for your buck (for example, updating a single ordinance may address the majority of changes or the type of development that is most common in your community)
- Target specific areas that need the most improvement first
- Focus on changes that help to meet other community goals or mandates
- Consider local support/local importance of specific programs
- Prioritize changes that remove direct barriers to forest protection
- Consider relative ease of proposed changes (e.g., adopting a stream buffer ordinance may be a longer road than changing parking lot design standards)

The ultimate goal of the Forest-Friendly Code and Ordinance Worksheet is to make changes to programs and regulations that result in increased forest cover in the community. Municipal staff may wish to proceed with the changes through their usual process of ordinance updates. Another option for regulatory changes is a site planning roundtable process conducted at the local government level. The roundtables are a consensus-based process initiated to create more environmentally sensitive, economically viable and locally appropriate development, and they involve a diverse mix of stakeholders from environmental groups, transportation officials, planners, realtors, homebuilders, land trusts, fire officials, county managers and more. The primary tasks of a local roundtable are to systematically review existing development rules and then determine if changes can or should be made. By providing a much-needed framework for overcoming barriers to better development, the site planning roundtable can serve as an important tool for local change. The [\*Better Site Design Handbook\*](#) (CWP, 1998) provides detailed information on how to conduct a site planning roundtable.



# Forest-Friendly Code and Ordinance Worksheet

## 1. Planning and Zoning

Question 1	Yes	No	Codes are Silent	N/A
Is there a natural resources protection zone or an overlay zone that includes important forest resources, such as high-quality forest stands, forested stream buffers, forests on steep slopes, or headwater forests?				
Notes:				

*Forests can be protected using either natural resources protection zones or overlay zoning. Natural resources protection zones map out the areas to be protected and outline permitted and prohibited uses within these zones. To protect specific types of forest resources, such as forested stream buffers or forests on steep slopes, an overlay zone may be more desirable than natural resources protection zoning. With an overlay zone, additional standards, such as protection of a 50-foot wide stream buffer, are superimposed on existing zoning provisions. Because the overlay zone ‘floats’ over existing zoning, a map of the specific areas to be protected is not required.*

Question 2	Yes	No	Codes are Silent	N/A
Do zoning requirements for natural resources protection/overlay zones outline prohibited uses that negatively impact forests and permitted uses that have the least impact on forest resources?				
Notes:				

*Generally, only low intensity uses (e.g., passive recreation) are allowed within natural resources protection zones or within protected portions of overlay zones to provide the maximum protection for natural resources.*



## 2. Natural Resources Protection Regulations

Question 3	Yes	No	Codes are Silent	N/A
Is a natural resources inventory required that identifies and maps natural areas?				
<i>Notes:</i>				

*Ideally, the regulation will require that significant natural areas, such as high-quality forest stands, rare, threatened and endangered species, wildlife habitat and travel corridors, groundwater recharge areas, and headwaters, be identified.*

Question 4	Yes	No	Codes are Silent	N/A
Is there an ordinance that requires conservation of some portion of trees or forests at development sites?				
<i>Notes:</i>				

*The most effective ordinances will identify specific conservation thresholds.*

Question 5	Yes	No	Codes are Silent	N/A
If forest/tree conservation is required, does the ordinance specify planting new trees at sites where existing forest is minimal to none?				
<i>Notes:</i>				



Question 6	Yes	No	Codes are Silent	N/A
Does a floodplain management ordinance exist that restricts or prohibits development within the 100-year floodplain?				
<i>Notes:</i>				

*In many areas of the US, both the magnitude and frequency of large storm events has been increasing. Local floodplain maps may need to be updated to reflect these changing climate conditions and more effectively protect from flood-related damages.*

Question 7	Yes	No	Codes are Silent	N/A
Is there a local wetland protection ordinance?				
<i>Notes:</i>				

*Strommen et al. (2007) provides guidance on local wetland ordinances.*

**3. Buffers**

Question 8	Yes	No	Codes are Silent	N/A
Do the subdivision/land development standards in the community require a vegetated buffer along waterways?				
<i>Notes:</i>				



Question 9	Yes	No	Codes are Silent	N/A
Is the definition of waterway, or the regulated buffer, expansive enough to include:				
Perennial streams,				
Ephemeral and intermittent streams,				
Lakes,				
Estuaries and shorelines,				
Wetlands,				
Vernal ponds				
<i>Notes:</i>				

*Many buffer ordinances apply only to perennial or mapped “blue-line” streams, and some buffer ordinance cover a variety of water resource types. Buffers are important for all stream types and waterbodies. Waterway definitions that include all of the aforementioned water bodies are preferable.*

Question 10	Yes	No	Codes are Silent	N/A
Is the minimum buffer width 50 feet or more?				
<i>Notes:</i>				

*Recommended buffer widths vary depending on the type of resource and desired benefit. It may also be desirable to have flexible buffer widths to account for things like existing structures (reduce the width to accommodate) and sensitive natural resources (expand the width to protect). Minimum recommended buffer widths (per side) range from 50-100 feet for streams (>100 feet preferred), and 100-350 feet for wetlands.*



Question 11	Yes	No	Codes are Silent	N/A
Are buffer widths greater for sensitive resources (e.g., designated high quality streams) or in certain zones (e.g., drinking water protection or groundwater recharge zones)?				
<i>Notes:</i>				

Question 12	Yes	No	Codes are Silent	N/A
Is expansion of the buffer to include adjacent wetlands, steep slopes, or the 100-year floodplain required?				
<i>Notes:</i>				

Question 13	Yes	No	Codes are Silent	N/A
Does the buffer ordinance specify that a minimum percentage of the buffer be maintained with tree cover?				
<i>Notes:</i>				

*If the buffer zone does not currently meet the established minimum for tree cover, the ordinance can require planting to meet this minimum.*



Question 14	Yes	No	Codes are Silent	N/A
Does the buffer ordinance outline prohibited uses that will have negative impacts to the buffer and permitted uses that have little impact to the buffer?				
<i>Notes:</i>				

Question 15	Yes	No	Codes are Silent	N/A
Does the ordinance specify enforcement mechanisms?				
<i>Notes:</i>				

*A buffer ordinance should outline the legal rights and responsibilities of the local government and the organization or landowner responsible for the long-term management and maintenance of the buffer. To prevent buffer encroachment during construction, the ordinance can require a construction maintenance bond to ensure the developer repairs any damage to the buffer resulting from construction activity. To prevent encroachment by future landowners, the ordinance can require a buffer maintenance agreement that lists management activities (e.g., removal of dead trees) that can be performed by the landowner without a permit, lists allowable uses, gives the local government the authority to enter the buffer for the purpose of inspection, cites the conditions under which the landowner is responsible for repairs, and lists landowner liability for repairs.*



Question 16	Yes	No	Codes are Silent	N/A
Does the buffer ordinance specify a preference for buffers in subdivisions to be located on a parcel of common ownership (e.g., a homeowners' association)?				
<i>Notes:</i>				

#### 4. Open Space Design and Management

Question 17	Yes	No	Codes are Silent	N/A
Do the ordinances require or allow open space subdivisions?				
<i>Notes:</i>				

*Open space design clusters residential lots on a smaller portion of the site to allow for conservation of natural areas and open space. Open space subdivisions can be required in a designated open space zoning district, or may simply be an allowable option that is implemented through an overlay zone.*

Question 18	Yes	No	Codes are Silent	N/A
Is land conservation a major stated goal or objective of the open space design ordinance?				
<i>Notes:</i>				



Question 19	Yes	No	Codes are Silent	N/A
Is a minimum percentage of the buildable portion of the site required to be set aside as open space?				
<i>Notes:</i>				

*A minimum of 50% of the buildable portion of the site is recommended to be set aside as open space.*

Question 20	Yes	No	Codes are Silent	N/A
Is the open space determined through a stepwise design process where open space is identified first?				
<i>Notes:</i>				

Question 21	Yes	No	Codes are Silent	N/A
Is open space design a by-right form of development versus a more burdensome process such as a conditional use, special exception, or variance?				
<i>Notes:</i>				

*If developers must get a special exception or permit to use open space development, they less likely to use it.*



Question 22	Yes	No	Codes are Silent	N/A
Are flexible site design criteria available for developers that utilize open space or cluster design options (e.g., setbacks/lot lines, road widths, lot sizes and shapes)?				
<i>Notes:</i>				

Question 23	Yes	No	Codes are Silent	N/A
Are density bonuses and/or penalties used to encourage use of open space design?				
<i>Notes:</i>				

*Density penalties can be given for conventional development; conversely, density bonuses can be provided for open space designs that exceed the minimum requirements for open space protection, up to an established maximum.*

Question 24	Yes	No	Codes are Silent	N/A
Does the open space design ordinance require identification of an entity (e.g., conservation organization, community association) who will be responsible for managing the open space?				
<i>Notes:</i>				



<b>Question 25</b>	Yes	No	Codes are Silent	N/A
Can open space be managed by a land trust or other qualified public or private land conservation organization (e.g., municipal parks department) through conservation easements or transfer of ownership?				
<i>Notes:</i>				

<b>Question 26</b>	Yes	No	Codes are Silent	N/A
If open space cannot be managed by a third party, are there enforceable requirements to establish an association that can effectively manage the open space?				
<i>Notes:</i>				

<b>Question 27</b>	Yes	No	Codes are Silent	N/A
Are secure and permanent funding arrangements required to be established for the long-term management and maintenance of open space?				
<i>Notes:</i>				



Question 28	Yes	No	Codes are Silent	N/A
Are there standards for the open space requiring documentation of linkages to nearby open space, defining priority natural resources to conserve, and addressing access (e.g., trails)?				
<i>Notes:</i>				

Question 29	Yes	No	Codes are Silent	N/A
Are allowable and unallowable uses for open space in residential developments defined?				
<i>Notes:</i>				

Question 30	Yes	No	Codes are Silent	N/A
Are long-term management plans that conserve natural systems required for all open space areas?				
<i>Notes:</i>				



Question 31	Yes	No	Codes are Silent	N/A
Is open space in a natural condition required to be protected in perpetuity by a binding conservation easement or similar legal instrument?				
<i>Notes:</i>				

**5. Streets and Sidewalks**

Question 32	Yes	No	Codes are Silent	N/A
Are street trees required as part of new development or road and public right-of-way capital improvement projects?				
<i>Notes:</i>				

*Street trees provide a canopy over the street and reduce the amount of rainfall that reaches the ground to become runoff. They also provide shade and a host of other community benefits. Ideally, the planting of large shade trees will be specified in street tree requirements provided they do not conflict with overhead utilities.*

Question 33	Yes	No	Codes are Silent	N/A
If street trees are required, is the planting area required to be a tree lawn at least 6 feet wide to provide sufficient rooting space to support large trees?				
<i>Notes:</i>				



Question 34	Yes	No	Codes are Silent	N/A
Are alternative sidewalk designs that provide sufficient soil rooting volume for street trees (e.g., curb extensions, bulb-outs, curving sidewalks, tree islands) allowed?				
Notes:				

*Alternative layouts that enable trees to be planted in groups and share soil space can increase the size and health of parking lot trees. Other alternatives include the use of structural soils that allow tree roots to grow underneath the sidewalk.*

Question 35	Yes	No	Codes are Silent	N/A
Can a landscaped island be created within a cul-de-sac?				
Notes:				

*Cul-de-sacs are often unnecessarily large and provide a good opportunity to plant trees and treat stormwater runoff. If landscaped islands are allowed, it is preferable that the cul-de-sac be graded toward the island with an overflow to the storm drain system, so that it can be used for stormwater treatment.*

Question 36	Yes	No	Codes are Silent	N/A
Does the code allow utilities to be placed under the paved section of the right-of-way to limit clearing and allow for a more compact development footprint?				
Notes:				

*Street trees often conflict with overhead utilities and trees end up damaged or removed. Placing utilities underground eliminates this conflict.*



## 6. Parking Lots

Question 37	Yes	No	Codes are Silent	N/A
Are dimensions for landscaped areas sufficient to plant large trees?				
<i>Notes:</i>				

*A minimum width of 6 feet or greater is recommended for standard parking lot islands. Another way to ensure there is sufficient space for large trees is for the ordinance to specifically allow alternative layouts that cluster trees and provide for shared soil space.*

Question 38	Yes	No	Codes are Silent	N/A
Are flush curbs and/or curb cuts and depressed landscaped areas allowed so that runoff can be directed into landscaped islands?				
<i>Notes:</i>				

Question 39	Yes	No	Codes are Silent	N/A
Do vegetated stormwater management areas count toward required landscape minimums?				
<i>Notes:</i>				

## 7. Clearing and Grading

Question 40	Yes	No	Codes are Silent	N/A
Is there any ordinance that requires the preservation of native soils, hydric soils, natural vegetation, or steep slopes at development sites?				
Notes:				

Question 41	Yes	No	Codes are Silent	N/A
Do regulations limit the total portion of the site that can be cleared?				
Notes:				

*There are a number of ways to protect forest resources through erosion and sediment control regulations. One way is to require a technique called site fingerprinting, which limits clearing to whatever is needed for the construction of buildings and roadways plus 5–10 feet outward from the building pad. Some communities limit the total portion of the site that can be cleared, which can indirectly protect forests at the site. Others require preservation of certain size trees, high quality forest stands or some portion of existing forest at the site, based on what is found during the natural resources inventory.*

Question 42	Yes	No	Codes are Silent	N/A
Are the limits of disturbance required to be shown on construction plans and physically marked at the site?				
Notes:				

*All areas to be conserved should be excluded from the limits of disturbance, which must be marked on site plans and physically marked at the site in order to effectively protect natural areas.*



Question 43	Yes	No	Codes are Silent	N/A
Do tree conservation requirements identify or reference methods for delineating and protecting the critical root zone of trees (sometimes referred to as “drip line”)?				
Notes:				

*The critical root zone is the essential area of roots that must be protected for a tree’s survival. Tree protection requirements should reference a method for delineating the CRZ (e.g., trunk diameter method, drip line method) to ensure it is properly delineated and protected. For more on determining the CRZ, see Greenfeld et al. (1991).*

Question 44	Yes	No	Codes are Silent	N/A
Are reserve septic field areas allowed to be left undisturbed until needed?				
Notes:				

**8. Stormwater Management**

Question 45	Yes	No	Codes are Silent	N/A
Are stormwater credits provided for forest conservation, reforestation, waterway buffers and/or tree planting?				
Notes:				

*Many state and local stormwater programs provide ‘credits’ to developers towards their stormwater requirements for using non-structural practices that reduce runoff such as forest conservation, stream buffers and tree planting. Credits are typically based on the ability of these practices to reduce the overall volume of runoff from the site.*



Question 46	Yes	No	Codes are Silent	N/A
If reforestation or tree planting are eligible practices for stormwater credit, does the stormwater design manual provide/reference specifications for planting and maintenance?				
<i>Notes:</i>				

Question 47	Yes	No	Codes are Silent	N/A
Are maintenance agreements required for trees planted for stormwater credit?				
<i>Notes:</i>				

Question 48	Yes	No	Codes are Silent	N/A
Does the stormwater design manual allow the use of trees in stormwater BMPs, with reference to species selection lists, where appropriate?				
<i>Notes:</i>				

*Trees can be incorporated into select areas of a number of different types of stormwater BMPs to reduce runoff, enhance pollutant removal, and provide shade and habitat. Selecting the appropriate species for these wet and often harsh locations is important, so design manuals should provide guidance on selecting species for these areas and include trees and shrubs on their species lists that must be followed.*

## 9. Landscaping

Question 49	Yes	No	Codes are Silent	N/A
Are trees a required component of landscaping in yards, common areas and other open spaces at new development and redevelopment sites?				
Notes:				

*Ideally, the ordinance will specify that some portion of landscaping must include trees and refer to a recommended species list. Ordinance language that requires turfgrass or includes vegetation height standards may preclude the use of trees.*

Question 50	Yes	No	Codes are Silent	N/A
If trees are a required component of landscaping, is there a minimum threshold (e.g., number of trees, density of trees, percent canopy coverage) identified?				
Notes:				

*Tree planting requirements are most effective if a planting formula is provided. This formula may take the form of a minimum number of trees, number of trees per parking area, trees per square feet of developed space or building footprint, density of trees, or percent canopy coverage.*



Question 51	Yes	No	Codes are Silent	N/A
Do landscaping requirements reference specifications and standards for tree selection, planting, size requirements, soil type soil volume, nursery stock selection, and long-term maintenance?				
<i>Notes:</i>				

*Ensuring that the appropriate species are selected for the planting space and that trees are properly planted and cared for is just as important as the tree planting requirements so that trees live long and healthy lives. Ideally, regulations that require tree planting will reference guidance on how to select species appropriate for the site, evaluate and improve the planting site is needed, and properly plant and maintain the trees. If tree planting is required, the contractor or property owner should be responsible for the first 1-2 years of maintenance.*

Question 52	Yes	No	Codes are Silent	N/A
Is there any regulation that restricts removal of trees in public or private property (with exceptions for removal due to safety/hazard concerns)?				
<i>Notes:</i>				

*One way to maintain tree canopy is to require a permit for tree removal and/or require replacement of any trees that are removed. This method is particularly effective in communities that are built out.*





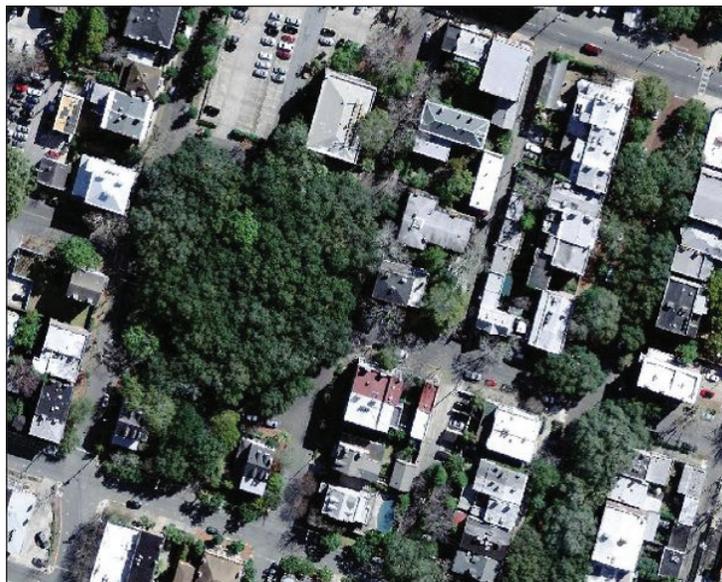
## Action Items

In the space below, use the areas of the code review where your responses were “No” or “Codes are Silent” to identify short-term (1-3 years) and long-term (3-5 years) actions.

Review Category	Short Term (1-3 yrs)	Long Term (3-5 yrs)
Planning and Zoning		
Natural Resources Protection Regulations		
Buffers		
Open Space Design and Management		
Streets and Sidewalks		
Parking Lots		
Clearing and Grading		
Stormwater Management		
Landscaping		

## Part 3: Urban Forestry Best Practices and Resources

This section provides additional resources, ideas, and guidance for developing a community forestry program beyond the regulatory changes addressed in the Forest-Friendly Code and Ordinance Worksheet. The primary focus is on the Vibrant Cities Lab's Community Assessment and Goal Setting Tool, along with resources for more information to support making your community more forest-friendly.



*Mapping and measuring the urban tree canopy is one of the first steps in managing this important resource.*

### Community Assessment and Goal Setting Tool

Vibrant Cities Lab's [Community Assessment and Goal-Setting Tool](#) allows you to characterize the current status of your urban forestry program, and then set a goal for each criterion based on your community's needs and potential capacity. When completed, the tool automatically calculates a "gap analysis" on nine different categories shown below. This tool along with the resources provided on the Vibrant Cities Lab website can provide additional ideas and guidance for making your community forest-friendly, beyond the regulatory changes you identify by completing the Forest-Friendly Code and Ordinance Worksheet.

#### 1. Measure Your Current Tree Canopy and Set Goals

**Canopy Cover: No Data, No Action**

Achieve desired degree of tree cover, based on potential or according to goals set for entire municipality and for each neighborhood or land use.

#### 2. Urban Forest Inventory and Assessment

**Inventory**

Current and comprehensive inventory of tree resource to guide its management, including data such as age distribution, species mix, tree condition, and risk assessment.



**Assessment Methodology**

Urban forest policy and practice driven by accurate, high-resolution, and recent assessments of existing and potential canopy cover, with comprehensive goals municipality-wide and at neighborhood or smaller management level.

### 3. Know What's Happening to Trees in Your Community

**Assessment of Publicly-Owned Trees**

Current and detailed understanding of the condition and risk potential of all publicly owned trees that are managed intensively (or individually).

**Assessment of Publicly-Owned Natural Areas**

Detailed understanding of the ecological structure and function of all publicly owned natural areas (such as woodlands, ravines, stream corridors, etc.), as well as usage patterns.

**Assessment of Trees on Private Property**

Understanding of extent, location, and general condition of privately owned trees across the urban forest.

### 4. Urban Forest Characteristics

**Relative Performance Index by Species**

*Understanding the age, health and condition of publicly-owned trees, by species.*

**Use of Native Vegetation**

Preservation and enhancement of local natural biodiversity.

### 5. Engaging Peers and Residents in Process

**Align Municipal Departments**

Align affected municipal departments, county and regional authorities and state agencies behind common agenda.

**Engage Residents in Planning and Implementation**

Enable community stakeholders to participate in and help shape planning process.

**Environmental Equity**

Ensure that the benefits of urban forests are made available to all, especially to those in greatest need of tree benefits.

**Trees Acknowledged as Vital Community Resource**

Stakeholders from all sectors and constituencies within municipality – private and public, commercial and nonprofit, entrepreneurs and elected officials, community groups and individual citizens – understand, appreciate, and advocate for the role and importance of the urban forest as a resource.

## 6. Creating Essential, Effective Public/Private Partnerships

### Engage Large Private Landowners and Institutions

Large private landholders – including school systems, universities and corporate campuses – embrace and advance municipality-wide urban forest goals and objectives by implementing specific resource management plans.

### All Utilities Work with Municipality, Employ BMPs

All utilities – above and below ground – employ best management practices and cooperate with municipality to advance goals and objectives related to urban forest issues and opportunities.

### Green Industry Embraces Goals, High Standards

Green industry works together to advance municipality-wide urban forest goals and objectives, and adheres to high professional standards.

## 7. Resource Management: Planning

### Develop Urban Forest Management Plan

Develop and implement a comprehensive urban forest management plan for public and private property.

### Cooperative Planning with Other Municipalities

Cooperation and interaction on urban forest plans among neighboring municipalities within a region, and/or with regional agencies.

### Forestry Plan Integrated into Other Municipal Plans

Forestry plan is designed to reinforce, and be reinforced through comprehensive plans, sustainability plans, park development, storm water and watershed plans, neighborhood revitalization, climate mitigation and sustainability plans, etc.

## 8. Resource Management: Implementation

### Urban Forestry Program Capacity

Maintain sufficient well-trained personnel and equipment – whether in-house or through contracted or volunteer services – to implement municipality-wide urban forest management plan.

### Municipality-Wide Urban Forestry Funding

Develop and maintain adequate funding to implement municipality-wide urban forest management plan.

### Growing Site Suitability

All publicly owned trees are selected for each site and planted in conditions that are modified as needed to ensure survival and maximize current and future tree benefits.



**Tree Establishment and Maintenance**

Comprehensive and effective tree planting and establishment program is driven by canopy cover and goals and other considerations according to plan.

**Management of Publicly-Owned Natural Areas**

The ecological integrity of all publicly owned natural areas is protected and enhanced – while accommodating public use where appropriate.

**Policies That Foster Good Urban Forestry on Private Lands**

Because private lands comprise the majority of canopy cover for most municipalities, plans and policies should address – through rules, fees and incentives – how owners contribute to the overall health of the urban forest and the benefits it delivers.

## 9. Resource Management: Monitoring and Maintenance

**Tree Protection Policy and Enforcement**

The benefits derived from trees on public and private land are ensured by the enforcement of municipality-wide policies, including tree care “best management practices.”

**Monitoring**

Periodic, cyclical inspection of urban trees to identify health, pests and disease, growth, canopy, site conditions, and potential risks. Regular inspections guide urban forest management activities, including regular maintenance, species selection, planting sites, preventative and reactive disease and pest control.

**Tree Risk Management**

Comprehensive tree risk management program fully implemented, according to ANSI A300 (Part 10) “Tree Risk Assessment” standards, and supporting industry best management practices.

**Urban Wood and Green Waste Utilization**

Create a closed system diverting all urban wood and green waste through reuse and recycling.



## References and Resources

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