

**Dover Central Business District  
Street Tree Inventory Form**

\*\*please complete the electronic survey form if possible\*\*  
Refer to the [Street Tree Inventory Instructions](#) for additional information.

**1. Location of Tree**

Mark the location of the tree on the provided map and assign the tree a number it (i.e. 1, 2, etc.). Include the number of the tree here: \_\_\_\_\_ Provide a brief description of the location:

\_\_\_\_\_  
\_\_\_\_\_

**2. Street name:** \_\_\_\_\_

Closest street number: \_\_\_\_\_

**3. Your Name:** \_\_\_\_\_

Email or phone #: \_\_\_\_\_

**4. Date of Survey:** \_\_\_\_\_

**5. What type of site is this?**

- a) Existing tree
- b) New tree
- c) Stump
- d) Empty planning site
- e) other

**6. How big is the tree pit or tree box in square feet?** \_\_\_\_\_

**7. Is there at least 4 ft of unobstructed sidewalk available for people to pass?**

- a) Yes
- b) No

**8. What side of the building is the tree located on?**

- a) North
- b) South
- c) East
- d) West
- e) Northeast
- f) Northwest
- g) Southeast
- h) Southwest
- i) Unknown

**9. What is the common name of the tree?**

- Amur Maple
- Red Maple
- Norway Maple
- Horsechestnut
- Serviceberry/Juneberry
- River Birch
- American Hornbeam
- European Hornbeam
- Redbud
- Yellowwood
- Cornelian-Cherry Dogwood
- Stellar Pink Dogwood
- Green Ash
- White Ash
- Ginkgo
- Honey Locust
- Kentucky Coffeetree
- Goldenrain Tree
- Sweetgum
- Tulip Tree
- Elizabeth Magnolia
- Spring Snow Crabapple
- American Hophornbeam
- Sourwood
- Bloodgood London Planetree
- Japanese Cherry
- Callery Pear
- Pin Oak
- Red Oak
- Swamp White Oak
- White Oak
- Scholar Tree
- Japanese Lilac
- Linden
- Littleleaf Linden
- American Elm
- Japanese Zelkova
- Other: \_\_\_\_\_
- Unknown

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**10. What shape is the crown (branches and leaves)?**

- |              |              |
|--------------|--------------|
| a) Round     | e) Weeping   |
| b) Oval      | f) Umbrella  |
| c) Pyramidal | g) Irregular |
| d) V-shaped  | h) Unknown   |

**13. What is the overall health of the tree?**

- |         |               |
|---------|---------------|
| a) Good | c) Poor       |
| b) Fair | d) Dead/dying |

**14. Maintenance needs**

a. Is there any visible injury or physical damage?

Yes      No      Unknown

b. Is there any visible disease or pest damage?

Yes      No      Unknown

c. Are there visible pruning needs?

Yes      No      Unknown

d. Does the tree appear to need water?

Yes      No      Unknown

e. Does the tree pit need mulch?

Yes      No      Unknown

f. Has there been any vandalism at the site?

Yes      No      Unknown

g. Are there utility wire above or in the tree?

Yes      No      Unknown

h. Are there streetlights above or next to the tree?

Yes      No      Unknown

i. Is there root damage to the sidewalk or curb?

Yes      No      Unknown

j. Does the size and location of the tree appear to be appropriate for the site?

Yes      No      Unknown

**11. What is the tree's diameter at breast height (DBH) or 4.5 feet from the ground, in inches?**

**12. What is the height of the tree in feet?**

**15. Is there a plaque or marker that indicates that the tree was planted in memorial or in honor of an individual, organization, or event, or that it has cultural or historical significance? If so, please provide this information:**

Please scan and email completed surveys to Liz Durfee at [efd.planning@gmail.com](mailto:efd.planning@gmail.com) OR drop them off at the Planning Department at City Hall.

Questions or concerns?  
Contact Liz Durfee, planning consultant  
603-969-4594 or [efd.planning@gmail.com](mailto:efd.planning@gmail.com)



Central Business District, Dover, NH • Summer 2020

# STREET TREE INVENTORY

## INSTRUCTIONS

## Introduction

Thank you for assisting with Dover's Street Tree Inventory in the Central Business District (CBD)!

This survey will take place in July and August of 2020. This is a survey of street trees only (Figure 1).

This document contains instructions on how to complete the inventory and provides additional information to assist with responding to the survey questions for each tree.

This inventory is part of a coastal resilience project funded by the New Hampshire Coastal Program. Results from this inventory will be used to guide future street tree plantings and to inform the development of a street tree plan for the CBD. The inventory results will also be analyzed alongside city-wide tree canopy data obtained from LiDAR imagery.

Please contact Liz Durfee, planning consultant with EF | Design & Planning, LLC, at 603-969-4594 or [efd.planning@gmail.com](mailto:efd.planning@gmail.com) with questions about the survey.



Figure 1. Example of a street tree on Central Ave in Dover. Street trees are trees planted in the right-of-way, often in a tree pit in the sidewalk or in the grassy median between the sidewalk and street.



# Instructions

## Step I: Sign Up

- Contact Liz Durfee (603-969-4594 or [efd.planning@gmail.com](mailto:efd.planning@gmail.com)) to sign up to survey trees on a specific block(s) or streets(s) that are within the CBD zoning district (Figure I). A list of the streets in the CBD to be surveyed is included in Appendix A of these instructions. Maps of each street segment are available at: <https://www.dropbox.com/sh/cwnfgldhd68rdmn/AADRpNsmKsJCI9LyDtisuh-Za?dl=0>.
- Sign and return the waiver located in Appendix B or [here](#) to [efd.planning@gmail.com](mailto:efd.planning@gmail.com).

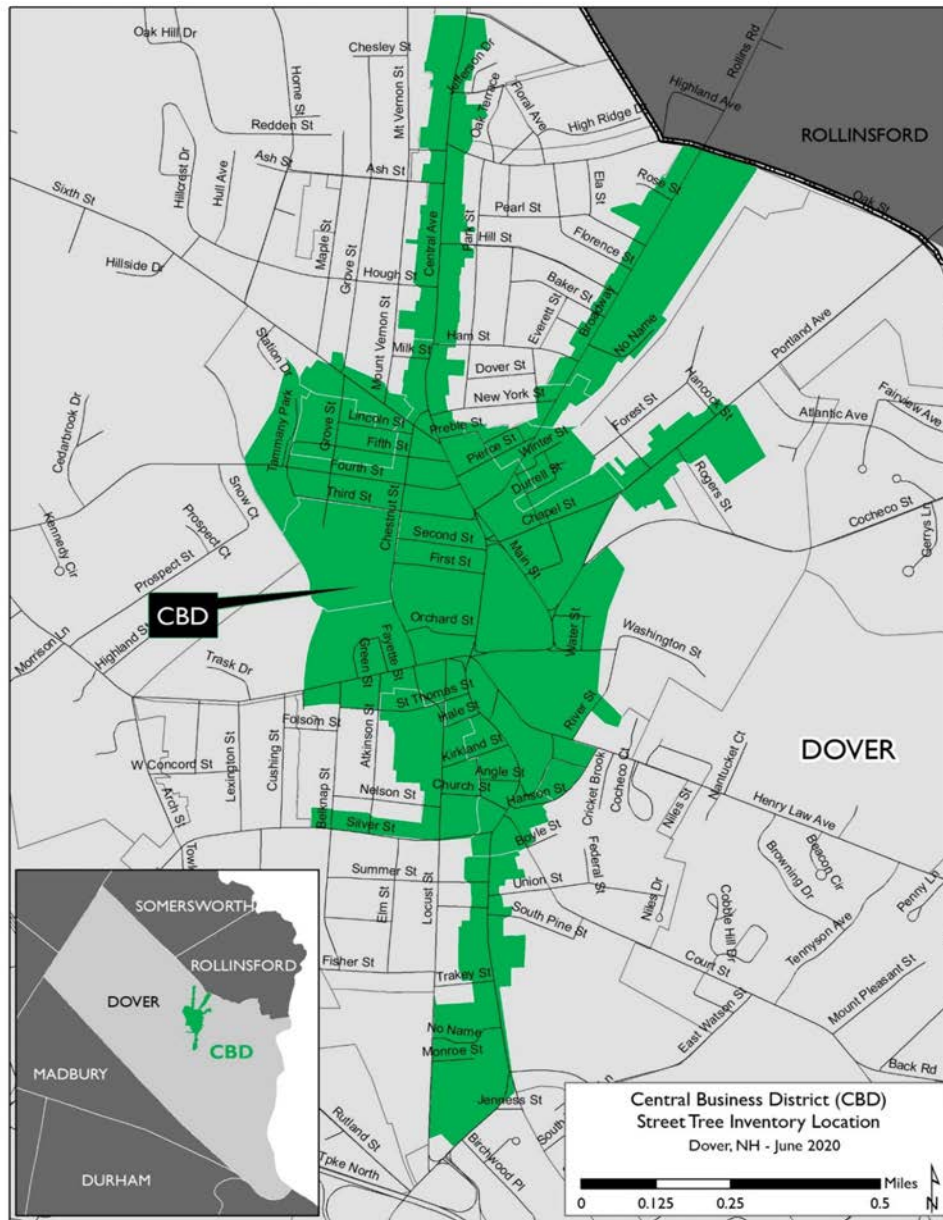


Figure I. Map of the Central Business District (CBD)

## Step 2: Review Instructions

- Review these instructions to familiarize yourself with the survey questions and process.

## Step 3: Download Survey123

- Download the free Survey123 for ArcGIS app on your mobile phone, iPad, or tablet (please note that whichever mobile device you choose to use must have cellular service).
- Open the Survey123 app on your mobile device and, if prompted, allow the app to access your location.
- Survey123 may prompt you to create an account or log in to an existing account. Do not create an account and do not try to log in to an existing account. This survey can and should be accessed without using an account login and password.
- To access the survey, login to your email on the same mobile device that you downloaded Survey123 to, and click on the survey link that you were given by Liz Durfee or Jackson Rand
  - Note: This survey link is not a normal website link. If you copy and paste this link into your web browser, nothing will happen. If you click on the link from your computer, nothing will happen. This survey link is a “mobile app link”, and will become “clickable” on your mobile device once you download the Survey123 app.
- Alternatively, to access the survey you can take a photo of the QR Code that you were given by Liz Durfee or Jackson Rand.

*Note: Electronic surveys are preferred but if you wish to complete a paper survey, SRPC can provide you with a paper survey form to complete.*

## Step 4: Gather field equipment

- Flexible tape measure, or a string and ruler if you do not have a tape measure
- Yard stick, or a stick or pole that is at least as long as your arm
- Mobile device with **Survey123** app downloaded
- Link to the survey (provided via email)
- Printed copy of these instructions. Printed copies are available in the Planning Department at City Hall for individuals who are not able to print at home.
- Tree Identification Guide or plant identification app, optional
- Water, sunscreen, snacks, masks, hand sanitizer, as needed.

## Examples of Tree Identification Resources

### Free online resources:

- Arbor Day Foundation's What Tree is That? online guide:  
<https://www.arborday.org/trees/whattree/whatTree.cfm?ItemID=E6A>
- Know Your Trees from Cornell University:  
[https://extension.unh.edu/resources/files/Resource003744\\_Rep5341.pdf](https://extension.unh.edu/resources/files/Resource003744_Rep5341.pdf)

### Tree identification book or guide for purchase:

- Peterson's A Field Guide to Eastern Trees: Eastern United States and Canada
- National Audubon Society's Field Guide to North American Trees: Eastern Region
- Arbor Day Foundation's What Tree is That? printed guidebook  
(<https://shop.arborday.org/product.aspx?zpid=583>)

### Plant ID apps:

- Virginia Tech vTree
- PlantSnap
- Botany Buddy
- PictureThis-Plant ID
- National Wildlife Federation (NWF) Guide to Trees

## Step 5: Complete the Survey

### A. General Guidance:

- Start at one end of the street or block you are assigned to survey. Inventory all trees on one side of the street before moving to the other.
- Use the maps provided by SRPC to help identify the street trees, which are located in the right-of-way. Trees located in the sidewalk are easy to identify. On streets without a sidewalk, it can be harder to determine which trees should be surveyed. When in doubt about whether a tree is a street tree, collect the information.
- Inventory both the street trees and the empty tree pits or tree boxes cuts (Figure 3). If you see bare soil or a stump in a section of sidewalk that has been cut out, it is likely a tree used to be there. Please include these sites in your survey collection.
- Click on the link to the survey to open the survey and begin collecting data. You should have received this link from Jackson Rand after signing up.
- If you are unsure how to answer a question, leave it blank.
- Please be safe and mindful of others, park in allowed locations, use crosswalks when crossing the street, and avoid stepping into the road while completing the survey.



Figure 3. Empty tree pit

## B. Additional Information for Survey Questions in Survey123

This section has additional information and instructions for each survey question you will see in the Survey123 app.

### 1. Location

When you reach a new tree, stand next to it, and add the tree location by clicking on the button to the left of the coordinates. This button is circled in red in Figure 4.

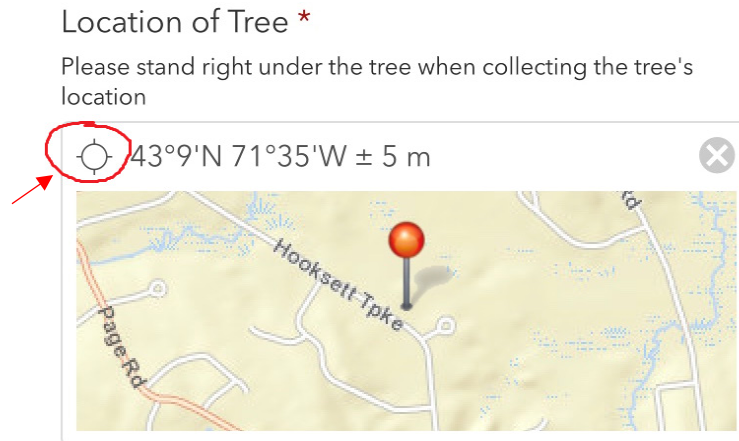


Figure 4. Screenshot of Survey123 add a location

### 2. Street name

### 3. Your name

### 4. Date survey completed (MM/DD/YYYY)

### 5. What type of site is this? (multiple choice)

- Existing tree
- New tree
- Stump
- Empty planting site
- Other

### 6. How big is the tree pit or tree box in square feet?

The tree pit, tree box, or tree well is the area that has been cut out of the sidewalk (see Figure 5).

- For rectangular sidewalk cuts: measure and calculate the length (ft) x width (ft) of the box.
- For round sidewalk cuts: measure the radius (distance from the edge of the circle to the middle of the circle) and multiply the radius (ft) x radius (ft) x 3.14.
- If the sidewalk cut is an irregular shape, make your best estimate of the area of the cut.
- If the tree is located in a grassy median or edge of lawn, enter "0".



Figure 5. Tree pit, also referred to as a tree box or tree well



7. **Measure the distance from the edge of the tree box to the nearest building or edge of the sidewalk. Is there at least 4 feet of unobstructed sidewalk available for people to pass by?** (yes/no/unknown)

8. **What side of the building is the tree located on?** (multiple choice)

Turn on satellite view in Google Maps and look at your location in relation to the building. If you are west of the building, choose “west”.

- North
- South
- East
- West
- Northeast
- Northwest
- Southeast
- Southwest
- Unknown

9. **What is the common name of the tree?** Optional, if known (multiple choice)

- If you do not know, please choose “unknown”.
- You can try to use a tree guide or plant identifier app to identify the tree, but if you are unable to confirm the name of the tree with certainty, please choose “unknown” and staff will determine the species.
- If the species is not listed, please choose “other”.

10. **What shape is the crown (branches and leaves)?** (see Figure 6) (multiple choice)

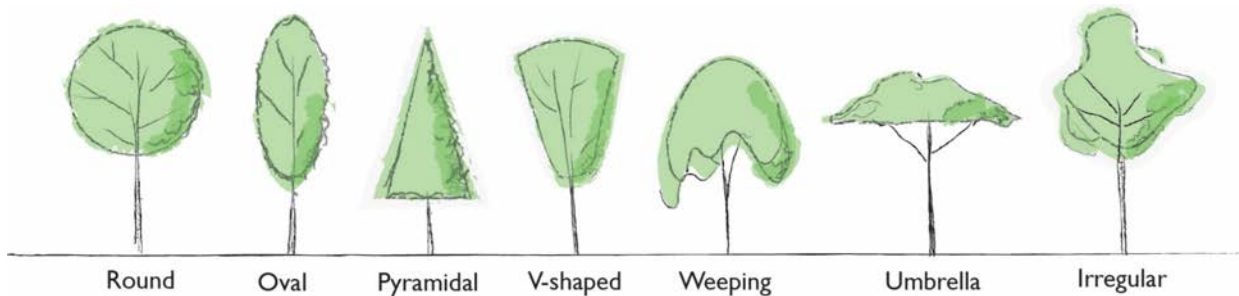


Figure 6. Tree crown shapes

11. **What is the tree’s diameter at breast height (DBH) or 4.5 feet from the ground, in inches?**

Measure the diameter of the tree at approximately 4.5 feet from the ground.

- If there is a fork in the trunk or multiple branches, measure just below the split.
- If you have a measuring tape, measure the circumference (the distance around the trunk) in inches, and divide this by 3.14.
- You can use a string and ruler or yard stick to determine the circumference if you do not have a flexible measuring tape.

## 12. What is the height of the tree in feet?

Use the method described below to estimate the height using a yard stick (or any stick) and a tape measure. This method was adapted from USU Forestry Extension. Do not climb the tree.

- Use a yardstick or a stick that is equal in length to the distance from your eye (cheekbone) to your fingers when your arm is fully extended in front of your face. Break off part of the stick or mark it at the correct length if you do not find one that is exactly right.
- Hold the stick out in front of you with your arm fully extended. The stick must be held vertically and your arm should be parallel to the ground. If your cheekbone to fingers length was 28 inches, you should be standing with your arm out straight with the bottom of the stick in your hand at about eye level and the top of the stick 28 inches above your hand.
- Face the tree. Look in the direction of your outstretched hand. Walk toward or away from the tree until the tip of the stick is visually lined up with the top of the tree and the bottom of the stick is lined up with the bottom of the tree. Your line of sight to the tree base should be as close as possible to horizontal. In sighting to the top and bottom of the stick rotate your eye rather than your head.
- The distance from where you are standing to the base of the tree is (approximately) equal to the height of the tree. Measure this distance in feet using a measuring tape. If you do not have a long measuring tape, pace out the distance and convert your steps to feet based on the size of your step.

**Before you go out to complete the survey...**

Watch this video from Arthur Temple College of Forestry on how to use the yard stick method to measure the height of a tree:

<https://www.youtube.com/watch?v=cDy5OjfMfZ8>

## 13. What is the overall health of the tree? (multiple choice)

- Good: healthy, vigorous, with no apparent signs of insect, disease, or mechanical injury (i.e. broken branches).
- Fair: average condition and vigor for the area but may be in need of some corrective pruning, show minor insect injury or disease, or show root damage.
- Poor: in a general state of decline. May show severe mechanical (significant bark or limb injury), insect, or disease damage, but is not dead.
- Dead/dying: no new growth or leaves evident in spring/summer, hollow, broken branches, or trunk.

**14. Maintenance needs questions (yes/no/unknown)**

- Is there any visible injury or physical damage?
- Is there any visible disease or pest damage?
- Are there visible pruning needs, such as branches that are interfering with pedestrian or vehicular travel or visibility?
- Does the tree appear to need water? Indicators of this include curling or wilted leaves that turn brown at the edge, yellowing leaves, or early leaf drop or early fall color.
- Does the tree pit need mulch? If there is no mulch or a very sparse layer of mulch, it is likely that mulch is needed.
- Has there been any vandalism at the site?
- Are there utility wires above or in the tree?
- Are there streetlights above or next to the tree?
- Is there root damage to the sidewalk or curb?
- Does the size and location of the tree appear to be appropriate for the site? Use your best judgement.
- Please upload photos of any potential maintenance issues.

**15. Is there a plaque or marker that indicates that the tree was planted in memorial or in honor of an individual, organization, or event, or that it has cultural or historical significance? If so, please provide this information below. (Fill in the blank)**

**16. Please take and upload a photo of the tree.**

**17. Please add any additional notes you may have about the tree or site.**

## Appendix A: Streets within the CBD to be surveyed

Maps of street segments are available at:

<https://www.dropbox.com/sh/cwnfgldhd68rdmn/AADRpNsmKsJCI9LyDtisuh-Za?dl=0>

Streets in CBD	Miles in CBD	Portion of Street to Survey
Academy St*	0.10	Kirkland St to Church St
Angle St**	0.09	Academy St to Central Ave
Ash St*	0.04	One lot west of Central Ave
Atkinson St	0.09	Washington to St Thomas St
Atkinson St	0.05	One lot north of Silver St
Baker St	0.04	One lot west of Broadway
Belknap St	0.11	Washington To St Thomas St
Brick Rd*	0.03	One lot east of Central Ave
Broadway*	1.02	Central to Oak Street
Central Ave	0.12	Birchwood Pl to Jenness St north side only
Central Ave	0.31	Jenness to Trakey St west side only
Central Ave	0.26	Trakey St to Silver St
Central Ave	0.34	Silver St. to Washington St
Central Ave	0.21	Washington St to Franklin Sq
Central Ave	0.24	Franklin Sq to Chestnut St
Central Ave	0.21	Chestnut St to Hough St
Central Ave	0.18	Hough St to Ash St
Central Ave	0.30	Ash St to Abbey Sawyer Memorial Dr
Chapel St*	0.31	Main St to Portland Ave
Chestnut St	0.46	Washington Ave to Central Ave
Chestnut St	0.11	Washington St to Locust St
Church St	0.16	Locust St to Central Ave
Court St*	0.10	Boyle St to Central Ave
Cushing Ct	0.01	Chestnut St to end
Durrell St	0.15	Saint John St to Winter St
East St	0.04	Two lots north of New York St
Essex St	0.04	One lot north of Portland Ave
Exit Ramp (southwest side of Central Ave and Washington St intersection)	0.05	Central Ave to Washington St (at intersection)
Fayette St	0.08	Green St to Washington St
Fifth St	0.42	Fourth to Central Ave
First St	0.21	Chestnut to Central Ave
Florence St	0.03	One block west of Broadway
Fourth St	0.50	Cocheco River to Central Ave
Franklin Plz	0.05	Main St to Central Ave
Franklin Sq	0.03	Main St to Central Ave



<b>Streets in CBD</b>	<b>Miles in CBD</b>	<b>Portion of Street to Survey</b>
George St	0.21	Central to Henry Law Ave
Green St	0.14	Washington to Fayette
Grove St	0.39	South of Sixth St
Hale St	0.09	Locust St to Central Ave
Ham St	0.03	One lot east west of Broadway
Ham St	0.05	One lot east of Central Ave
Hancock St	0.03	One lot north of Portland Ave
Hanson St*	0.27	Central to Henry Law Ave, west side only
Henry Law Ave*	0.32	Central Ave to River St
Henry Law Ave*	0.05	River St to Hanson St, south side only
Hill St	0.10	Central Ave to Park St
Hough St	0.05	One lot west of Central Ave
Kirkland St*	0.16	Locust St to Central Ave
Lincoln St	0.17	Grove St to Chestnut St
Locust St	0.53	Silver to Washington
Main St	0.30	Washington to Chapel St
Mechanic St	0.10	School St to Chapel St
Milk St*	0.04	One lot west of Central Ave
Monroe St**	0.10	Locust St to end
Mount Vernon St	0.04	One lot north of Sixth St
Nelson St	0.04	One lot east of Locust St
New York St	0.05	Three lots east of Central Ave
New York St*	0.05	Broadway to East St
Oak St	0.05	One lot east of Central Ave
Orchard St	0.17	Chestnut to Central Ave
Pearl St**	0.03	One lot west of Broadway
Pierce St	0.20	Central Ave to Broadway
Portland Ave*	0.25	Main St to Chapel St
Portland Ave*	0.30	Chapel St to Atlantic Ave
Preble St	0.16	Central Ave to Pierce St
Reservoir St*	0.04	One lot west of Central Ave
River St**	0.12	Henry Law Ave to north side of the Skatepark
Rogers St	0.04	One lot south of Portland Ave
Rose St	0.05	One lot west of Broadway
Saint John St	0.14	Chapel St to Broadway
Scenic Dr**	0.04	One lot south of Washington, east side only
School St	0.09	Main St to Mechanic St
Second St	0.21	Chestnut to Central Ave
Silver St	0.30	Belknap to Central Ave
Sixth St	0.32	Central to Middle St
Sonnett St**	0.08	George St to Hanson St
South Pine St	0.05	One lot east of Central Ave

<b>Streets in CBD</b>	<b>Miles in CBD</b>	<b>Portion of Street to Survey</b>
Spring St*	0.04	One lot west of Central Ave
St Thomas St	0.15	Atkinson to Locust St
St Thomas St	0.07	Belknap to Atkinson, north side only
Summer St*	0.05	One lot west of Central Ave
Tammany Park*	0.17	Fourth St to Fifth St
Third St*	0.44	Frances Dr to Central Ave
Trakey St*	0.05	One lot west of Central Ave
Twombly St*	0.12	Preble St to Pierce St
Union St	0.03	One lot east of Central Ave
Washington St	0.26	Scenic Dr to Central Ave
Washington St	0.25	Central Ave to River St
Williams St	0.08	Central Ave to Henry Law Ave
Winter St	0.14	Saint John St to end
Young St**	0.08	Portland Ave to end

\*A portion of the street does not have sidewalk. It may be more difficult to determine which trees are located in the right-of-way in areas with no sidewalk.

\*\*No sidewalk. It may be more difficult to determine which trees are located in the right-of-way in areas with no sidewalk.

# Appendix B: Waiver for Participation in the Survey

**Stafford Regional Planning Commission  
Volunteer Service Statement & Agreement**

Date: \_\_\_\_\_, 2020

I make this **Statement** and **Agreement** in order to provide, and to be authorized to perform, the following uncompensated services to my community:

**Data collection and inventory,**

**Under the direction of Stafford Regional Planning Commission's  
Coastal Resilience Project, Task 1 – Dover Urban Street Plan,**

**Between July and September 2020.**

In performing the specified volunteer service, I acknowledge:

- That I am 18 years of age or older and know of no reason, medical or otherwise, which would prevent me from performing the tasks required;
- That I have acquainted myself with what is required to perform those tasks, and represent that I have the skill and ability to perform them;
- That I assume full responsibility for my own safety and the safety of others who might be affected by my actions or omissions. I hereby agree to release, defend, indemnify and hold harmless Stafford Regional Planning Commission (SRPC), its agents, employees, and officers, from any and all claims of illness, bodily injury, personal injury, or property damage, occurring to me or to others, arising from my negligent, reckless, wanton or intentional conduct while participating in this activity.
- That I will perform the volunteer service in compliance with the standards and specifications established, or approved, by SRPC, and will honor the direction of SRPC officials/staff to suspend or terminate service;
- That I agree to the foregoing in consideration for being permitted to perform volunteer service for and on behalf of the SRPC.

Volunteer Signature: \_\_\_\_\_

Volunteer Printed Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

Email: \_\_\_\_\_



APPENDIX C – 2020 Street Tree Inventory Species List

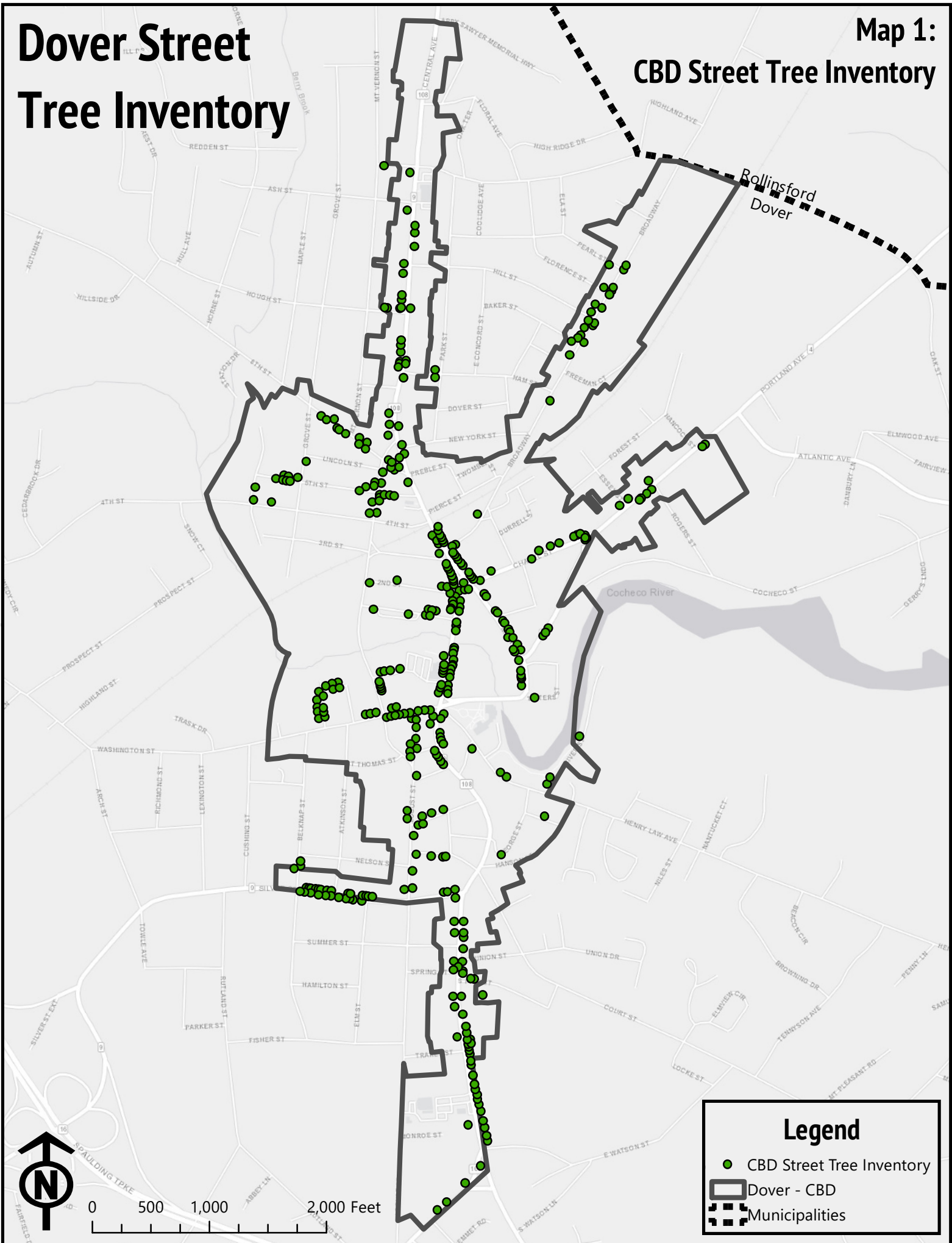
**Species Identified in the CBD Street Tree Inventory**

<b>Species</b>	<b>Number Identified</b>
Linden	58
Norway Maple	46
Green Ash	40
Red Maple	32
Crabapple	18
Red Oak	16
Ginko	13
Callery Pear	12
Cherry	12
American Elm	11
Amur Maple	11
Littleleaf Linden	10
Sugar Maple	10
Japanese Tree Lilac	7
Japanese Zelkova	7
Honey Locust	6
Serviceberry Juneberry	6
White Ash	6
White Oak	6
Horsechestnut	4
Japanese Cherry	4

<b>Species</b>	<b>Number Identified</b>
Silver Maple	3
Sycamore	2
American Hophornbeam	1
Ash Leafed Maple	1
Beech	1
Black Maple	1
Cockspur Hawthorne	1
Cornelian-Cherry Dogwood	1
Cottonwood	1
Eastern Hemlock	1
European Mountain Ash	1
Evergreen	1
Persimmon	1
Pine	1
Red Alder	1
Red Chokeberry	1
Shagbark Hickory	1
Soft Maple	1
Spring Snow Crabapple	1
Sweet Cherry	1
Silver Maple	3

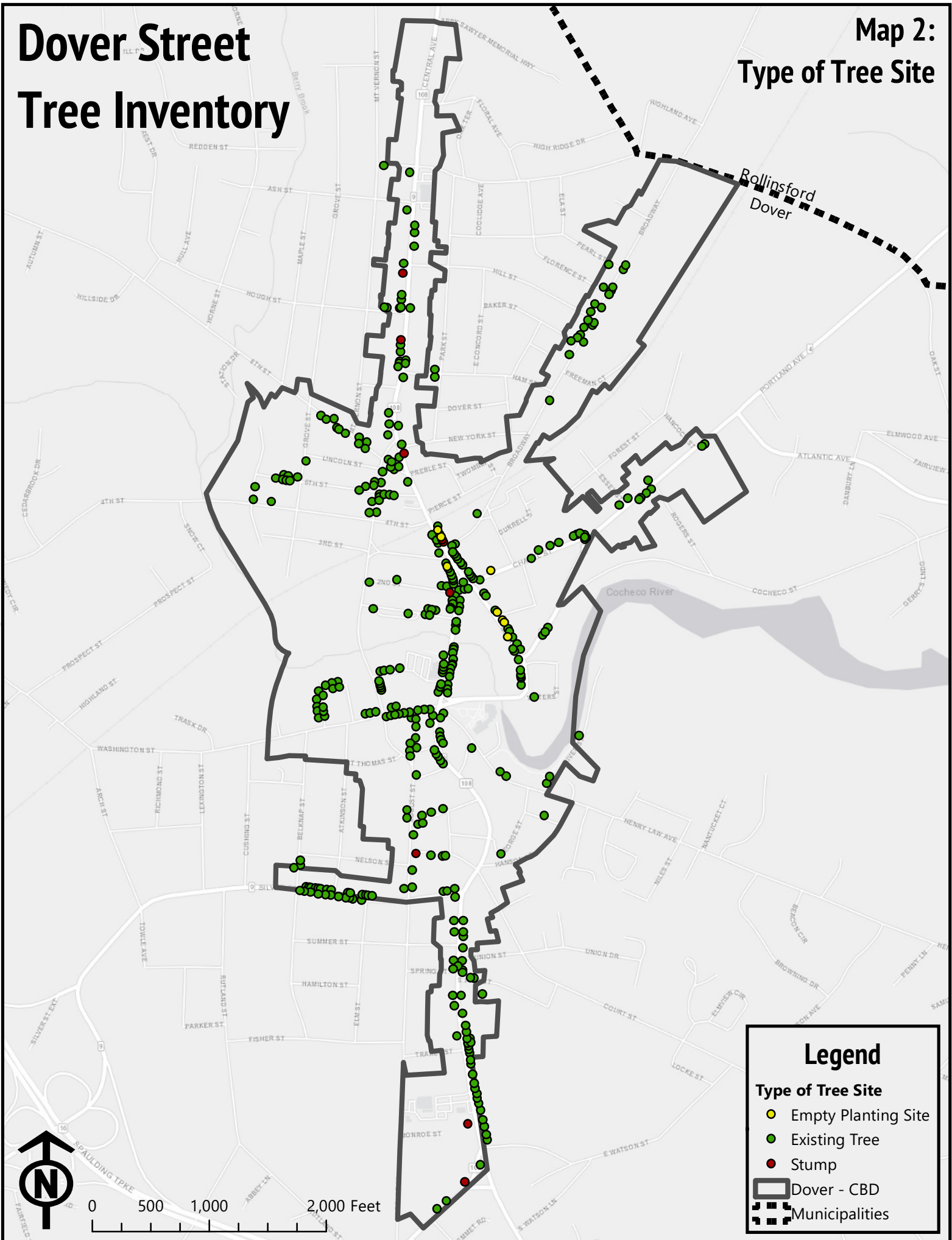
# Dover Street Tree Inventory

## Map 1: CBD Street Tree Inventory



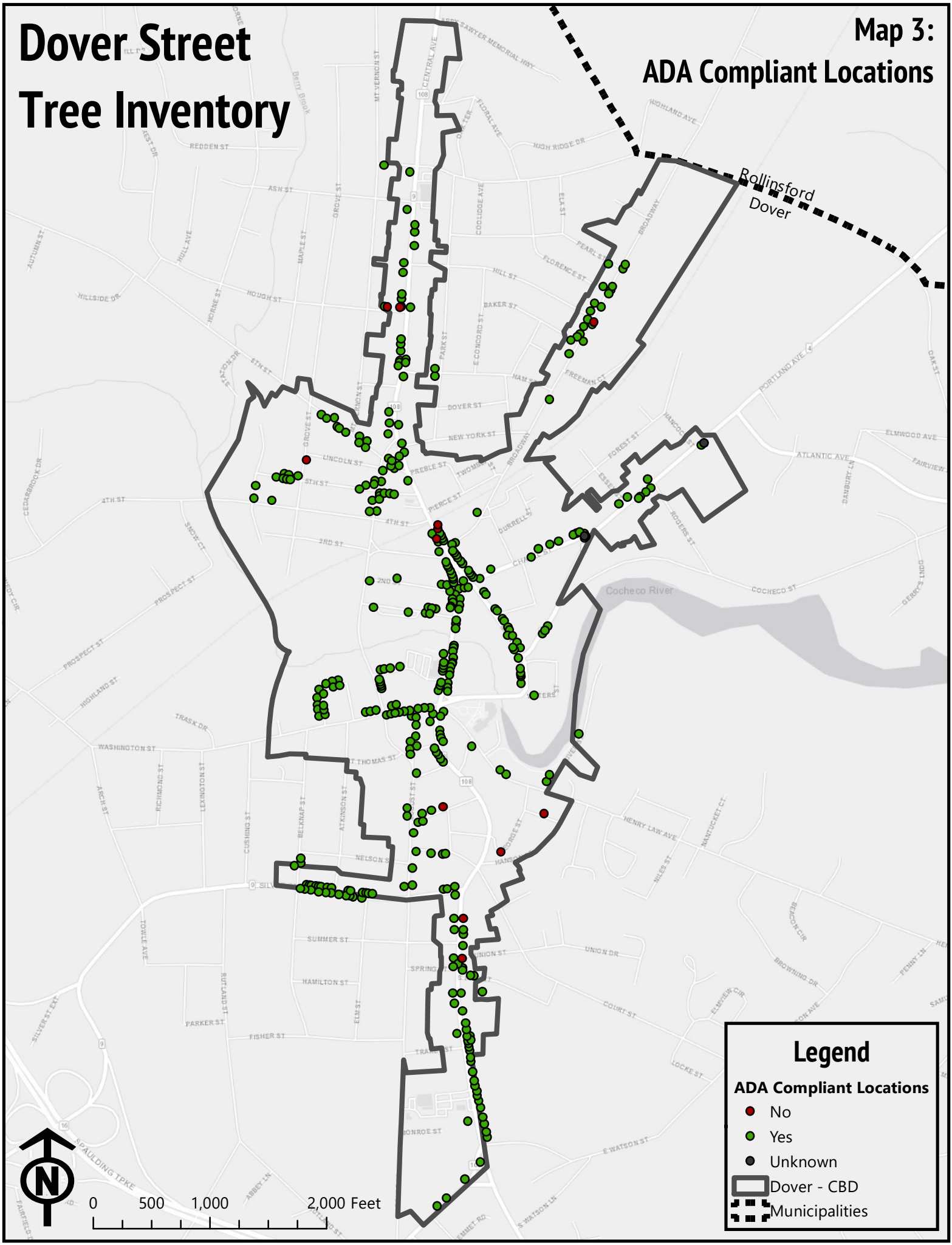
# Dover Street Tree Inventory

## Map 2: Type of Tree Site



# Dover Street Tree Inventory

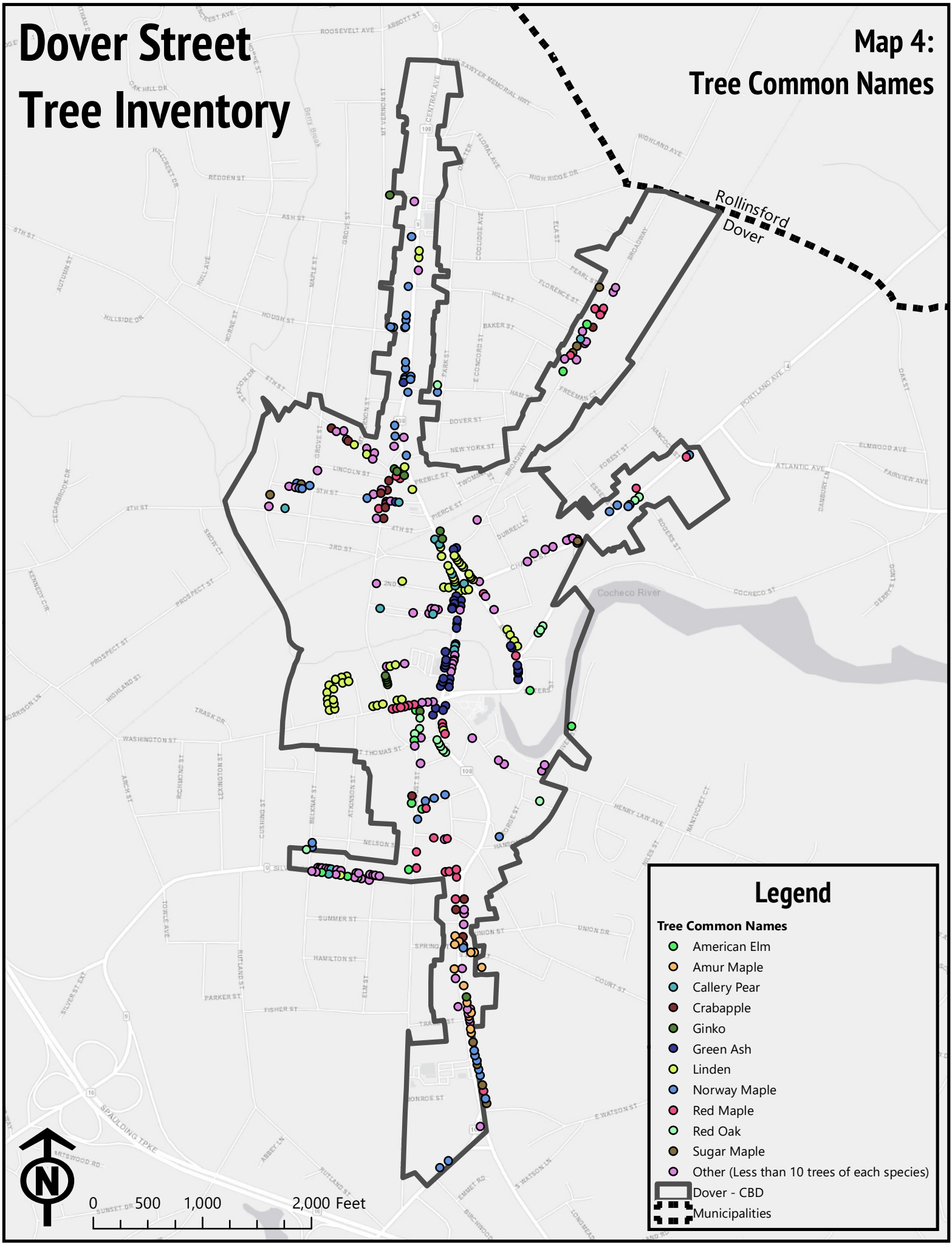
## Map 3: ADA Compliant Locations





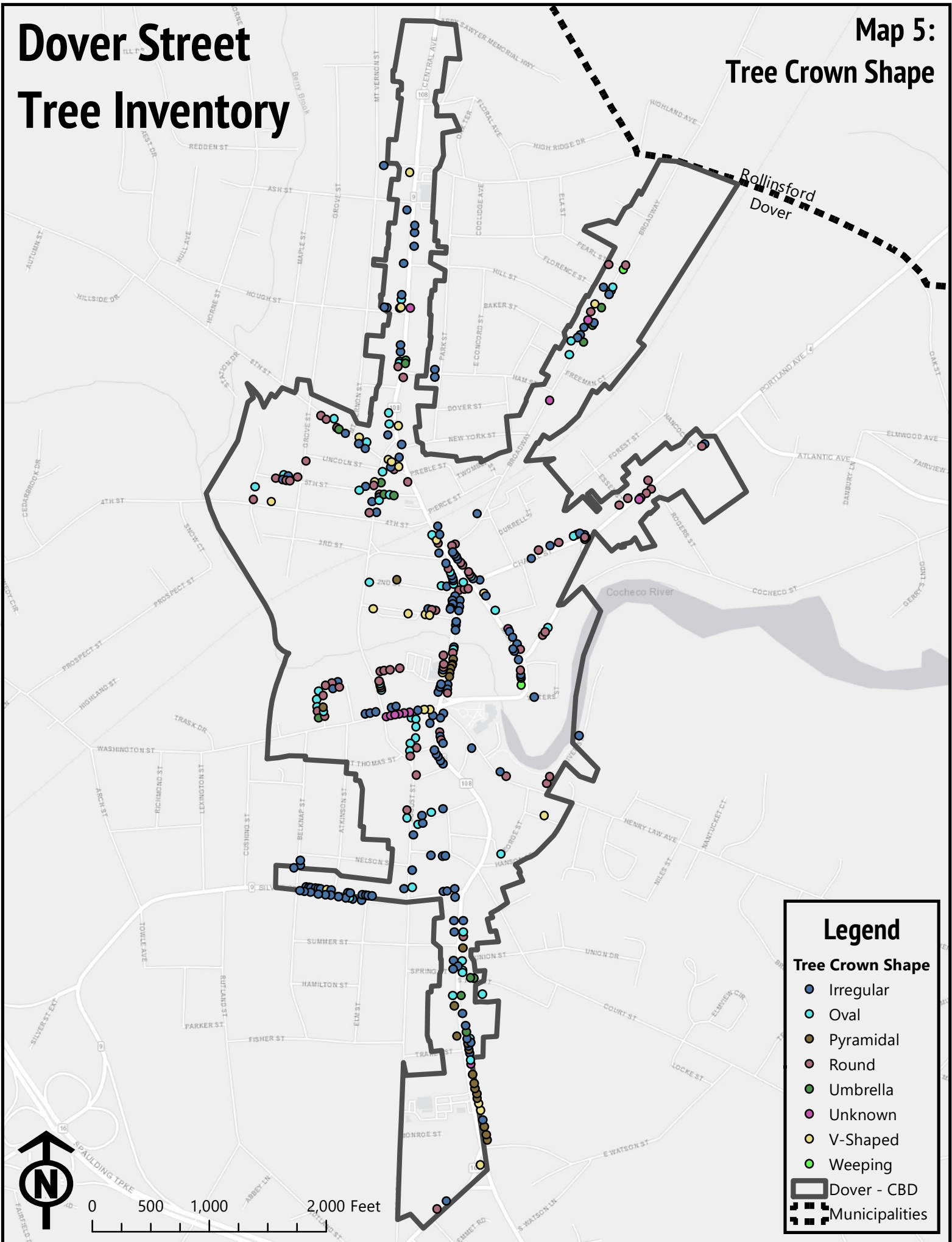
# Dover Street Tree Inventory

## Map 4: Tree Common Names



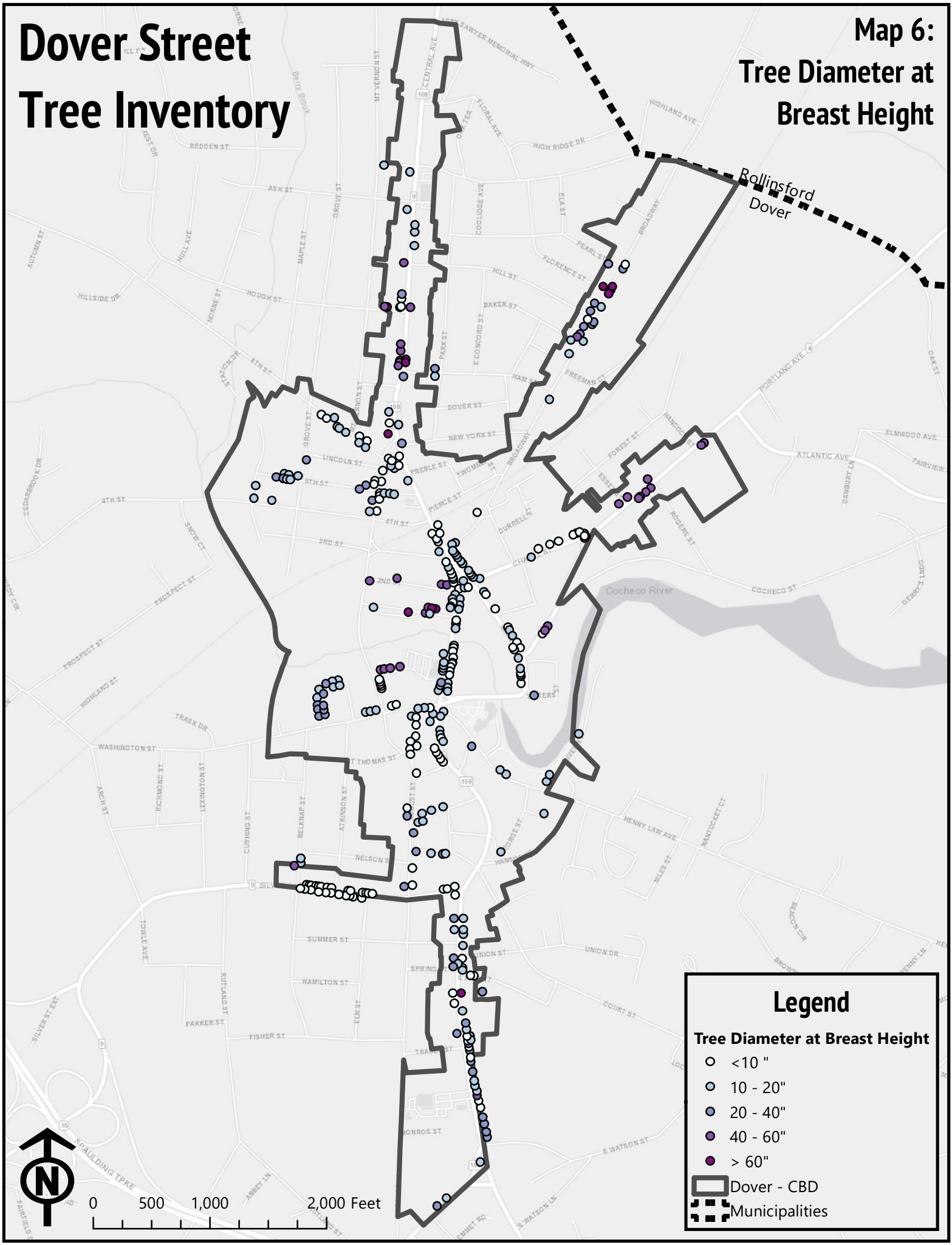
# Dover Street Tree Inventory

Map 5:  
Tree Crown Shape



# Dover Street Tree Inventory

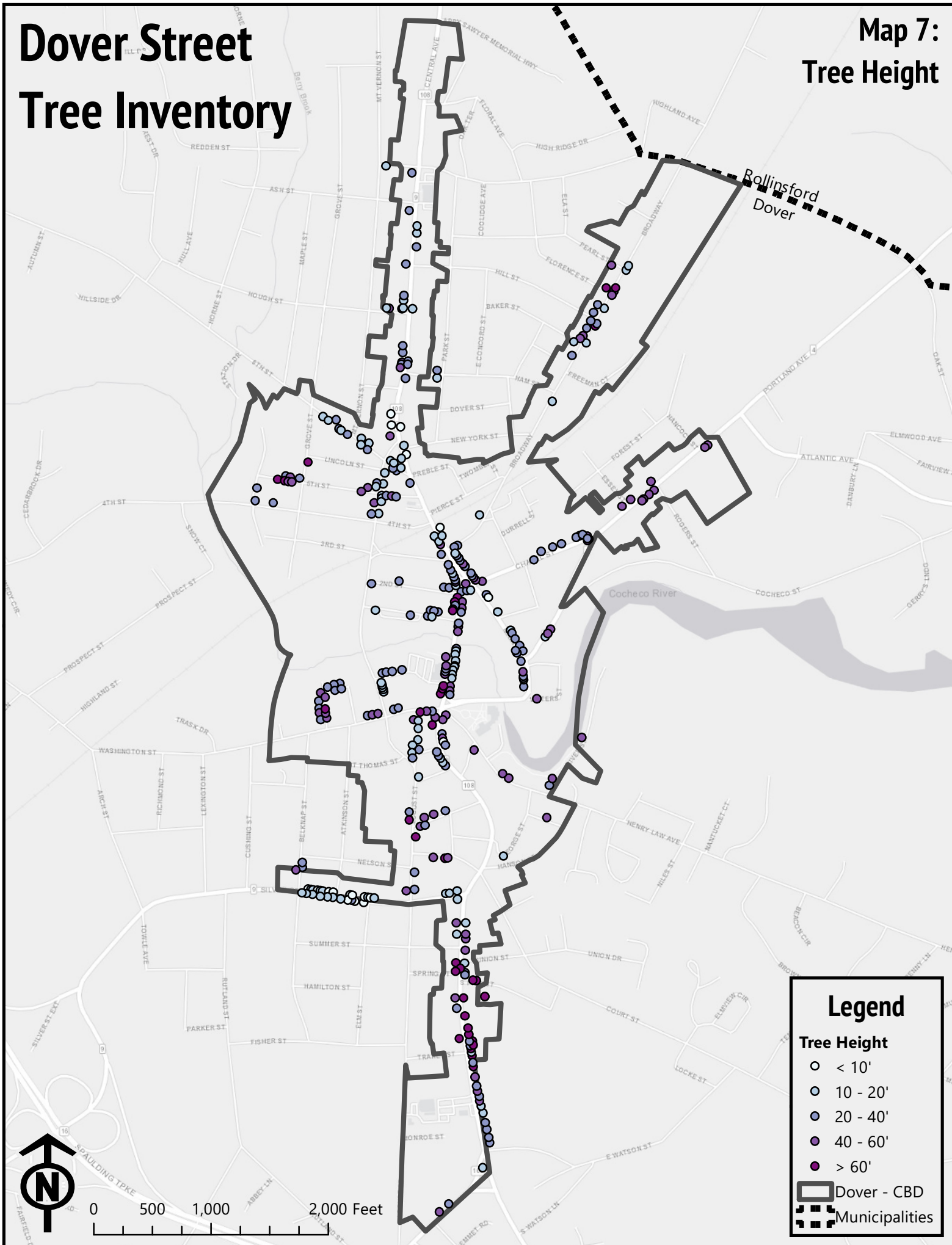
Map 6:  
Tree Diameter at  
Breast Height



0 500 1,000 2,000 Feet

# Dover Street Tree Inventory

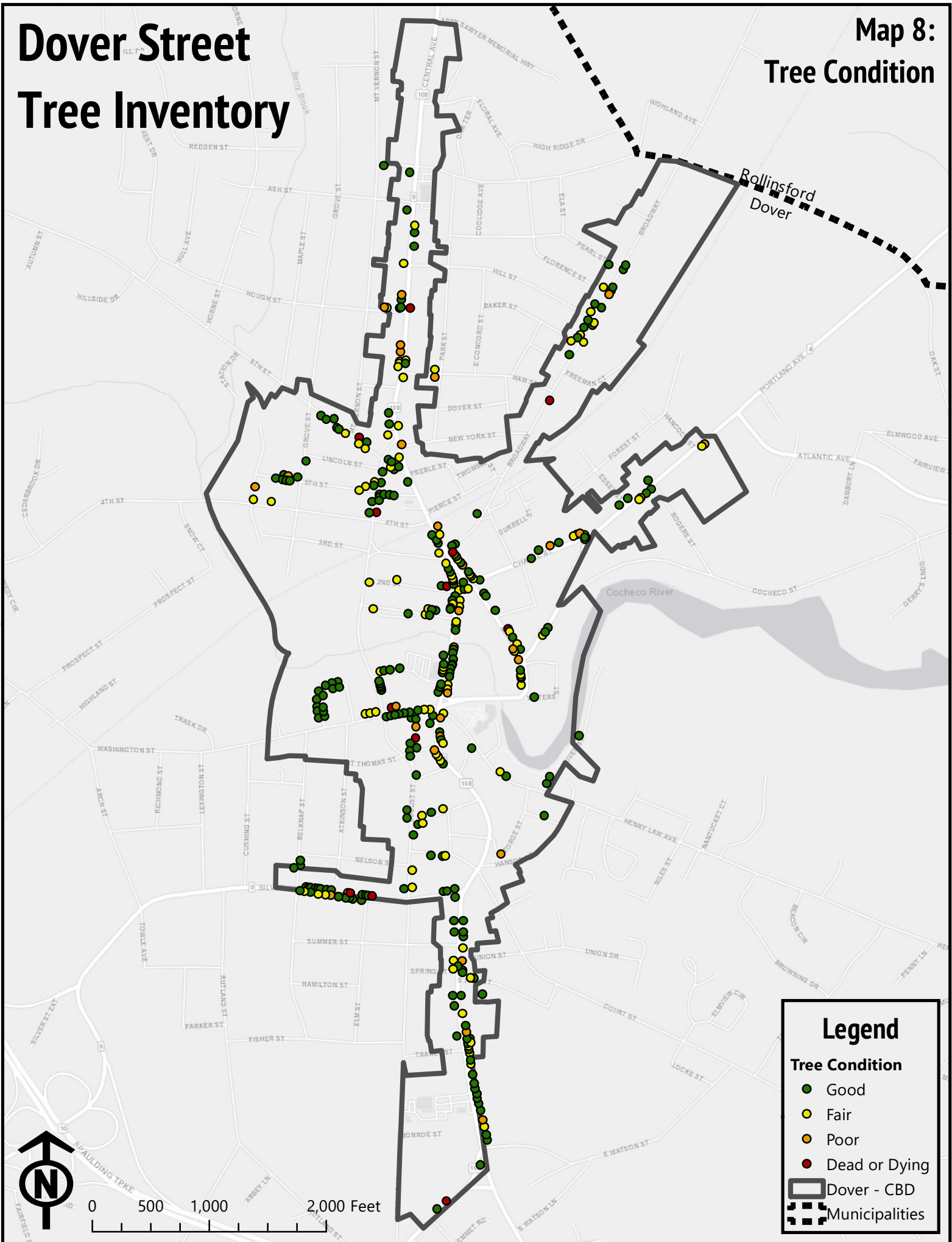
Map 7:  
Tree Height





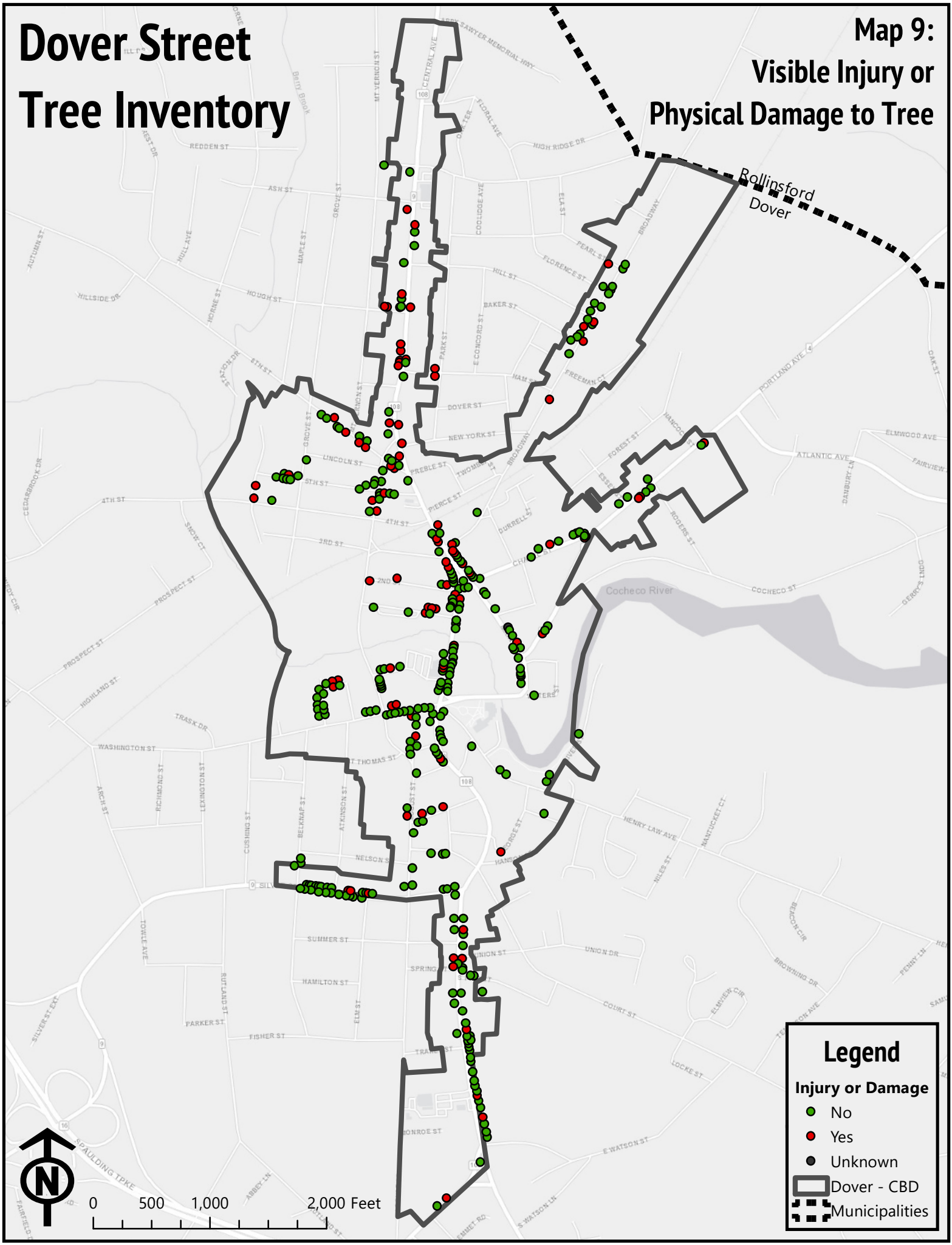
# Dover Street Tree Inventory

Map 8:  
Tree Condition



# Dover Street Tree Inventory

## Map 9: Visible Injury or Physical Damage to Tree



Rollinsford  
Dover

Cochecho River

**Legend**

**Injury or Damage**

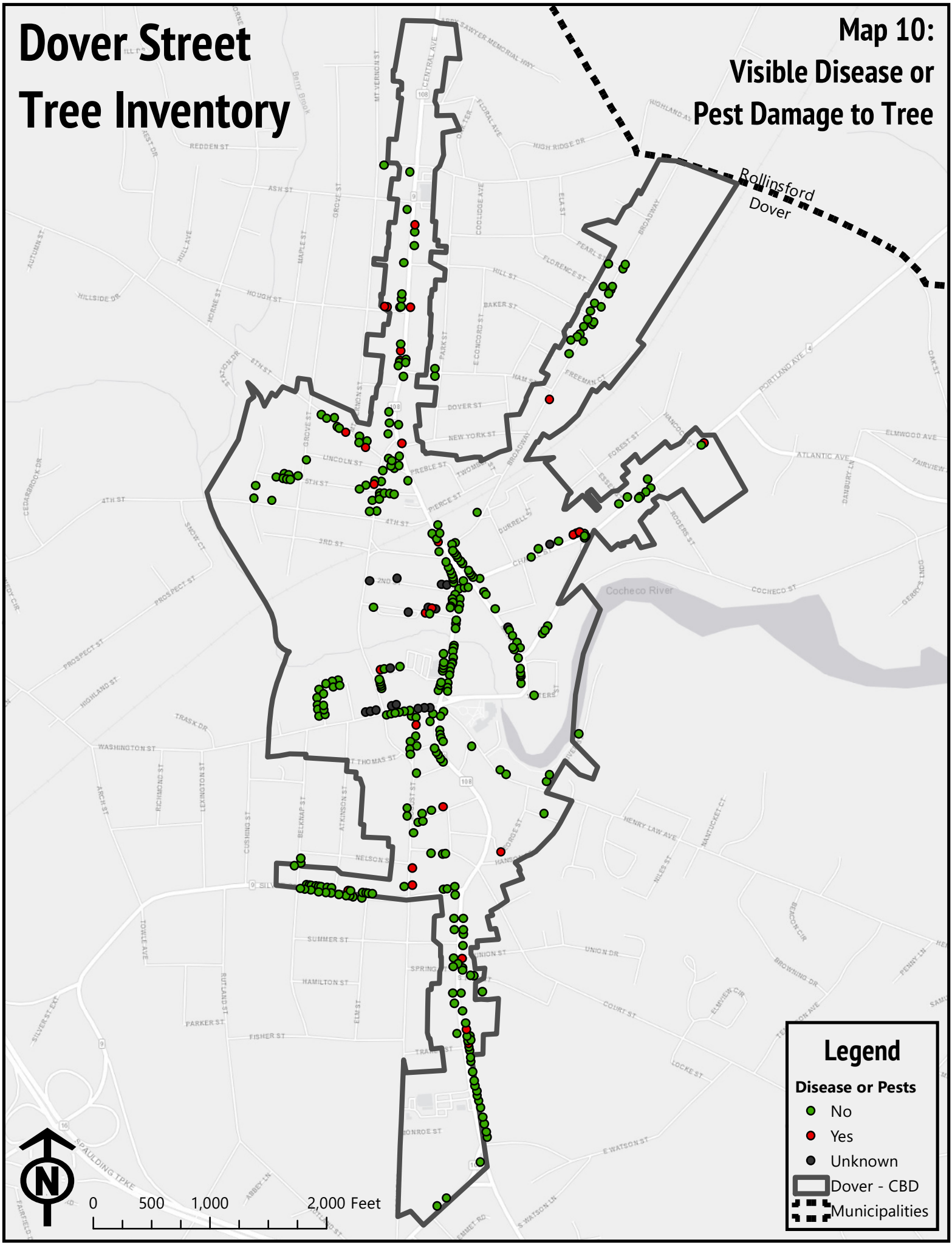
- No
- Yes
- Unknown

▭ Dover - CBD

▨ Municipalities

# Dover Street Tree Inventory

Map 10:  
Visible Disease or  
Pest Damage to Tree



Rollinsford  
Dover

Cochecho River

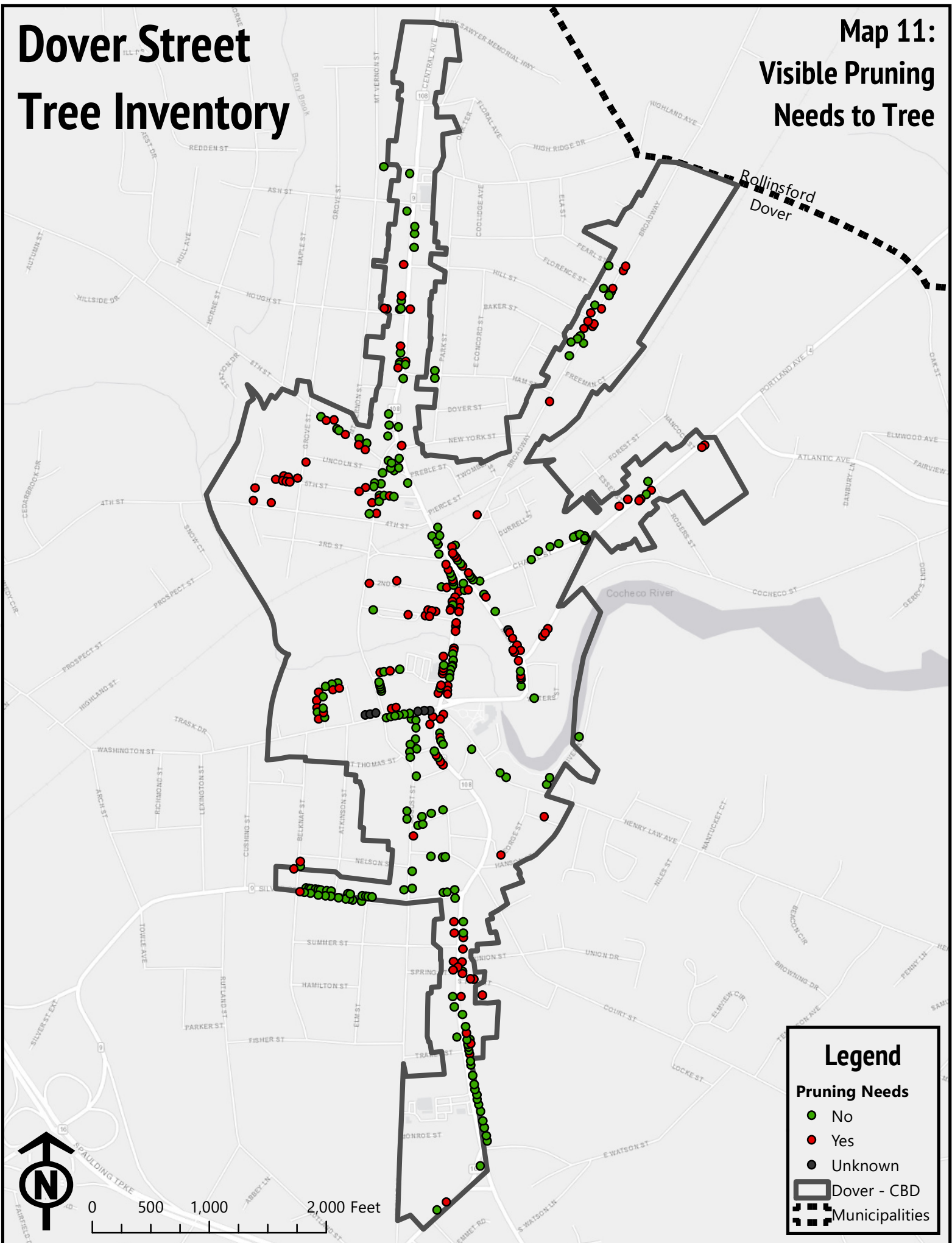


0 500 1,000 2,000 Feet



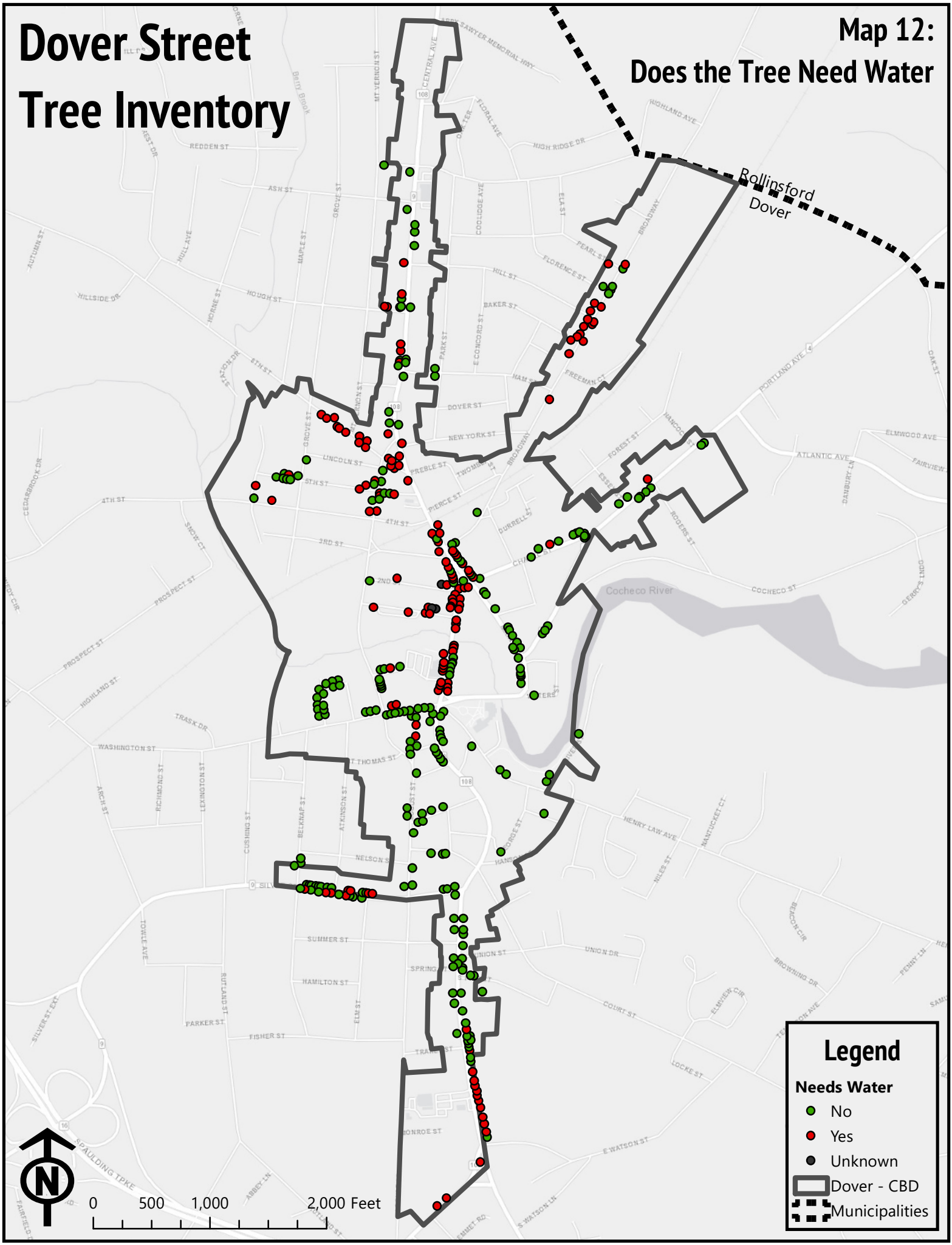
# Dover Street Tree Inventory

## Map 11: Visible Pruning Needs to Tree



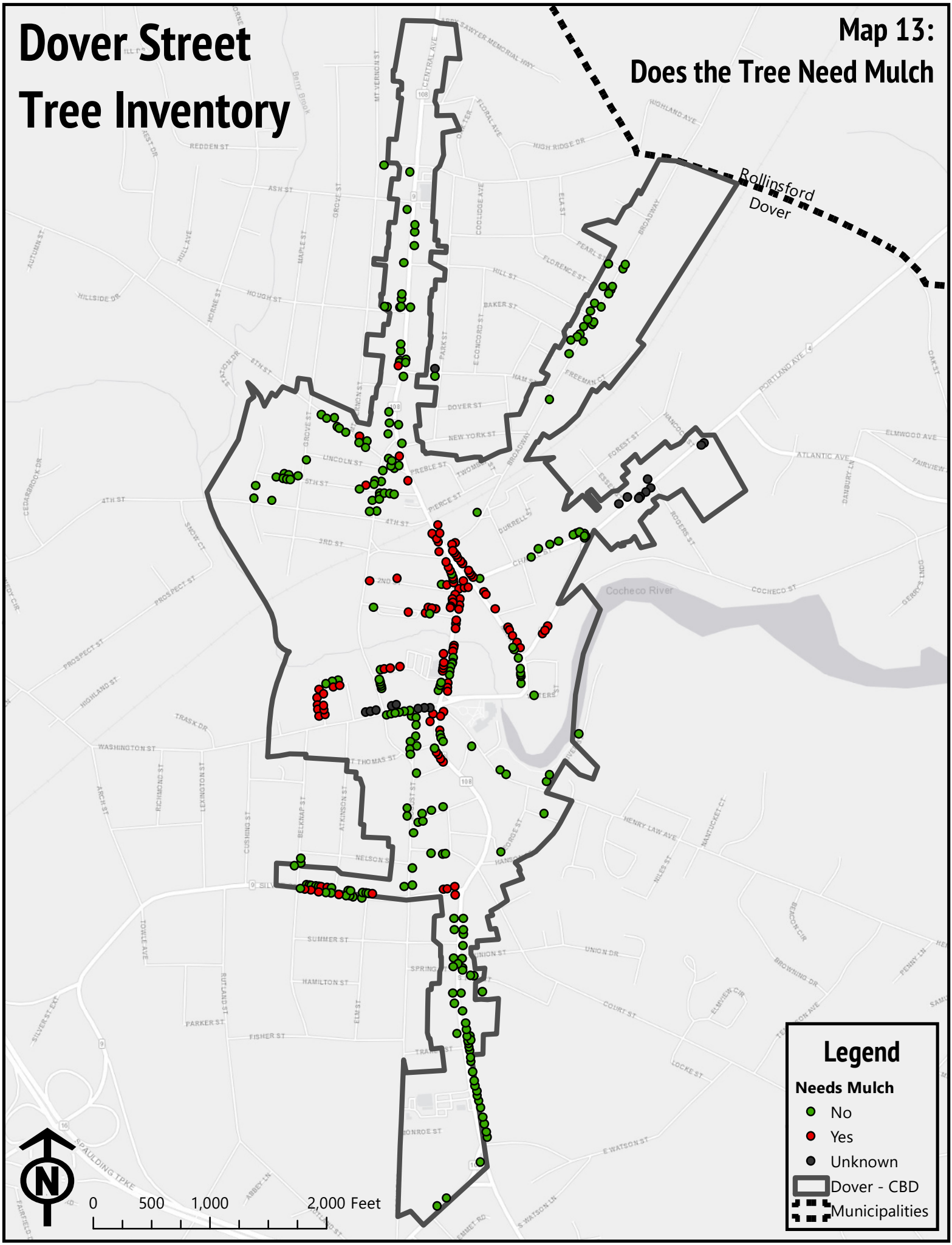
# Dover Street Tree Inventory

Map 12:  
Does the Tree Need Water



# Dover Street Tree Inventory

Map 13:  
Does the Tree Need Mulch



## Legend

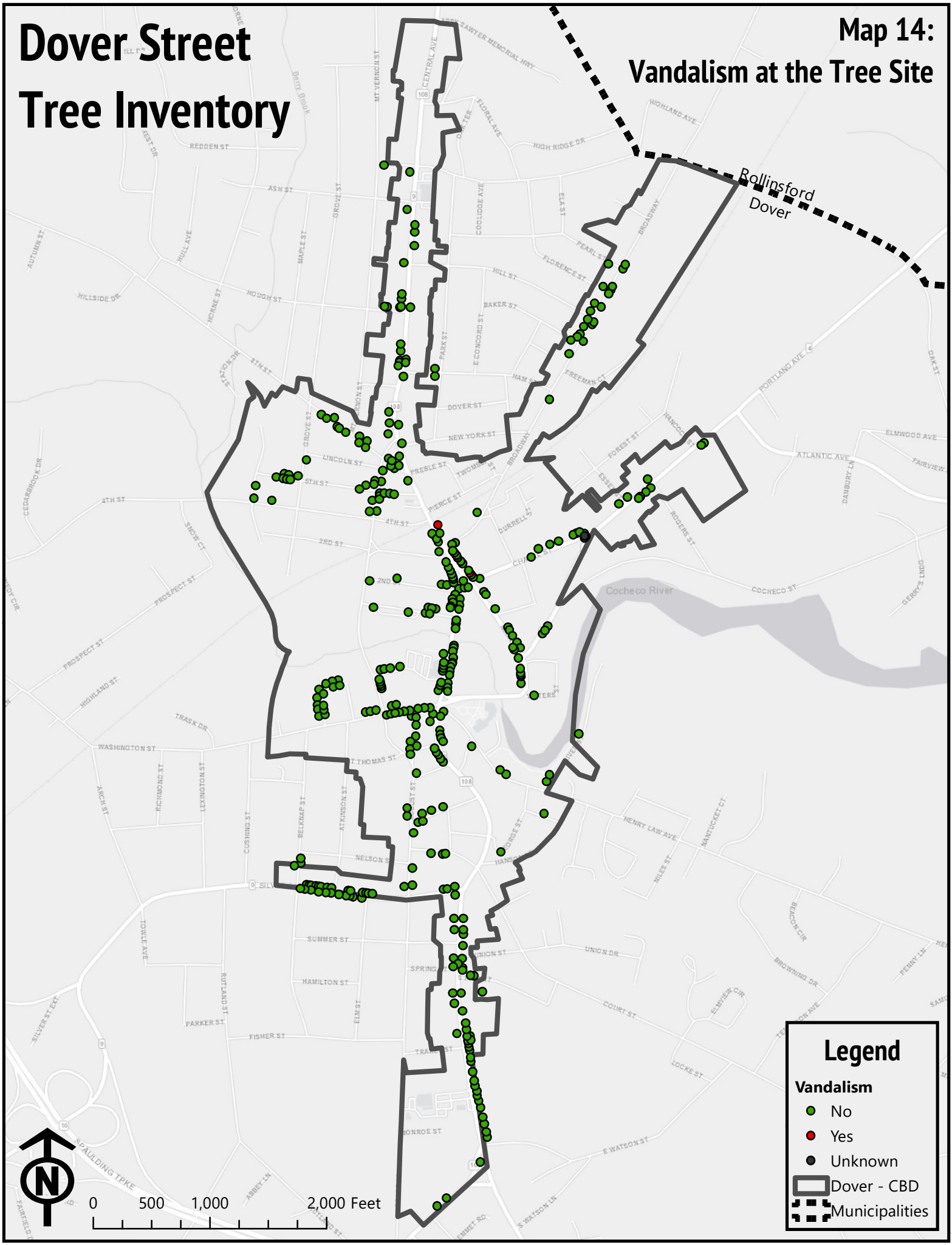
- Needs Mulch**
  - No
  - Yes
  - Unknown
- ▭ Dover - CBD
- ▭ Municipalities



0 500 1,000 2,000 Feet

# Dover Street Tree Inventory

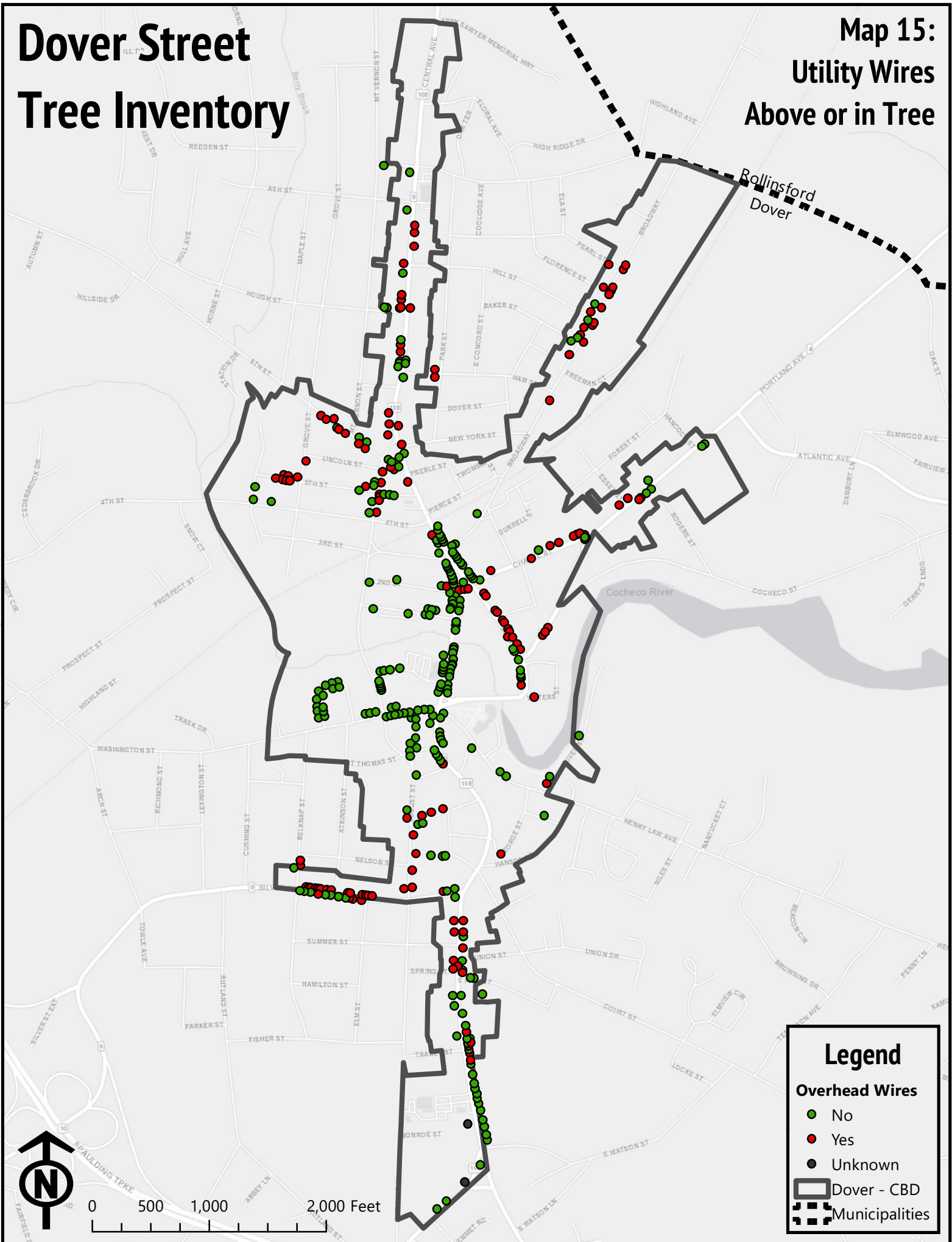
Map 14:  
Vandalism at the Tree Site





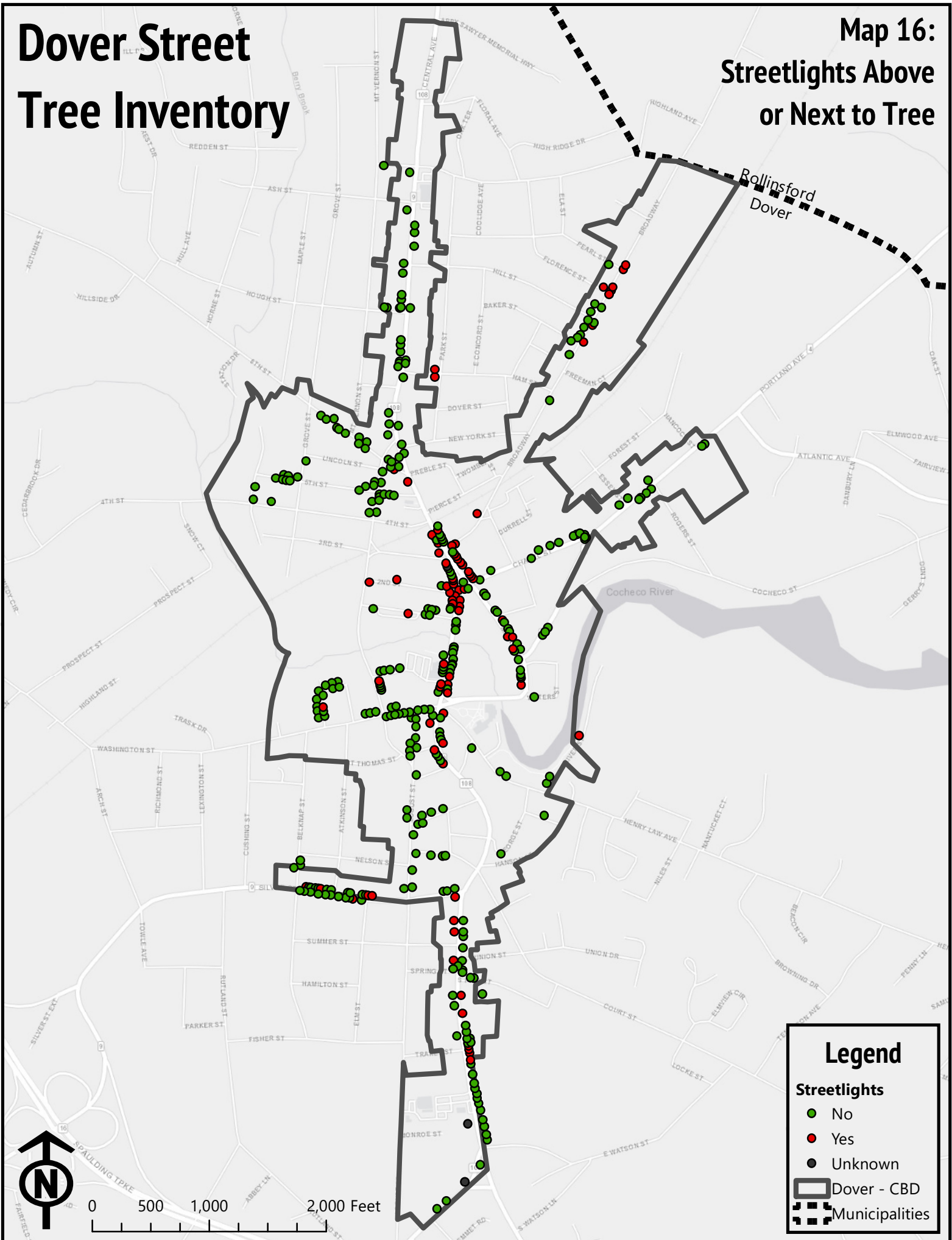
# Dover Street Tree Inventory

## Map 15: Utility Wires Above or in Tree



# Dover Street Tree Inventory

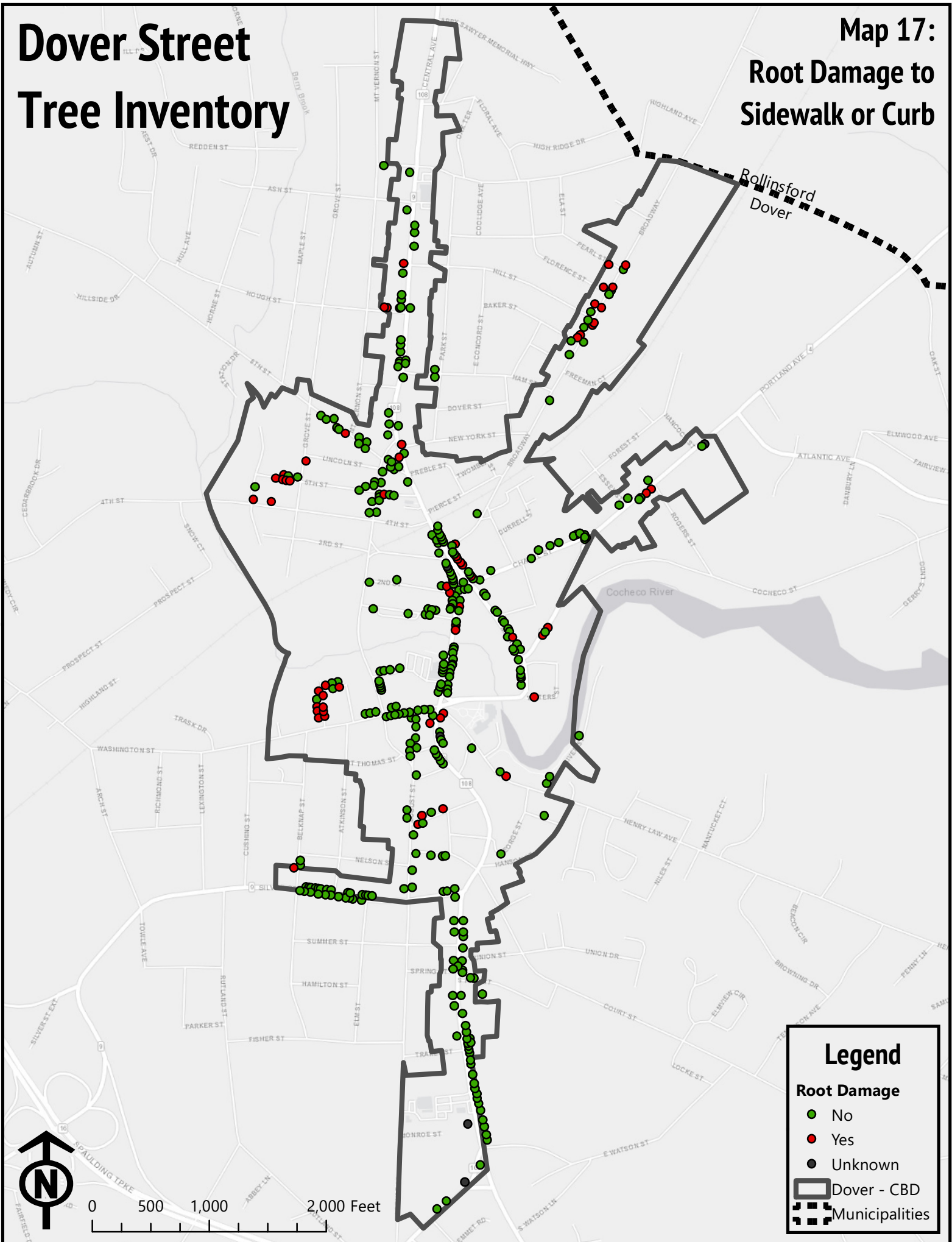
## Map 16: Streetlights Above or Next to Tree





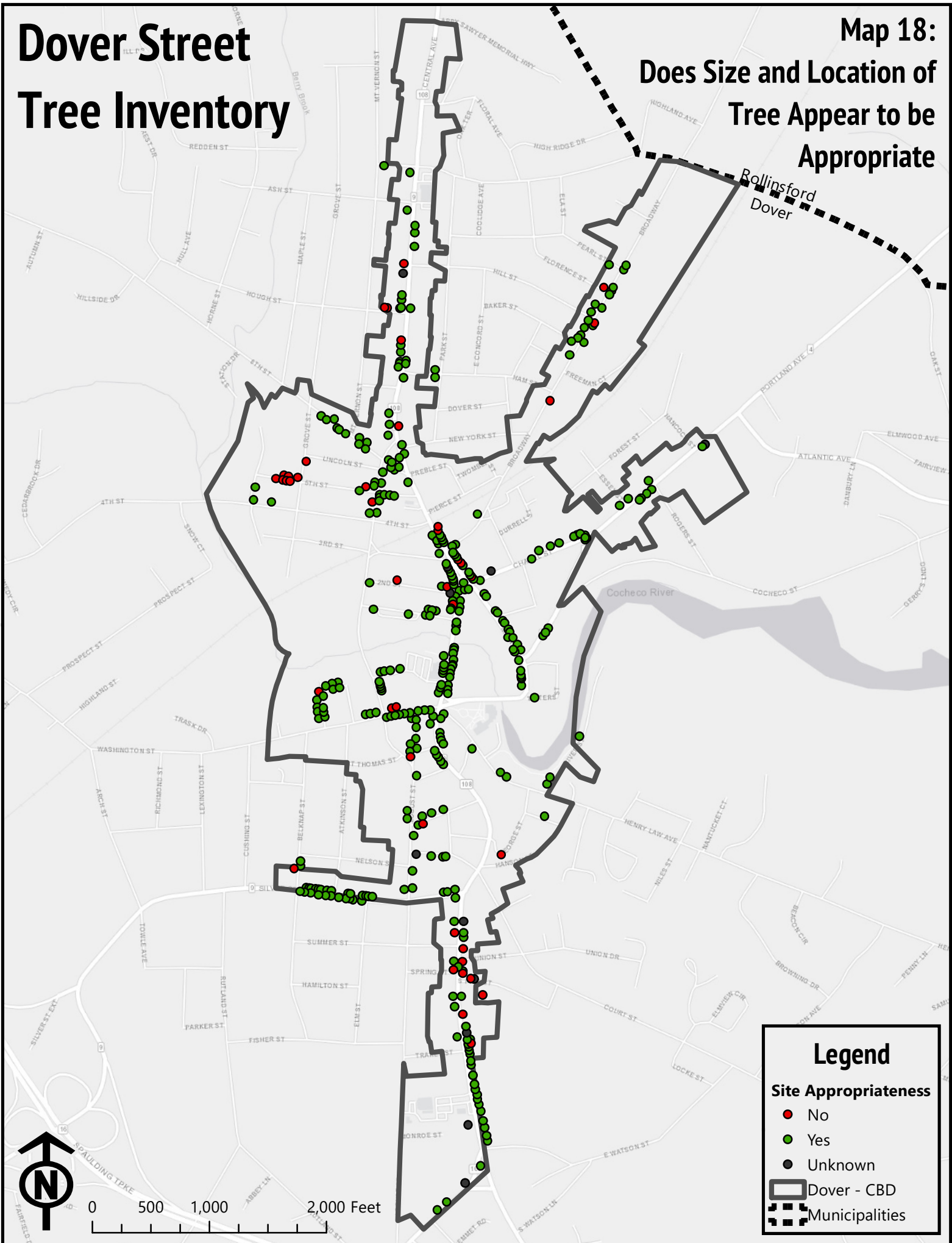
# Dover Street Tree Inventory

## Map 17: Root Damage to Sidewalk or Curb



# Dover Street Tree Inventory

Map 18:  
Does Size and Location of  
Tree Appear to be  
Appropriate

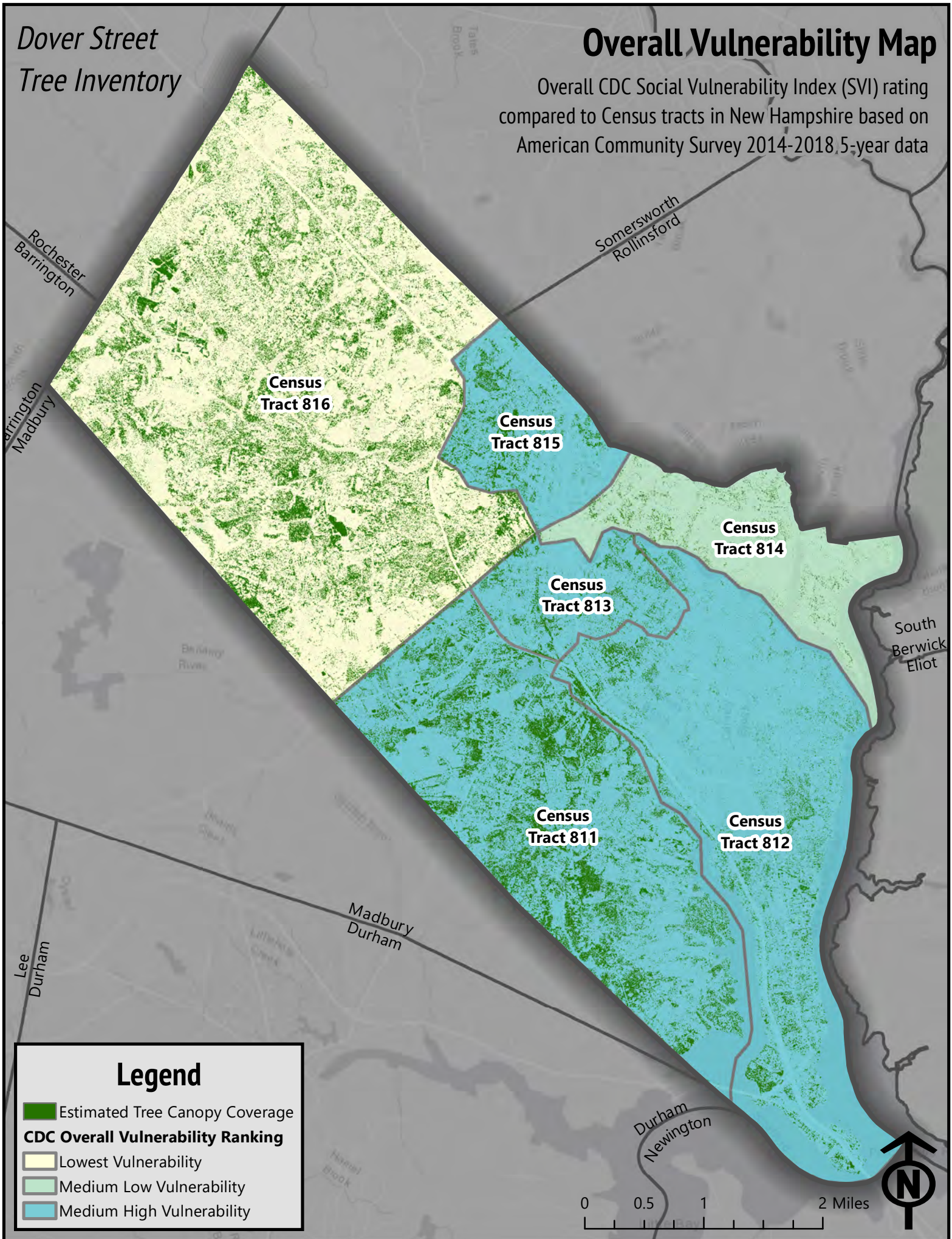




# Dover Street Tree Inventory

# Overall Vulnerability Map

Overall CDC Social Vulnerability Index (SVI) rating compared to Census tracts in New Hampshire based on American Community Survey 2014-2018, 5-year data



## Legend

- Estimated Tree Canopy Coverage
- CDC Overall Vulnerability Ranking**
- Lowest Vulnerability
- Medium Low Vulnerability
- Medium High Vulnerability

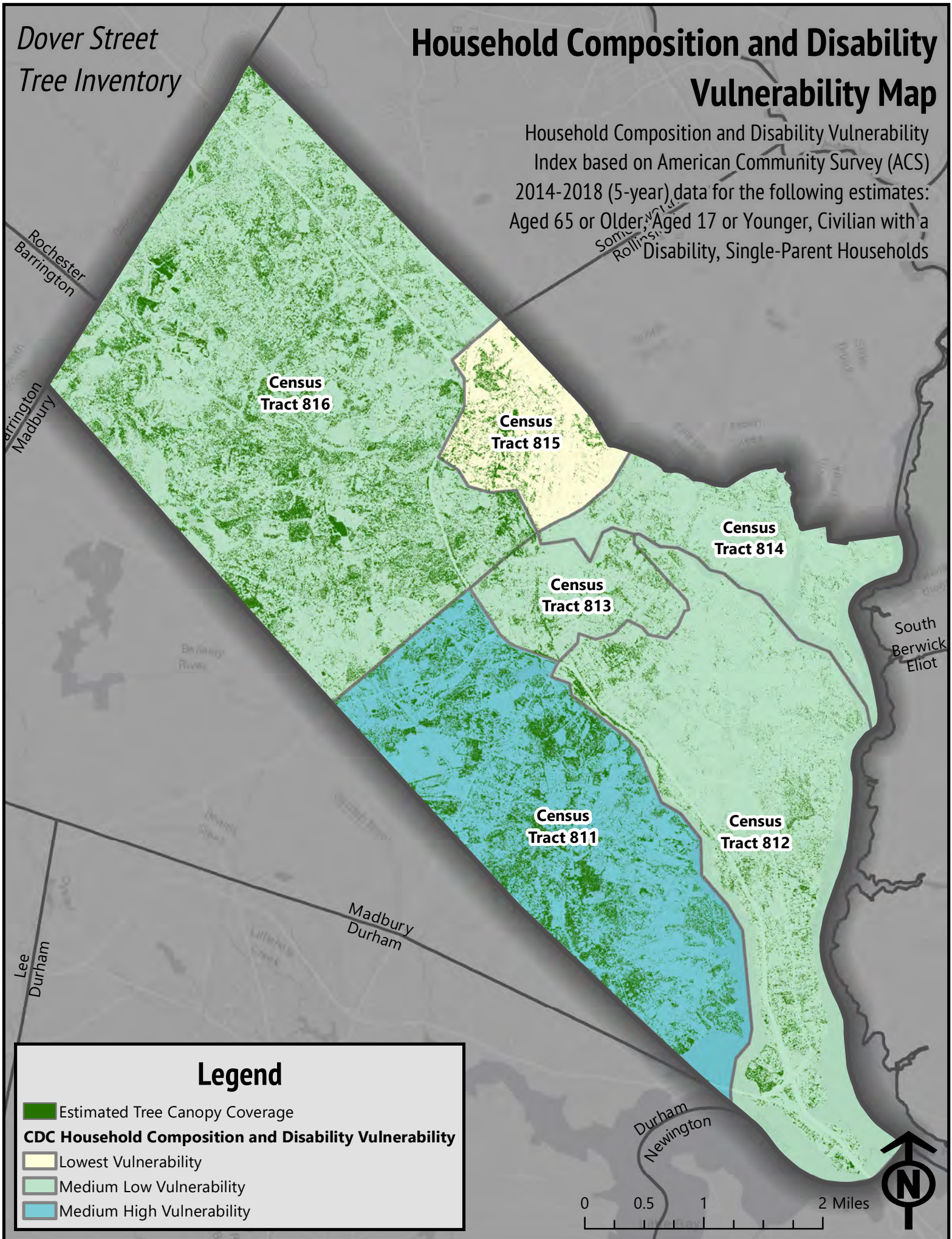
0 0.5 1 2 Miles





# Household Composition and Disability Vulnerability Map

Household Composition and Disability Vulnerability Index based on American Community Survey (ACS) 2014-2018 (5-year) data for the following estimates: Aged 65 or Older, Aged 17 or Younger, Civilian with a Disability, Single-Parent Households



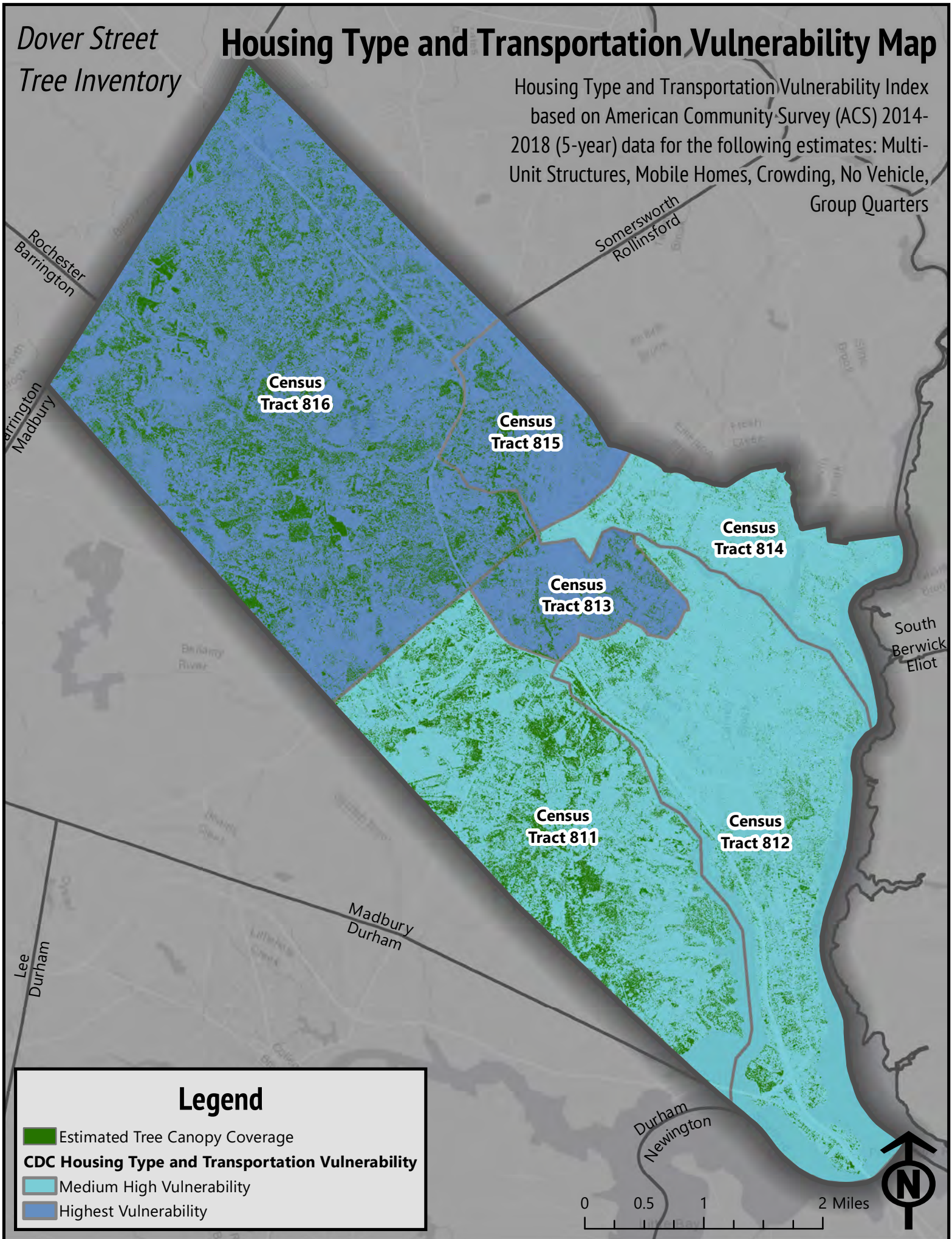
## Legend

- Estimated Tree Canopy Coverage
- CDC Household Composition and Disability Vulnerability**
  - Lowest Vulnerability
  - Medium Low Vulnerability
  - Medium High Vulnerability



# Housing Type and Transportation Vulnerability Map

Housing Type and Transportation Vulnerability Index based on American Community Survey (ACS) 2014-2018 (5-year) data for the following estimates: Multi-Unit Structures, Mobile Homes, Crowding, No Vehicle, Group Quarters



## Legend

- Estimated Tree Canopy Coverage
- CDC Housing Type and Transportation Vulnerability**
  - Medium High Vulnerability
  - Highest Vulnerability

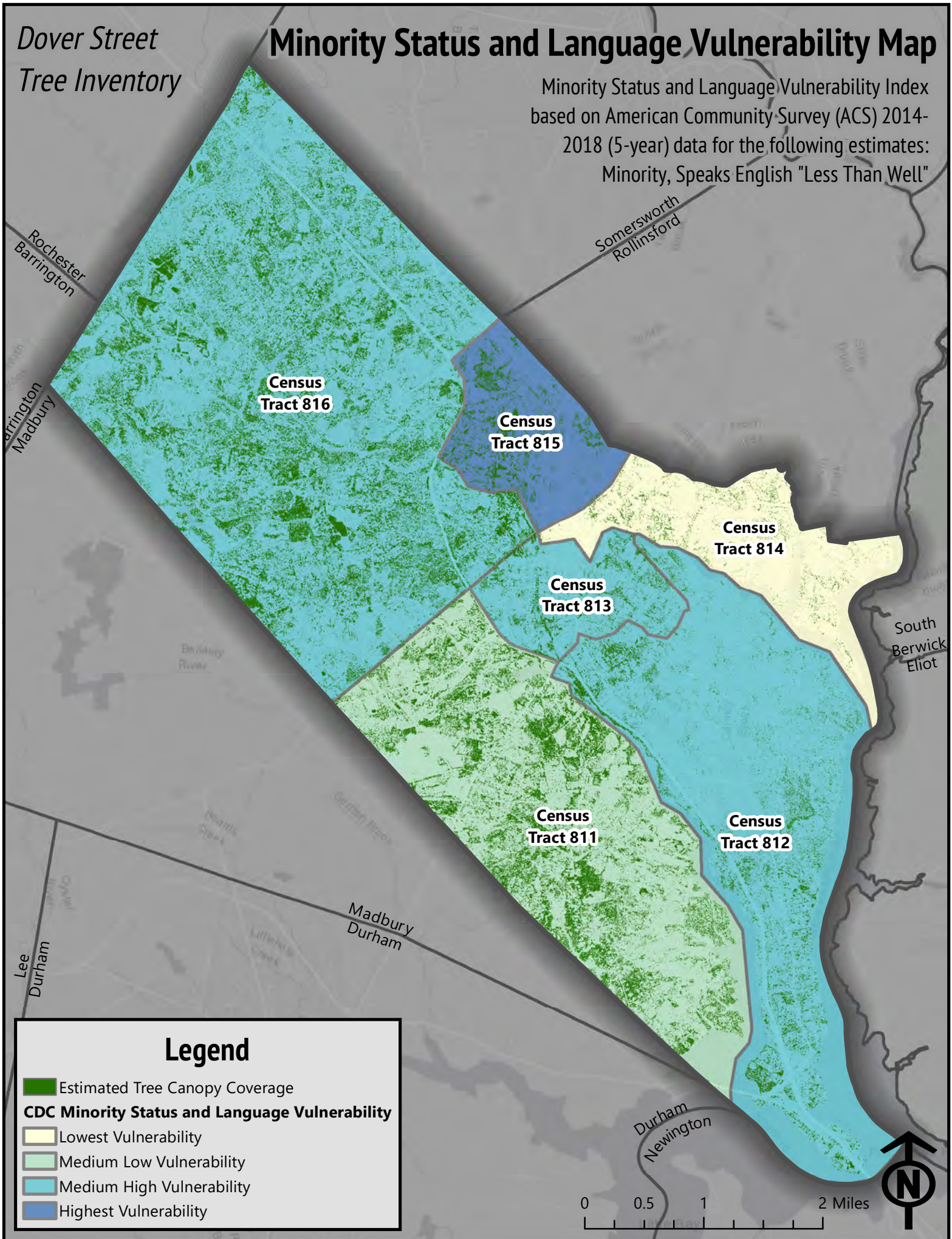
0 0.5 1 2 Miles





# Minority Status and Language Vulnerability Map

Minority Status and Language Vulnerability Index  
based on American Community Survey (ACS) 2014-  
2018 (5-year) data for the following estimates:  
Minority, Speaks English "Less Than Well"



## Legend

- Estimated Tree Canopy Coverage
- CDC Minority Status and Language Vulnerability**
  - Lowest Vulnerability
  - Medium Low Vulnerability
  - Medium High Vulnerability
  - Highest Vulnerability

0 0.5 1 2 Miles

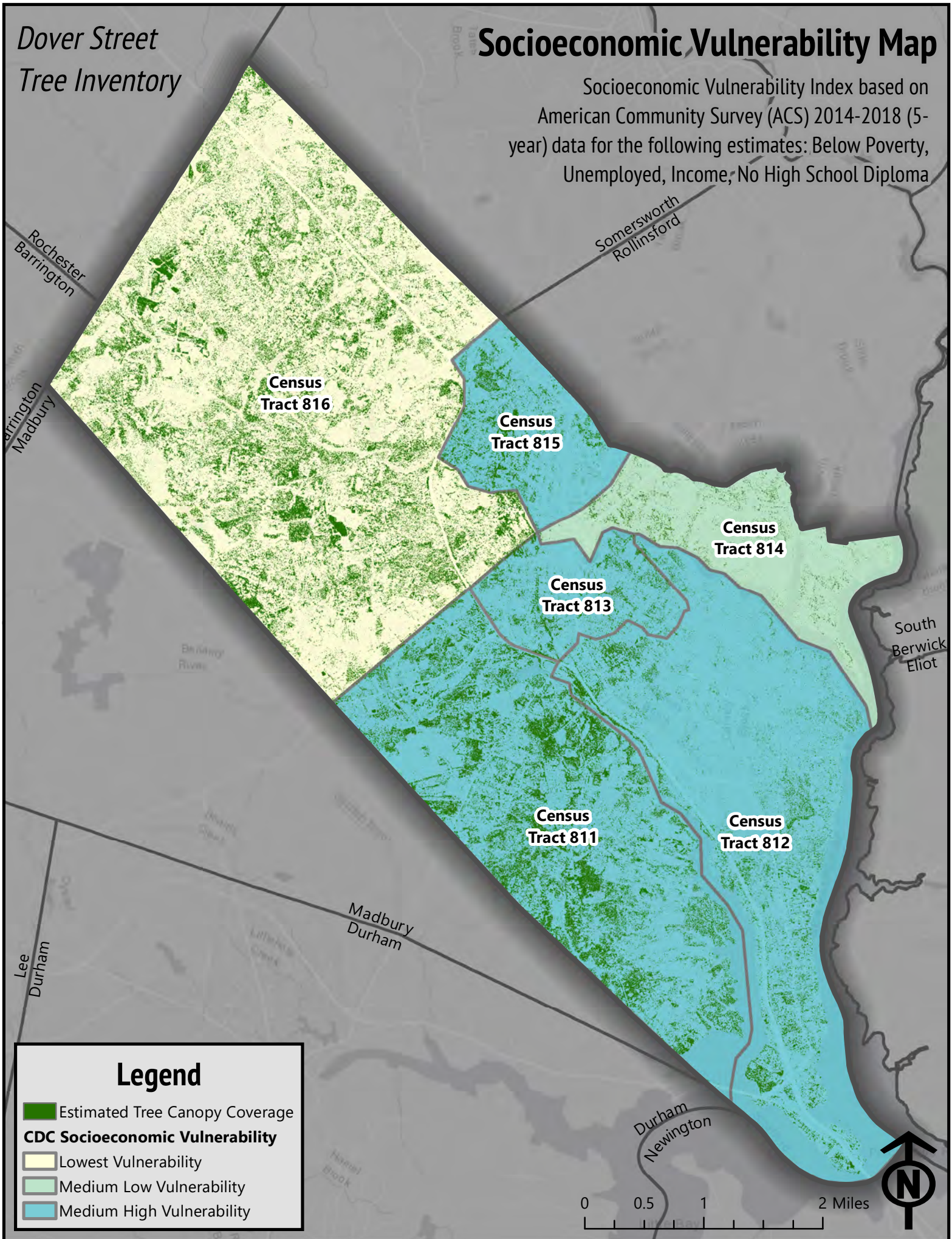




# Dover Street Tree Inventory

# Socioeconomic Vulnerability Map

Socioeconomic Vulnerability Index based on American Community Survey (ACS) 2014-2018 (5-year) data for the following estimates: Below Poverty, Unemployed, Income, No High School Diploma



Census Tract 816

Census Tract 815

Census Tract 814

Census Tract 813

Census Tract 811

Census Tract 812

## Legend

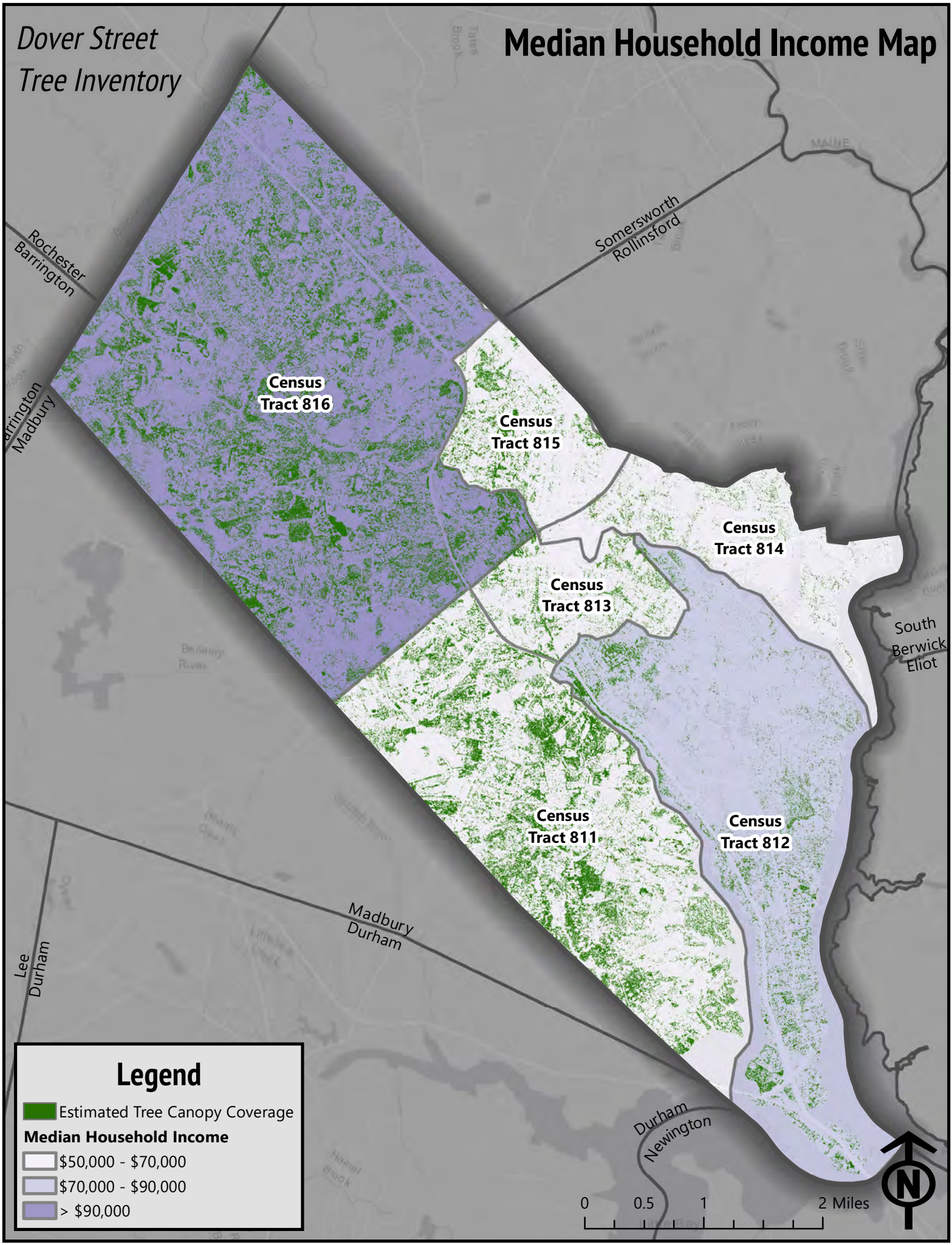
- Estimated Tree Canopy Coverage
- CDC Socioeconomic Vulnerability**
  - Lowest Vulnerability
  - Medium Low Vulnerability
  - Medium High Vulnerability

0 0.5 1 2 Miles





# Median Household Income Map



## Legend

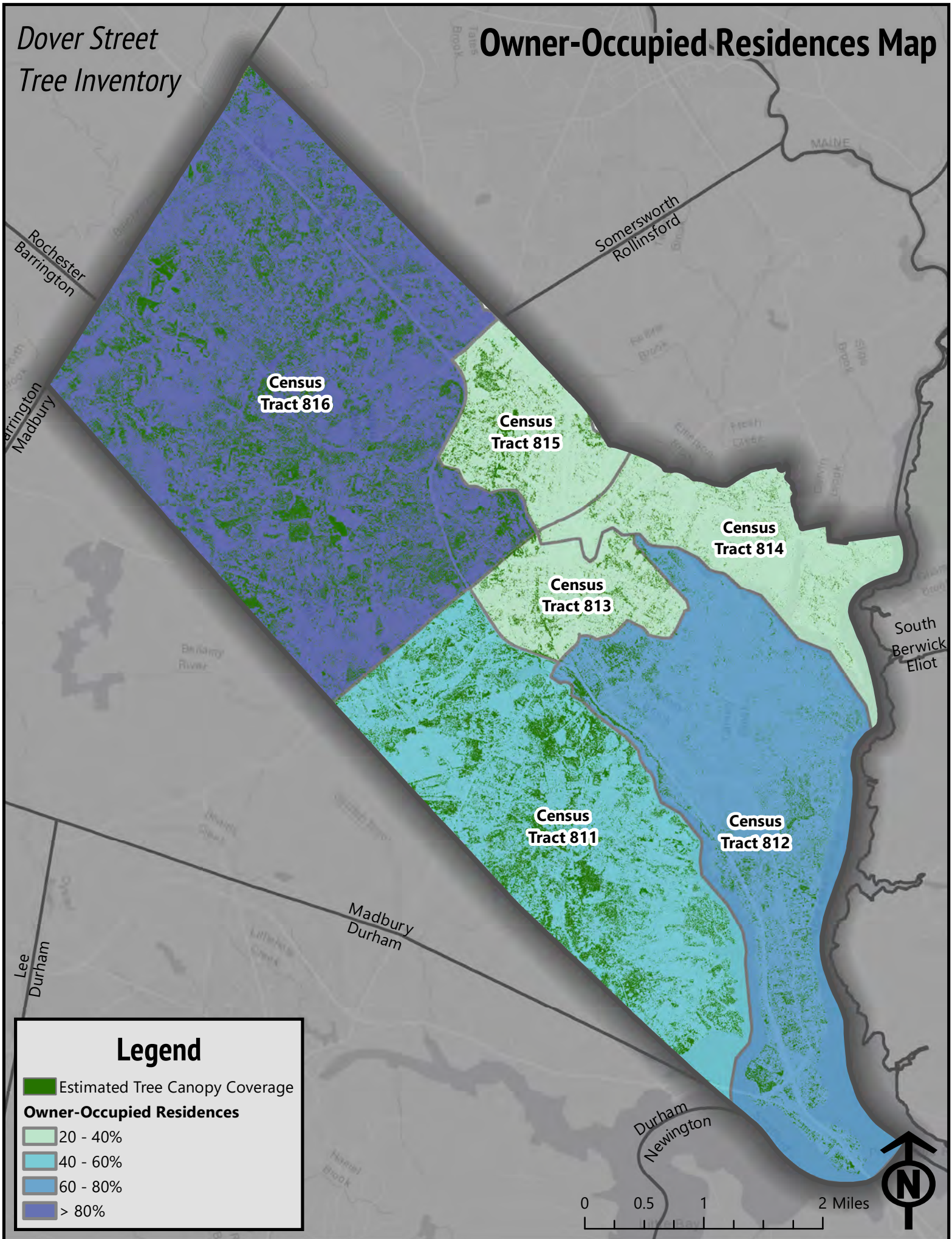
- Estimated Tree Canopy Coverage
- Median Household Income**
- \$50,000 - \$70,000
- \$70,000 - \$90,000
- > \$90,000

0 0.5 1 2 Miles





# Owner-Occupied Residences Map



## Legend

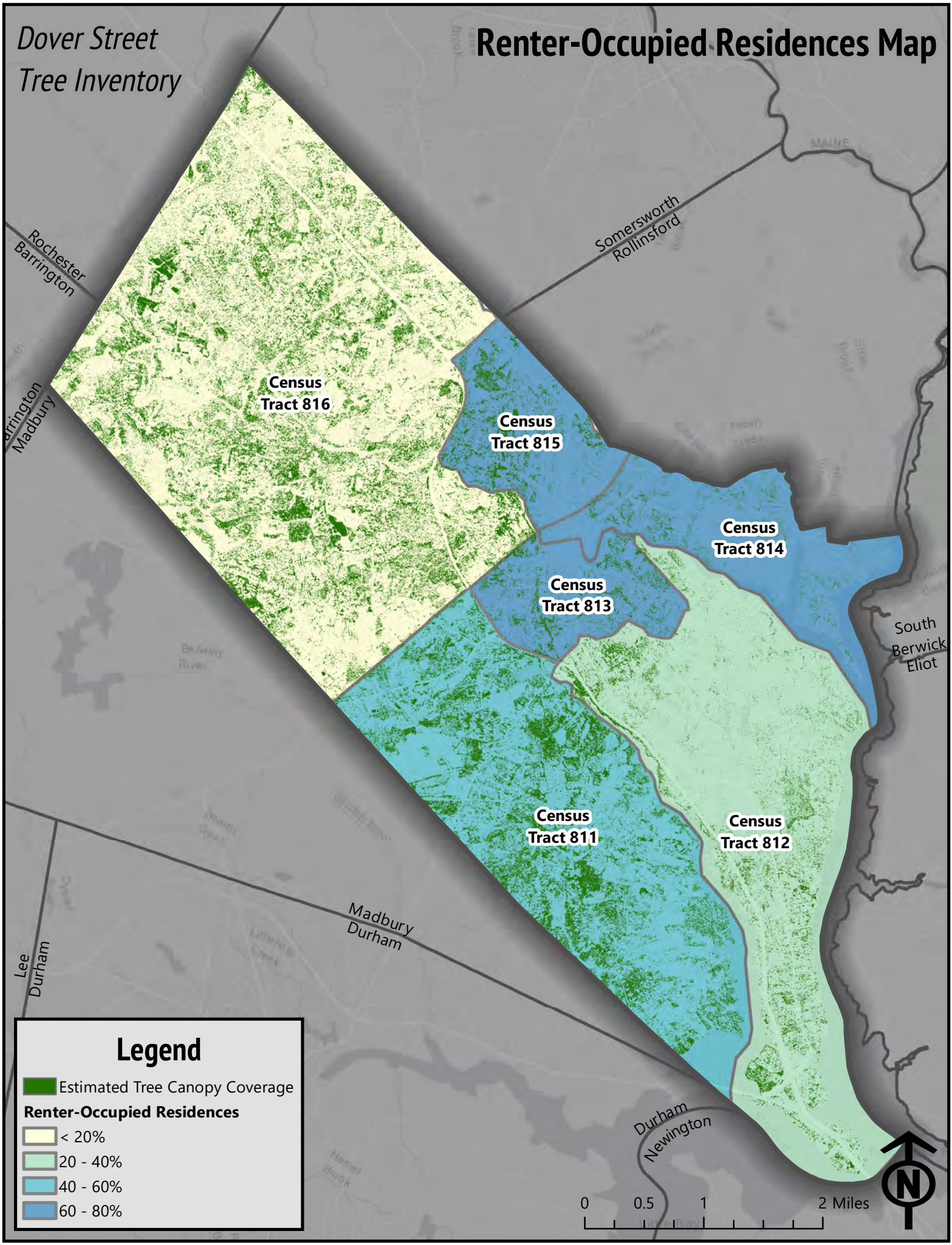
- Estimated Tree Canopy Coverage
- Owner-Occupied Residences**
- 20 - 40%
- 40 - 60%
- 60 - 80%
- > 80%

0 0.5 1 2 Miles





# Renter-Occupied Residences Map



## Legend

- Estimated Tree Canopy Coverage
- Renter-Occupied Residences**
- < 20%
- 20 - 40%
- 40 - 60%
- 60 - 80%

0 0.5 1 2 Miles



**I. Complete Streets & Traffic Calming Guidelines**

<https://www.dover.nh.gov/Assets/government/city-operations/2document/planning/outreach/Transportation/Complete%20Streets%20Traffic%20Calming%20Guidelines.pdf>

- Design Guidance and Flexibility. The City shall follow accepted or industry standards and use the best and latest design standards available. A list of standards is included in section III of the guidelines. Note that each of these standards were not reviewed but one or more contain information on street trees.
- Green Streets
  - Care shall be given to incorporate best management practices for addressing storm water runoff.
- Performance measures include: Number of street trees planted

**II. CBD Architectural & Urban Design Guidelines**

[https://www.dover.nh.gov/Assets/government/city-operations/2document/planning/outreach/ARCH\\_GUIDE\\_FINAL.pdf](https://www.dover.nh.gov/Assets/government/city-operations/2document/planning/outreach/ARCH_GUIDE_FINAL.pdf)

- Site Strategy: Define and enhance the street edge
  - Use plantings to continue the building line close to the road edge and to maintain a sense of enclosure along the roadway.
  - Screen parking from view from the traveled way.
- Site Strategy: Setbacks
  - Increased setbacks may accommodate a small landscaped gathering area.
- Subdistrict: Downtown Gateway and Mixed-Use Districts
  - Setback from the street with a fair amount of landscaping
- Subdistrict: Residential District
  - Not setback from street with limited landscaping
- Architectural Design Strategies: Green Infrastructure
  - Includes: trees and tree boxes, natural landscapes
  - Due to the many benefits of integrated green infrastructure elements, it is encouraged in all development projects.
- Streetscape Design Strategies
  - Physical features include street trees, a planting zone
  - Sidewalks must be at least 5 feet wide
  - Street Trees: Street trees shall be planted at an average spacing of 25 to 30 feet on center. The planting method shall allow for maximum root zone space where possible. Existing healthy street tree shall be protected, if possible. These trees improve the pedestrian environment, compliment building facades, reduce heat island effect, assist with stormwater management, and provide many other benefits to the Downtown. Tree specifications can be found in the Downtown Design Standards.

**III. Streetscape and Urban Design/Downtown Streetscape Standards**

- Landscape
  - Documentation of benefits of trees
  - Provide new trees where there is an opportunity because of construction

## DOVER REGULATIONS SUMMARY

- Preserve existing trees wherever possible
- Selection of trees should complement the downtown's traditional appearance and be composed of trees that thrive in a New England urban environment
- Chestnut Street is a prime candidate for establishment of single large canopy tree species to help define the corridor. Recommended that *Zelkova serrata* is planted on both sides of the roadway no more than 50 feet apart. The location of the trees should not interfere with utility poles and/or lighting. Adequate distance should be left at the intersections to ensure sight lines for drivers.
- Upper and Lower Squares- Selection of trees planted along the street and within the larger landscape areas should provide adequate shade for pedestrians, require little maintenance, and highlight the significance of the area. *Gledistia triacanthos var. inermis* is recommended as a shade tree along the street. *Pyrus calleryana* 'Chanticleer' is recommended as a shade tree within the larger landscaped beds. Plant no more than 40 feet apart along the street and plant in landscaped areas adjacent to seating. *Amelanchier canadensis* is recommended for planting in the larger landscaped beds.
- Recommended street tree types include:
  - *Ulmus americana* 'American Liberty'
  - *Pyrus calleryana* 'Chanticleer'
  - *Amelanchier canadensis*
  - *Zelkova serrata*
  - *Gledistia triacanthos var. inermis*
  - *Acer rubrum*
- Healthy, mature trees along Central Street, Main Street, Washington Street, and First through Sixth Streets should be preserved and infilled with appropriate tree species.
  - *Quercus rubra*, *Ulmus americana* 'American Liberty', and *Acer rubrum* are recommended.
- Placement of street trees should complement the architecture and should not block important views of businesses.
- In some locations, seasonal planting might be provided with containers that could be removed during winter months. Locations could include broad street corners in Upper and Lower Squares, along the approaches to in the center island of the mini round about at Portland Avenue, and along the sidewalks or approaches to the bridges within the downtown.

### **v. Site Review Regulations**

#### **• §153-13 Site Development Plan**

(12) A landscape plan that delineates the arrangement, species and dimensions of all existing and proposed landscaping materials. The landscape plan, in sufficient detail to indicate compliance with these regulations, shall be prepared by a professional landscape architect who is licensed by the State of New Hampshire. The licensed landscape architect shall sign the plan. The landscape plan shall be certified by the licensed landscape architect and include his/her State of New Hampshire license number.

(17) A colored rendering of the streetscape that will be created along the existing public right-of-way. This sheet shall include a perspective of both sides of any existing roadway, any street or



## DOVER REGULATIONS SUMMARY

sidewalk improvements, proposed plantings and structures, as prepared by a registered engineer or architect, who shall sign the plan and place his/her seal upon it, as required.

(20) A detailed landscape operations and maintenance plan, developed in accordance with the requirements of §153-14G. Site plans shall provide for the proper management of landscaping, ensuring that landscaping is not unintentionally damaged as a result of snow removal or general traffic flow, pedestrian or otherwise.

- **§153-14 Site Development Design Criteria**

(G) Landscaping- Description of purpose

(1) General Requirements: (summary follows)

- a. Existing vegetation shall be preserved wherever possible. Existing natural features of special interest, such as those having historic relevance, shall be delineated and located on the landscaping plan.
- b. Invasive plant species identified in Ch Agr 3800 pursuant to RSA 430:55, and all non-native plant species identified in the NH Restricted Invasive Plant Species/Watch List are prohibited.
- f. Landscaping shall be used to establish and/or maintain an attractive streetscape adjacent to roadways. A minimum of one tree per 35 linear feet, not more than six feet apart for individual shrubs, and not more than three feet between individual perennials and ground covers or portion thereof shall be provided.
- g. The type and location of vegetation shall not interfere with utilities or the safe and efficient flow of street traffic. All trees located under utility wires shall be low-growing species.

(2) Interior landscaping

- a. Landscaping requirements in addition to the standard of §153-17C: minimum % interior landscaping based on number of parking spaces in lot
- b. Parking lots which have more than two aisles which are approximately parallel shall be required to have continuous landscaped planting strips separating every four rows of parking. The landscaped planting strips shall be a minimum of 10 feet in width and shall be separated from the parking area by adequate curbing. Within the landscaped planting strips, deciduous and/or evergreen shade trees shall be planted at 40 feet on center. Trees shall be species tolerant to the climatic conditions of Dover and shall be a minimum caliper of 3.5 inches (measured at four feet above grade level). Within the landscaped planting strips, shrubs shall be planted between the deciduous trees at five feet on center. The shrubs shall be a mix of deciduous and evergreen species, tolerant to the climatic conditions of Dover and shall be a minimum height of two feet at the time of planting. All trees, shrubs and landscaping materials shall be maintained in good condition so as to present a healthy, neat, and orderly appearance.

(3) Perimeter Landscaping

- a. Along the perimeter of parking lots with 10 or more spaces, deciduous and/or evergreen shade trees shall be planted at 35 feet on center within the buffer area required by §153-17C. Trees shall be species tolerant to the climatic conditions of Dover and shall be a minimum caliper of 3.5 inches (measure at four feet above grade level). Within the perimeter buffer, shrubs shall be planted between the trees

## DOVER REGULATIONS SUMMARY

at 5 feet on center. The shrubs shall be a mix of deciduous and evergreen species, tolerant to the climatic conditions of Dover and shall be a minimum height of two feet at the time of planting. All trees, shrubs, and landscaping materials shall be maintained in good condition so as to present a healthy, neat, and orderly appearance.

- b. Trees shall be salt- and drought-tolerant, native or noninvasive species, and have a structure and growth form which prevents them from obstructing sidewalks and walkways. Flood-tolerant plants shall be used in drainage swales.
- c. To foster biological diversity, trees planted along a given street shall use the 10-20-30 rule (no more than 10% of the trees shall be of the same species, no more than 20% in the same genus, and no more than 30% in the same family).
- d. To ensure that landscape materials do not constitute a driving hazard, a clear sight triangle shall be observed at all street and access drive intersections. Ground cover and trees with at least eight feet of limbless trunk shall be permitted within the sight distance triangle. In the case of a city street intersection, the sight triangle shall consist of the area between points 20 feet along both intersecting streets from their respective edges of pavement.
- e. To ensure that landscape materials do not constitute a driving hazard, a clear sight triangle shall be observed at all street and access drive intersections. Ground cover and trees with at least eight feet of limbless trunk shall be permitted within the sight distance triangle. In the case of a city street intersection, the sight triangle shall consist of the area between points 20 feet along both intersecting streets from their respective edges of pavement.

### (4) Stormwater management

- a. Where possible, interior landscaping and perimeter landscaping areas shall provide for stormwater treatment and bioretention as well as act as a visual buffer.
- d. All newly planted trees, shrubs and other vegetation shall have a watering plan during the establishment period (for trees, one year per inch in caliper at planting; shrubs and other vegetation generally establish within one growing season). Mulching trees, shrubs, and plants helps retain soil moisture, moderates temperature fluctuations, provides protection from mechanical damage by mowers and trimmers, and serves as temporary covering of exposed soil until understory plants and ground covers fill in. However, thick applications of mulch (such as "volcano mulching") will kill trees and other vegetation. Mulch shall be no greater than three inches in depth and shall not be in contact with the bark or stems of plants.

### §153-16 Design standards for Residential-Commercial Mixed Use (RCM) Overlay District

- Note: this section contains some provisions related to trees and landscaping

Common Name	Scientific Name	Soil Moisture Scale of 1 (very wet) to 12 (very dry)	Sunlight Conditions	Salt Tolerance	pH	Insect/Disease Factors	Height	Width	Form	Growth Rate	Ornamental Characteristics	Transplant issues
Flame Amur Maple	<i>Acer Ginnala</i> 'flame'	3-10	Full sun to partial shade	Some tolerance	≤ 8.2	Susceptible to Asian Longhorned Beetle (present in Worcester, MA)	15-25'	15-25'	Rounded, irregular, available multi-stemmed	Slow to Medium	Fragrant, yellow-white clusters; abundant red fruit; fall color	Easy to transplant B&B or ≤ 2" caliper bare root
Serviceberry/ Juneberry	<i>Amelanchier canadensis</i>	4-7	Full sun to partial shade	Sensitive	≤ 7.5	None limiting, foliage diseases can be a problem	20-30'	15-25'	Oval, multi- or single-stem available	Medium	White flowers, edible reddish-purple to black fruit, fall color, gray streaked bark	Easy to transplant B&B or ≤ 2" caliper bare root
American Hornbeam, Ironwood, Musclewood	<i>Carpinus caroliniana</i>	3-9	Partial to full shade	Sensitive	≤ 7.5	Relatively pest free	30'	25'	rounded, spreading, often irregular, often multi-stemmed	Slow	Green flowers, small nutlets, fall color, attractive smooth gray, fluted bark	Difficult to transplant B&B or bare root, can be slow to establish
Eastern Redbud	<i>Cercis canadensis</i>	4-10	Full sun to partial shade	Some tolerance	≤ 8.2	None limiting, cankers can be a problem	20-30'	25-35'	Open, spreading, somewhat flat-topped, multi-stemmed or low branching	Medium	Showy purple-pink edible flowers, pods, yellow fall color, attractive bark	Easy to transplant B&B, moderately difficult to transplant bare root
Cornelian-Cherry Dogwood	<i>Cornus mas</i>	4-9	Full sun to partial shade	Some tolerance	≤ 8.2	Relatively pest free	20'	30'	Round to oval, often multi-stemmed, low branching	Slow to Medium	Showy, small yellow flowers, bright red edible fruit, occasional purple-red fall color, attractive brown and gray, flaky bark	Easy to transplant B&B or ≤ 2" caliper bare root



Common Name	Scientific Name	Soil Moisture Scale of 1 (very wet) to 12 (very dry)	Sunlight Conditions	Salt Tolerance	pH	Insect/Disease Factors	Height	Width	Form	Growth Rate	Ornamental Characteristics	Transplant issues
Stellar Pink Dogwood	<i>Cornus 'stellar pink'</i>	well drained	Full sun	Some tolerance		Disease resistant	25'	25'	Some tolerance	Medium to Fast	Pink showy flowers and fall color	
Honey Locust	<i>Gleditsia triacanthos</i>	2-12	Full sun	Some tolerance	≤ 8.2	Overplanting has encouraged insect problem in some areas	30-35' or larger, depending on cultivar	35'	Broadly rounded, open and spreading, good horizontal branching angles	Fast	Inconspicuous flower, essentially fruitless, yellow fall color	Easy to transplant B&B or ≤ 2" caliper bare root
Flowering Crabapple ('Spring Snow' included on Silver St. Planting List)	<i>Malus spp.</i>	4-11	Full sun	Some tolerance	≤ 8.2	Many cultivars are highly disease susceptible	Variable depending on cultivars, generally 15-20'	Variable depending on cultivars, generally 10-25'	Variable depending on cultivars	Variable depending on cultivars	Variable depending on cultivars, generally flowering with red or orange fruit	Easy to transplant B&B or ≤ 2" caliper bare root
Elizabeth Magnolia	<i>Magnolia 'elizabeth'</i>											
Sourwood	<i>Oxydendron arboretum</i>		Full sun				25-30'	20'	Oval	Medium	White flowers that attract bees, rich green leaves with variable fall color	

Common Name	Scientific Name	Soil Moisture Scale of 1 (very wet) to 12 (very dry)	Sunlight Conditions	Salt Tolerance	pH	Insect/Disease Factors	Height	Width	Form	Growth Rate	Ornamental Characteristics	Transplant issues
Japanese Cherry	<i>Prunus serrulata</i>											
Japanese Tree Lilac ('Ivory Silk' included on Silver St. Planting List)	<i>Syringa Reticulata</i>	4-11	Full sun to partial shade	Some tolerance	≤ 8.2	Resistant to powdery mildew, the most common lilac problem	20-25'	15-20'	Oval	Slow	Showy, cream colored flowers, fall color often nonexistent, attractive cherry-like bark with horizontal lenticels	Easy to transplant B&B or ≤ 2" caliper bare root
Red Maple ('Burgundy Belle' included on Silver St. Planting List)	<i>Acer rubrum</i>	2 or 4-8, depending on cultivar	Full sun	Sensitive	≤ 7.0	Some cultivars susceptible to <i>Verticillium</i> Wilt and leaf hoppers; Susceptible to Asian Longhorned Beetle (present in Worcester, MA)	35-60'	30-70'	Pyramidal in youth, narrow upright to rounded with age, varies greatly depending on cultivar	Medium to fast	Showy, red or yellow clusters, fall color, attractive silver-gray bark in youth	Easy to transplant B&B or ≤ 2" caliper bare root
Fort McNair Horsechestnut	<i>Aesculus carnea</i> 'fort mcnair'	4-8	Full sun	Unknown	≤ 8.2	Cultivar is more resistant to leaf scorch and leaf blotch than others	35-50'	30'	Oval to round, typically dense	Slow	Tall pink to red flowers, glossy brown nuts in slightly prickly capsules	Easy to transplant B&B or ≤ 2" caliper bare root

Common Name	Scientific Name	Soil Moisture Scale of 1 (very wet) to 12 (very dry)	Sunlight Conditions	Salt Tolerance	pH	Insect/Disease Factors	Height	Width	Form	Growth Rate	Ornamental Characteristics	Transplant issues
River Birch (Single Trunk)	<i>Betula nigra</i>	2-8	Full sun to partial shade	Unknown	≤ 7.0	Resistant to bronze birch borer; Susceptible to Asian Longhorned Beetle (present in Worcester, MA)	40-50'	30-40'	Broadly pyramidal to oval, vigorous grower, multi-stems or single stem forms	Medium to fast	Brown catkins, yellow fall color, leaves vary depending on cultivar	Moderately difficult to transplant bare root, better success at planting bare root in fall, best planted B&B
European Hornbeam	<i>Carpinus betulus</i>	4-9	Full sun	Sensitive	≤ 8.2	None serious or limiting	40-60'	30-40'	Pyramidal to rounded in youth, oval to rounded at maturity	Slow to Medium	Catkins with light green bracts, small nutlets, yellow-green, often late fall color, attractive smooth slate-gray bark	Difficult to transplant B&B or bare root, somewhat slow to establish
Black Gum or Black Tupelo	<i>Nyssa sylvatica</i>	2-10	Full sun	Some tolerance	≤ 7.5	Non serious or limiting	30-60'	20-40'	Pyramida when young, dense, horizontal branching, irregular-rounded or oval to pyramid with age	Slow to Medium	Glossy green foliage in summer, excellent fall color, bark is dark gray to brown, often silvery	Difficult to transplant, use small capliper B&B only, slow to recover from transplanting



Common Name	Scientific Name	Soil Moisture Scale of 1 (very wet) to 12 (very dry)	Sunlight Conditions	Salt Tolerance	pH	Insect/Disease Factors	Height	Width	Form	Growth Rate	Ornamental Characteristics	Transplant issues
Yellowwood (Single Trunk)	<i>Cladrastis kentukea</i>	4-7	Full sun	Unknown	≤ 8.2	Relatively pest free	30-50'	40-55'	Broadly rounded, graceful arching habit, branches low and typically loses central leader	Medium to fast	Showy, white long clustering flowers, brown seed pods, yellow fall color, attractive smooth gray bark	Easy to transplant B&B or ≤ 2" caliper bare root
Ginkgo	<i>Ginkgo biloba</i>	4-12	Full sun	Some tolerance	≤ 8.2	Relatively pest free	50-80', can reach over 100'	Greatly variable, 30-40' is common, potentially wider than high at maturity	Variable irregular when young, pyramidal with age, open, often large wide-spreading branches	Slow	Noxious smelling fruit on female trees, bright green foliage in summer, yellow in fall	Difficult to transplant bare root, best planted B&B
Kentucky Coffee tree	<i>Gymnocladus dioica</i>	3-12	Full sun	Unknown	≤ 8.2	Relatively pest free	50-70'	40-50'	Very sparse branching when young, oval to vase shaped, upward arching branches, open, unique and irregular, provides filtered shade in summer	Medium	Green-white or yellow-white flowers, leathery reddish brown pods that persist through winter, yellow fall color, attractive gray-brown bark with thin and scaly ridges curling outward exposing an orange-brown color	Easy to transplant B&B or ≤ 2" caliper bare root

Common Name	Scientific Name	Soil Moisture Scale of 1 (very wet) to 12 (very dry)	Sunlight Conditions	Salt Tolerance	pH	Insect/Disease Factors	Height	Width	Form	Growth Rate	Ornamental Characteristics	Transplant issues
Sweetgum	<i>Liquidambar styraciflua</i>	3-9	Full sun	Unknown	≤ 7.5	Non serious or limiting	50-75', 80-12' in wild	40-65'	Pyramidal when young, oval to round with age, straight trunk	Medium to fast	Glossy deep green summer foliage with excellent fall color	Transplant B&B, not bare root
Tulip tree or Tulip Poplar	<i>Liriodendron tulipifera</i>	3-7	Full sun	Sensitive	≤ 8.2	Non serious or limiting	70-90', can grown 150'+ in wild	35-50'	Somewhat pyramidal in youth, oval with age	Medium to fast	2", upright, tulip shaped flower, yellow fall color	Difficult to transplant B&B or bare root, B&B transplanting in small caliper is best
Bloodgood London Planetree (Sycamore, <i>Platanus occidentalis</i> , ID'd in inventory)	<i>Platanus acerfolia</i>	2-11	Full sun	Some tolerance	≤ 8.2	Overplanting has encouraged disease and insect problems	70-100'	65-80'	Pyramidal when young, open and spreading with age, develops massive branches	Medium	Medium to dark green summer foliage, yellow-brown in fall, extremely showy bark, mottled with cream, olive, and light brown colors	Easy to transplant B&B or ≤ 2" caliper bare root
Pin Oak	<i>Quercus palustris</i>	2-10	Full sun	Sensitive	≤ 7.0	Over planting has encouraged problems, including gypsy moth, oak wilt, galls and cankers	50-70', can reach 100' in wild	40-50'	Pyramidal in youth, oval with age, strong central leader, distinct branching habit- upper branches upright, middle branches horizontal, lower branches descending	Fast for an oak	Acorns, scarlet in fall, young trees hold leaves throughout winter	Only transplant B&B, moderately difficult to transplant bare root, better success in transplanting bare root in fall

Common Name	Scientific Name	Soil Moisture Scale of 1 (very wet) to 12 (very dry)	Sunlight Conditions	Salt Tolerance	pH	Insect/Disease Factors	Height	Width	Form	Growth Rate	Ornamental Characteristics	Transplant issues
Red Oak	<i>Quercus rubra</i>	4-11	Full sun	Some tolerance	≤ 7.5	Oak wilt is a serious problem in more southern areas	60-80', can grown 90-100' in wild	50-70'	Round	Fast for an oak	Acorns, heavy crops at 3-5 year intervals, dark green leaves in summer, russet-red to bright red in fall, bark is gray, nearly black with age, wide flat-topped with silver gray ridges	Only transplant B&B, moderately difficult to transplant bare root
Scarlet Oak	<i>Quercus coccinea</i>	4-10	Full sun	Unknown	≤ 7.5	Non serious or limiting	60-70', can reach 100'+ in wild	40-50'	Round, open	Slow	Acorns, russet-red to brilliant scarlet in fall, leaves persist throughout winter, particularly on young trees	Difficult to transplant B&B or bare root
Swamp White Oak	<i>Quercus bicolor</i>	2-11	Full sun	Unknown	≤ 7.5	None serious or limiting	50-60'	50-60'	Broad, rounded, open, typically h as shorter trunk	Slow	Acorns, heavy crops at 3-5 year intervals, lustrous, leathery dark green in summer, yellow or sometimes red-purple in fall, attractive grayish brown, flaky bark with deep longitudinal fissures and flat ridges	Easy to transplant B&B or ≤ 2" caliper bare root



Common Name	Scientific Name	Soil Moisture Scale of 1 (very wet) to 12 (very dry)	Sunlight Conditions	Salt Tolerance	pH	Insect/Disease Factors	Height	Width	Form	Growth Rate	Ornamental Characteristics	Transplant issues
Scholar Tree or Japanese Pagodatree	<i>Sophora japonica</i>	4-12	Full sun	some tolerance	≤ 8.2	Twig die-back and stem canker common in colder zones, although not considered serious and rarely limiting	40-60'	35-55'	Oval to round, upright spreading branches	Medium to fast	Showy, creamy white flowers, pods may persist through winter, yellowish fall color, green bark on young (1-5 year old wood) branches	Easy to transplant B&B
American Elm ('Liberty' included on Silver St. Planting List)	<i>Ulmus americana</i>	2-11	Full sun	some tolerance	≤ 8.2	Some cultivars resistant to Dutch elm disease, resistance to elm yellows and elm leaf beetle varies; Liberty elm in Exeter and Hampstead have succumbed to Dutch elm disease.	60-80', can grown over 100'	40-80'	Vase-shaped	Medium to fast	Disc-shaped fruit in spring, lustrous green or dark green foliage, yellow fall color, dark gray, fissured bark with broad, deep, intersecting ridges	Easy to transplant B&B or ≤ 2" caliper bare root
Green Vase Zelkova*	<i>Zelkova Serrata</i> 'green vase'	4-10	Full sun	some tolerance	≤ 8.2	None serious	60-70'	40-60'	Upright vase-shaped	Fast	Orange brown to bronze red fall color	Easy to transplant B&B or ≤ 2" caliper bare root
Japanese Zelkova	<i>Zelkova serrata</i>	4-10	Full sun	some tolerance	≤ 8.2	None serious	25' or larger (50-70' or 120' in wild), depending on cultivar	20-35' or larger (40-60'), depending on cultivar	Oval to vase, depending on cultivar	Medium	Red fall color, bark exfoliates and mottles with oranges, grays, and browns with age	Easy to transplant B&B or ≤ 2" caliper bare root

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Sugar Maple	<i>Acer saccharum</i>	4-9	Full sun	Sensitive	≤ 7.5	<i>Verticillium Wilt</i> can be a problem in some areas, leaf scorch can be serious, Susceptible to Asian Longhorned Beetle (present in Worcester, MA)	45-50' typical, 60-75' possible, 100'+ in wild	35-40' typical, 55-70' possible	Oval to round	Slow to Medium	Pale yellow flowers, excellent fall color, smooth gray bark when young, furrows with age	Easy to transplant B&B or ≤ 2" caliper bare root
Northern Catalpa	<i>Catalpa speciosa</i>	2-10	Full sun	Unknown	≤ 8.2	None serious or limiting	50-60' typical, can reach over 100'	20-40'	Narrow, open, irregular-oval	Medium to fast	Showy, white flowers, 8-20" long pods that persist through winter	Easy to transplant B&B or ≤ 2" caliper bare root
Common Hackberry	<i>Celtis occidentalis</i>	3-11	Full sun to partial shade	Unknown	≤ 8.2	Susceptible to various problems, although most rarely serious or limiting except witches' broom; Susceptible to Asian Longhorned Beetle (present in Worcester, MA)	40-60'	similar to height, 40'+	Pyramidal when young, irregular-rounded when mature, open branching, somewhat elm-like with ascending then arching branches	Medium to fast	Yellow or orange-red to dark purple drupe, yellow fall foliage, gray rough, corky bark	Moderately difficult to transplant bare root, better success at planting bare root in fall, best planted B&B, somewhat slow to establish

Common Name	Scientific Name	Soil Moisture Scale of 1 (very wet) to 12 (very dry)	Sunlight Conditions	Salt Tolerance	pH	Insect/Disease Factors	Height	Width	Form	Growth Rate	Ornamental Characteristics	Transplant issues
Bur Oak	<i>Quercus macrocarpa</i>	2-12	Full sun	Unknown	≤ 8.2	None serious or limiting	60-80'	60-90', typically equal to or slightly greater than height	Weakly pyramidal to oval in youth, broadly rounded and open with age	Slow	Pale yellowish catkins, heavy acorn crops at 3-5 year intervals, leathery, lustrous dark green leaves in summer, yellow-green-brown in fall	Difficult to transplant B&B or bare root, transplant small caliper trees



<b>Management Issues</b>	<b>Suggested Uses</b>	<b>Other</b>	<b>Size</b> Small (<30'), Medium to Large (>30')	<b>Listed in</b> <b>Acceptable</b> <b>Street Trees</b> <b>for Dover,</b> <b>NH</b>	<b>Listed On</b> <b>the Silver</b> <b>Street</b> <b>Planting</b> <b>List</b>	<b>Listed In</b> <b>Downtown</b> <b>Dover</b> <b>Pedestrian</b> <b>and</b> <b>Vehicular</b> <b>Access and</b> <b>Streetscape</b> <b>Study</b>	<b>Estimated</b> <b>percent of</b> <b>Street Trees</b> <b>in CBD</b> <b>(Inventory</b> <b>Results)</b>	<b>Average</b> <b>Condition</b> <b>of Species</b> <b>in CBD</b> <b>(1=dead,</b> <b>dying;</b> <b>2=poor;</b> <b>3=fair;</b> <b>4=good)</b>
Suckering at base can be a problem	Wide street tree lawns/pits, narrow street tree lawns, pits with pruning		Small		X		3.1%	3.2
Rootstock suckering possible	Narrow or wide street tree lawns/pits, parks	Poor heat tolerance, less tollerant of urban settings	Small			X	1.7%	3
None of significance	Narrow or wide street tree lawns/pits, parks	Less tollerant of urban settings	Small	X			0.3%	2
None of significance	Wide street tree lawns/pits if using multi-stemmed form, narrow street tree lawns/pits if using standard or pruning	Less tollerant of urban settings	Small				0.0%	
Low branch attachments may require pruning for street tree use	Wide street tree lawns/pits, narrow street tree lawns, pits with pruning or single leader, parks		Small		X		0.3%	4

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Low branch attachments may require pruning for street tree use	Low branch attachments may require pruning for street tree use		Small		X		0.0%	
Small leaves easy for fall cleanup	Narrow or wide street tree lawns/pits, parks	Generally drops leaves early	Small	X		X	1.7%	3.7
Fruit litter on streets can be objectionable	Narrow or wide street tree lawns/pits, parks		Small		X		5.0%	4
			Small		X		0.0%	
		Largely untried as a street tree	Small		X		0.0%	

Management Issues	Suggested Uses	Other	Size Small (<30'), Medium to Large (>30')	Listed in Acceptable Street Trees for Dover, NH	Listed On the Silver Street Planting List	Listed In Downtown Dover Pedestrian and Vehicular Access and Streetscape Study	Estimated percent of Street Trees in CBD (Inventory Results)	Average Condition of Species in CBD (1=dead, dying; 2=poor; 3=fair; 4=good)
		Cherries often short-lived as street trees (50yrs at a good site, 15-25yrs in sub-optimal site)	Small				3.4%	3.8
None of significance	Narrow or wide street tree lawns/pits, parks		Small		X		2.0%	3.1
Thin bark can be easily damaged	Narrow or wide street tree lawns/pits, parks	Less tolerant of urban settings	Medium to Large	X	X	X	8.9%	3.5
Flower, fruit, leaf and twig litter may be a problem in some areas	Narrow or wide street tree lawns/pits, parks		Medium to Large		X		1.1%	3.3

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Can be low branched, may require pruning to be used as a street tree	Narrow or wide street tree lawns/pits, parks, preferable wide lawns for multi-stem form		Medium to Large	X			0.0%	
Typically low branched, may require pruning to be used as street tree, tolerates heavy pruning, narrow branch angles can be a problem with snow/ice loads, dieback can be a minor problem	Narrow or wide street tree lawns/pits, parks	Fine textured branches, low branching tendency typically created short trunk	Medium to Large	X			0.3%	4
Fruits can stain sidewalk and may cause litter problems	Narrow or wide street tree lawns/pits, parks		Medium to Large					



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Prune only in summer as profuse bleeding will occur other times of the year, can be weak wooded with poor crotch angles that split out as the tree grows older, thin bark sensitive to mechanical damage	Wide street tree lawns/pits, narrow street tree lawns/pits with pruning, parks	May need to specify single-stem for street tree use due to multi-stemmed potential	Medium to Large	X			0.0%	
Specify male trees to avoid fruit litter and noxious fruit smell, easy fall clean-up as all leaves drop within a couple days of each other	Narrow or wide street tree lawns/pits, parks		Medium to Large	X			3.6%	3.8
Use of male tree eliminates fruit litter problem	Narrow or wide street tree lawns/pits, parks	Particularly interesting and picturesque in winter	Medium to Large	X			0.0%	

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Fruit litter may be objectionable	Narrow or wide street tree lawns/pits, parks		Medium to Large	X			0.0%	
Soft bar easily damaged by mechanical injury, leaf yellowing followed by leaf drop can be a problem if trees do not receive enough water	Wide street tree lawns/pits or parks due to size and drought sensitivity		Medium to Large				0.0%	
Frost cracking is common, roots will heave sidewalks, bark/leaf/fruit litter may be a nuisance	Wide street tree lawns/pits or parks due to size		Medium to Large	X			0.6%	3.5
Acorns may be a litter problem in certain years, descending lower branches may need pruning where clearance is needed	Wide street tree lawns/pits or parks preferred due to size		Medium to Large	X			0.0%	

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Acorns may be a littler problem in certain years	Wide street tree lawns/pits or parks preferred due to size		Medium to Large	X			4.5%	3.3
Acorns may be a littler problem in certain years	Wide street tree lawns/pits or parks due to size		Medium to Large	X			0.0%	
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None of significance	Narrow or wide street tree lawns/pits, parks		Medium to large	X			0.0%	
None of significance	Narrow or wide street tree lawns/pits, parks		Medium to large		X	X	3.1%	4
Narrow crotch angles and poor branch attachments which can cause splitting and form damage when older	Narrow or wide street tree lawns/pits, parks		Medium to Large	X	X		0.0%	
Narrow crotch angles and poor branch attachments which can cause splitting and form damage when older	Narrow or wide street tree lawns/pits, parks		Medium to Large			X	2.0%	3.9



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None of significance	Wide street tree lawns/pits due to drought sensitivity, parks	Heat sensitive	Medium to Large				2.8%	3.3
Fruit little could be a nuisance in some areas	Narrow or wide street tree lawns/pits, parks		Medium to Large				0.0%	
None of significance	Wide street tree lawns/pits due to drought sensitivity, parks	Good heat and wind tolerance	Medium to Large				0.0%	

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Acorns may be a litter problem certain years	Wide street tree lawns/pits or parks		Large					