TreesColumbus

CANOPY RESTORATION PROJECT

Summary Report | August 1, 2020

TREES COLUMBUS
Canopy Restoration Project
Status Report

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I. PROJECT

Overview

Columbus continues to lose urban forest canopy due to age, disease, storms, and development. The Canopy Restoration Project (CRP) is a public-private partnership to implement creative solutions for urban forest planting and management. It was developed by Trees Columbus to re-establish a working relationship with Columbus Consolidated Government (CCG) to return tree maintenance and management to proactive as opposed to reactive status. The CRP follows "A Comprehensive Tree Management System" that was developed by Trees Columbus in cooperation with the CCG Urban Forestry Division. Because the urban forest provides so many benefits to the community, it is important that it be actively managed. Trees are good for business, health, and social well-being. The CRP provides a proactive system to manage the urban forest of Columbus for today and for future generations. The project studied two separate areas.

Project Area 1 – Lakebottom Park and surrounding public rights of way. This report addresses that study area first.

Project Area 2 – The Chattahoochee Riverwalk multi-use trail along the RushSouth whitewater rafting course.

Benefits of Urban Trees

- ➢ Increase air quality by filtering pollutants
- ➢ Intercept and filter storm water
- ➢ Sequester and store carbon
- ➢ Reduce air temperature
- ➢ Improve psychological and physiological well being
- ➢ Positive contributions to economy and increases property values
- ➢ Increase wildlife habitat
- ➢ Provide shade
- ➢ Provide beautification
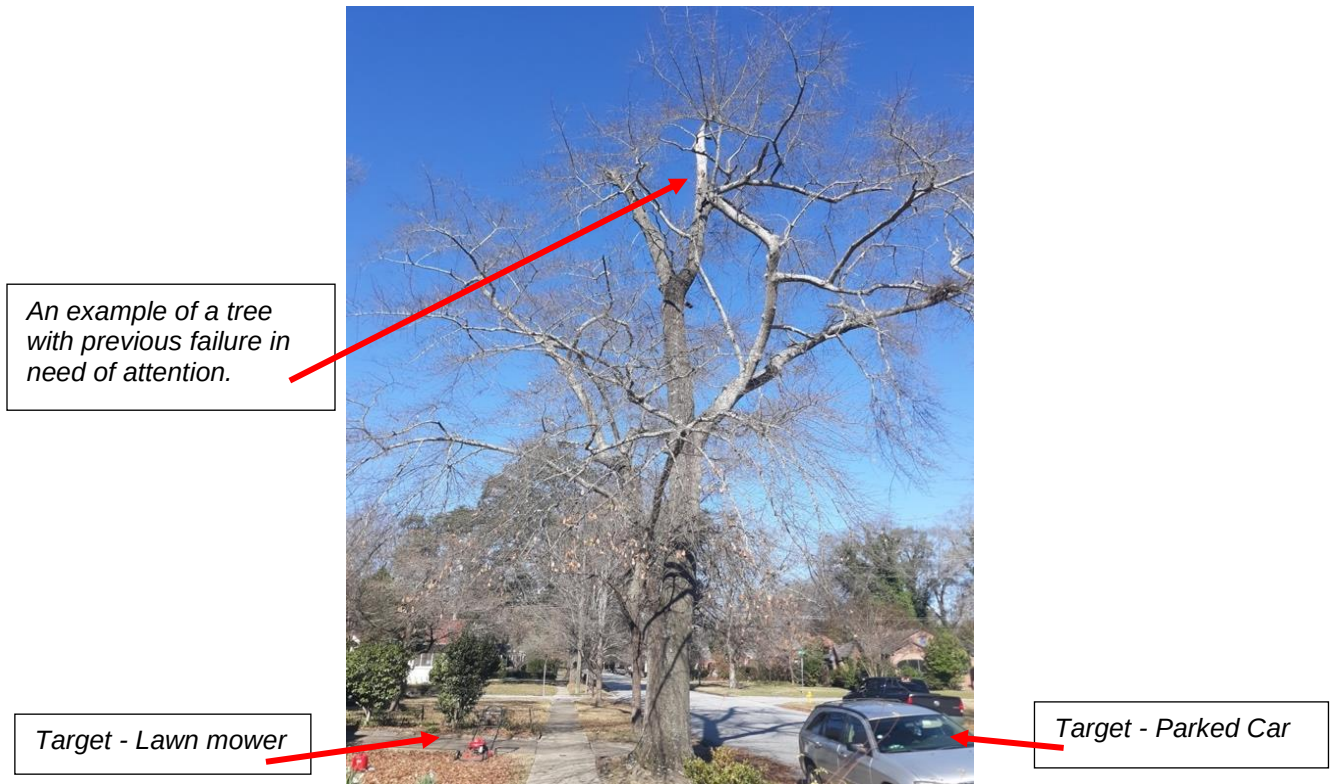- ➢ Provide structural value (See Environmental Section)

A snapshot of downtown Columbus showcasing the important role trees play in our economy!

Need for Action

Despite the many benefits our urban forest provides, there are also many challenges which bring complexity to the management of the forest. Among these complexities, is the fact that the majority of Muscogee County's urban tree canopy is on private property. The Canopy Restoration Project connects private property owners with valuable education and resources.

This project will:

  ➤ Address public safety and risk management.
  ➤ Promote the health of mature trees on public and private property.
  ➤ Promote the planting of young trees on public and private property.
  ➤ Establish a process to identify and mitigate potential safety issues.
  ➤ Promote public awareness of urban trees.

An example of a tree with previous failure in need of attention.

Target - Lawn mower

Target - Parked Car

Trees Columbus embarked on this project to improve the existing condition of the urban forest and to provide a mechanism for the sustainability of the urban forest for generations to come.

A Changing Role

Trees Columbus, from its inception, was an advocate for trees in the community. This advocacy was not only for existing trees but also for the planting of new trees. From the early days of the organization, it had formed a good working system with CCG. Through time and the changing of CCG personnel the relationship between CCG and Trees has grown less cooperative. As a result of the changing personnel, the CCG Urban Forestry Division has become more reactive and less proactive in the management of the urban forest despite not losing funding or personnel. Trees Columbus, through CRP, has highlighted this change in management and has proposed ways to continue to help CCG maximize dollars, while maintaining a healthy and safe urban forest. It is imperative to take a more proactive management approach.

Project Goals

- ➢ Increase public safety.
- ➢ In partnership with CCG, evaluate tree canopy on public rights-of-way to establish tree maintenance and planting priorities for healthier tree canopy.
- ➢ In partnership with private citizens on a volunteer basis, evaluate residential tree canopy to establish tree maintenance and planting priorities for healthier tree canopy.
- ➢ Create a replicable process that can be repeated throughout Muscogee County and beyond.
- ➢ Develop a tree management system that is practical and can be maintained.
- ➢ Engage and educate private citizens.

The CRP team educating and interacting with the local community.

Executive Summary

Community Context

Columbus is emerging as a regional hub for outdoor recreation. The City wants to maximize the impact of the Chattahoochee River and attract outdoor enthusiasts to live, work, and play here. Healthy tree canopy is an essential component to the success of that plan.

The Columbus Chamber of Commerce and partners are investing heavily in "Columbus 2025" as a collaborative community plan to create a more competitive and prosperous region. The guiding principles of the plan are to increase prosperity, reduce poverty, and improve overall quality of life for a stronger and more vibrant region for decades to come. One of the key components of the Chamber plan is the cultivation of "Vibrant and Connected Spaces." It is urban tree canopy that connects spaces around the community and enhances outdoor recreation opportunities.

Downtown Columbus, Georgia along the Chattahoochee River.

Key Objectives of "Vibrant and Connected Spaces" Strategy

• Maximize the impact of the region's greatest natural resource: the Chattahoochee River.
• Promote vibrant and attractive neighborhoods, corridors, and activity centers.
• Connect people and places with expanded opportunities for walking, biking, and transit use.

How Does Urban Tree Canopy Contribute to a More Competitive and Prosperous Region?

Livable communities - Throughout time experts have noted that nearby nature is an important part of places that are livable and have a high quality of life. Having gardens, parks, and trees in cities leads to life satisfaction and a positive outlook.

Social Strengths - Urban green spaces provide a neutral space within which people come together, social interactions occur, and relationships or partnerships take form. Community building and increased social capital emerge, particularly if people share work on a project or goal. Individual benefits, improved public health, and social resilience are potential positive outcomes.

Economic Value - Urban nature in all its forms — forests, parks, and greenbelts — provides a range of benefits and services to society, most of which are not readily bought and sold. Studies show that consumers are attracted to and spend more money in areas with trees.

Place Attachment – Place is particularly relevant when considering issues of urban development and community-building. Attachment and meaning emerge from a variety of experiences and situations, and are often related to parks, green spaces, and natural areas, and trees.

Outdoor Activity - Recent research indicates that quality outdoor environments positively affect activity attitudes and behaviors. Urban greening contributes to more walkable places and encourages physical activity.

Work and Learning - Places that incorporate or are located near nature can help remedy mental fatigue and restore one's ability to focus on tasks. The result can be better performance in the workplace and classroom. Nearby nature provides settings for play and experiential learning activities that promote children's cognitive, social, and moral development

The management of Columbus' urban forest as a valuable natural resource is a must. Although trees in nature grow well on their own, trees in the urban environment compete against other infrastructure for space above and below ground. This project is designed to improve the urban forest. It is the intention of the project to re-establish a working relationship between CCG and Trees Columbus to bring improvement to the urban forest. Even though there was some success in the early stages of the project, participation from CCG to continue moving forward has been nonexistent; however, it is Trees Columbus' commitment to continue to fight for a more proactive management of the urban forest of Columbus.

II. Project Area 1 – Lakebottom
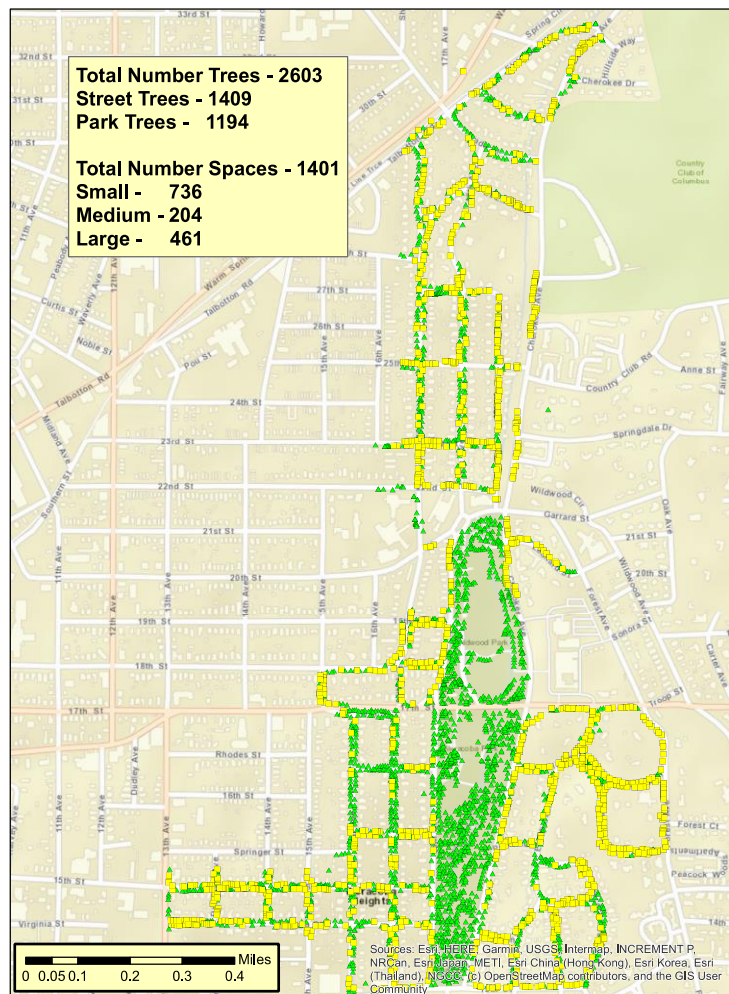
Tree Inventory

The Numbers

- Number of Trees: 2,603
- Number of Planting Spaces: 1,401
- Total Records: 4,004

Project Area

Project Area: West of Country Club of Columbus, south of Columbus High School, and north of 13th Street; a section of Lakebottom/Weracoba Park and Wildwood Park; and select neighborhoods surrounding the parks were chosen as a starting point. This decision was based on the aging canopy, both on public and private property, as well as a high volume of 311 calls reported by the Urban Forestry Division. As a result of this aging canopy, there are several tree failures during and after storm events. After completion of Weracoba Park, the surrounding neighborhoods were inventoried with similar findings. This inventory provided the opportunity to interact with private landowners and educate them on our project.

Total Number Trees - 2603
Street Trees - 1409
Park Trees -   1194

Total Number Spaces - 1401
Small -   736
Medium - 204
Large -   461

Map representation of trees (green) and planting spaces (yellow).

Data Collection

Tree Data Collected   Planting Space Data Collected
Address   Address
Species   Size - Large, Medium, Small
Diameter
Class/Condition
Structural Defects
Maintenance Needs
Priority of Maintenance
Future Inspection Cycle

In the field taking inventory.

Maintenance is categorized using three timetables:

Priority 1 – The tree or tree part is at high risk of failure at any moment, and so maintenance should be addressed immediately.

Priority 2 – The tree or tree part has less risk of failure than priority one, but maintenance should still be addressed within a 6 – 12-month window to avoid increased issues.

Priority 3 – The tree is in need of routine maintenance to ensure the continued health of the tree and should be done within a 3-year window.

Ongoing Management of Information
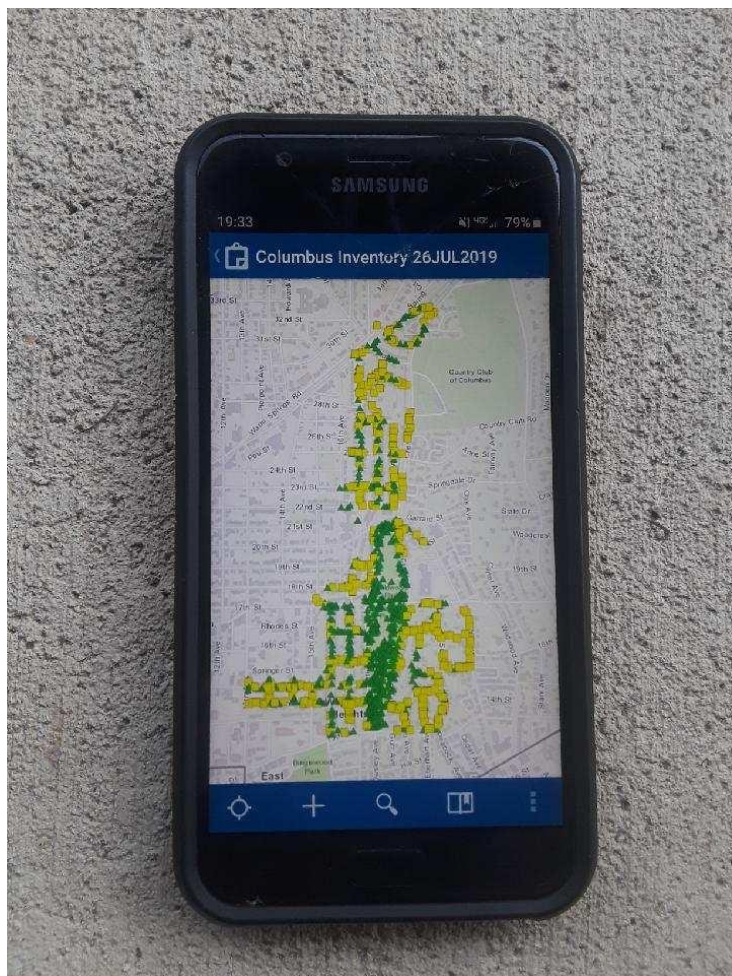
ESRI phone application

All tree inventory data was collected on an ESRI Explorer Field App and is being maintained on Trees Columbus's own ESRI GIS system. ESRI is the industry standard geographical information system. As trees are pruned, removed, and planted, it is important to update the existing data fields to reflect the changes. Updates can be made in the field on a smart phone or tablet.

III. Summary of Tree Data

Summary of tree inventory data will be reported in the following format:

- ➢ Environmental Impact
- ➢ Species Breakdown
    - o Species Composition
    - o Species Composition by Size
- ➢ Diameter Distribution
- ➢ Tree Condition
- ➢ Planting Spaces
- ➢ Environmental Impact

Environmental Impact

Introduction: Using i-Tree Management Tools
i-Tree is a suite of tools that have been developed, by the USDA Forest Service, to provide analysis and benefits for forest management projects, and specifically allows for quantifying forest structure and environmental benefits of trees in your study area.

We used i-Tree Eco (Version 6) to complete various assessments on the data collected from the 2,603 trees in the project area. Through the use of i-Tree Eco, we are able to provide the environmental impact of these trees including pollution removal, carbon storage, structural value, and a forecast for the future of the trees within the city.

The following information was analyzed and can be found in the pages to come:

- ➢ 30 Year Forecast
- ➢ Pollution Removal
- ➢ Carbon Storage
- ➢ Avoided Runoff
- ➢ Structural Value

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30 Year Forecast

Using a forecast model embedded in i-Tree Eco (V6) we can track the decline or growth of the current population given different circumstances. These forecasts take into consideration days without frost, the age of the current trees, the current condition of the trees, and the number of trees that are planted each year.

Number of Trees Over Time
Location: Columbus, Muscogee, Georgia, United States of America
Project: Columbus Trees, Series: Street & Park Trees, Year: 2019, Forecast: Default
Generated: 9/26/2019
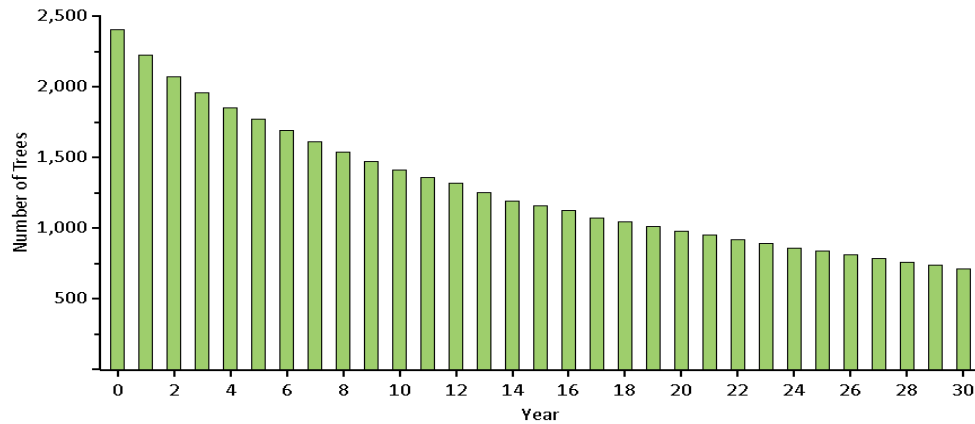
Figure 1. This graph shows the future of the current tree population in the project area over the next thirty years, if there are no additional trees planted. This graph shows a severe dip in the number of trees, going from approximately 2,500 trees in the current population to 700 in the population in the year 2049.

Number of Trees Over Time
Location: Columbus, Muscogee, Georgia, United States of America
Project: Columbus Trees, Series: Street & Park Trees, Year: 2019, Forecast: Planting 100 Trees
Generated: 10/31/2019

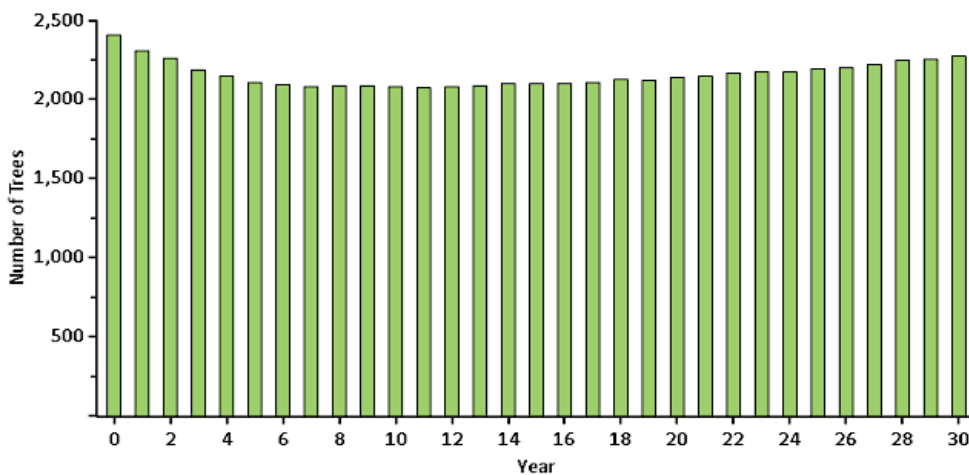*Figure 2. This graph shows the current tree population in the project area over the next thirty years, if 100 trees were planted every single year. The graph illustrates the impact that consistent planting has on the population. This forecast starts at approximately 2,500 trees and ends at 2,270 after thirty years, a much better outcome than if no trees plantings or maintenance occurred.*

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Pollution Removal

Trees provide a natural source of pollution removal, for a wide variety of atmospheric pollutants. The pollutants focused on for this assessment were: carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, and particulate matter. These pollutants are suspended in the atmosphere and can settle onto the leaves of trees, then the pores on these leaves uptake the pollutants and filter them. The removal of these pollutants helps to lower the potential of harmful health issues for the citizens. The results of the pollution removal amount in pounds is shown in figure 3, with a total removal of **805.7** pounds per year and a value of **$1,230** a year.
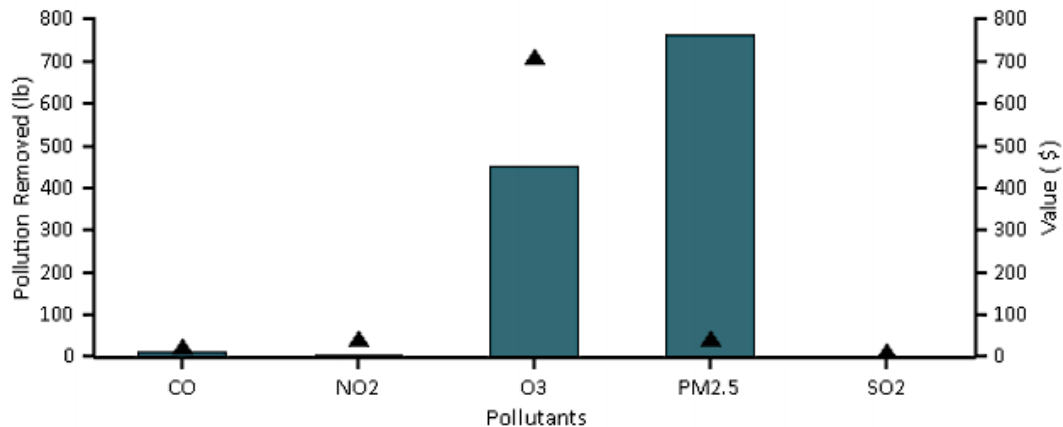
*Figure 3. Annual pollution removal (triangle points) and value (teal colored bars) by urban trees in the project area. **Total: 805.7 pounds per year = $1,230***

Carbon Storage

Tree populations are essential in removing/storing carbon from the atmosphere. Carbon builds up as result of burning fossil fuels (driving cars, industry emissions, etc.) and contributes to the greenhouse gas effect. However, trees are one of the most important factors in removing carbon from the atmosphere since they do so constantly as a part of their natural processes. The assessment of current carbon storage is shown in figure 4 and is broken down by species. The total carbon storage provided from the project area is estimated to be 1,670 tons of carbon per year, which is associated with a value of $284,000.

*Figure 4. Estimated carbon storage (triangle points) and values (teal colored bars) for urban tree species with the greatest storage in the project area. **Total: 1,670 tons of Carbon = $284,000***

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Avoided Runoff

Urban areas, like Columbus, often experience increased surface runoff due to a vast amount of impervious cover (pavement: roads, sidewalks, etc.). Surface runoff is the precipitation that cannot seep into the soils, and then transports polluted water to streams, rivers, and 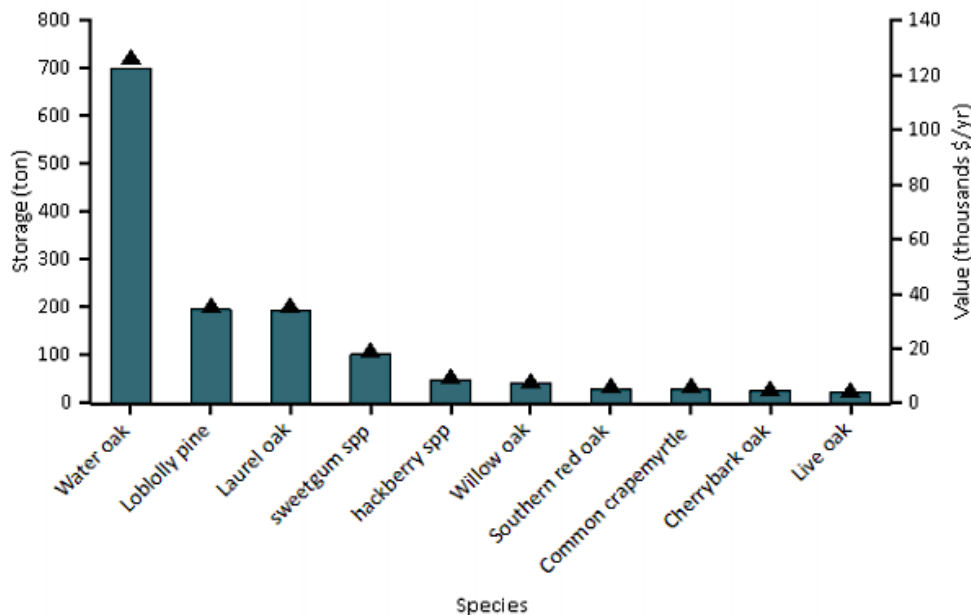the ocean. Trees provide a helping hand for this surface runoff issue, since their existence allows for the root system to uptake this runoff and use it for its own growth. Visualization of this uptake and associated value for the top species is shown in figure 5. Runoff is reduced by 46,100 cubic feet a year, and that is associated with a value of $3,100.
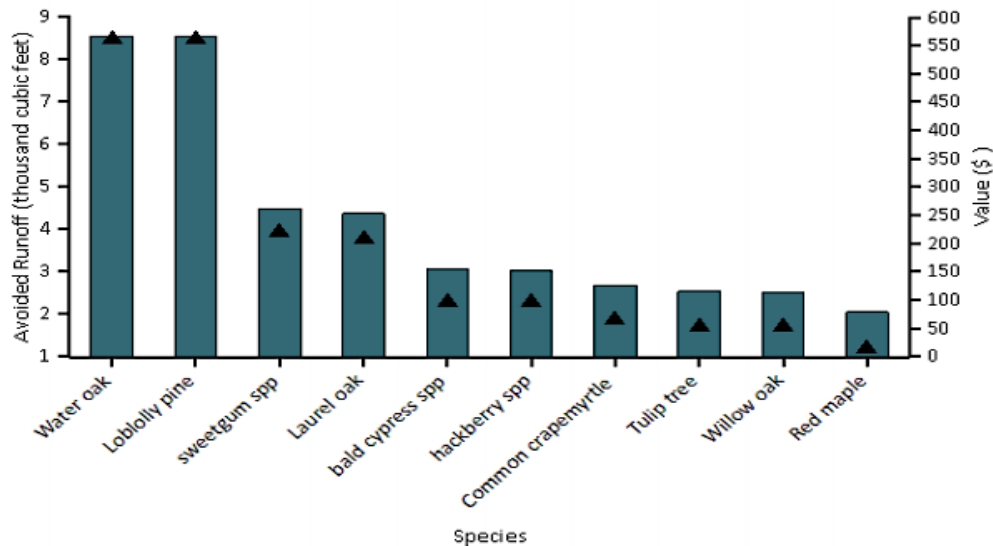
*Figure 5. Avoided runoff (triangle points) and value (teal colored bars) for species with the greatest overall impact on runoff in the project area. **Total Avoided Runoff: 46,100 cubic feet = $3,100***

Structural Value

The structural value is the cost associated with the physical tree itself, so for example the cost associated with replacing the tree. The total structural value of the tree population in the project area is $2.12 Million. Figure 6 shows the breakdown of structural value according to some of the major species.
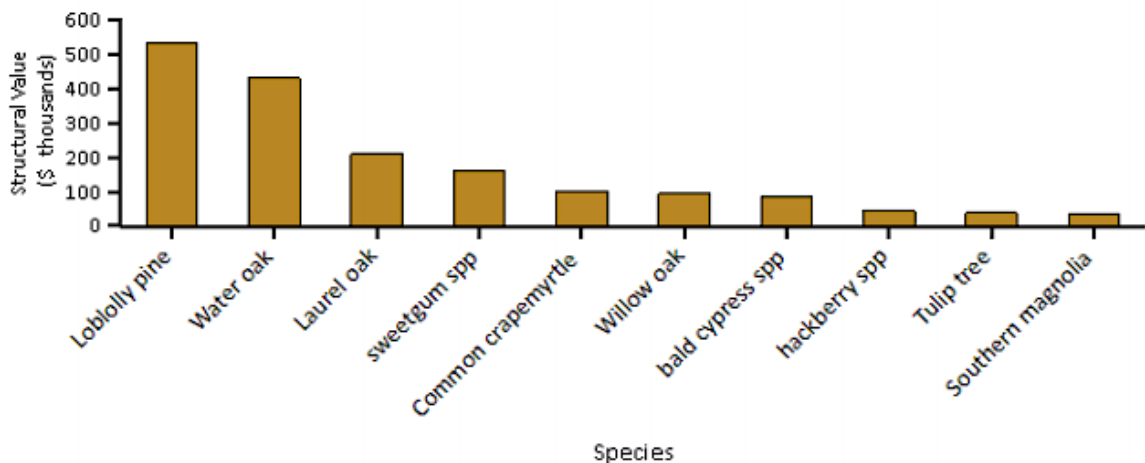
Figure 6. Tree species break-down with the greatest structural value in the project area. Total: $2.12 Million

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Species Composition

Species composition is an important aspect of Urban Forest Management because it prevents monocultures. Society can develop trends so that everyone wants to plant a certain type of tree. Monocultures can lead to unhealthy forests because disease and insect problems can be species specific and destroy an entire forest in a short period of time. In the United States we have experienced Chestnut Blight and Dutch Elm Disease and are currently fighting Emerald Ash Borer. Each one of these pests is species specific.

Species Composition

- Crepemyrtle
- Oak Species
- Dogwood
- Maple Species
- Pine Species
- Sweetgum
- Birch - River
- All Others

Figure 7.

Highlights

✓ There is a good species mix in the project area and the mix is very typical of the Southeastern U.S.
✓ There is also a good mix among the "all other" species as well as there are 70 different species represented within this category.
✓ The diversity among the smaller species trees is not great, as much of the trees in this category are Dogwoods and Crapemyrtles (which is the City Tree).

Species Listing

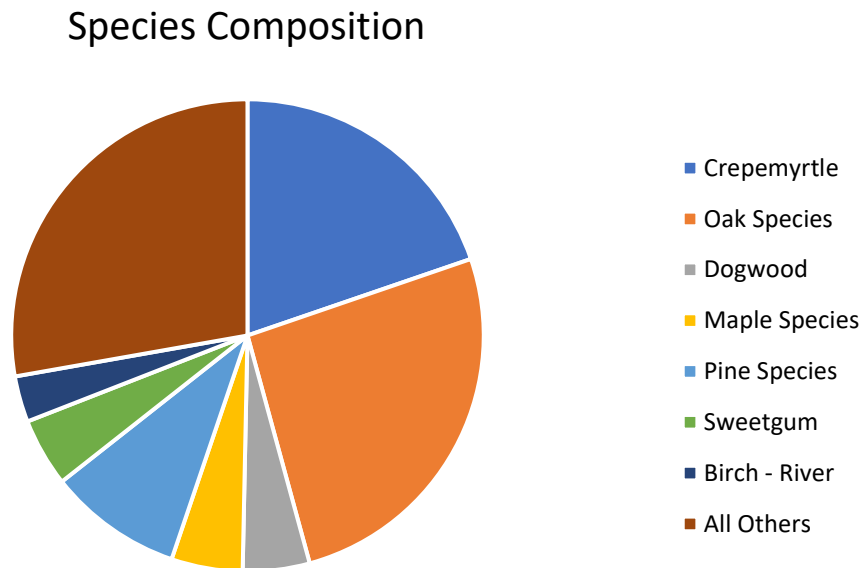|	Species	Count
1	ASH	2
2	ASH - GREEN	9
3	ASH - WHITE	2
4	BEECH	3
5	BIRCH - RIVER	82
6	BLACKGUM	19
7	BLUE SPRUCE	1
8	CAMPHOR	2
9	CATALPA - SOUTHERN	4
10	CEDAR - EASTERN RED	32
11	CHERRY	29
12	CHERRY - BLACK	20
13	CHERRY - CAROLINA LAUREL	34
14	CHINABERRY	3
15	CHINESE PISTACHE	2
16	CRAPEMYRTLE	514
17	CYPRESS - BALD	79
18	DOGWOOD FLOWERING	119
19	ELM	5
20	ELM - AMERICAN	13
21	ELM - LACEBARK	22
22	ELM - SIBERIAN	2
23	ELM - SLIPPERY	1
24	ELM - WINGED	15
25	GINKO	4
26	HACKBERRY	78
27	HICKORY	2
28	HICKORY - MOCKERNUT	1
29	HICKORY - PIGNUT	1
30	HOLLY	12
31	HOLLY - AMERICAN	11
32	HOLLY - FOSTER	1
33	HOLLY - YAUPON	15
34	HOPHORNBEAM - EASTERN	6
35	MAGNOLIA - SAUCER	2
36	MAGNOLIA - SOUTHERN	26
37	MAPLE - AMUR	2
38	MAPLE - JAPANESE	2

	Species	Count
39	MAPLE - RED	111
40	MAPLE - SILVER	10
41	MAPLE - SUGAR	2
42	MIMOSA	7
43	MULBERRY - RED	16
44	OAK	1
45	OAK - CHERRYBARK	9
46	OAK - CHESTNUT	30
47	OAK - LAUREL	145
48	OAK - LIVE	24
49	OAK - NORTHERN RED	7
50	OAK - NUTTALL	1
51	OAK - OVERCUP	23
52	OAK - POST	1
53	OAK - SAWTOOTH	44
54	OAK - SCARLET	3
55	OAK - SHUMARD	7
56	OAK - SOUTHERN RED	10
57	OAK - WATER	263
58	OAK - WHITE	17
59	OAK - WILLOW	92
60	OTHER	7
61	PALM	2
62	PEAR - BRADFORD	14
63	PEAR - CALLERY	1
64	PECAN	16
65	PINE	1
66	PINE - LOBLOLLY	230
67	PINE - LONGLEAF	8
68	POPCORN TREE	19
69	POPLAR - YELLOW	63
70	PYRACANTHA	1
71	REDBUD - EASTERN	11
72	ROSE OF SHARON	1
73	SHRUB	41
74	STUMP	40
75	SWEETGUM	122
76	SYCAMORE	9
77	UNKNOWN TREE	16
78	WILLOW	1
	TOTAL	**2603**

Species Composition by Size at Maturity

When looking at species diversity, it is important to look at species within categories of the tree's size at maturity. All species have been broken into three categories based on their relative size at maturity. These are broad categories and certain species may fit into more than one category based on their growing environment. It is important because in terms of age and future growth it is not productive to compare an 8-inch dogwood and an 8-inch oak tree, as the 8-inch dogwood may be fully mature whereas the 8-inch oak is still many years from reaching maturity.

Species Composition by Size at Maturity
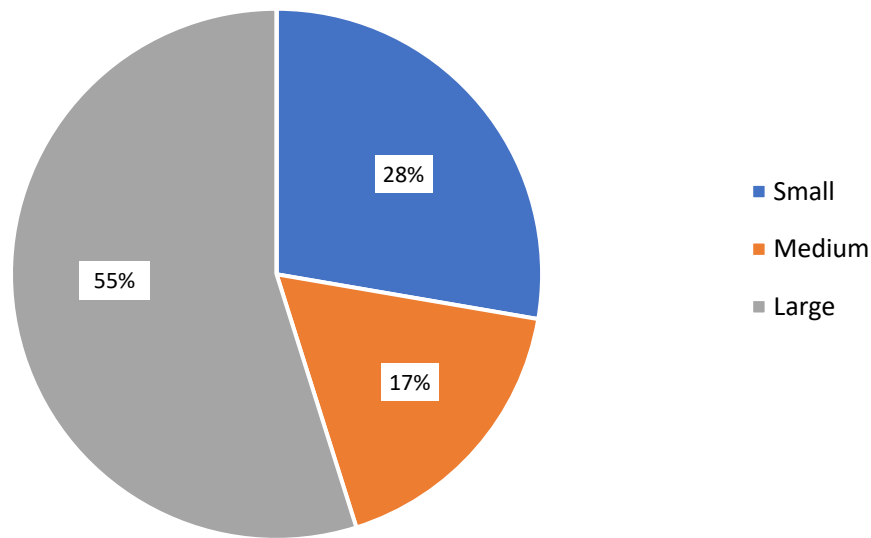
Figure 8.

Highlights

- ✓ This is a very good mix. In the urban environment it is often rare to have most of the tree population in the large category.
- ✓ It is common to have a small number of trees within the medium category as there are relatively few trees that are of medium size (see table).
- ✓ The percentage of small trees is a good number; however, there is very little diversity within this category as 97% of these trees are Dogwoods and Crapemyrtles.

Diameter Distribution

Diameter distribution gives us an indication of the age of an urban forest. It is important to monitor and maintain an even balance between all age groups because this provides sustainability. It takes most tree species 20-30 years to mature and another 50 years before they become over mature. Because this is such a long cycle, it is easy to get complacent and not restock the forest with younger trees before a majority of the forest becomes over mature.

Diameter Distribution for the Large Species Trees
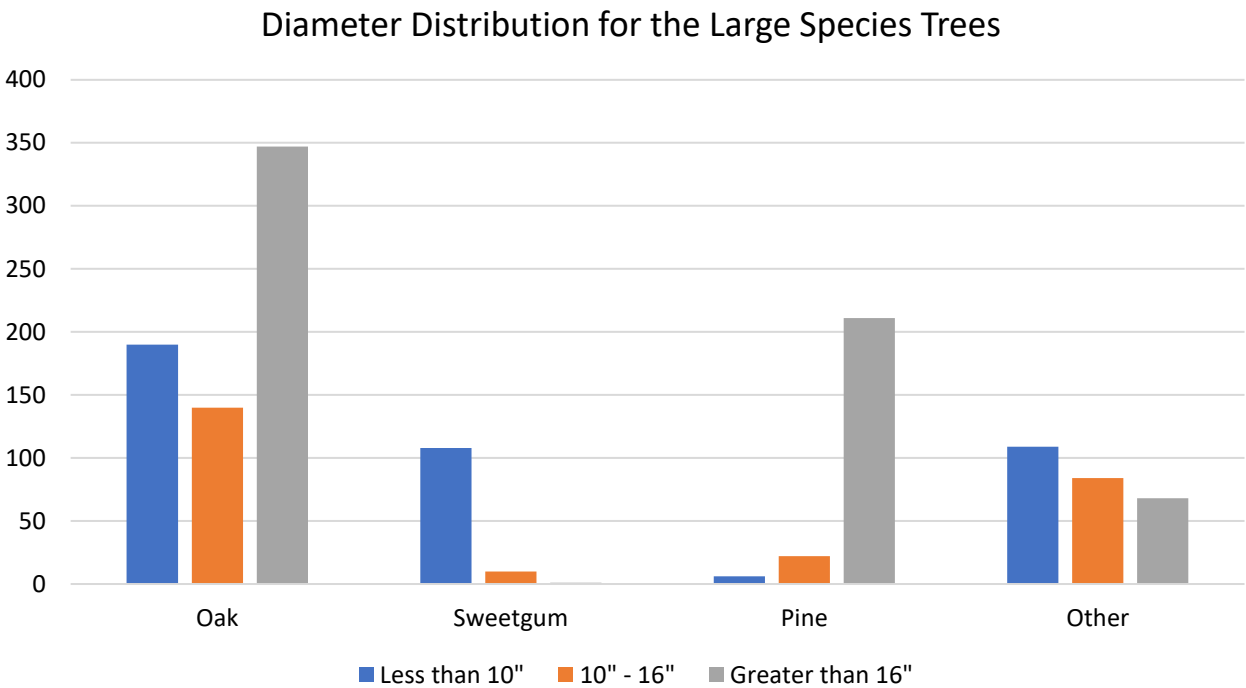
Figure 9.

Highlights

- ✓ The oaks which are going to be the largest grouping shows that the canopy is mature to over mature as most are over 16".
- ✓ The pattern within the oak category illustrates a lack of planting of oaks for approximately 30-50 years which is a trend in urban areas throughout the U.S.
- ✓ The "Other" category has the best breakdown, largely due to natural in-growth and not from specific plantings.

Tree Condition

Tree condition is the overall health of the tree.
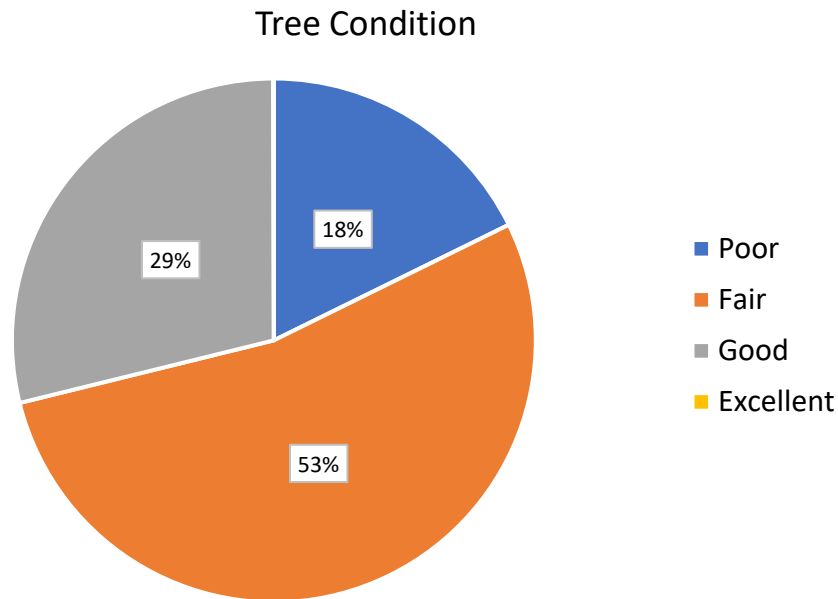
Tree Condition

Figure 10.

Highlights

- ✓ With more than half of the trees surveyed to be "fair" condition, there is opportunity to improve the condition through proper maintenance and management.
- ✓ Because the urban environment is tough on trees it should be expected to have a large number of trees in fair condition; however, it is reasonable to expect that the percentage of good and fair be reversed.
- ✓ The number of poor trees should be less than 10 percent.

Tree Planting Spaces

Planting spaces are an important part of an urban forest. They are getting harder and harder to find and they represent the future of the forest. As development occurs, planting spaces become more and more difficult to find.

Planting Spaces by Size

■	Small
■	Medium
■	Large
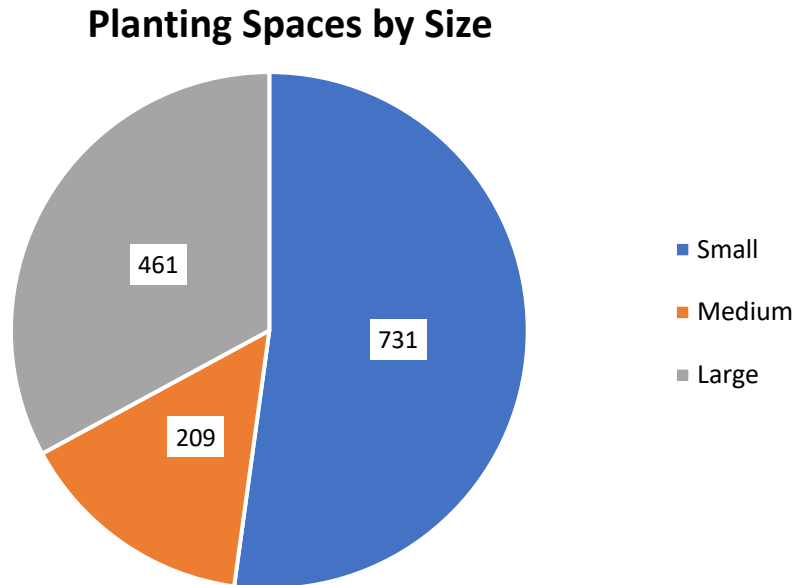
Figure 12.

Highlights

- ✓ As illustrated, there are plenty of planting spaces available in the project area. These spaces are only on the Rights of Way and do not include parks.
- ✓ Emphasis on planting should focus on the large and medium spaces as these species take longer to achieve mature size.
- ✓ The large number of small spaces is indicative of the urban environment due to other infrastructure. This is interesting if you compare to Figure 8 in which there are more large existing trees than small. Many of these large trees were planted prior to existing infrastructure and the infrastructure has been built around them which has also led to a decline in tree health.

IV. Project Area 2 – The Chattahoochee Riverwalk

Project Area 2

RushSouth Whitewater Park along the Chattahoochee River in Columbus. The east side of the Chattahoochee River extending from 14th St. north to Bibb City.

The project area was divided into 23 polygons (working areas) and are illustrated further in this section:
- Polygon overview – pp. 24-28
- Individual polygons – pp. 29-56

Purpose

In 2012, historic textile mill dams were removed from the Chattahoochee River to restore the river to its natural whitewater state to promote whitewater rafting and kayaking. Existing vegetation is heavily populated with non-native species and, in many instances, these species are also classified as invasive.

Now that whitewater recreation has truly blossomed along this stretch of the Chattahoochee River, there is growing interest in better stewardship of the riverbank. This portion of the Canopy Restoration Project was developed to lay groundwork for a plan to establish native vegetation and improve both the ecology and the aesthetic of the Chattahoochee River through Columbus.

Methodology

The entire area was divided into individual work areas(polygons) based on similarities and continuity. Each polygon was then evaluated on the following five criteria.

- *Vegetation*
- *Topography*
- *Work Ability*
- *Access*
- *Impact*

Each criterion was then evaluated and scored as follows: the maximum score a site can obtain is 16 points. Sites are ranked in order of percent score (Score = Total polygon points/16 – total points)

Vegetation
1.) Invasive
2.) Mix - Invasive/Native
3.) Mixed-Native/Invasive
4.) Native

Workability
1.) Poor
2.) Moderate
3.) Good

Impact
1.) Low
2.) Medium
3.) High

Topography
1.) Steep
2.) Moderate
3.) Gentle
4.) Very Little/Flat

Access
1.) Water
2.) Land

Sample Matrix Table

ID's	4	3	2	1	Score
Vegetation					
Topography					
Workability					
Access					
Impact					
Percent Score					

Polygon Summary Table

The polygons with the lower scores are ones that will require the most amount of work and the polygons with the higher scores are ones that require less work to achieve positive impact. Although the below table shows a summary of each polygon, it is important to look at each polygon individually for individual characters. There may be cases where there is a group of volunteers wanting to help so we would want to look at each polygon and evaluate it based on workability.

Polygon Number	Percentage Score
1	43
2	63
3	81
4	81
5	81
6	63
7	75
8	75
9	56
10	94
11	56
12	63
13	38
14	81
15	69
16	75
17	50
18	31
19	88
20	75
21	56
22	50
23	75

Polygons 1 – 5
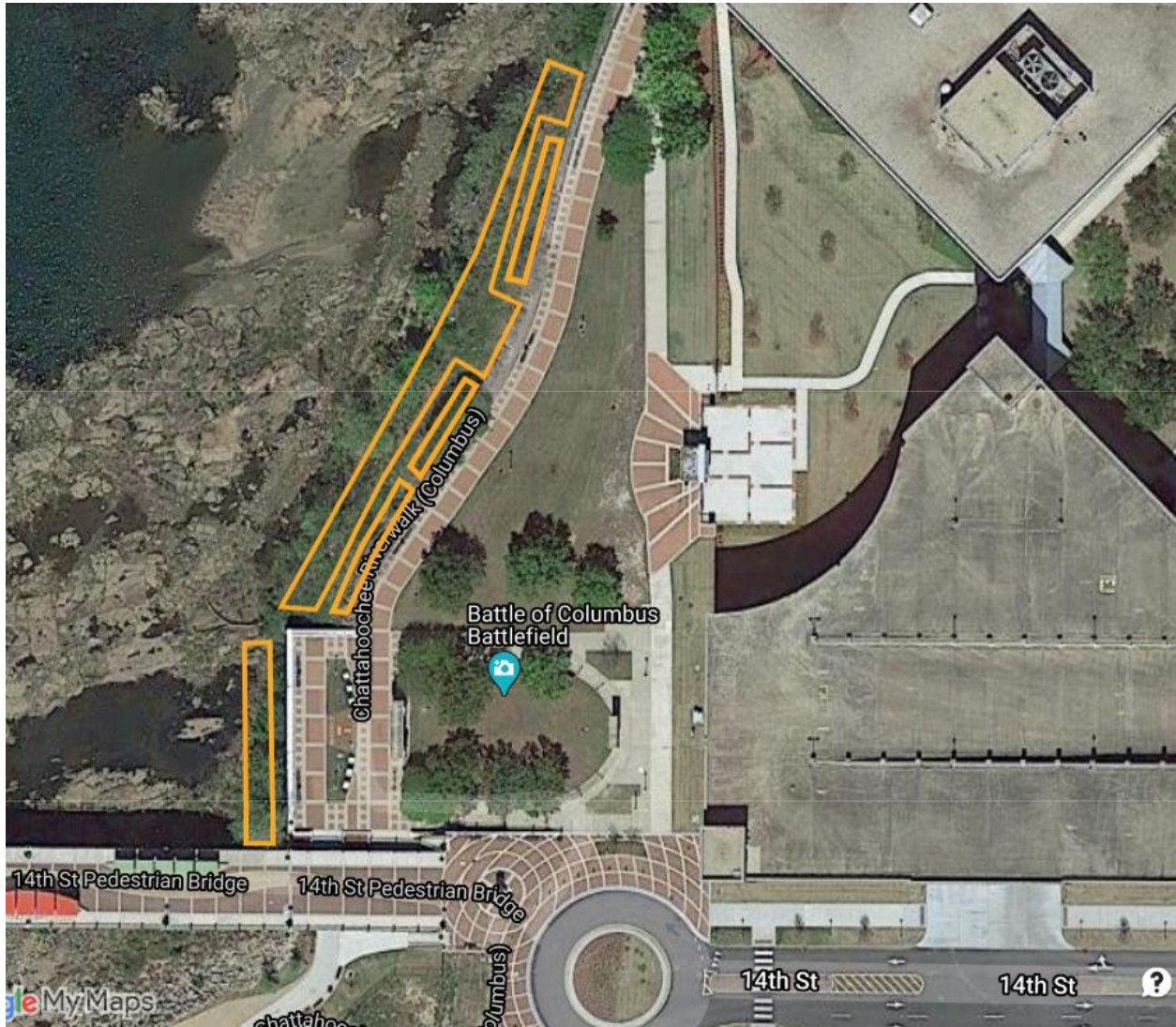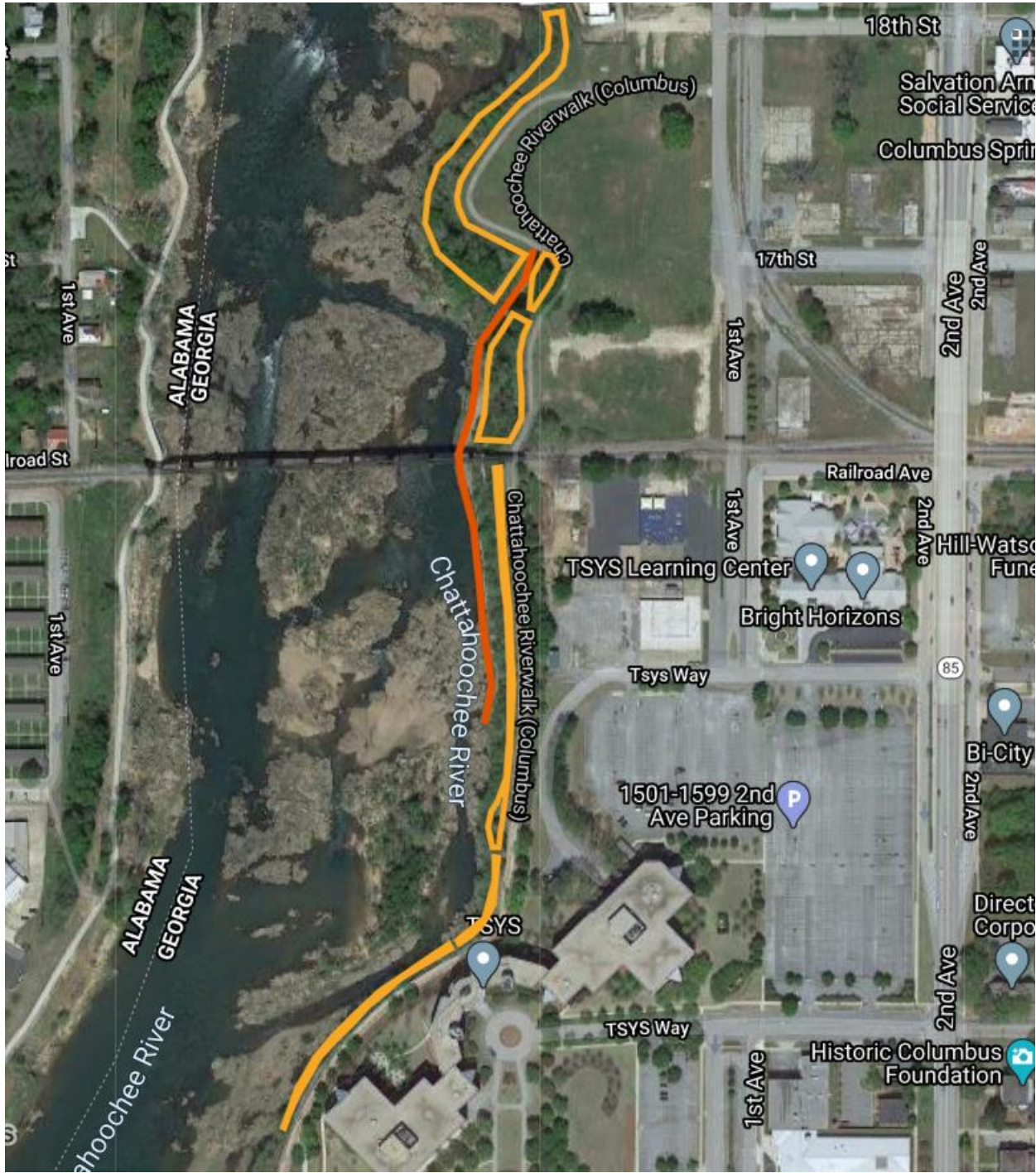
Polygons 12 – 15

Polygons 20 – 23
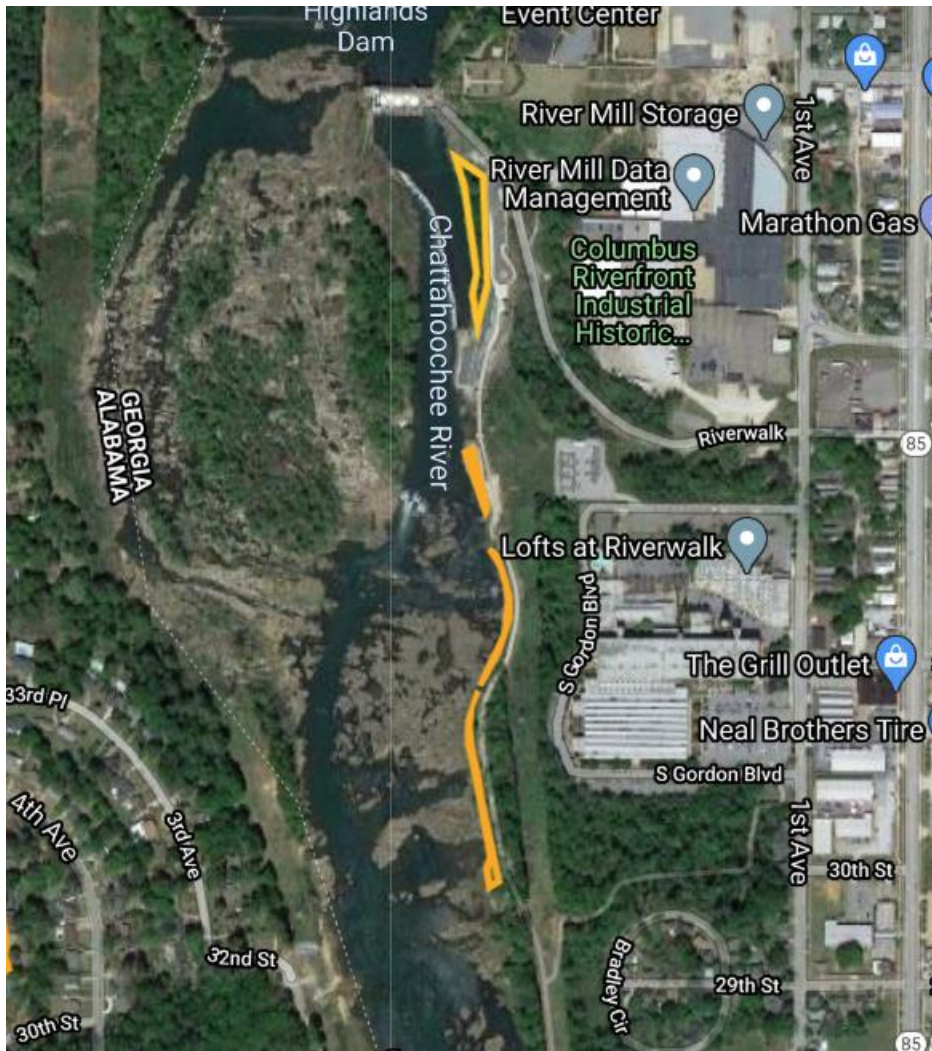
Polygon 1

ID's	4	3	2	1	Score
Vegetation		X			3
Topography				X	1
Workability				X	1
Access				X	1
Impact			X		2
Percent Score					43%

- 2,500 sq. ft. (0.059 ac)
- Very small area to work with
- High visual impact
- Greatest impact: removal of invasives; thinning of native vegetation

Polygon 2

ID's	4	3	2	1	Score
Vegetation			X		2
Topography				X	1
Workability			X		2
Access			X		2
Impact		X			3
Percent Score					63%

- 8,700 sq. ft. (0.20 ac)
- Highly visible area
- Moderate work area; good access to much of it
- Greatest impact: removal of non-native species; and plant natives

Polygon 3
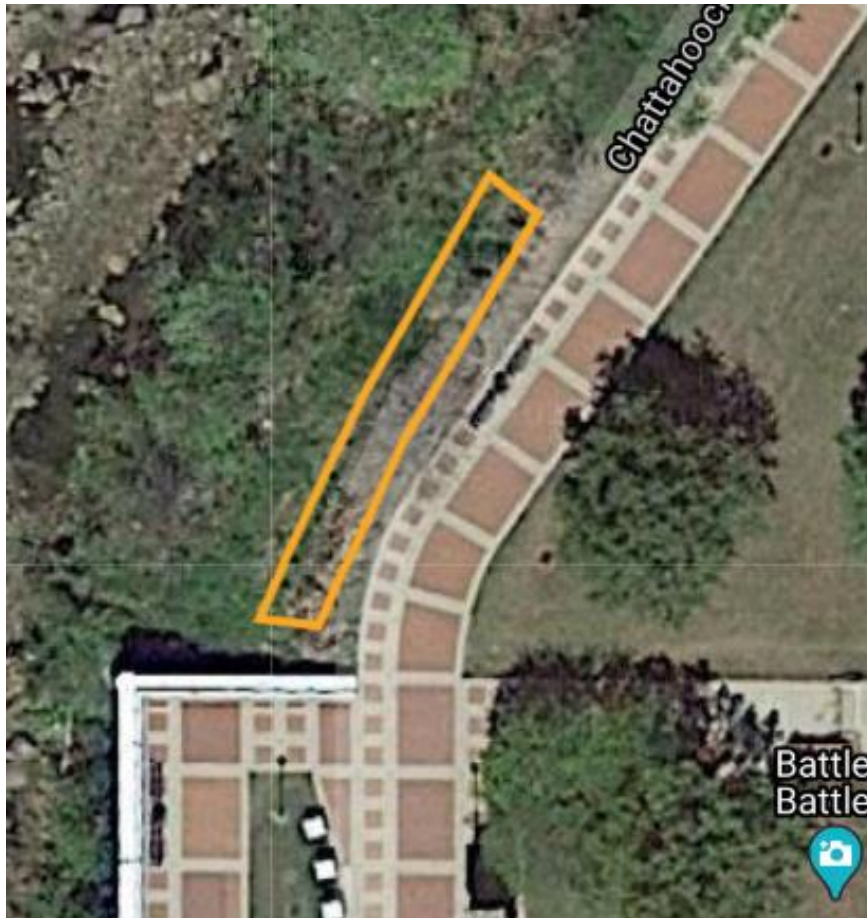
ID's	4	3	2	1	Score
Vegetation				X	1
Topography	X				4
Workability		X			3
Access			X		2
Impact		X			3
Percent Score					81%

- 2,300 sq. ft. (0.048 ac)
- Existing shrubbery; good access
- High visual impact
- Greatest impact: remove shrubbery; replace with native vegetation

Polygon 4
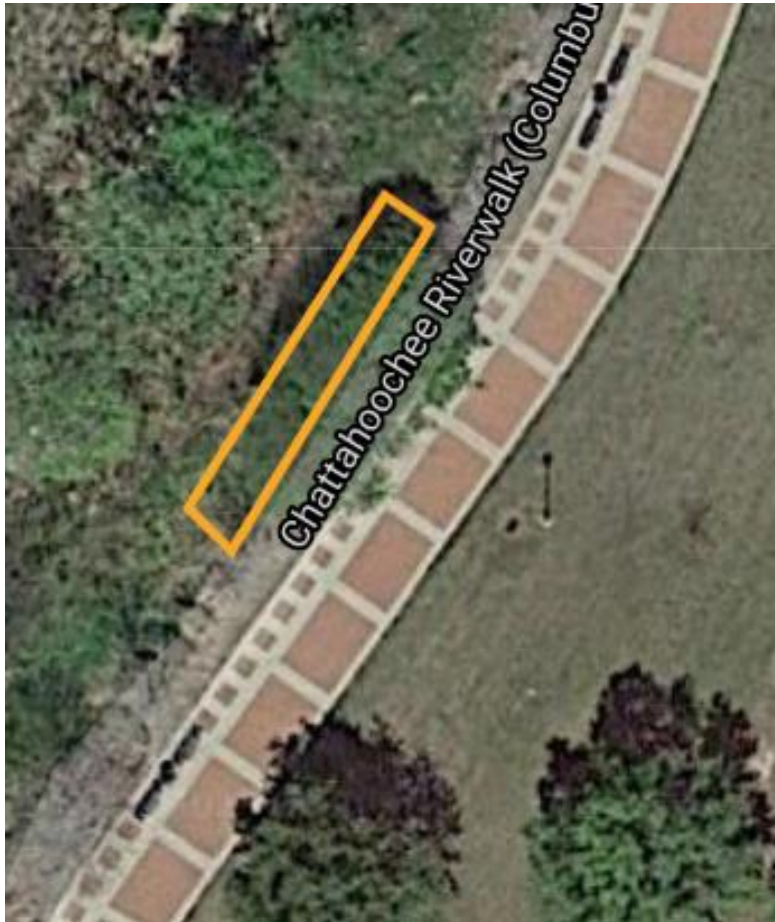
ID's	4	3	2	1	Score
Vegetation				X	1
Topography	X				4
Workability		X			3
Access			X		2
Impact		X			3
Percent Score					81%

- 1,610 sq. ft. (0.037 ac)
- Existing pampas grass
- High visual impact
- Greatest impact: remove pampas grass; replace with native grasses

Polygon 5

ID's	4	3	2	1	Score
Vegetation				X	1
Topography	X				4
Workability		X			3
Access			X		2
Impact		X			3
Percent Score					81%

- 3,050 sq. ft. (0.07 ac)
- High visual impact
- Existing shrubbery
- Greatest impact: remove shrubbery; replace with native vegetation

Polygon 6
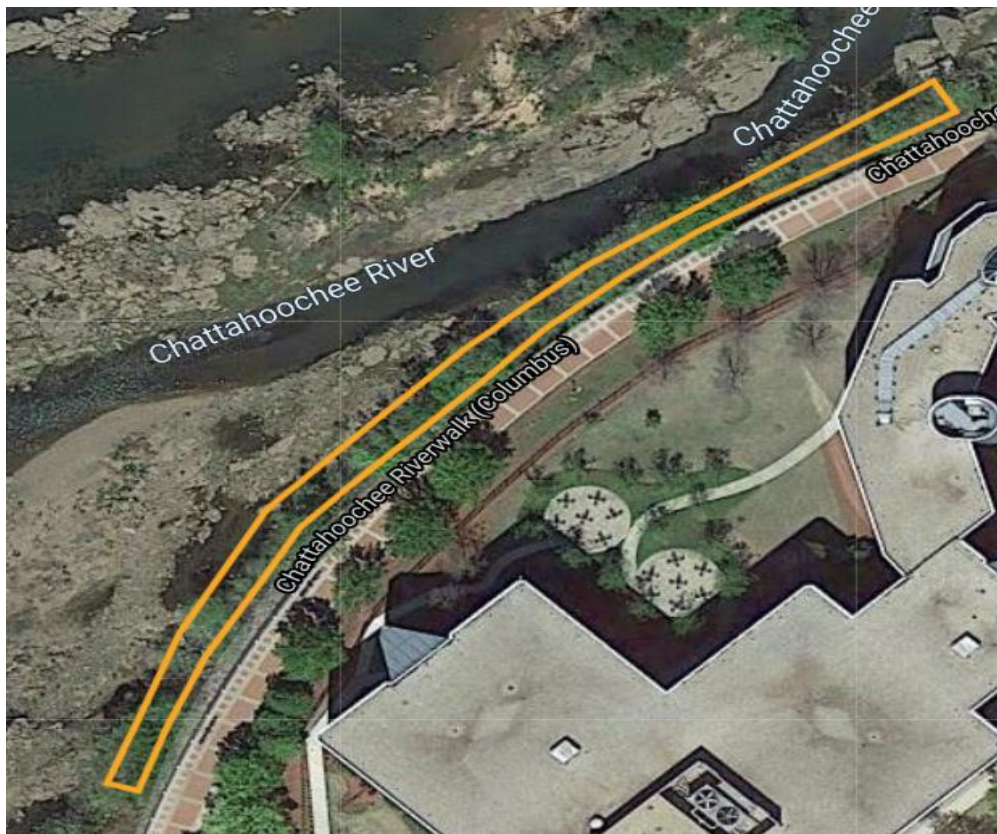
ID's	4	3	2	1	Score
Vegetation		X			3
Topography			X		2
Workability				X	1
Access			X		2
Impact			X		2
Percent Score					**63%**

- 13,900 sq. ft. (0.32 ac)
- High visual impact
- Heavy rock/boulder; difficult to plant
- Greatest impact: removal of invasives

Polygon 7

ID's	4	3	2	1	Score
Vegetation		X			3
Topography			X		2
Workability		X			3
Access			X		2
Impact			X		2
Percent Score					75%

- 4,800 sq. ft. (0.11 ac)
- Plantable shelf adjoining the walkway
- Lower area (near river) much more difficult to work
- Greatest impact: removal of shrubbery and turf; replace with natives

Polygon 8

ID's	4	3	2	1	Score
Vegetation		X			3
Topography			X		2
Workability			X		2
Access			X		2
Impact		X			3
Percent Score					75%

- 22,200 sq. ft. (0.51 ac)
- Plantable shelf; very workable
- Topography varies from flat to steep
- Greatest impact: removal of invasives; plant along walkway

Polygon 9

ID's	4	3	2	1	Score
Vegetation		X			3
Topography				X	1
Workability			X		2
Access			X		2
Impact		X			3
Percent Score					56%

- 27,000 sq. ft. (0.62 ac)
- Plantable shelf w/ steep drop and flat by the river; prone to flooding
- Human inhabitation on river
- Greatest impact: Plant along walkway; removal of invasives on slope and on river flat

Polygon 10

ID's	4	3	2	1	Score
Vegetation	X				4
Topography	X				4
Workability		X			3
Access			X		2
Impact			X		2
Percent Score					94%

- 6,100 sq. ft. (0.14 ac)
- Mature canopy of native trees
- Greatest impact: plant more canopy trees

Polygon 11

ID's	4	3	2	1	Score
Vegetation			X		2
Topography				X	1
Workability				X	1
Access			X		2
Impact		X			3
Percent Score					56%

- 42,700 sq. ft. (0.98 ac)
- Plantable shelf w/ steep drop and flat by the river; prone to flooding
- Human inhabitation on river
- Greatest impact: plant along walkway; removal of invasives on slope and on river flat

Polygon 12

ID's	4	3	2	1	Score
Vegetation			X		2
Topography				X	1
Workability			X		2
Access			X		2
Impact		X			3
Percent Score					63%

- 69,700 sq. ft. (1.6 ac)
- Great plantable space; topography varied
- Half open/half under canopy; kudzu in much of the area
- Greatest impact: plant open space; removal of invasives throughout

Polygon 13

ID's	4	3	2	1	Score
Vegetation				X	1
Topography				X	1
Workability				X	1
Access			X		2
Impact				X	1
Percent Score					38%

- 42,700 sq. ft. (0.98 ac)
- Out of use due to power station and overhead lines
- Possible use of low vegetative shrubs and grasses

Polygon 14
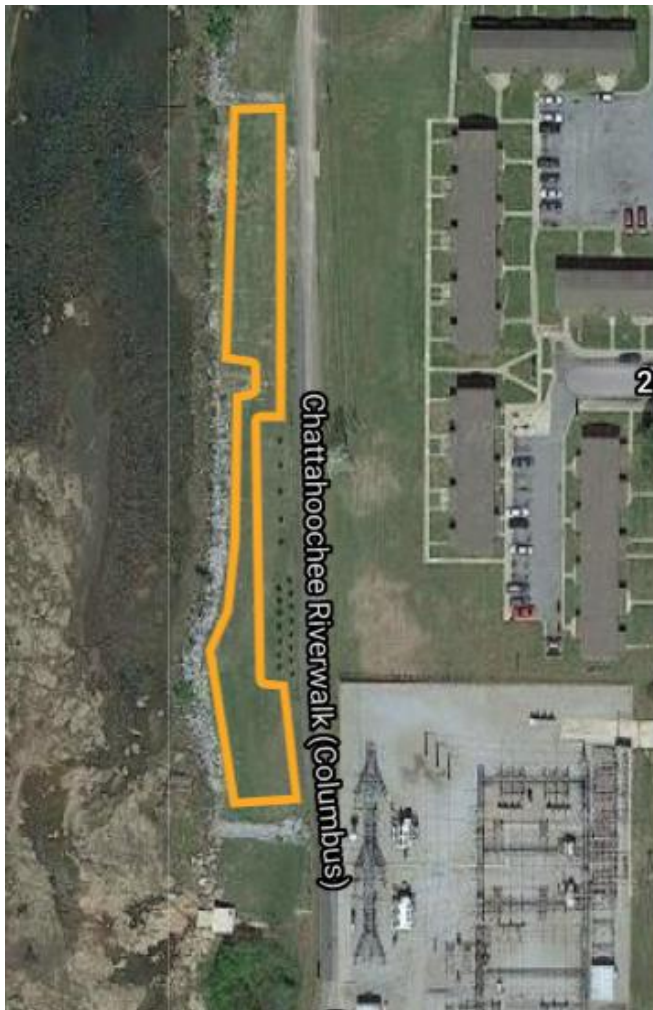
ID's	4	3	2	1	Score
Vegetation		X			3
Topography		X			3
Workability		X			3
Access			X		2
Impact			X		2
Percent Score					81%

- 30,000 sq. ft. (0.69 ac)
- Primarily turf grass with a planting of evergreens
- Very workable but limited impact due to overhead powerlines
- Greatest impact: replace evergreens; convert turf to native grasses

Polygon 15

ID's	4	3	2	1	Score
Vegetation			X		2
Topography		X			3
Workability		X			3
Access			X		2
Impact				X	1
Percent Score					69%

- 41,300 sq. ft. (0.95 ac)
- Low impact due to overhead powerlines
- Greatest impact: removing invasives and thinning of natural vegetation along riverbank

Polygon 16

ID's	4	3	2	1	Score
Vegetation	X				4
Topography			X		2
Workability		X			3
Access			X		2
Impact				X	1
Percent Score					75%

- 25,200 sq. ft. (0.58 ac)
- Low impact due to overhead powerlines
- Greatest impact: removing invasives and thinning of natural vegetation along riverbank

Polygon 17

ID's	4	3	2	1	Score
Vegetation				X	1
Topography				X	1
Workability				X	1
Access			X		2
Impact		X			3
Percent Score					50%

- 23,000 sq. ft. (0.53 ac)
- High erosion control needed; walkway not far from washing away
- High impact: erosion issue
- Greatest impact: erosion control, professional help needed

Polygon 18

ID's	4	3	2	1	Score
Vegetation				X	1
Topography				X	1
Workability				X	1
Access				X	1
Impact				X	1
Percent Score					31%

- 28,700 sq. ft. (0.66 ac)
- Erosion control needed; stop further up hill
- Removal of invasives
- Greatest impact: erosion control

Polygon 19

ID's	4	3	2	1	Score
Vegetation		X			3
Topography		X			3
Workability		X			3
Access			X		2
Impact		X			3
Percent Score					88%

- 39,200 sq. ft. (0.90 ac)
- Good workable flat ground
- Some erosion issues
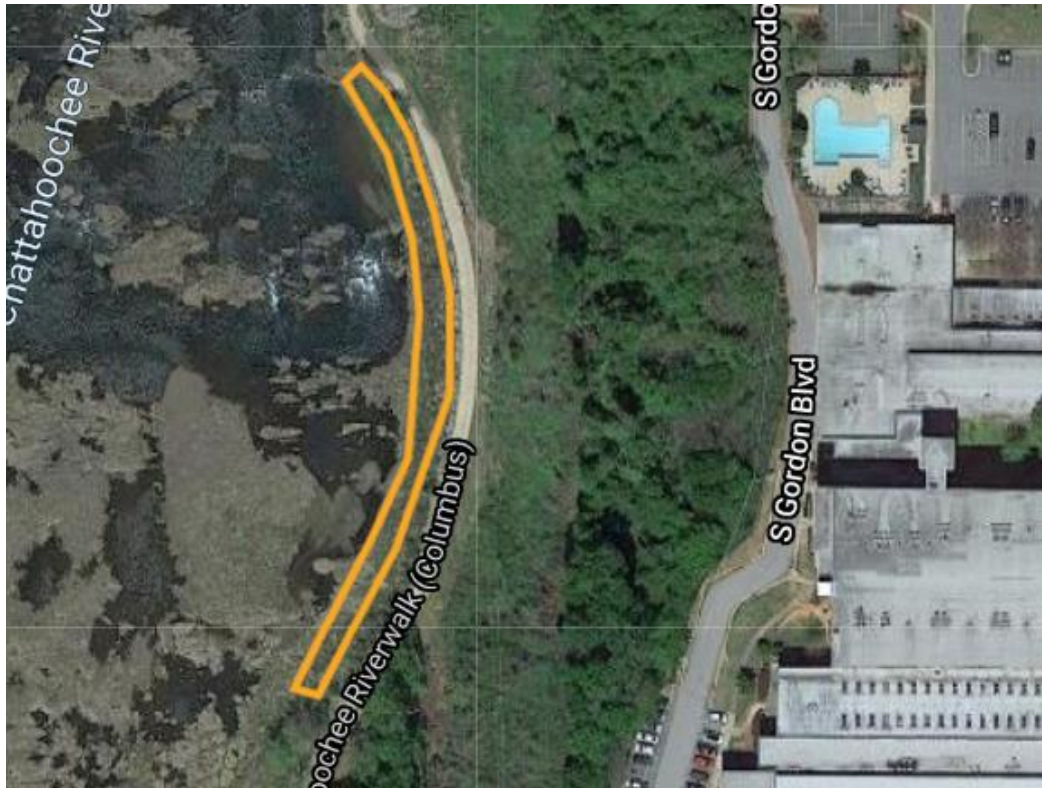- Greatest impact: planting native species where openings are available

Polygon 20

ID's	4	3	2	1	Score
Vegetation			X		2
Topography			X		2
Workability		X			3
Access			X		2
Impact		X			3
Percent Score					75%

- 7,400 sq. ft. (0.17 ac)
- Plantable
- Excellent stretch for volunteer work
- Greatest impact: removing invasives and replace with natives

Polygon 21

ID's	4	3	2	1	Score
Vegetation			X		2
Topography			X		2
Workability			X		2
Access				X	1
Impact			X		2
Percent Score					56%

- 22,200 sq. ft. (0.51 ac)
- Rocky bank
- Powerline restrictions
- Greatest impact: removal of invasives

Polygon 22

ID's	4	3	2	1	Score
Vegetation			X		2
Topography			X		2
Workability				X	1
Access			X		2
Impact				X	1
Percent Score					50%

- 9,100 sq. ft. (0.21 ac)
- Non-workable; mostly rocks
- Greatest impact: remove invasives

Polygon 23

ID's	4	3	2	1	Score
Vegetation		X			3
Topography			X		2
Workability			X		2
Access			X		2
Impact		X			3
Percent Score					75%

- 61,000 sq. ft. (1.4 ac)
- High visual impact because of parking and rest area
- Not sure of access and workability due to GA Power fence
- Greatest impact: removal of invasives