Brighton, New York Tree Inventory Survey

TEXT GUIDE DRAFT

Rory Kuczek

August 21th, 2020

Welcome to Brighton, New York’s first town tree inventory project! Thank you for your participation.

This booklet is designed to make your volunteer experience and data collection successful. As a guide, these pages will help you to accurately measure your data in the field, but also to provide more information on the project and why it is crucial for our town and community.

Use the table of contents to navigate.

For further information about the project, email:

**George Smith** at: [smithahlman@gmail.com](mailto:smithahlman@gmail.com)

**Rory Kuczek** at: [rbkuczek13@gmail.com](mailto:rbkuczek13@gmail.com) or [rk2614@bard.edu](mailto:rk2614@bard.edu)

For GIS-related information or issues, email:

**Brett Carlock** at: [brett.carlock@townofbrighton.org](mailto:brett.carlock@townofbrighton.org)

**Table of Contents:**

Introduction ----------------------------------------------------------------------------------------------------------- 4

COVID-19 Safety and Guidelines in the Field ------------------------------------------------------------------ 5

Preparation and What to Expect --------------------------------------------------------------------------------- 6

How to Use a Doyle Stick to Measure Diameter at Breast Height (DBH) and Height ---------------- 9

**Introduction**

*What is a Tree Inventory?*

A tree inventory is a record of trees in a specified area. It includes data such as important measurements of a tree, the location of a tree, and the health of a tree.

*Why is this important?*

The Town of Brighton seeks to create their first inventory to maintain existing trees, plan for space, obtain grants to continue tree projects and plant new trees. Trees offer many benefits, or ecosystem services, to our community. They help to beautify our neighborhoods, provide shade, sequester carbon dioxide, and filter harmful pollutants.

*What will you be doing?*

By participating in the Town of Brighton’s interactive tree inventory project, you will gain invaluable experience to work on a dataset that has never been before created. You will be using an app called **Survey123**, an ArcGIS technology, to collect your data and submit it through an already designed survey. The data you input in this survey will go to an ArcGIS technology map where the cumulative Town of Brighton data will be displayed. Be prepared to walk around the town’s streets to collect data using the app on your phone.

Thank you for your participation!

**COVID-19 Safety and Guidelines in the Field**

When collecting data in the field, individuals must practice COVID-19 safety policies. New York State mandates social distancing of 6 feet from another person. Masks are required whenever you are working in close contact with someone else. You will be walking around the streets of your town, and in doing so, you must be aware of other residents outside and continue to practice social distancing and mask wearing. We are excited to introduce this project, yet everyone must follow guidelines out in the field. If you see someone who is not conducting themselves properly, kindly tell them to maintain a safe distance and wear their masks.

**Preparation and What to Expect**

Whenever participating, you should bring the following items:

-Your fully charged **phone** loaded with the **ArcGIS Survey123** app found on the app store. (This cannot be stressed enough. If your phone dies, you will not be able to participate on your own and will have to partner. Portable chargers or backup batteries will be useful, but not required.)

-Mask is **required**

-Hand sanitizer and gloves (optional)

-Access to bike or vehicle

-Hat and sunscreen

-Layers (if applicable)

-Sneakers or walking shoes

-Snacks (optional)

-A drawstring or other bag for your materials

This survey is designed to be independent. ***To begin your tree hunt, there are a few things you need to complete.*** Below are steps **(1-4)** to guide you on your journey.

1. **ArcGIS Survey**

*What is ArcGIS?*

In short terms, GIS stands for geographic information systems. It is a service that is used for making maps of landscapes and their features such as elevation, water, and urban structures. It can be used to better understand a land, and to help engineers, policy makers, and environmentalists design and plan for construction. GIS services can also help with mitigating environmental problems.

*What will you be doing with this service?*

The very first thing is to make sure you have access to a working smart phone. You will need to download **Survey123**, an ArcGIS service, from your app store. While this is downloading to your phone, make sure to save the following link saved somewhere accessible in your phone. This link is a link to Brighton’s tree inventory survey where you will collect your data and submit it:

arcgis-survey123://?itemID=79840e422bce43d2a9fae342efa66b1c

Once the app has downloaded, open Survey123 and give the app permission to use your location “while using the app.” You do not need an account, and instead, click on “continue without signing in.” Next, go to the place where you had saved the above link and click on it. This will bring you back to Survey123, but this time with the loaded survey onto your phone. Click on the boxes to load your GPS coordinates, add or take photos, and type in information on your tree day. When you have completed the survey to the best of your abilities, click the checkmark button on the bottom of the screen to submit your data.

1. **PlantNet or iNaturalist App for Identification**

There are useful apps that will help you with identifying your tree’s species/genus and common name. They are called **PlantNe**t and **iNaturalist.** You can choose which one works the best for you.

**iNaturalist:**

When you have this downloaded, you can sign up for an account, or you can continue. To make an identification, click “observe.” Take a photo of the overall tree, leaves, or fruit, and then click next.

The following page gives a ton of information, but you only need to click on the box that says, “what did you see?” Here, you will see a generated list of species which look visually similar. You can google search all of these names, but usually their suggested species is usually what your tree is. The common name of your species is the name on the first line, while the species/genus is the italicized name on the second line.

Record both of these. You do not need to click on them or go any further than this step on the app. If you are unfamiliar with trees, this app will surely help you with your experience.

**PlantNet:**

When downloading and opening the app, PlantNet asks for your location. Click “only while using the app.” When you have done this, click the camera icon at the bottom of the screen to observe. Use your camera or your camera roll to take or insert a photo.

After taking or uploading your picture, the following screen will bring you to a list of the following choices: “leaf; flower; fruit; bark; habit; other.” Choose the best option for the part of the tree shown in the photo. The results will give you a list of species to choose from. Go through and look at the photographs to find what the best option is. The italicized one is the species and genus, and the non-italicized is the common name.

Record both of these. You do not need to click on them or go any further than this step on the app. If you are unfamiliar with trees, this app will surely help you with your experience.

1. **Sign Up on Google Excel**

You must sign up for a timeslot to participate and enter your contact information. The link to the following Google Excel is below:

<https://docs.google.com/spreadsheets/d/1neMk58lBYKyJShbvS-vaUOE9ncGIuREgg_LgACW2ELY/edit?usp=sharing>

Fill out **sheet 1 and sheet 2.** This will allow us to mitigate how many people are out in the field on a given day and how much equipment we have. Due to COVID-19 there will only be certain people allowed at certain times using the equipment and doing the survey. This is for your safety! If you happen to see all slots taken for a given week, please email either George or Rory.

1. **Arrive to the Site(s), Waiver and Time Sheet**

Once you have your tree day, you will go to the Brighton High School large parking lot at the given time listed on that day. Go towards the tennis courts near the sidewalk, and there will be a white bucket near the side entrance rounding the corner. It will be labeled.

In there you will find a waiver, time sheet, tape measurer, and Doyle sticks which you will use to measure some data. Please complete the waiver **before** your session. The time sheet also needs to be filled out **before** you go out, AND **after** you finish. This allows us to keep track of everyone in the field and to make sure you arrive safely.

You should plan on being out in the field for at least an hour, if not more. TREES TO MEASURE, STREET

You will be given a location or street where you will need to measure for that day. After completing the above steps, you will go to that location and begin completing the survey. Brighton is a small and walkable town, but a bike or vehicle can transport you faster to that location.

1. **Measure Your Steps**

In the bucket you will also find a tape measurer. This part will come in handy when you are measuring the height of the tree.

Roll out the tape until you hit 66 feet. Keep the tape in place by having two people hold it flat on the ground, or putting down heavy objects. The idea is to determine your pace by counting how many steps you take in 66 feet. Walk the distance in a straight path three times or until you get the same number of steps at a reasonable pace. Record this number in the same place you have put the ArcGIS survey link. Doing this will allow you to not bring the measuring tape with you and will allow you to measure your distance by steps.

**How to Use a Doyle Stick to Measure Diameter at Breast Height (DBH) and Height**

A Doyle stick will be provided in the bucket to assist with measuring both the diameter of the tree and the height of the tree. Make sure to return this at the end of your session. This is the device that looks like a ruler. It has been used as an accurate measurer since the 19th century, and is a very simple device. When using the Doyle stick, it is important to test run if you have not used it before so that you receive accurate measurements.

Before you begin, make sure to have the number of steps in your head that it takes to get 66 feet. This will be used in this section.

When discussing “logs” in tree terminology, this is on the bottom edge of the Doyle stick that is broken up into scale numbers of 1-5 corresponding to logs. This is used to measure height. Each log corresponds to 16 feet.

Below are the steps for measuring diameter and height of a tree in feet:

*Diameter:*

1. Angle the stick latitudinally. Put it 25 inches from your eye and onto the bark of the tree.
2. Make sure the stick is at breast height, or 4.5 feet off the ground. Use your Doyle stick to measure this distance from the stump.
3. Use the Diameter of Log scale to use this as a ruler for both steps 1 and 2.
4. Adjust the stick so that the left side or “0” end aligns with the left hand part of the tree. The Diameter of Tree scale on the top of the tree side will aid in this step.
5. Keeping still, look to where the right edge of the tree is, and read the scale. This is your diameter in inches.
6. Covert to feet using an online converter.
7. Complete in survey.

*Height:*

1. Measure 66 feet from the base of the tree.
2. Face the tree and hold the stick 25 inches from your eye vertically. Make sure that it is not tilted and as vertical as possible. Have someone look for you.
3. Match the base of the stick to the top of the stump of a tree which is around one foot.
4. Make sure when you are holding your stick that you can see the tree on the left hand side and keep your Doyle stick firm on the right side.
5. Count the logs to the point of usable height. This is the point where the tree forks, there are leaves, and branches.
6. Record the feet (not the log numbers) by adding them up, and estimating half logs (dashes) if applicable.
7. Complete in survey.

*Other things to note:*

* If a community member comes towards you and inquires you, tell them you are a volunteer for the Town of Brighton measuring and counting the town’s trees.
* If you have any accessibility or disability concerns do not hesitate to reach out, and we will find a manageable area to cover.