

# Starting an Urban Forestry Project: Guidance Document 1.0

The Duke Carbon Offsets Initiative (DCOI) supports universities and other institutions undertaking carbon offsetting projects that are robust and meaningful, but also manageable given limited resources. Although the Urban Forestry Protocol<sup>1</sup> provides technical details outlining the criteria for a project, the actual implementation can be highly variable. This document provides high-level guidance on first-steps to beginning an urban forestry project through to submitting the initial project proposal to an accreditation body.<sup>2</sup>

The priority of any new project is to ensure it meets the PAVER (Permanent, Additional, Verifiable, Enforceable, Real) requirements. In urban forestry, the most difficult requirements tend to be the “Permanent” and the “Additional” components – the trees must be somewhere they can exist in virtual perpetuity, and the trees must be in addition to any existing tree planting programs. The following steps can help an institution prioritize tree plantings that are both permanent and additional.

## Step 1: Determine if a tree planting program<sup>3</sup> already exists in your target city

To constitute an offset, the trees should not be located within the physical boundaries of the institution, for example, on a university campus. Therefore, organizations often work with their local government to plant trees on public land and rights of way. Many cities have existing offices that manage tree plantings on city property, with contact information available through the municipal website. Coordinating with these offices will be important throughout the entire process and can help the organization plant trees strategically to reap co-benefits, such as beautifying historically underserved neighborhoods, improving air quality, increasing property values, and many others.

If your city does not have an existing tree planting program, you could consider contacting the appropriate city authorities to help establish a new program. Although this strategy may require more effort, the outcome of establishing a new planting program is highly impactful.

## Step 2: Determine what sort of planting system already exists

If the city already plants trees, you must ensure your project plants trees above and beyond the current planned plantings. This may mean finding documents about the historical funding level and planned tree plantings which are considered the baseline for tree planting activity. You may only receive carbon credits for the trees that go beyond this level, which are considered the additional trees. If there is no existing planting system in your city, all the trees that you enable to be planted are potentially additional. If the city already has a robust planting program with no room for expansion, think about how you could strategically use funds to improve tree care and potentially foster more growth in current trees.

## Step 3: Create an action plan to plant the trees

Once you have a clear picture of the “business as usual” scenario for tree plantings in your city, determine how you can utilize your funds to create additional plantings. Local experts should be relied upon to identify planting locations and communities that would particularly benefit from tree plantings; consider canopy cover equity and forestry plans. Certified arborists and tree planting professionals should identify trees that will sequester as much carbon as possible, but also be healthy and resilient for your climate zone, following the Right Tree in the Right Place<sup>4</sup> guideline.

This step is more labor-intensive without an existing planting program in place. In particular, be sure to account for the trees’ long-term maintenance and the commitment your organization can make to maintain these trees. If your organization engages another party as project maintainer, be sure to communicate the scope of duty and expectations clearly.

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<sup>1</sup> Find the most updated Urban Forestry Protocol and other resources at <https://sustainability.duke.edu/offsets/projects/forestry>

<sup>2</sup> For peer-reviewed offsets generated by Universities, find more information at <http://offsetnetwork.org/>

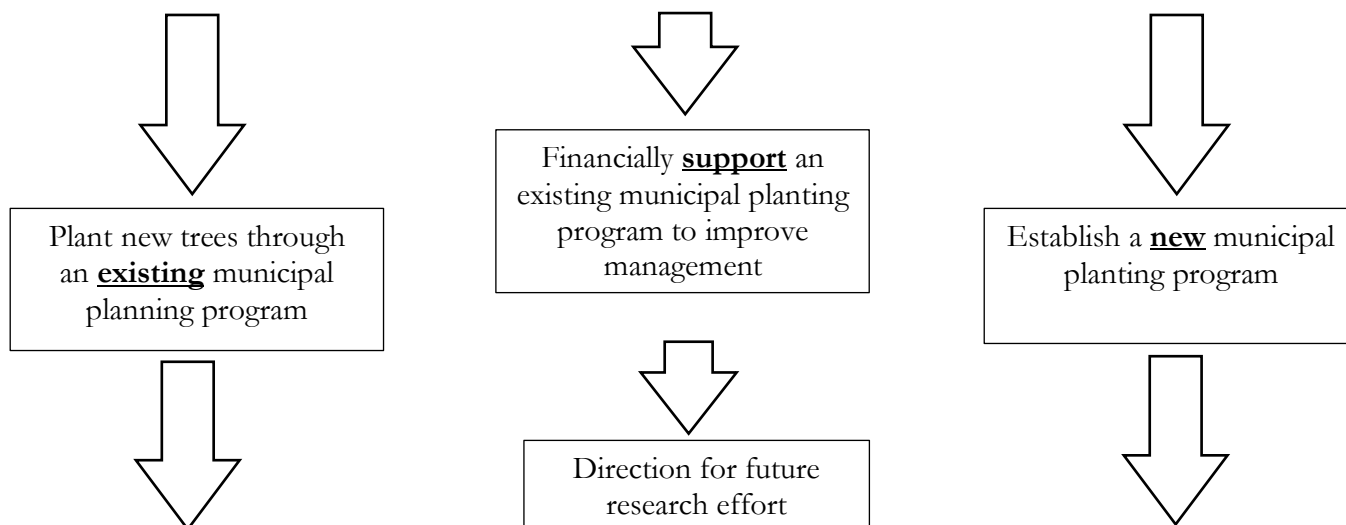
<sup>3</sup> Urban tree planting is defined as a planned set of activities designed to increase the removals of CO<sub>2</sub> from the atmosphere, or reduce or prevent emissions of CO<sub>2</sub> to the atmosphere, through increasing and/or conserving urban forest carbon stocks. Benefits from urban tree planting activities occur when the net CO<sub>2e</sub> (CO<sub>2e</sub> stored minus CO<sub>2e</sub> emitted) associated with planted trees exceeds baseline tree planting CO<sub>2</sub>

<sup>4</sup> More information about the Right Tree in the Right Place guidelines at <https://www.arborday.org/trees/righttreeandplace/>

#### Step 4: Submit your plan to the appropriate accreditation body

Contact the Offset Network to submit initial project documents. The Offset Network can help ensure your project will fulfill the Urban Forestry Protocol requirements and recommend any necessary changes before the project formally commences.

### Options to Start an Urban Forestry Offset Program



#### Case study:

##### Duke-Delta Plantings

In early 2018, Duke leveraged funds in collaboration with Delta Airlines to work with the City of Durham, Urban Offsets and Keep Durham Beautiful to plant trees in underserved neighborhoods in Durham. With the help of students and community members, 1000 trees were planted, which expanded the planting program well beyond the City of Durham's planting plans.

**Permanent:** By working with the city, Urban Offsets secured contracts protecting the trees into the future.

**Additional:** Duke carefully ensured the trees planted through their efforts would not replace any existing tree-planting plans by the city.

**Verifiable:** In 2018, students from Elon University conduct the validation of the trees planted and fulfillment of protocol requirements.

**Enforceable:** Duke is following DCOI's Urban Forestry Protocol and will be registering their credits at [Offsetnetwork.org](http://Offsetnetwork.org).

**Real:** As the trees grow, Duke will continue to monitor carbon sequestration via Peer Verification. Third-party verified offsets were also purchased and "bundled" with plantings.

#### Case study:

##### Arizona State University Tree Plantings

Arizona State University (ASU), in collaboration with Urban Offsets and Duke University, employed DCOI's Urban Forestry Protocol in 2017 to pilot a tree-planting program in Tempe and Phoenix Arizona. Although the cities had tree maintenance and care programs, ASU provided vital capacity-building for a dedicated tree planting program. As a result, 357 trees were planted in 2017 and ASU's 3-year commitment will establish the program into the future.

**Permanent:** The cities, alongside ASU and partners, will provide long-term care for planted trees.

**Additional:** Although both cities had planted trees in the past, they lacked dedicated programs to sustain long-term plantings. Therefore, the pilot and other subsequent plantings can be considered additional during the programs nascency.

**Verifiable:** Urban Offsets will work with ASU to provide peer validation and verification.

**Enforceable:** ASU is following DCOI's Urban Forestry Protocol.

**Real:** Urban Offsets helped ASU secure and bundle third-party verified offsets with tree plantings to ensure real climate impacts.

# Urban Tree Planting: Carbon Quantification

## Step 1: Determine the baseline for project carbon calculation:

Before beginning any carbon quantification work, the project will need to gather local planting information in order to establish a baseline. Acceptable information includes past urban forestry maintenance budgetary information and/or planting information (quantity and species) from the intended project jurisdiction. If such information proves too difficult to obtain, the DCOI Urban Forestry Protocol accepts the use of a national baseline – more trees are removed than planted each year in the United States – and recognizes that the use of this baseline legitimizes the additional trees (those whose funding was enabled by the offset project, based upon proportional funding, or if a novel planting program then all trees) planted through the carbon offset project. Applying the national baseline allows the calculation of the impact of the offset project based upon the present budget and tree planting plans and unlike other baseline assessments does not penalize project developers for instances where a city's budget or tree planting reductions may erode the additionality of the carbon offset project enabled trees. Additionality, as specified in DCOI Urban Forestry Protocol section "Procedure for Determining Additionality" must still be proven when using the national baseline.

## Step 2: Calculate the potential amount of carbon sequestered by the project trees:

We recommend i-Tree<sup>5</sup> Planting Calculator for estimating carbon from urban tree plantings. Other carbon calculation methods might be acceptable if you can provide an explanation of the tool's good standing within scientific communities and its applicability to the project at hand. More information on quantification procedure is specified in the DCOI Urban Forestry Protocol Section "Quantifying Tree Carbon Sequestration" and Appendix 5.

If local baseline information is available, use the Climate Action Reserve (CAR) Urban Tree Planting Quantification Guide<sup>6</sup> to calculate obtainable carbon offset credits. You can find an interactive excel worksheet (based on CAR's methodology) from <https://offsetnetwork.org/resources-guidance/>, which calculates obtainable carbon offsets by plugging in baseline planting data, the number of trees (ideally apply the average of the past 5 years of new plantings or as many years for which data exists), and any carbon inventories conducted to date.

If the planting program deviates from typical roadside plantings, i-Tree Planting Calculator might not be suitable for carbon estimation. For example, if the planting method establishes a forest stand<sup>7</sup>, forest simulation software such as Forest Vegetation Simulator (FVS)<sup>8</sup> from US Forest Service would be more appropriate.

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<sup>5</sup> i-Tree software available at <https://planting.itreetools.org/>

<sup>6</sup> CAR guide available at [http://www.climateactionreserve.org/wp-content/uploads/2009/03/Quantification\\_Guidance\\_for\\_Urban\\_Tree\\_Planting\\_May2016.pdf](http://www.climateactionreserve.org/wp-content/uploads/2009/03/Quantification_Guidance_for_Urban_Tree_Planting_May2016.pdf)

<sup>7</sup> A forest stand is a contiguous community of trees sufficiently uniform in species composition, structure, age and size class distribution.

<sup>8</sup> More information on FVS at <https://www.fs.fed.us/fvs/>