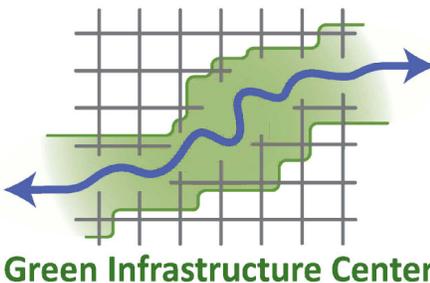


GREEN INFRASTRUCTURE PLAN

Town of Summerville, SC

February 9, 2017



Green Infrastructure Center



Funded by the South Carolina Forestry Commission under a grant from the USDA Forest Service South Region. The Green Infrastructure Center Inc. provided GIS analysis and mapping and assisted with policy review, coordinating community input, and preparation of the document.

February 9, 2017

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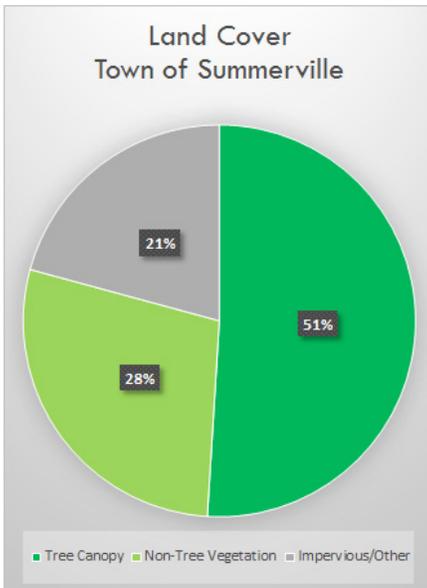
EXECUTIVE SUMMARY



The Oakbrook Nature Trail off of Springview Lane.

The Town of Summerville began the green infrastructure (GI) planning process to identify its most valuable natural assets to help facilitate future development in a manner that will reduce its impact on identified areas. Green infrastructure is identified as the natural assets of an area, including intact forests, tree canopy, wetlands, parks, rivers, and agricultural soils, and how these assets are connected throughout the landscape. In addition to sustaining plant, animal, and human communities, the green infrastructure of an area provides many ecosystem services, such as, maintaining air quality, water quality and mitigating flooding. This plan identifies the potential for restoration of ecosystem services, where possible, as well as supports and informs existing and projected regulatory plans (i.e. Comprehensive Plan, Vision Plan, Unified Development Ordinance) as the Town works to balance the economic, social, and environmental concerns that an ever growing community should address.

The planning process was launched in fall 2015 with a grant from the SC Forestry Commission. The Green Infrastructure Center (GIC) was hired as a GIS consultant to map and provide data analysis of the Town's green infrastructure, including the creation of an urban tree canopy assessment. This plan includes the results of the mapping and data analysis completed by the GIC, and details goals and strategies identified to protect the Town's most valuable natural, cultural, and historical assets.



The Town of Summerville is located in the Lowcountry region of South Carolina with jurisdictional boundaries lying in portions of three counties: Dorchester, Charleston, and Berkeley. Due to its 20-mile proximity to the City of Charleston and the establishment of major corporate enterprises such as Boeing and Volvo in neighboring jurisdictions, Summerville has seen substantial residential and commercial development during the past several years. The U.S. Census American Community Survey of 2015 estimates Summerville's current population at 48,848 residents, a 13.5% increase from the 2010 population of 43,002 residents (U.S. Census Bureau). These factors have heightened the Town's awareness for the need to increase efforts to protect and sustain its natural resources.

The Planning and Economic Development Department is also currently in the process of combining its Zoning and Development Ordinances into one Unified Development Ordinance (UDO). The UDO is expected to be completed in 2017. During the UDO drafting and review process, the goals identified and illustrated in prioritized maps in this plan will be utilized to develop regulations that will facilitate implementation. This plan will also provide the Town with valuable information and maps during the development of the 2019 Comprehensive Plan as the GI Plan model can be updated, as needed, with additional data. Town staff, Council, and Boards and Commissions will use this plan on a regular basis to guide decision making during

The Town of Summerville was originally incorporated in December of 1847 in order to protect one of Summerville's greatest assets, its trees. A law was passed to prohibit the cutting of certain sized trees without permission, which is one of the oldest ordinances of its kind. The Town still has a tree protection ordinance on the books, and motto on the Town's official seal is "Sacra Pinus Esto - The Pine is Sacred."

The Town has also been designated as a Tree City USA since 1981.



future land development and restoration projects.

As community growth continues, the incorporation and meshing of this plan into the UDO, Vision Plan and Comprehensive Plan will allow the Town to continue its planning conservation efforts and standards through tree protection ordinances, land use regulations and preservation of natural resources. This plan will also provide new opportunities for the Town to educate and inform the public and developers about the need to protect the Town's natural resources and to highlight ways in which small changes at the site or parcel scale (planting trees, installing rain gardens, etc.) can make a difference in the protection and restoration of existing natural assets and ecosystem services.

Four main goals and associated objectives and tasks designed to implement this plan are further detailed in this report.



Azalea Park flanks both sides of S. Main Street in the heart of Summerville. It supports numerous plant and animal species, and provides trails, reflection ponds, public sculptures, tennis courts, gazebos, and a community center.



Walkway through Shepard Park, one of the 16 parks maintained by the Town.

INTRODUCTION

In this report, the Green Infrastructure assets of the Town of Summerville and surrounding planning area are detailed through mapping and cataloguing of the Town's highest value natural assets and development of strategies to conserve or restore them. Natural assets include trees, water, soils, trails, parks, open space habitat and connecting landscapes. These natural features 'assets' help keep the Town cleaner, cooler, more attractive, provide recreation, absorb and filter stormwater, and support native species of birds, bees and butterflies, as well as vibrant businesses, tourism, and residential districts. We consider all these natural assets as green infrastructure because they are part of the Town's 'infrastructure' that supports a vibrant, healthy community.

WHY DO WE NEED TO STUDY AND MAP NATURAL ASSETS?

Just as we plan for and manage the Town's grey infrastructure, such as, sidewalks or streetlights, we also need to plan to support our Town's trees, trails, creeks, rivers, wetlands, parks and other open spaces. To take good care of these assets, we need to know their extent, condition and whether action is needed to restore or protect them. This study created a map of the Town's green infrastructure; the largest areas of tree canopy and other natural landscapes and also mapped the connections across the Town and regionally to determine how well connected are the natural features. A well-connected landscape is healthier as it facilitates movement of people, pollinators, birds, butterflies and other mammals.

A green infrastructure plan links multiple objectives together, shows priorities, and highlights significant cultural sites that depend on the landscape for their interpretation or protection such as, Colonial Dorchester State Historic Site or the Town's Historic District.

HOW THIS PLAN WAS CREATED:

In Fall 2015, the Town of Summerville partnered with the South Carolina Forestry Commission and the Green Infrastructure Center (GIC), a non-profit organization, to create the Town of Summerville Green Infrastructure (GI) Plan in support of the Town's vision to encourage responsible land development and growth patterns promoting sustainability and balance of the natural and built environment. The GIC assisted Summerville in developing data and maps for the study. To learn more about the GIC visit www.gicinc.org. The Advisory Committee consisting of the Town's Planning

GREEN INFRASTRUCTURE ADVISORY COMMITTEE (PLANNING COMMISSION)

Jim Reaves, Chairman
Charlie Cuzzell
Elaine Segelken
Marc Hehn
Bill Mallory
Will Rogan
Margie Pizarro

GREEN INFRASTRUCTURE TECHNICAL COMMITTEE

David Morris, Tree Advisory Protection Committee member
Mike Dawson, Audubon Center at Beidler Forest
Lisa Shealy, Lowcountry Open Land Trust
Ashley Chapman, Colonial Dorchester State Historic Site

FAST FACTS — WHAT THE STUDY SHOWS

The town has a tree canopy of 51% -- this includes all the tree cover within the town limits. This is tremendous! However, while many residential districts are well treed, some areas such as commercial corridors and business districts lack adequate canopy.

Commission members (see above), guided the project. The Technical Committee comprised of a Tree Advisory Protection Committee member and community partner representatives, provided technical expertise over the 15 month long effort. Both Committees and staff developed the project goals and reviewed maps and data utilized to inform the study.

In addition, two open house style meetings provided a forum for the public to speak and provide comments on the draft maps and proposed goals and objectives. This input was reviewed by staff and the Committees and used to inform prioritization and development of the final strategies.



At the second public forum, the GIC's Andrew Walker explains the Town's Green Infrastructure Network map and discusses the goals and objectives identified to protect habitat for wildlife and people..

The six-step process for creating green infrastructure plans developed by the GIC was followed in creating the plan:

- Step 1. Set Goals:** What does Summerville value? Determine which natural assets and functions are most important.
- Step 2. Review Data:** What do we know or need to know, to map the values identified in Step 1?
- Step 3. Make Asset Maps:** Map the Town's highest-valued natural assets that contribute to a healthy ecology and also support cultural and economic values –Based on the goals established in Step 1 and data from Step 2.
- Step 4. Assess Risks:** What assets are most at risk and what could be lost if no action is taken?
- Step 5. Determine Opportunities:** Determine Opportunities for protection or restoration. Based on those assets and risks we have identified; which ones could or should be restored or improved? And which need the attention soonest?
- Step 6. Implement Opportunities:** Include the natural asset maps in both daily and long-range planning such as park planning, comprehensive planning and zoning, transportation planning, tourism development and economic planning.

THE TOWN OF SUMMERVILLE'S GREEN INFRASTRUCTURE ASSETS

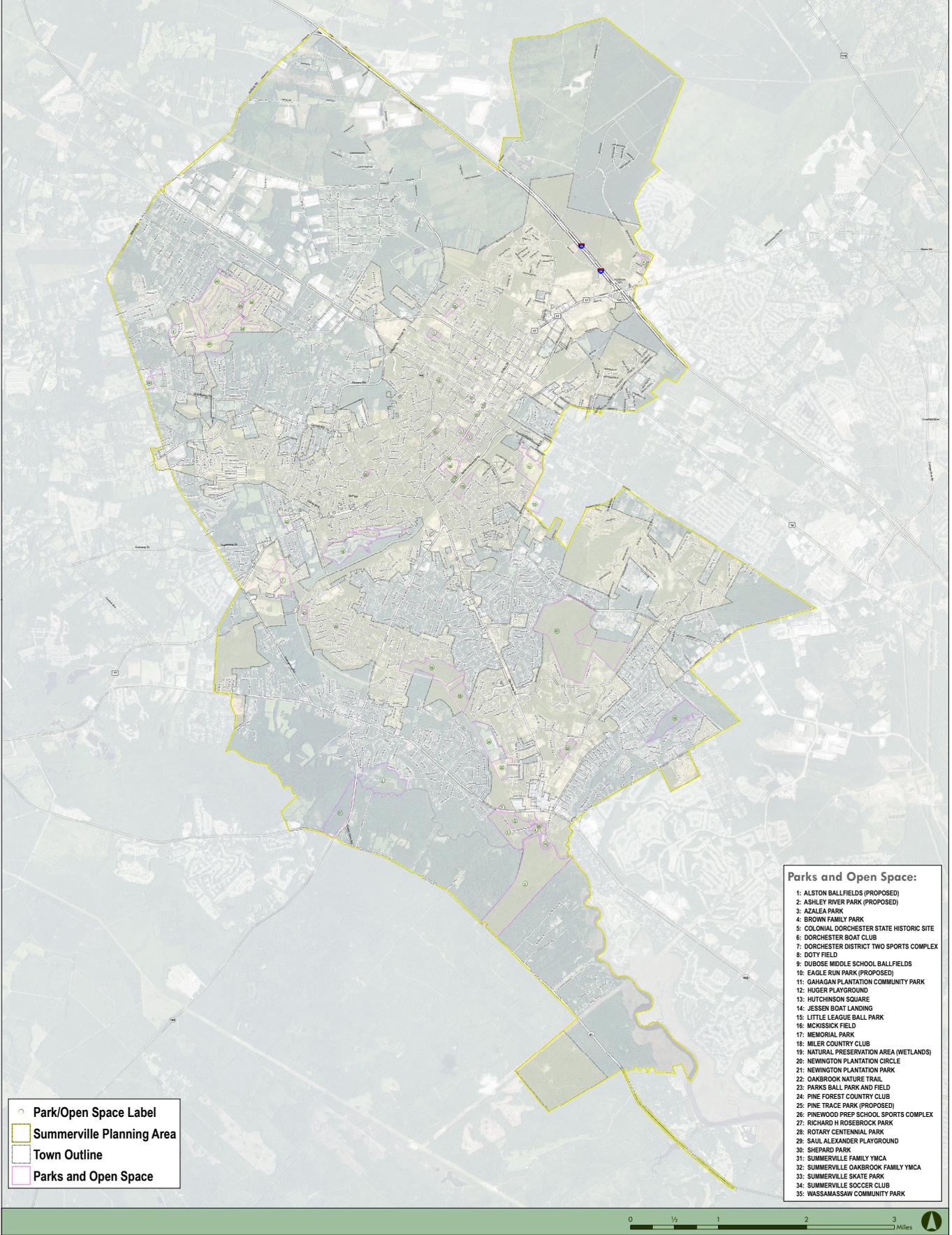
The phrase Green Infrastructure was coined in 1994 by scientists in Florida to explain to the governor that nature is part of our 'infrastructure' as it supports our existence. They developed a model to locate and depict the state's best habitats to support wildlife, water recharge, recreation uses, scenic views and other benefits. Other states, including Maryland, Virginia, South Carolina, Montana, and California also created state models of green infrastructure.

In 2006, the U.S. Environmental Protection Agency expanded the definition of green infrastructure to include constructed stormwater best management practices using green features, such as green rooftops, raingardens or cisterns. Today, the South Carolina model of habitat cores and corridors is used to show the best habitats statewide as well as how they may connect within the Town of Summerville. Within cities or towns, additional analysis is needed to show finer details of land uses and potential impacts and opportunities to re-green the town and improve urban health for people, birds and native wildlife. For example, smaller patches of trees might be considered fragments at the regional scale, but become key patches of habitat for urban areas.

TOWN OF SUMMERVILLE GREEN INFRASTRUCTURE VISION

The Town of Summerville encourages responsible land development and growth patterns promoting sustainability and balance of the natural and built environment.

Summerville Planning Area and Town Boundary



Map 1: This map shows the Town limits and the limits of the Town's Planning Area that were used in the green infrastructure analysis.

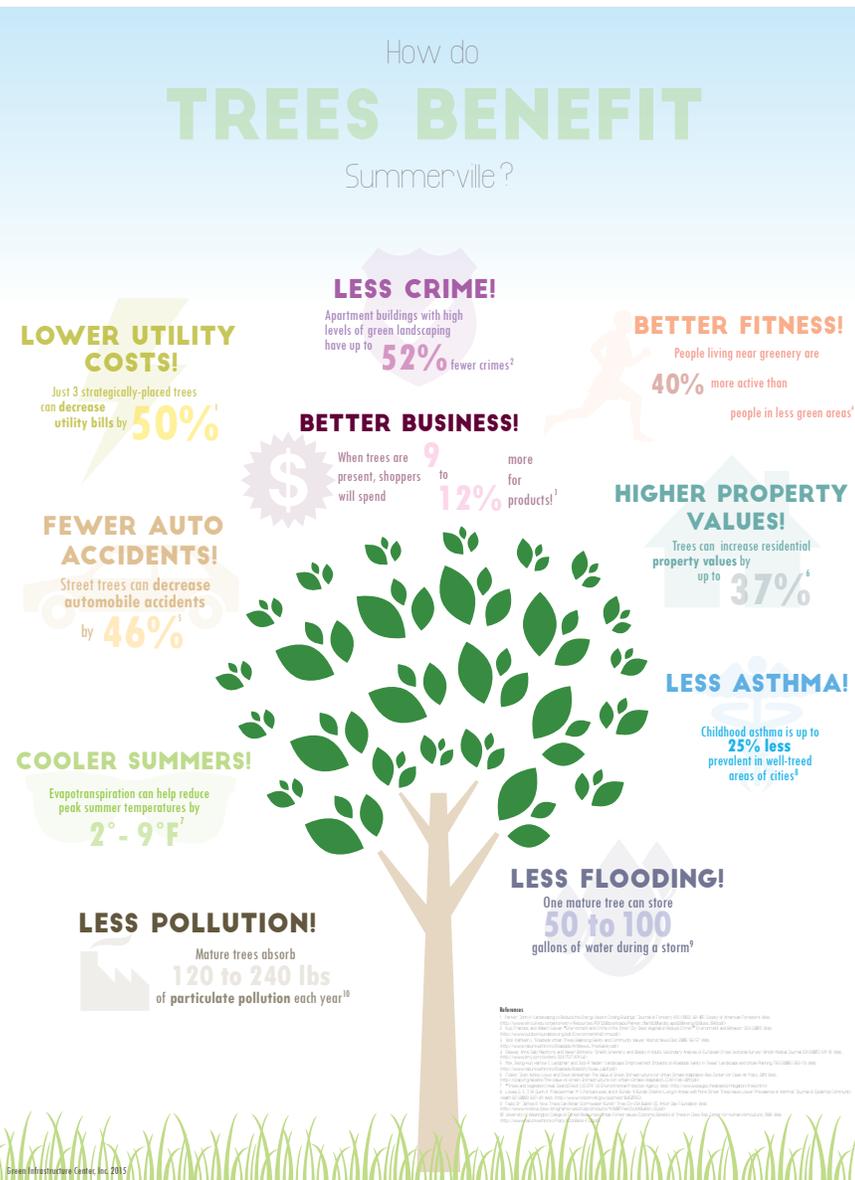
This report focuses primarily on the Town of Summerville's landscape-scale green infrastructure – its natural assets such as trees, parks, streams, rivers, and wetlands. However, in more densely developed areas, such as commercial districts with large parking lots or along major roadways, site-scale constructed green infrastructure may also be needed to treat stormwater runoff. The priority is to protect as much of the natural landscape as possible; then restore it where it has been lost. For developed areas, consider using smaller scale best management practices to retrofit green stormwater treatment to mitigate impacts from the already constructed landscape. In short, focus first on conservation, then restoration and lastly, mitigation to offset unavoidable impacts.

This report is divided into four main categories; Trees and Urban Habitats, Water, Recreation and Culture. Each of these four topic areas affects the condition and vitality of the Town. A healthful environment supports the health of residents and visitors alike and affects the Town's economic

and social vitality. These categories are interrelated; for example, the Town's history and culture is directly tied to trees, which also help keep the water clean and mitigate flooding. By addressing each topic, the Town of Summerville can focus on specific strategies to support its vision of encouraging responsible land development and growth patterns to promote sustainability and balance the natural and built environments. Following a description of each focal area are strategies developed by the committees to advance the need of better protection, enhancement or restoration of that resource.

TREES AND URBAN HABITATS

In urban areas, landscapes are evaluated at smaller scales and even small patches of green space become important to consider, because together, they make a large cumulative difference. Smaller urban spaces, such as linear stream valleys, or even pocket parks, can add to a connected green landscape. When evaluating the ecological health of an urban area, urban tree canopy is a key green asset.

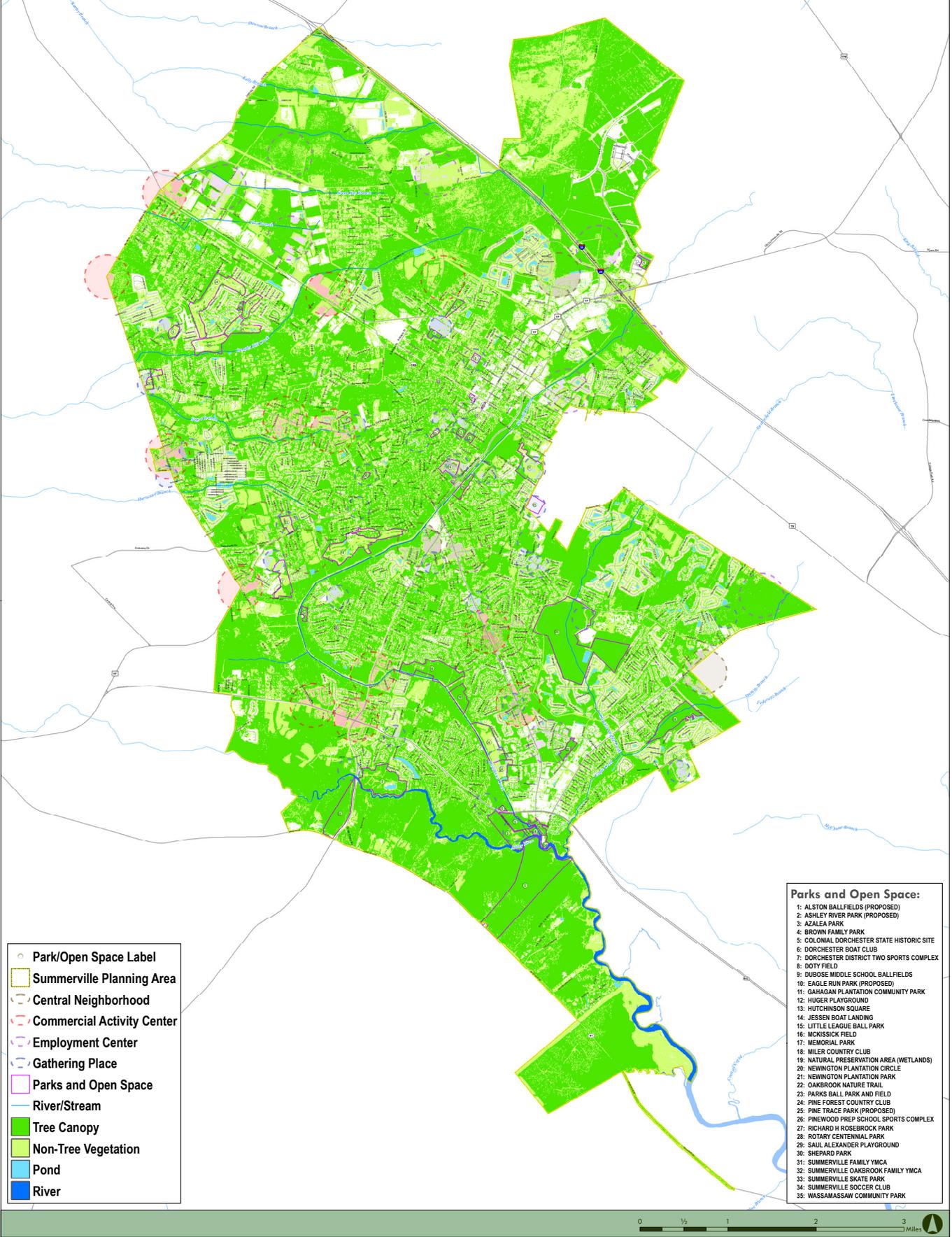


Summerville Planning Center, Inc. 2015

Cities and towns are beginning to recognize the importance of their urban trees because they provide tremendous dividends. Trees are a strategic way to reduce excess stormwater runoff and flooding. Even one tree can play an important role in stormwater management. Studies have shown that an urban canopy can reduce a Town's stormwater runoff from two to seven percent (Fazio 2010). During a rainfall event of one inch, one acre of forest will release 750 gallons of runoff, while a parking lot will release 27,000 gallons; 36 times more runoff (PennState Extension).

The Town of Summerville has a total tree canopy coverage of 51%, which is good for a developed area. The Town Planning Area, which extends beyond the Town limits, has a total tree canopy coverage of 56.12%, as it includes more undeveloped areas on the edge of the Town limits. Although this is good tree canopy coverage, the coverage varies throughout the Town. In the major commercial areas of Azalea Square and North Main Street Market near the I-26 interchange (Map 3) and in the Oakbrook commercial area at the intersection of Old Trolley Road and Dorchester Road (Map 7), the canopy coverage is much lower. This is also the case along many of the streets in the newer residential subdivisions of Town, such as White Gables (Map 6) and The Lakes of Summerville. While it is typical for cities to have uneven distribution of canopy, this characterizes the importance of having different strategies for different areas.

Summerville Tree Canopy

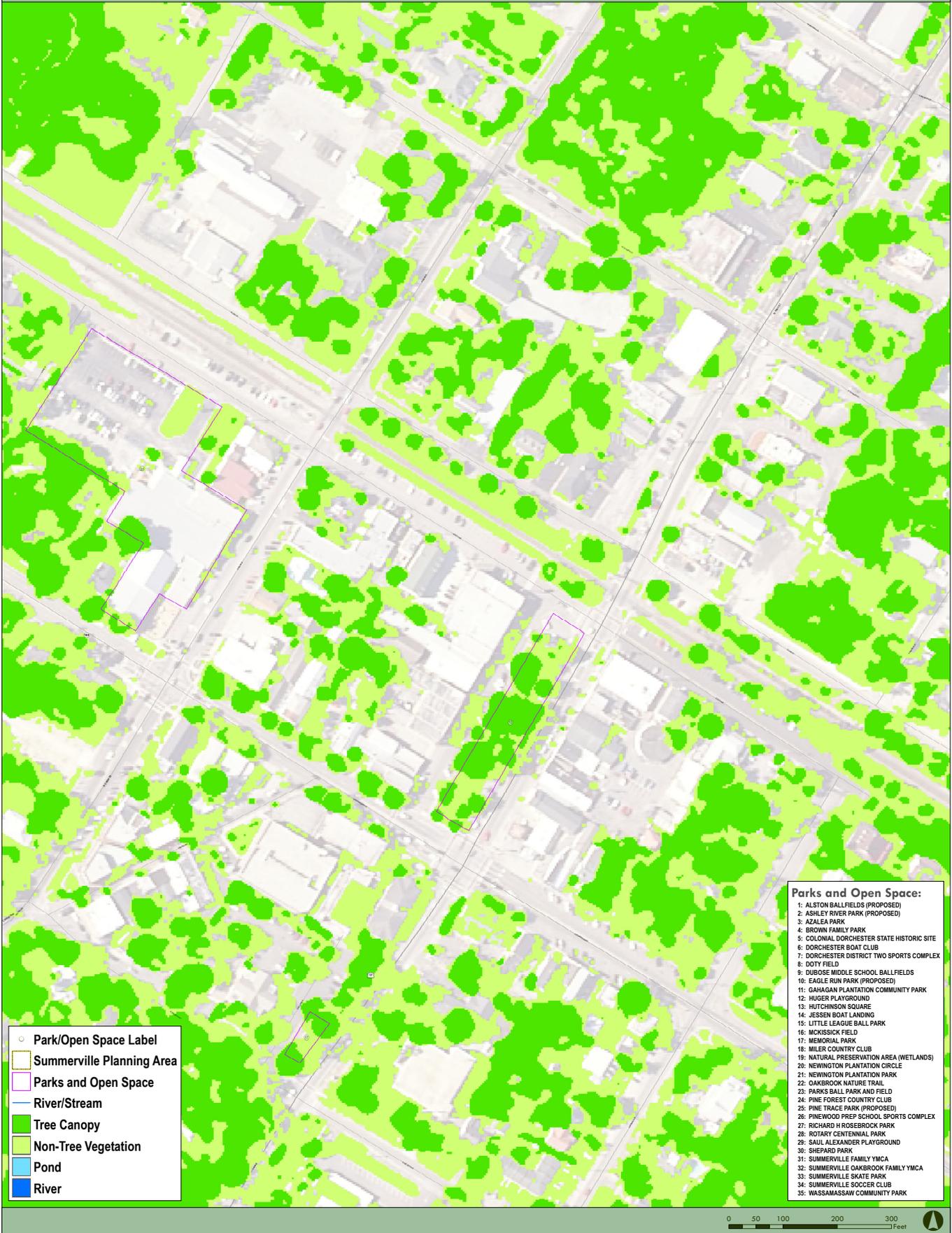


Map 2: Map showing the Town and Planning Area's tree canopy, which helps to clean the air and water, as well as providing wildlife habitat and shade.



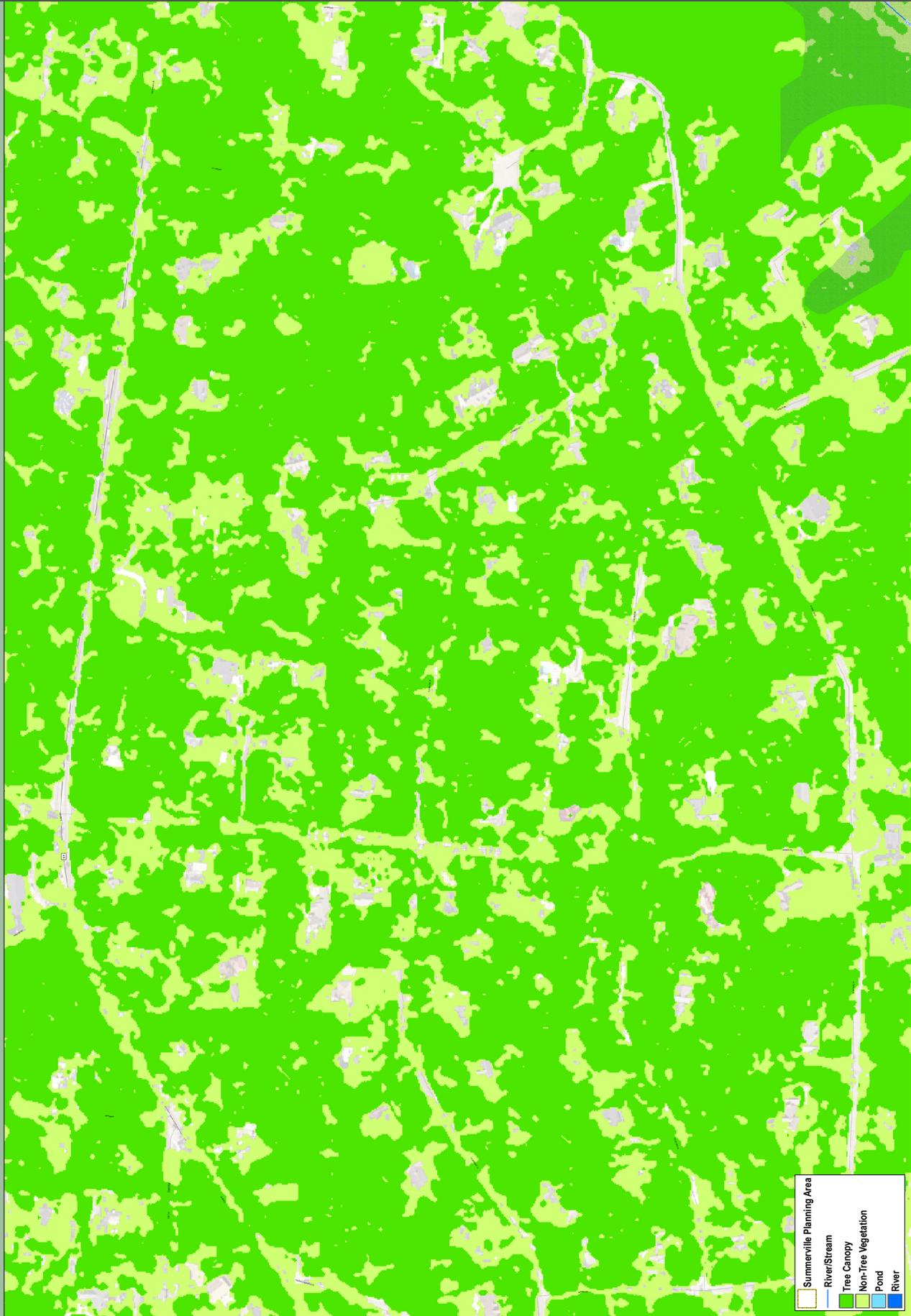
Map 3: The tree canopy is sparse along this major commercial corridor.

Tree Canopy in Historic Downtown Summerville



Map 4: The tree canopy in the downtown core is relatively good, but opportunities for additional tree plantings are available.

Tree Canopy in the Tea Farm Neighborhood



Map 5: The tree canopy coverage in this older residential neighborhood is substantial, but new tree plantings are still important as gaps open in the canopy when older trees die.

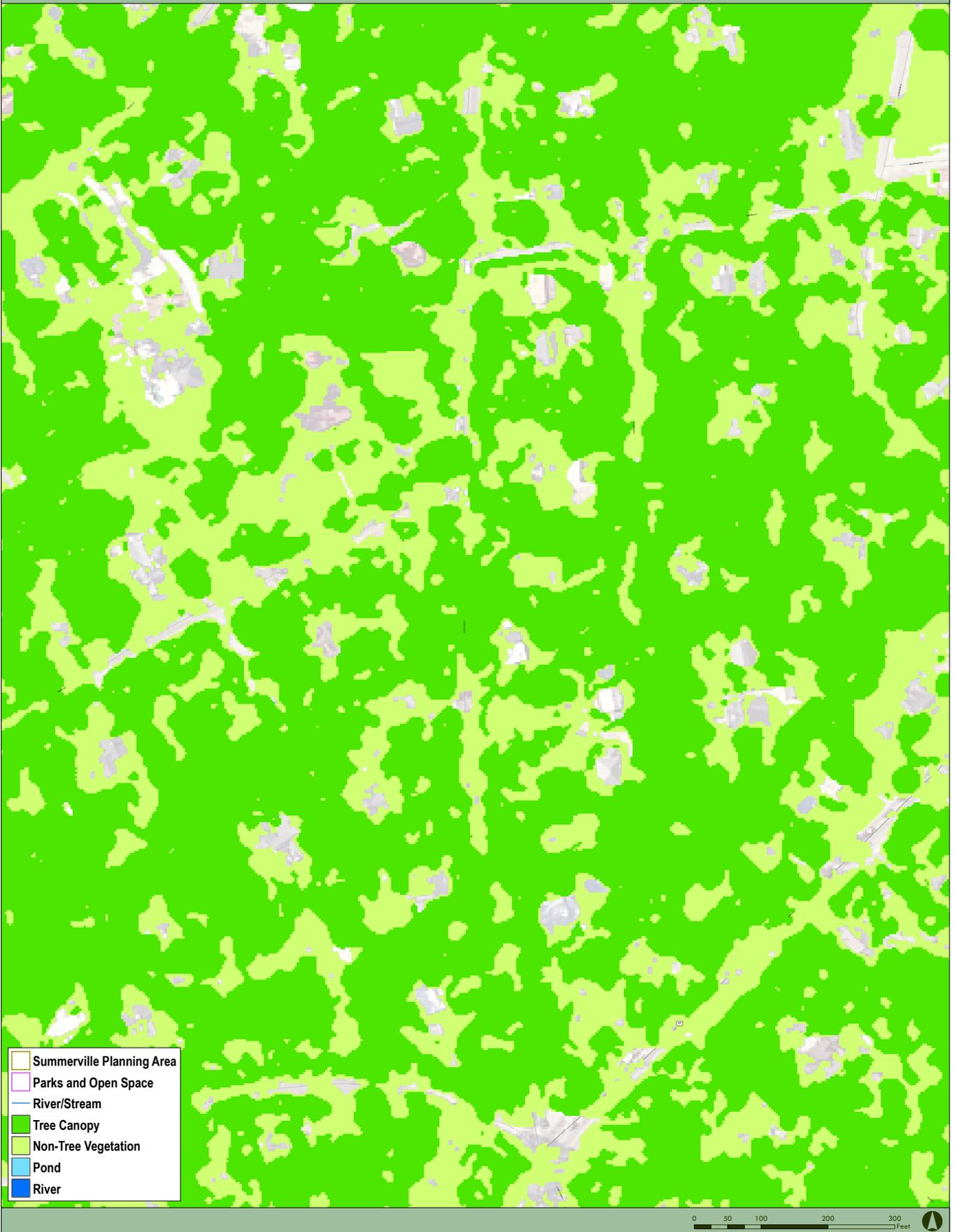


Map 6: The tree canopy coverage in this newer residential neighborhood is much lower than other older neighborhoods in Town. Although street trees have been planted, additional tree plantings are needed.



Map 7: The tree canopy coverage in this commercial area is very sparse. If applicable, opportunities to plant additional trees should be required as this area is redeveloped.

Tree Canopy along a portion of W. Carolina Avenue



Map 8: The tree canopy coverage along this older residential street is very high; however, new tree plantings are still important as older trees die.



This large tree shows signs of significant rot and will most likely need to be removed in the near future.



This is another large tree that shows signs of significant rot and will most likely need to be removed in the near future. Young trees should be planted now to help fill the gap in the canopy when older, declining trees are removed.

These areas of the Town that are deficient in their tree canopy coverage could be focus areas for planting of new trees; however, it is also important to manage existing trees in areas that have a greater tree canopy coverage as tree health needs to be maintained and older residential areas may have a number of older trees that will be dying in the near future.

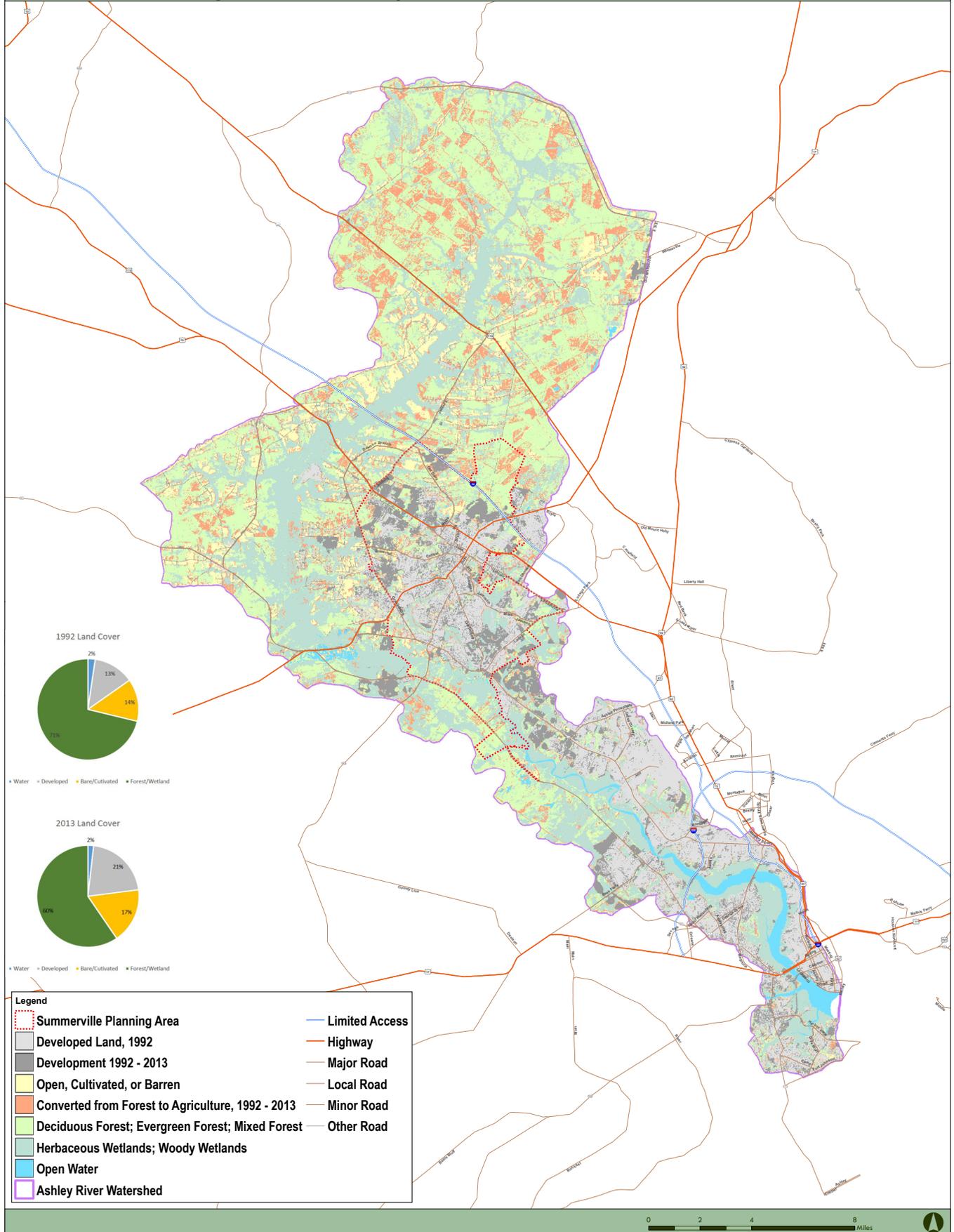
An urban tree canopy (UTC) does not constitute a forest per se, but taken town-wide, can serve a vital role in keeping developed areas cool, along with many other benefits. Towns, such as Summerville, must manage urban stormwater and make improvements in preventing excess stormwater runoff in order to comply with requirements of the Town's Municipal Separate Storm Sewer System Permit (MS4) and work to prevent surface waters from becoming impaired or declining further.

As Map 9 on the following page shows, the Town falls within the Ashley River Watershed, which experienced an 11% loss of forests/wetlands from 1992 to 2013. Most of that loss, approximately 8%, can be attributed to development. Even one tree can play an important role in stormwater management. Estimates for the amount of water a typical street tree can intercept in its crown range from 760 gallons to 4000 gallons per tree per year, depending on the species and age (Center for Urban Forest Research 1999). Trees within the Town limits provide an annual stormwater interception of 783 million gallons of rainwater per year. This is based off average interception values of small/med/large trees that are common in Summerville.

In addition to lack of replacement tree plantings, land conversion is perhaps the greatest threat to tree loss. Even when already developed areas are redeveloped, trees may not be replaced or may be removed. Leaving trees on site increases property values, reduces cooling costs and motivates retail spending. Conversion of forested land to pavement has serious consequences for cities, leading to increased flooding, which harms property values and threatens public safety. Although many trees are lost to land conversion, trees are also lost to attrition. Even if no land conversions occur, failure to replant trees as they age and die equates to canopy loss over time. Trees planted poorly (wrong site), not well managed (inadequate care), or trees planted inappropriately (wrong tree for the site or climate) can also lead to tree canopy losses.

In urban environments, many trees do not survive to their full potential life span. Factors, such as lack of watering or insufficient soil volume, are stresses on urban trees, stunt their growth or reduce their lifespans. For every 100 street trees planted, only 50 will survive 13-20 years (Roman 2014). Survival rates vary greatly due to differences in planting conditions, species and other factors, such as susceptibility to storms. When planting new trees, the Town should plant more than necessary to account for future mortality. In addition, it is important to recognize that an older, well-treed neighborhood of today may not have good coverage in the future unless more young trees – the next generation – are planted today.

Land Use Change in the Ashley River Watershed, 1992 - 2013



Map 9: Forests and wetlands in the Ashley River Watershed are rapidly being developed, which highlights the importance of green infrastructure planning.



Poor tree planting; not enough room to grow, up or out



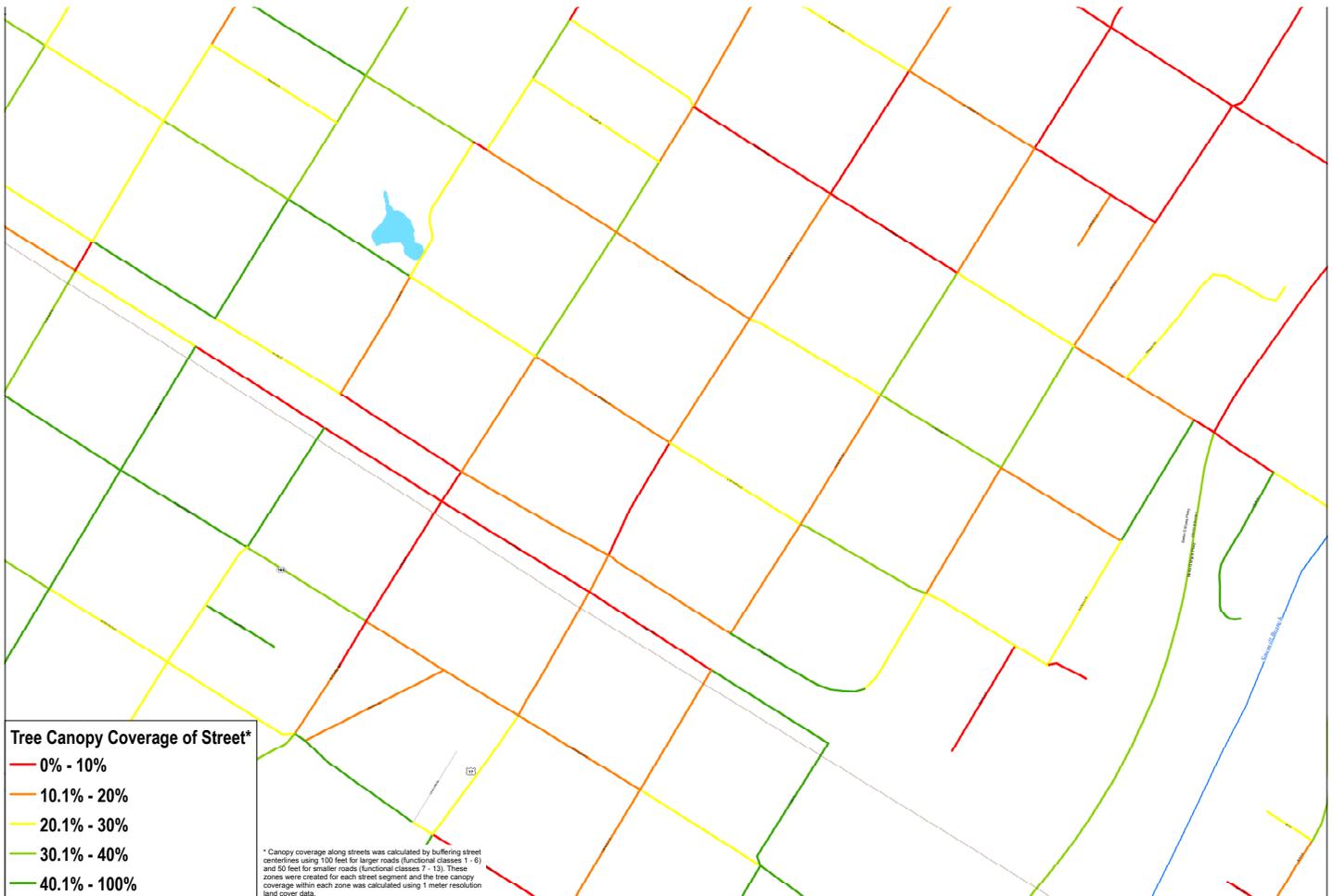
Good tree planting: The large landscape strip gives adequate room for the tree to grow.

Choose the right tree to the right space: Large, medium and small canopy spread trees should be planted where they can spread.

Urban trees especially, should be selected for the right conditions, such as for drought or pollution tolerance. If they are planted in rain gardens or along streams, they should be able to thrive under periodic saturation. Also, trees should not be planted under power lines or in places where their roots will interfere with underground utilities (there are tools and materials to reduce this likelihood) or where they will push up sidewalks and cause danger to pedestrians – or traffic. Large canopy trees will do best in open areas, whereas smaller spreading trees can often thrive in tight spaces.

The simple rule is right tree, right place. This can be modeled in GIS to hypothesize how many trees might fit into an urban landscape. For Summerville, the Tree Canopy by Street Segment map (Map 10) shows areas where more trees can be added as well as the best and worst treed streets. This can be used to guide future tree planting and care.

This map shows areas where tree canopy is lacking and tree planting should be considered– it is not a suitability map. For example, a wide sidewalk may be initially identified as a feasible place to plant a tree, but may not actually be suitable if there are low power lines or an abundance of underground utilities. Thus, any possible planting area still needs to be field checked and compared against unseen barriers, such as underground utilities, as well as against Town development



Map 10: This map shows where more street trees may be needed. Even well-forested neighborhoods may lack adequate canopy along particular streets or commercial areas. This map can be used to strategically target tree planting efforts.

plans: planting trees alongside an avenue that is due to be widened may not successfully achieve the desired goal.

Habitat Patches

Clusters of trees along with other native vegetation such as shrubs, native grasses and flowers, provide important habitats for wildlife. Even in a town, smaller habitats add up and provide myriad benefits for other wildlife, such as salamanders, birds, pollinators and other beneficial insects. While some people in cities fear that more habitat equates to more snakes, it is often forgotten that snakes eat rats. The benign



Even small scale habitats make a difference for birds and pollinators.



The Summerville Farmers Market provides abundant local food and crafts.

black snake is not harmful to people, but it can significantly reduce or eliminate vermin.

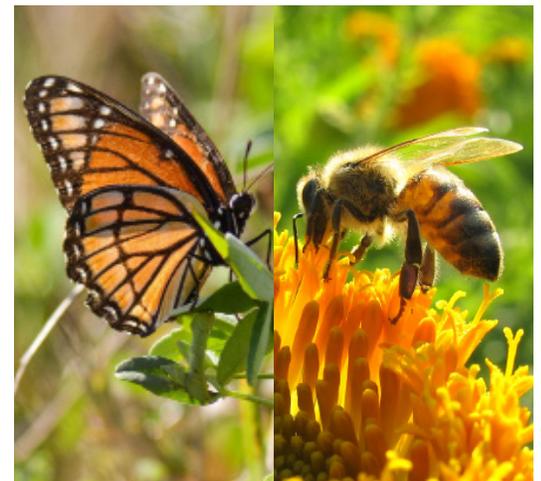
Small habitats matter too.

Patches of vegetation also add up to provide habitat for pollinators – which are needed to protect our food supply! Farmers markets and residents' backyard vegetable gardens would not be possible without bees. Wild bees (not commercially raised) are less susceptible to disease and can travel to more areas so it's important to support their needs. Even in a town such as Summerville improving the habitat of the backyard can make a huge difference (see Appendix A for ideas). Given the rising demand and health-supported need for fresh, local food, protecting local pollinator habitat is critically important. Smaller habitat patches within the Town also provide stepping stones to larger areas, allowing animals and birds to move and forage while being protected.

In addition to meeting local concerns, Summerville is in the path of a major Monarch Butterfly migration (in addition to other species). While the Monarch Butterfly population did increase in 2016 over historic lows seen in the previous three years, the population is still 30% below the long term average (Journey North 2016). There are several causes for this decline, but the chief cause is habitat loss, especially along the Monarch's migration route. Even urban areas contribute to habitat for butterflies and other pollinators.

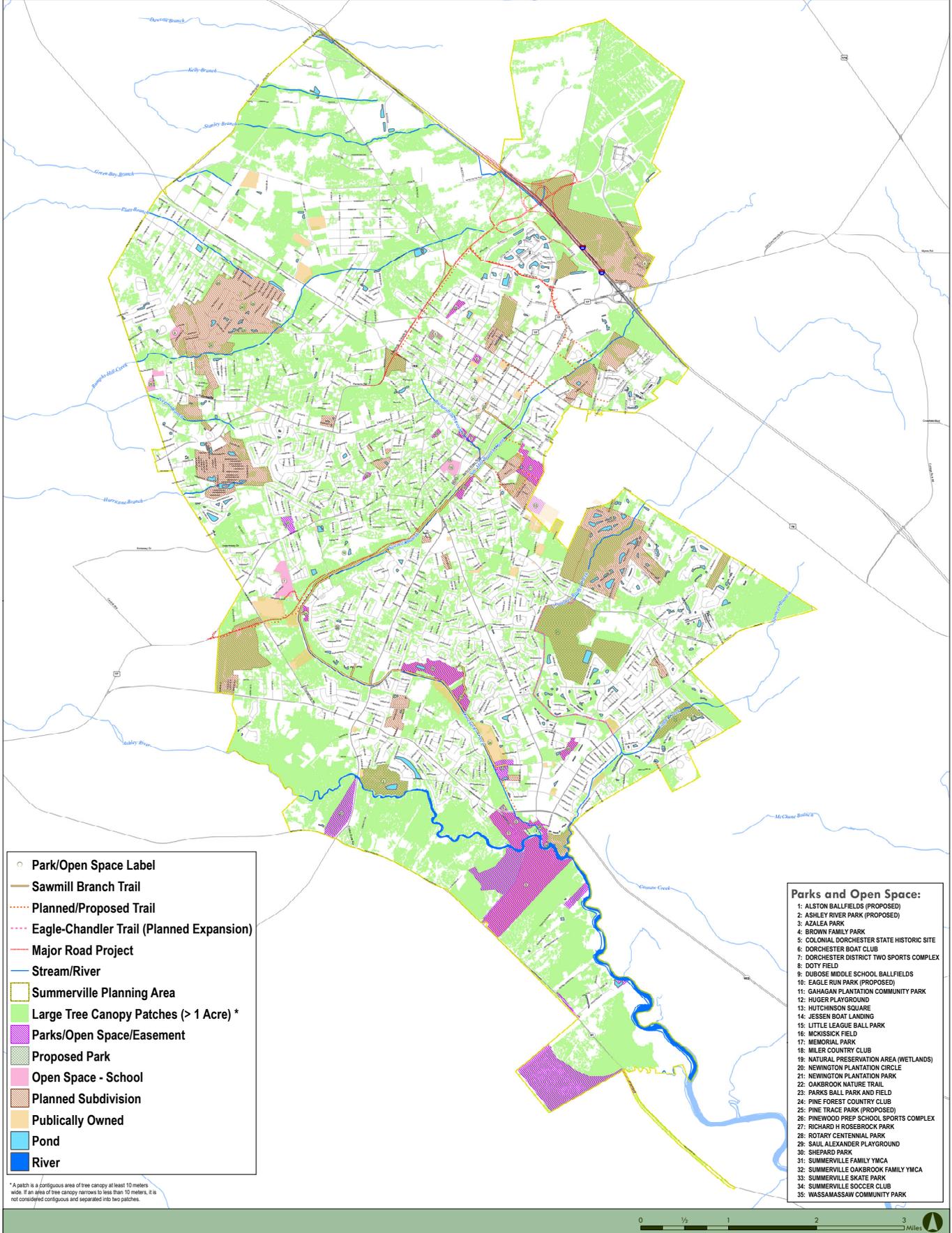
MAP OF THE TOWN'S GREEN NETWORK

Habitat patches provide more benefits than isolated areas. For instance, a cluster of trees



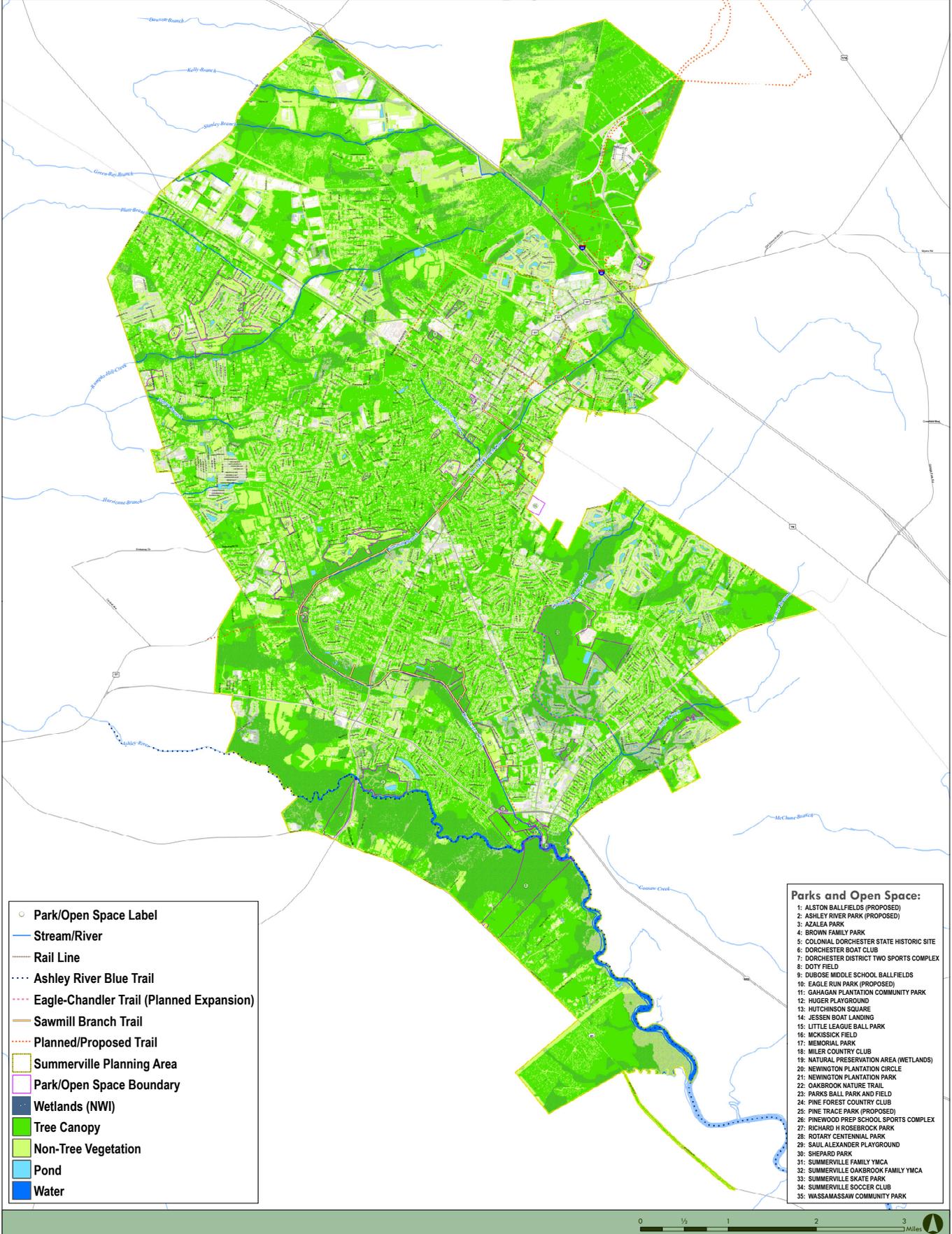
Butterflies and bees are vital pollinators for crops and flowers. The Town lies within the Monarch butterfly's major migration route in North America. Even small habitats make a difference.

Large Tree Canopy Patches



Map 11: This map shows the largest habitat patches in the Summerville Planning Area and the threats are risks to their preservation.

Habitats for Wildlife and People



Map 12: This map shows the Town overall green infrastructure network.

is better than individual trees. Map 12 on the previous page shows the Town's green network; habitat patches and their connections. Some connections may be green streets or streets with a high percentage of canopy cover (primarily people connections) while other areas are larger and provide additional benefits for wildlife, water infiltration or cleaning the

air. Areas that are protected are noted (e.g. parks, easements and other open spaces) more specifically on Map 11 on page 18. As the Town grows, develops and redevelops, these maps provide a greenprint of connections that should be maintained, restored or expanded.



Views of the Ashley River from Colonial Dorchester State Historic Site (above) and the Town's Jessen Boat landing (below).



WATER

The Town of Summerville is encompassed within several watersheds in the Lower Coastal Plain and Coastal Zone regions of South Carolina, all of which outfall into the Ashley River (see Map 13 on page 22). The upper Dawson Branch and Rumphs Hill Creek watersheds are part of the Cypress Swamp watershed, and the Cypress Swamp meets with the Sawmill Branch to form the Ashley River's headwaters.

The Ashley River has been designated as a South Carolina Scenic River. Along its course, the river transitions from the freshwaters of a swamp and blackwater river to a freshwater tidal river, and to a saltwater tidal river. The Cypress Swamp watershed has an area of 139,162 acres with less than 10% of urbanized land. The Sawmill Branch watershed, a sub-watershed of the Ashley River watershed, has an area of 13,410 acres with approximately 25% of urbanized land, and the Ashley River watershed has an area of 86,887 acres with approximately 45% of its land urbanized (SCDHEC Watershed Program).

The waters of the Ashley River and its tributaries have played an essential role in the history and development of Summerville. The natural and cultural landscape of the Ashley River corridor has been shaped and influenced by its waters since early settlements were established along its shores. The historic Town of Dorchester, known today as Colonial Dorchester State Historic site, was a trading town that flourished along its shore from 1697 until the beginning of the Revolutionary War with the river being a principal transportation route for people and goods. Plantations were later developed on large tracts of land along the Ashley River where the river's tidal waters aided



Residents enjoy the Sawmill Branch Canal trail (above). With the increase in development and impervious surfaces in the Summerville area, reports of flooding have also increased (below).



in the establishment of staple crops, like indigo and rice, and these plantations, such as Middleton Place, Magnolia Gardens and Drayton Hall, are important scenic, cultural, and tourism resources today (Visit Summerville).

Numerous aquatic life depend on the river and its shore habitats. Animal species commonly seen in and along the Ashley River include: kingfishers, wood ducks, red-winged blackbirds, ospreys, anhingas, herons and other wading birds, turtles, snakes, alligators, and crabs. The Town of Summerville is proud to have Jessen Landing, a public boat landing that provides a boat ramp, docks, fishing pier and boardwalk for citizens to enjoy the beauty and resources that the Ashley River offers; however, this property could be improved to provide more amenities and a more inviting landscape. Dorchester County also has a park planned along the banks of the Ashley River that would provide additional public access to the river. These parks are key access points along the newly designated Ashley River Blue Trail (see Map 18 on page 31).

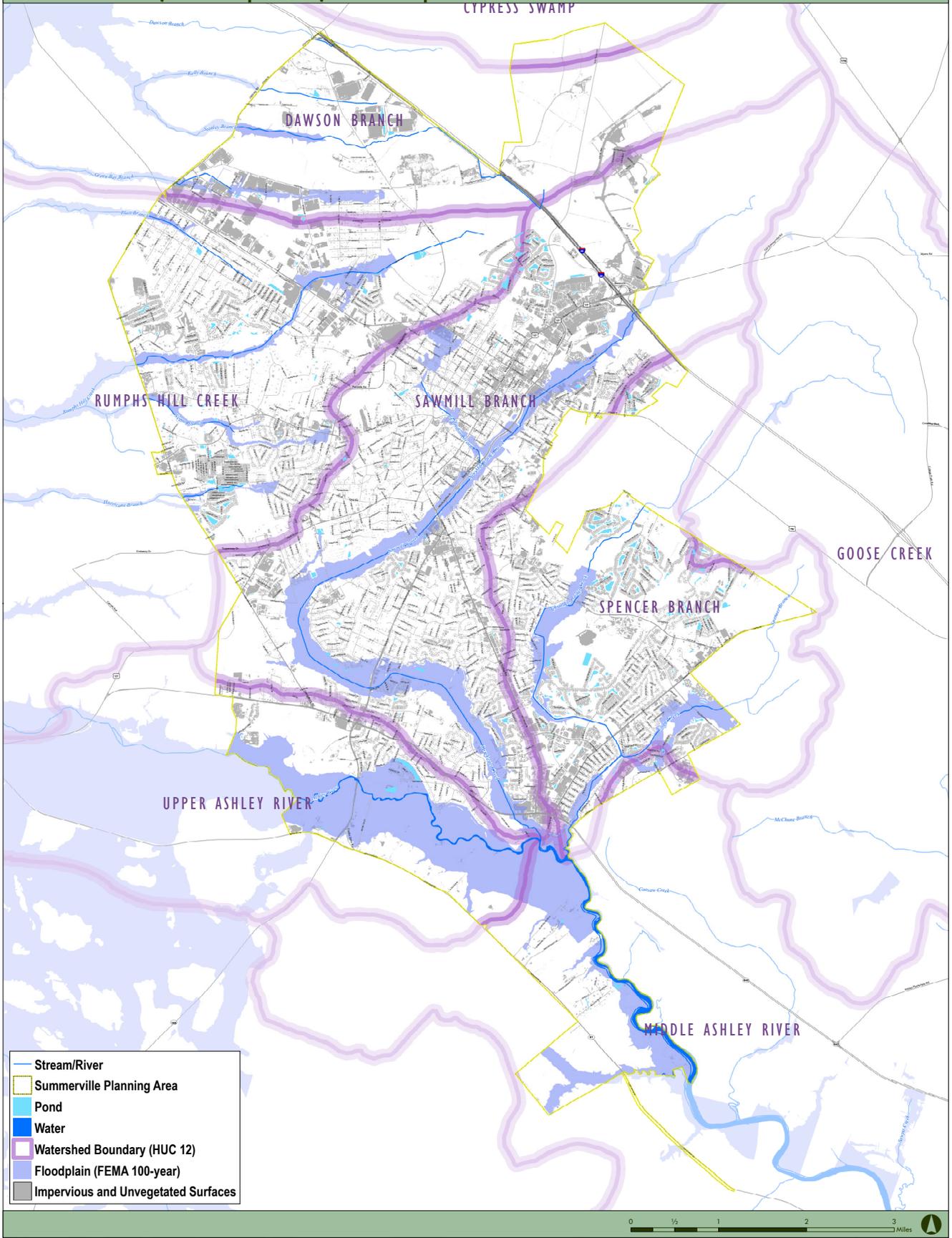
The Sawmill Branch Canal, a headwater of the Ashley River, is the primary drainage outfall for the Town of Summerville. An Army Corps of Engineers flood control project on the Sawmill Branch in the late 1960s improved approximately nine miles of the canal, which has become a serene greenway and prime amenity for the Town of Summerville after a 10 foot wide multi-use trail was installed along a majority of canal's bank. The Sawmill Branch Trail is currently buffered from adjacent development along most of its length, providing its users with a peaceful scenic respite from urbanization; but as development continues to encroach into the Sawmill Branch floodplain, an increase in flooding problems and water quality concerns are being reported.

The SC Department of Health and Environmental Control (SCDHEC) has classified both the Sawmill Branch and Ashley River as impaired waterbodies, identifying elevated levels of fecal coliform bacteria (FC) and depressed dissolved oxygen (DO) concentrations. While natural conditions of the Ashley River system, like wildlife and the high input of organic material from trees into the swamps of the upper watershed contribute to some water quality problems, activities occurring within the watershed also have a great impact on water quality. Polluted stormwater runoff



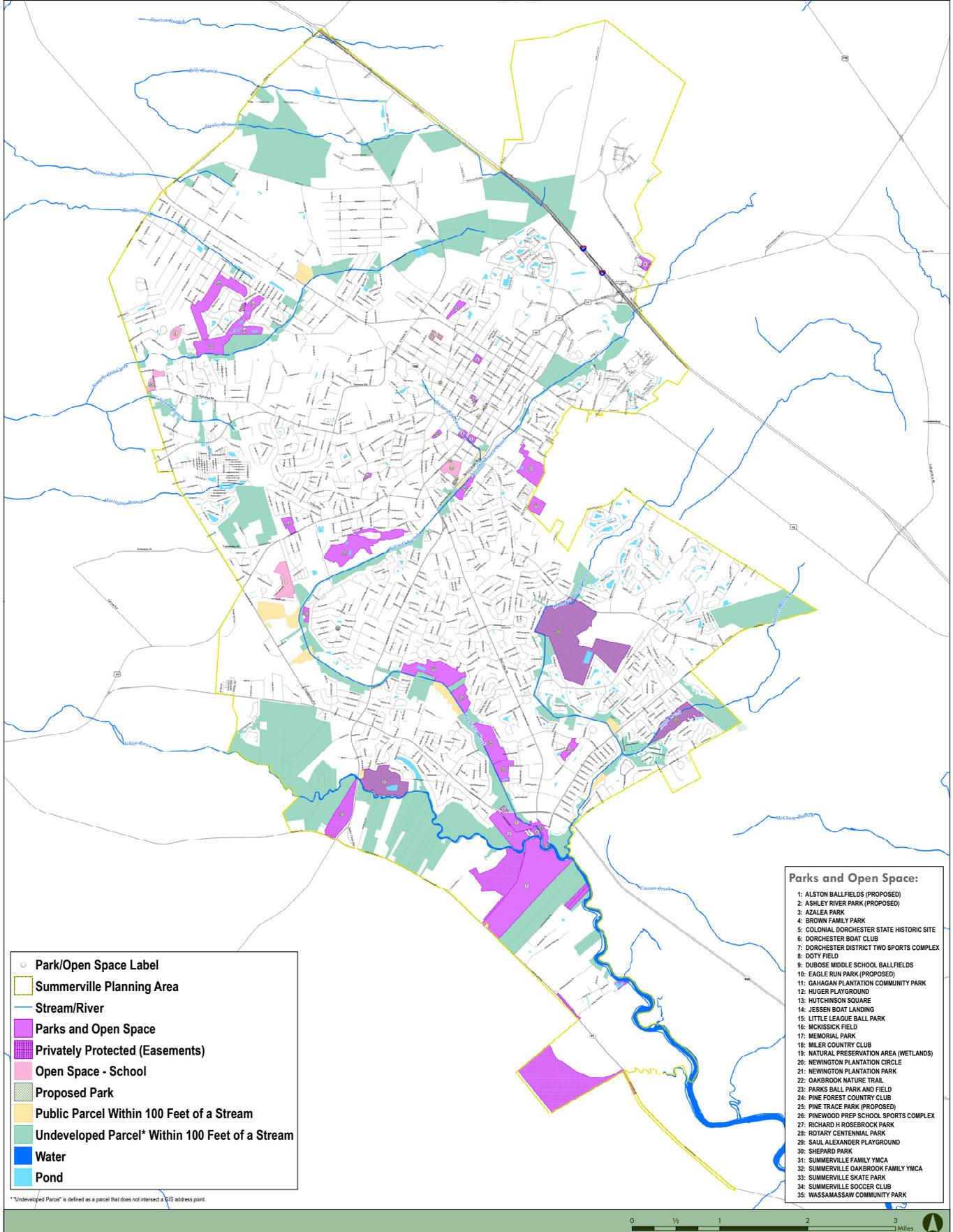
Fiddler crabs (*Uca pugliator*) can be seen along the edge of the Ashley River at low tide.

Watersheds, Floodplains, and Impervious Surfaces



Map 13: Impervious surfaces can have a significant impact on water quality and flooding (see page 24).

Water-Related Opportunity Parcels



- Park/Open Space Label
- ▭ Summerville Planning Area
- Stream/River
- ▭ Parks and Open Space
- ▭ Privately Protected (Easements)
- ▭ Open Space - School
- ▭ Proposed Park
- ▭ Public Parcel Within 100 Feet of a Stream
- ▭ Undeveloped Parcel* Within 100 Feet of a Stream
- ▭ Water
- ▭ Pond

- Parks and Open Space:**
- 1: ALSTON BALLFIELDS (PROPOSED)
 - 2: ASHLEY RIVER PARK (PROPOSED)
 - 3: AZALEA PARK
 - 4: BROWN FAMILY PARK
 - 5: COLONIAL DORCHESTER STATE HISTORIC SITE
 - 6: DORCHESTER BOAT CLUB
 - 7: DORCHESTER DISTRICT TWO SPORTS COMPLEX
 - 8: DOTY FIELD
 - 9: DUBOSE MIDDLE SCHOOL BALLFIELDS
 - 10: EAGLE RUN PARK (PROPOSED)
 - 11: GAHAGAN PLANTATION COMMUNITY PARK
 - 12: HUGGER PLAYGROUND
 - 13: HUTCHINSON SQUARE
 - 14: JESSEN BOAT LANDING
 - 15: LITTLE LEAGUE BALL PARK
 - 16: MCKISSICK FIELD
 - 17: MEMORIAL PARK
 - 18: MILER COUNTRY CLUB
 - 19: NATURAL PRESERVATION AREA (WETLANDS)
 - 20: NEWINGTON PLANTATION CIRCLE
 - 21: NEWINGTON PLANTATION PARK
 - 22: OAKBROOK NATURE TRAIL
 - 23: PARKS BALL PARK AND FIELD
 - 24: PINE FOREST COUNTRY CLUB
 - 25: PINE TRACE PARK (PROPOSED)
 - 26: PINWOOD PREP SCHOOL SPORTS COMPLEX
 - 27: RICHARD H ROSSBROOK PARK
 - 28: ROTARY CENTENNIAL PARK
 - 29: SAUL ALEXANDER PLAYGROUND
 - 30: SHEPARD PARK
 - 31: SUMMERVILLE FAMILY YMCA
 - 32: SUMMERVILLE OAKBROOK FAMILY YMCA
 - 33: SUMMERVILLE SKATE PARK
 - 34: SUMMERVILLE SOCCER CLUB
 - 35: WASSAMASSAW COMMUNITY PARK

* "Undeveloped Parcel" is defined as a parcel that does not intersect a GIS address point.



Map 14: Vacant parcels can often be opportunities for protecting or restoring green infrastructure. This map shows vacant parcels within 100 feet of a stream, which may have especially high potential for improving water quality.



IMPERVIOUSNESS AND AQUATIC LIFE.

At certain levels of urban development and related imperviousness, aquatic life (macroinvertebrates, fish, salamanders and other aquatic-dependent species) begin to decline. The rate of decline is affected by factors such as land cover, lot sizes and land use types, as well as the locations of imperviousness within the watershed. Excessive urban runoff results in pollutants such as oil, metals, lawn chemicals, pet waste and other pollutants reaching surface waters. High stormwater flows result in channel and bank scouring, releasing sediments that smother aquatic life and reduce stream depth, leading to yet more bank scouring and flooding, as channel capacity is lost. The map of impervious surface/non-vegetated cover in each drainage basin on page 22 shows which watersheds may be most impacted.

A key determinant of stream health is how well buffered is the stream with natural vegetation. A woody vegetated buffer of 100 feet wide can remove more than 90% of the nitrogen, phosphorus and sediment from overland runoff. If stormwater pipes bypass the buffer underneath and discharge to the stream directly, then much of the buffer benefits for mitigating polluted runoff are lost. Even with these caveats, a general rule of thumb is that impacts to aquatic life tend to be seen even at impervious levels just above 10% (Schueler 2003). The map of Tree Canopy Cover within 100 feet of streams shows which streams are most in need of additional vegetation. In some cases, roads or underground utilities make it difficult to add more trees. In those cases, additional strategies to intercept and clean stormwater flows are needed.



affecting the Ashley River is most prevalent in urbanized areas due to the higher percentage of impervious surfaces (Marshall 2003) and as the Town of Summerville continues to become more developed, it is crucial the water quality of the Sawmill Branch and Ashley River is maintained and improved in order to provide safe, healthy conditions for desired river uses

such as swimming, fishing, crabbing and aquatic life support.

As noted, a key determinant of the health of a stream is how forested its watershed is, not just along the stream, but overall, throughout the drainage. In urban areas, vacant and underutilized parcels often provide opportunities for revegetation and infiltration. The map of vacant parcels (see Map 14 on page 23) shows places which are still undeveloped or empty and might provide options to replant them with trees or to consider developments that have smaller footprints and more open spaces. According to the National Association of Realtors, developments that have green spaces typically sell faster and for greater profit per sale.

CULTURE AND ECONOMY

The Town of Summerville's rich culture stems from its original settlement as a summer retreat for Charlestonians and other Lowcountry inhabitants from the heat, mosquitoes, and disease as it is situated on a pine-forested ridge. Other residents descended from the colonial settlement of Dorchester on the edge of the Ashley River, which is now Colonial Dorchester State Historic Site. The Town was originally incorporated in December of 1847 following the arrival of the railroad. The first law passed was the prohibition of the cutting of certain sized trees without permission, which is one of the oldest of its kind in the United States. The Town's pine trees also led to its designation by the International Congress of Physicians in the late 1800s as one of the two best places in the world for the treatment and recovery of lung disorders, as the trees' turpentine scent was believed to have healing properties. This designation led to development of a number of large inns and hotels to handle the increased number of visitors to the Town, many of whom built winter homes and/or became permanent residents. In honor of the pines that brought the original settlers and later visitors to the Town, the motto on the Town's official seal is "Sacra Pinus Esto – The Pine is Sacred." (Visit Summerville 2016)



Ruins at Colonial Dorchester State Historic Site, and reenactments are staged during the annual Colonial Days..

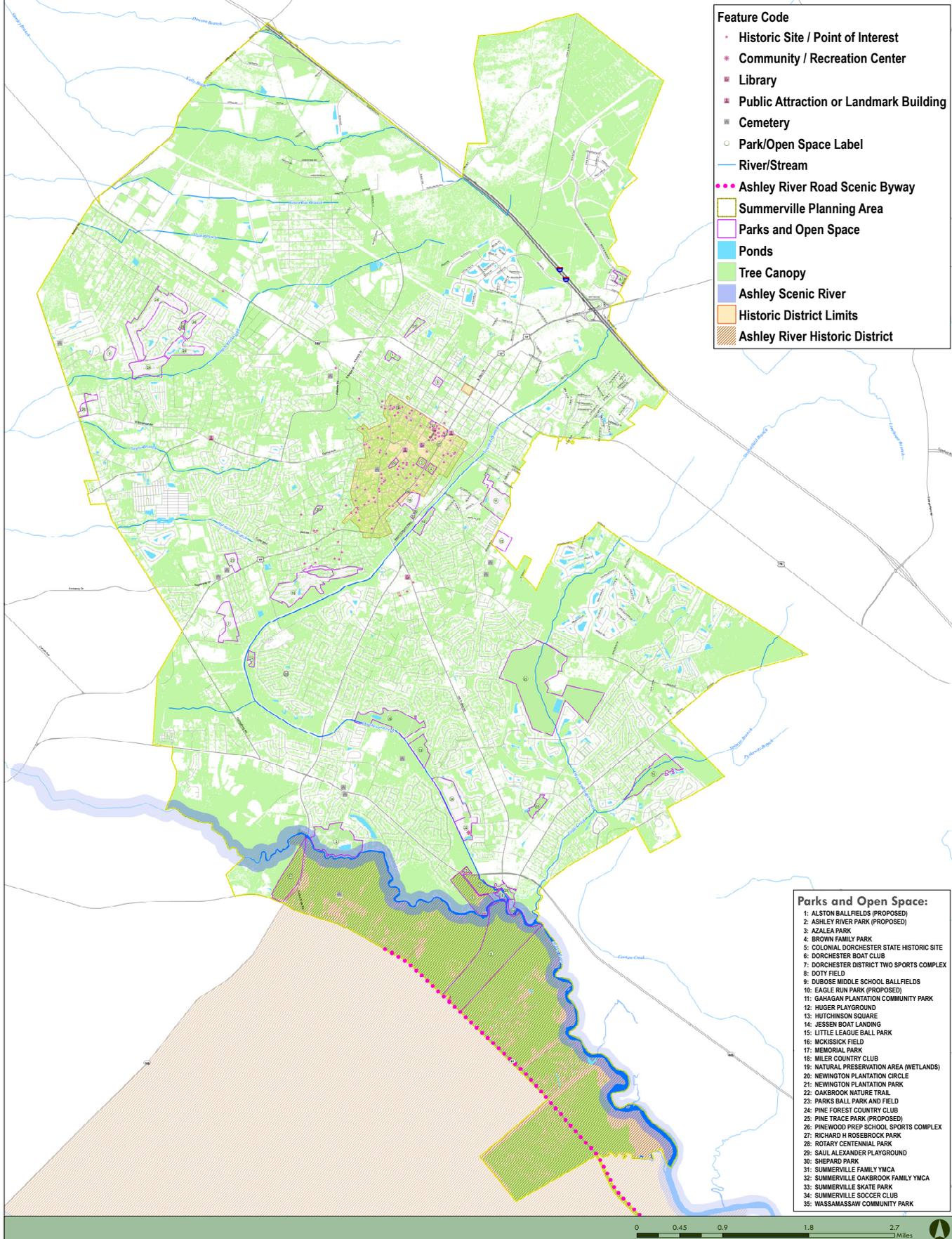


The Gates to the Original Pine Forest Inn are still standing.



Historic, Cultural, and Scenic Assets

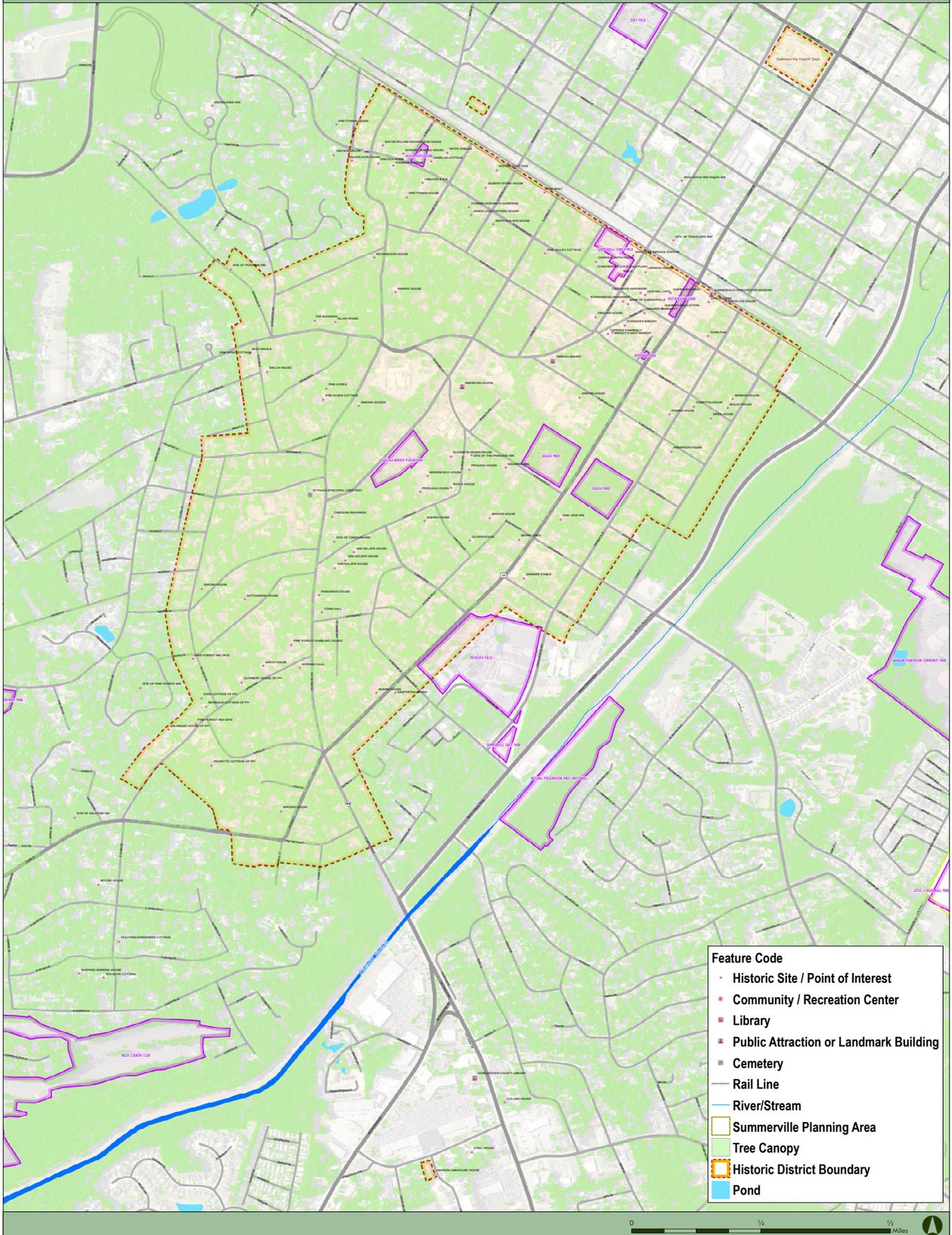
- Feature Code**
- Historic Site / Point of Interest
 - Community / Recreation Center
 - Library
 - Public Attraction or Landmark Building
 - Cemetery
 - Park/Open Space Label
 - River/Stream
 - ◆◆◆ Ashley River Road Scenic Byway
 - ▭ Summerville Planning Area
 - ▭ Parks and Open Space
 - ▭ Ponds
 - ▭ Tree Canopy
 - ▭ Ashley Scenic River
 - ▭ Historic District Limits
 - ▭ Ashley River Historic District



- Parks and Open Space:**
- 1: ALSTON BALLFIELDS (PROPOSED)
 - 2: ASHLEY RIVER PARK (PROPOSED)
 - 3: AZALEA PARK
 - 4: BROWN FAMILY PARK
 - 5: COLONIAL DORCHESTER STATE HISTORIC SITE
 - 6: DORCHESTER BOAT CLUB
 - 7: DORCHESTER DISTRICT TWO SPORTS COMPLEX
 - 8: DOTY FIELD
 - 9: DUBOSE MIDDLE SCHOOL BALLFIELDS
 - 10: EAGLE RUN PARK (PROPOSED)
 - 11: GAHAGAN PLANTATION COMMUNITY PARK
 - 12: HUGER PLAYGROUND
 - 13: HUTCHINSON SQUARE
 - 14: JESSEN BOAT LANDING
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 - 34: SUMMERVILLE SOCCER CLUB
 - 35: WASSAMASSAW COMMUNITY PARK

Map 15: Major historic and cultural assets in the Summerville Planning Area.

Summerville Historic District



Map 16: Major historic and cultural assets in the downtown area. The Town's Historic District tree canopy coverage is 58%.

Today, the Town's landscape adds to and supports the appreciation and setting for those cultural features. The Town has maintained its designation as a Tree City USA since 1981. The grand pines, parks, historic neighborhoods and iconic places, such as Azalea Park in the heart of Downtown Summerville and Colonial Dorchester State Historic Site on the banks of the Ashley River, all depend upon a healthy environment supported by mature trees, scenic vistas, clear flowing streams, and pathways that allow one to retreat for a moment away from the hubbub of modern life.

The Town's rich history and culture are a key attractor and that drives tourism, particularly the heritage tourist. Heritage tourists, spend on average, about 2.5 times more than all other tourists. The key is to not only attract them into Town but provide multiple activities and options to extend their stays. Heritage tourists are also more sensitive to their landscapes and less likely to want to travel through unattractive areas. With Heritage tourists, impressions count. Efforts to improve entryways will attract them to enter and to stay longer.

The Town has both designated historic landmarks and a historic district as well as houses and neighborhoods throughout the town that are likely eligible for historic status, but not yet nominated. Map 15 on page 26 shows

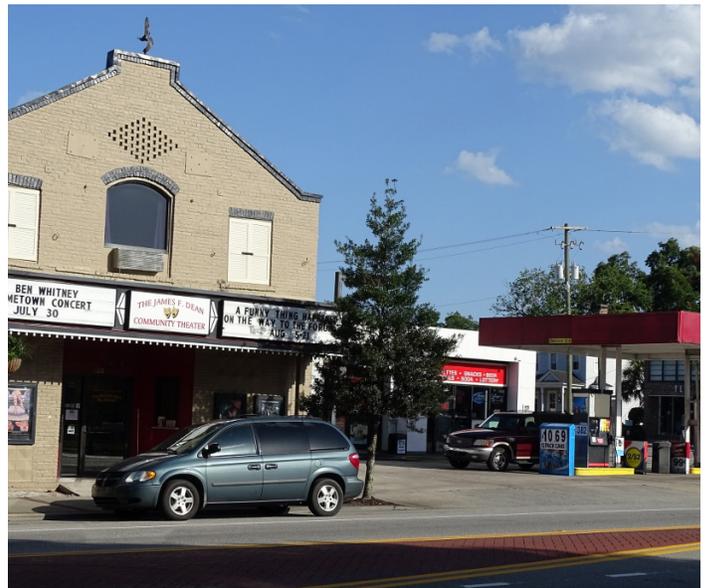
FAST FACTS — TREES = STRONG ECONOMIES AND VIBRANT COMMUNITIES

People shop longer and spend 12 percent more in tree-lined shopping districts, so trees in commercial areas help pay for themselves and support city revenues.

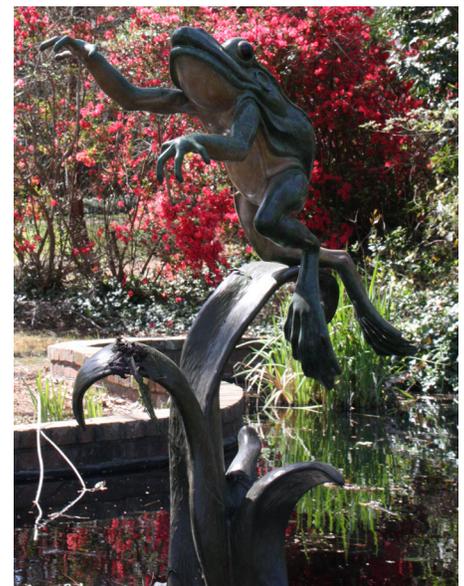
Both residential and commercial property values increase and commercial spaces rent faster when mature trees are present.

those resources and neighborhoods that are officially recognized currently. The Town also supports a vibrant arts and culture scene, from permanent galleries to the James F. Dean Community Theater, public art in the parks and the B.I.R.D.S. public arts initiative downtown, not to mention the Flower-town Festival held every spring.

A fully successful town requires that the entryways, outer neighborhoods, recreation access and parks receive focused attention. The entire Town needs to be vibrant, green and culturally intact in order to thrive. Entryways into the Town also should be well treed and landscaped to provide pleasant travelways and to provide a positive impression of the Town as a vibrant, green, attractive and accessible community. When trees are not present, distances are perceived to be longer and destinations farther away, making people less inclined to walk than if streets and walkways are well treed



The landscape context of a historic property is vital to its historic interpretation.. The gas station adjacent to this historic theater intrudes on its historic context.



Public sculptures found in Azalea Park, donated by Sculpture in the South. Numerous other public sculptures can be found throughout the Town.

(Wolf 2008). Businesses often depend on pedestrian traffic to get new customers, so the more walkers there are, the more likely an attractive, street front store display will be able to lure new shoppers. The chief issue of economic revitalization is the need to reduce unattractive areas. Unattractive areas disincen-tive economic development and lead to feelings of insecurity and fear of crime.

As the 7th largest city in South Carolina, Summerville has a relatively small population at 48,848 people (U.S. Census). However, suburban development patterns beginning in the 1980s gave way eventually to big box developments and large, multi-lane roads leading out of town. Large stretches of roadway between the outskirts of town, and approaching

downtown need revitalization. Revitalization of all the town’s neighborhoods requires that local features such as accessibil-ity, walkability, green amenities, park access and landscape beautification are all addressed.

In towns, vacant parcels can be looked at as both a problem and an opportunity. They are a problem when they create so much vacancy that visitation to business districts are reduced or loitering or trash dumping ensue. They can be an oppor-tunity when they are in strategic locations such that they can be used to expand a park area, replanted to buffer a stream or provide land for a community garden. In some areas of the Town there are enough vacant parcels that a new park might be created, while in others, vacant parcels could be acquired



Less of this.



More of this.



Map 17: Map showing an area with a high concentration of vacant parcels (brown). Many of these parcels have significant tree canopy.



Hutchinson Park and the shops on Little Main.



The Church of the Epiphany.



Summerville Commissioner's of Public Works building, former Post Office.



Historic house.

and used to install stormwater management structures such as bioswales.

In addition to blight, another challenge affecting the aesthetics of the Town is the quality of attention given to landscape design and care. While developers are required to include treed landscaping in their plans, a lack of maintenance can cause trees to decline and die. Who can inspect these planting plans, installations and maintenance is unclear, however the recommended Town arborist position described in the strategy section is a key way to address this.

RECREATION AND PUBLIC HEALTH

Today the Town supports 16 parks offering a wide diversity of uses from fishing, to boating, to tennis, to biking, enjoying a stroll along the Sawmill Branch Trail, or enjoying the azaleas and the sculptures in Azalea Park. The green infrastructure

of the Town supports the trails both by buffering them from urban settings as well as providing some of the truly special nature experiences that abound both within and just outside of the Town.

In addition to the Town's more urban parks that provide playgrounds and areas for active recreation such as tennis and baseball, the Town also has parks that focus more on conservation and passive recreation, such as the Oakbrook Nature Trail. There are also a number of parks and recreation areas in the Summerville Planning Area that are either owned by the school system or other entities. Colonial Dorchester State Historic Site run by the State Park Service is another tremendous natural asset located in the Town.

In addition to having parks for recreation, the amount of well shaded bike lanes, sidewalks, and multi-use paths affect whether people choose to walk. People are more likely

to walk when they can see green along their route (Wolf 2008). The Sawmill Branch Trail starts just outside of historic downtown Summerville at East Richardson Avenue and winds along the Sawmill Branch Canal where it currently ends near the Summerville YMCA facility in the Oakbrook area of Town. The trail is a ten foot wide multi-use path great for biking, running or walking and is approximately seven miles long. The trail is isolated from roads and many of the crossings are underneath the roads making the trail safer and more enjoyable. The trail connects to several neighborhoods and parks and has multiple locations to park your vehicle and utilize the trail. The Town is working to extend the trail further north and eventually connect to the trails being developed in the Nexton Development across the I-26 interchange and also in the southern portion of Town connecting to Colonial Dorchester State Historic Site and Jessen Boat landing. The Sawmill Branch Canal Trail offers the residents and visitors the opportunity to explore nature while enjoying a great workout or a simple stroll. This trail opens up the option for fitness to be experienced in a natural environment which can be tied to a more enjoyable experience for the avid runner, walker, or cyclist.

The Ashley River Blue Trail also supports recreation along the Scenic Ashley River. The trail runs more than thirty miles starting in the Great Cypress Swamp in Dorchester County and ending by Charles Towne Landing near the Charleston Harbor. The trail offers not only great scenic views but a wonderful opportunity to look for wildlife in the different ecosystems it passes through. Whether you are traveling down the river or enjoying the river from the bank you will enjoy seeing the vast and varied amount of wildlife or stop at any one of the historic sites for a break and experience some of the Lowcountry's history. There are 26 sites listed in the National Register of Historic Places along the trail route, including Colonial Dorchester State Historic Site. Paddlers can stay on the Blue



Paddlers enjoying the Ashley River Blue Trail.

Trail or venture in on several creeks such as Church Creek or Town Creek where the waters will calm and opportunities to see wildlife may be more prevalent. The Ashley River provides home to many different varieties of fish, birds, reptiles and various other wildlife species including some endangered and threatened species like the swallow-tailed



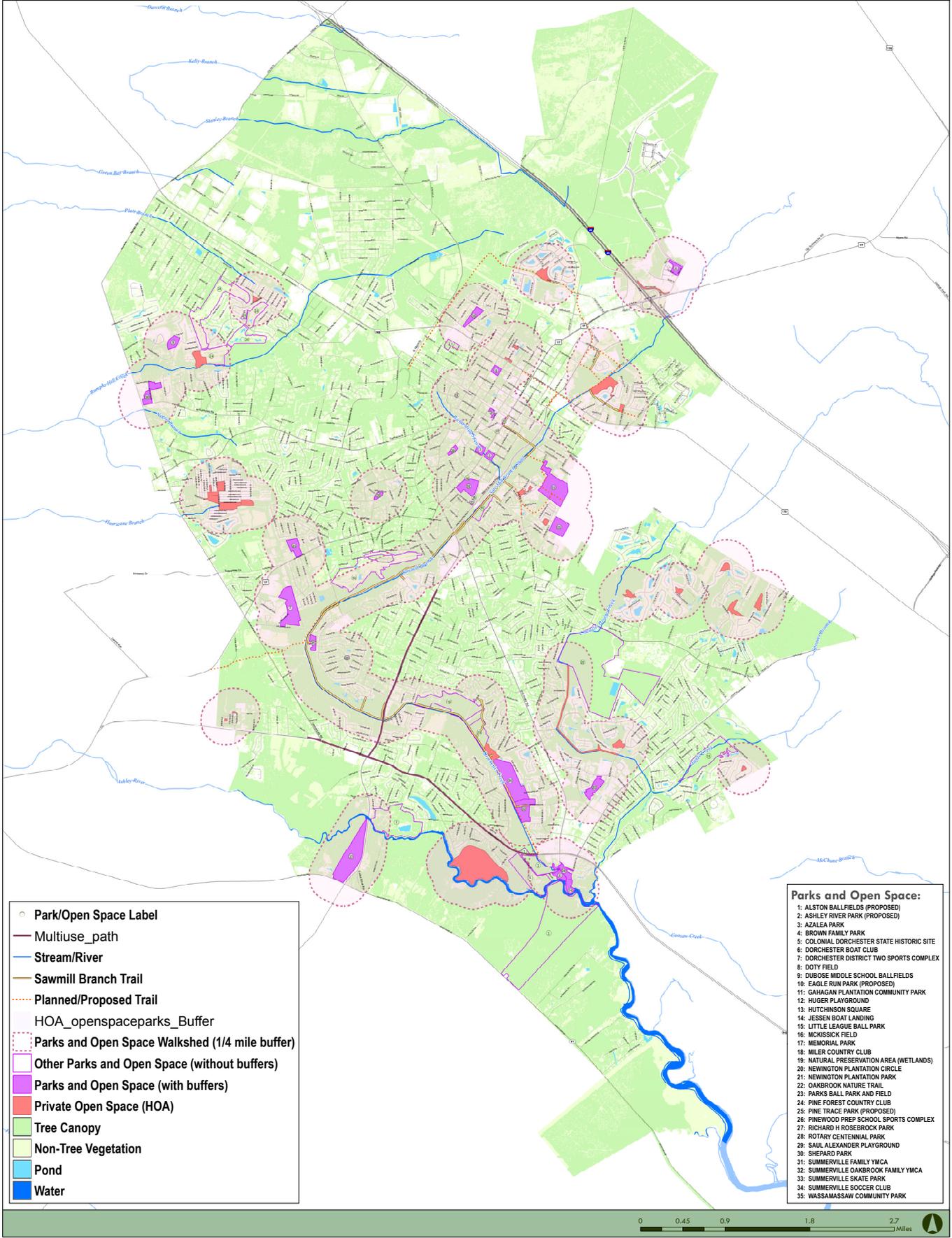
The Sawmill Branch Trail is an approximately seven mile multi-use path that borders the Sawmill Branch Canal as it winds through the Town (above). Newington Plantation Park provides a playground and connects to the Sawmill Branch Trail (below).



kite or endangered sturgeon (Visit Summerville 2016). This historic scenic river and all of its habitats are threatened as the area continues to grow at a rapid rate. More measures need to be taken to ensure the water quality of the river stays viable and its ecosystems protected. The Blue Trail is just one way to educate the residents and visitors of the Ashley River's significance as both a cultural and natural resource in our area that needs to be protected. This effort also leads the community to view the Ashley River differently and value all of its aspects in another way since it is considered a scenic trail and a mode of recreation.

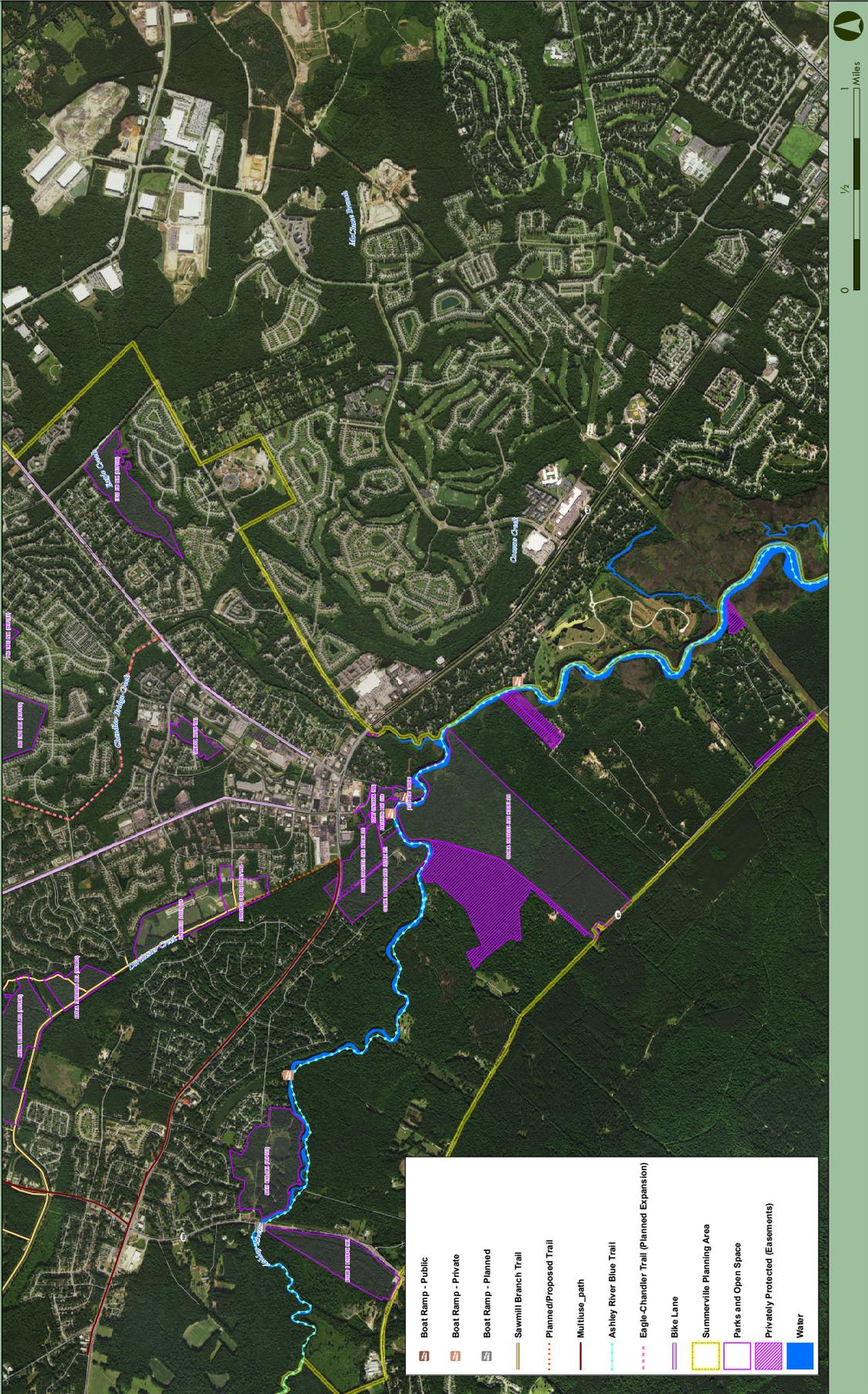
The Town offers a number of recreation assets, but it is important to ensure that residents have access to trails where they live. As populations age in place, people look for walks they can take within their neighborhoods, as well as do young families who need access to nearby parks that don't require a car trip to access them. Not everyone in the Town has equal access to parks. Map 19 on the following page shows areas where residents can easily walk to a park. Future park locations could target those areas that are less well served.

Access to Parks, Open Space, and Trails



Map 19: This map shows areas that are underserved in terms of nearby access to recreation assets..

The Ashley River



Map 20: The Ashley River is an important natural and recreation asset for the Town.

USING THE DATA FOR DAILY AND LONG RANGE PLANNING

The Town now has the study's data to use for daily and long range planning. The Town can use the data to inform zoning decisions, as well as updates to the comprehensive plan and the Unified Development Ordinance (UDO), which is currently being drafted. When meeting with prospective land developers, the Town can show where greenspace is desired or key connections that could be kept open across multiple parcels to allow for future trails or bird pathways. The Town's storm-water management staff can use the maps to prioritize where more infiltration is needed or for grant proposals and funding applications. Citizens can use the maps to target tree planting or backyard habitats in their neighborhoods or to suggest where more trees may be needed to shelter a key community walkway or safe route to school. Land trusts can use the information to identify key parcels to protect in order to connect a green corridor or buffer an adjacent land use.

By protecting natural habitats, reconnecting them and adding more areas over time, the Town can create a healthier environment for both nature and people. The goals following this section show how the network of green spaces can be connected, restored or expanded.



Vacant parcels offer opportunities for expanding the urban forest.



The B.I.R.D.S., Birds In Residences Downtown Summerville public art initiative is a joint project of the Audubon Center at Francis Beidler Forest, Summerville DREAM, and Sculpture in the South. Over 20 life-sized bronzes and one large mural overlook the downtown area. This project "enhances the community's understanding of the importance of conserving and restoring natural ecosystems, encourages appreciation of, and support for, public art, and fosters Summerville's economic vitality and cooperative spirit." (Sculpture in the South, 2008-2017)

"PILEATED WOODPECKER"
 BY SCULPTOR SCOTT PENEGAR
 PRESENTED TO SUMMERVILLE BY
 LINDA AND JIM MESSERVY

STRATEGIES

The Town of Summerville is committed to providing a high quality of life for its residents and visitors, a thriving economy and to protecting the historic, cultural and natural landscape that define the town today and in the future. The natural assets of Summerville can be considered its ‘green infrastructure.’ Just as we plan for grey infrastructure – roads, bridges, sidewalks, storm drains – we also need to plan for and protect our green infrastructure – trees, wetlands, streams, meadows and other natural features and vistas that contribute to the town’s quality of life and ensure that the town does not detract from the natural landscape. The Town has undertaken this green infrastructure planning effort to map, evaluate, protect or restore its natural and cultural assets. This plan will help to preserve and protect the natural areas necessary to maintain and enhance the vitality of wildlife within the Summerville Planning Area.

The Town can work better with developers to ensure mutually beneficial developments and connectivity throughout the town. The Town encourages developers to consider natural, cultural, and historical assets first in the planning process and protect historic sites from overdevelopment to maintain the high quality of life and healthy landscape for both wildlife and people. In addition, the Town will educate the public, decision makers and the business community about the importance of having a more diverse landscape to support healthy environments for people and for wildlife. Committee members developed the following strategies to formulate a vision for protecting, restoring and expanding the Town of Summerville. There are four categories of goals followed by objectives and actions to achieve them. Some of the strategies require funding to carry out, while others require a change in practice or policy or cross agency coordination. Over time, additional strategies may be added and/or altered as circumstances change. This should be treated as a living document and updated as needed to reflect new ideas, priorities or opportunities. It can be used as the basis for grant proposals or to justify expenditures by the Town. It is an ambitious and significant agenda to help create a Town which is clean, green, healthful and thriving.



This plan reflects a new way of doing business and builds upon other recent Town plans and policies such as the Town’s Comprehensive Plan and Vision Plan.

Following are the goals and associated strategies to achieve them, including the rationale for each goal. More detailed tasks follow each objective, and are listed in the order in which they should be achieved, as resources allow, since some are co-dependent. For example, some of the tree planting and care goals require a Town arborist to be on staff to implement and carry them out over time.

Vision: The Town of Summerville encourages responsible land development and growth patterns promoting sustainability and balance of the natural and built environment.

GOAL A: HABITATS FOR WILDLIFE AND PEOPLE -- PROTECT, PRESERVE, AND EXPAND THE EXISTING NATURAL SCENIC RESOURCES AND OPEN SPACE WITHIN THE SUMMERVILLE PLANNING AREA.

Rationale: As one of the first towns to pass a tree protection ordinance (1847), and as a ‘Tree City USA’ the town has a longstanding commitment to protecting its natural resources. The tree canopy is calculated at 55%, which is very good. However, trees are not distributed evenly. In order to maintain a healthy canopy over time, and in the right places, more effort will be needed. Trees provide shade, air quality, bird habitat, energy savings and stormwater uptake. Meadows and other landscapes support a multitude of wildlife as well. In order to have a healthy landscape for both people and wildlife, natural areas and clusters of habitat should be protected and connected.

Objective A 1: Promote the retention of native vegetation, especially trees, and the removal of invasive species, and encourage species diversity in plantings.

Task 1: When the Comprehensive Plan is updated, do not include key natural and critical areas as Future Land Use Focal Points described in the Future Land Use Element of the Comprehensive Plan.

Task 2: Create a recommended planting list of trees, shrubs, and grasses and a list of prohibited invasive species.

Task 3: Amend tree ordinance to allow the automatic approval of invasive species removal.

Task 4: Amend ordinance to require a diversity of tree species be planted if more than five trees are required to be planted on a single parcel to avoid monocultures.

Objective A 2: Become a more bird friendly community and promote birding opportunities in the Town.

Task 1: Continue relationship with the Audubon Center at Beidler Forest to create bird friendly environments throughout the Town, which may include work towards being designated as an Audubon Climate Resilient & Bird Friendly Town.

Task 2: Map birding opportunities in the Town with input from Audubon and other organizations.

Task 2: Promote existing birding opportunities and bird related tourism and education (i.e. B.I.R.D.S. public art initiative) by providing links on the Town's website and information in Town Hall.

Objective A 3: Educate the public about how to create native habitats in their yards through programs such as the Clemson Extension Carolina Yards program.

Task 1: Partner with Clemson Extension, Native Plant Society, and/or Master Gardener/Master Naturalist groups to host an annual educational workshop.

Task 2: Provide links to educational information about native landscaping on the Town's website.

Objective A 4: Create a Town Arborist position to manage Town trees long term and provide education about their benefits and care. The arborist may undertake the following tasks:

Task 1: Develop a comprehensive management plan for pruning, treating, watering existing Town trees.

Task 2: Work with developers to educate them about tree planting and care to increase the survival rates and lifespan of trees planted in commercial and residential developments.

Task 3: Research and pursue grant opportunities for tree plantings, and work with volunteers to create a non-profit organization for tree planting in the Summerville area similar to Charleston Trees.

GOAL B: WATER QUALITY: PROTECT THE WATER QUALITY OF THE ASHLEY RIVER AND ITS TRIBUTARIES.

Rationale: Summerville should protect and preserve lands adjacent to the river and other waterways to improve water quality. Incorporate stormwater management into overall design in the initial planning phases of development, connect to existing facilities and minimize disturbance of natural resources where possible.

Objective B 1: Encourage landowners adjacent to the Sawmill Branch Canal and the Ashley River to put land into conservation easements.

Task 1: Partner with the Lowcountry Open Land Trust to contact adjacent landowners and educate them about conservation easements.



Task 2: Promote the actions identified in the Ashley Scenic River Management Plan by providing a link to the Plan on the Town's website and working with the Advisory Council and other partners.

Objective B 2: Incentivize the restoration of lands adjacent to waterways.

Task 1: Amend ordinance to provide developer incentives to restore natural streams and stream buffers, such as open space credits, expedited stormwater permitting, and/or reduced impact fees (i.e. Parks and Recreation).

Objective B 3: Provide greater protection and limit development along waterways.

Task 1: Adopt a stream buffer ordinance that protects water quality and also allows for the enjoyment of waterways as an amenity.

Task 2: Contact property owners identified in the mapping of undeveloped land adjacent to waterways to educate them about the benefits of conservation easements.

Objective B 4: Use the tree canopy assessment to target tree planting to combat stormwater runoff.

Task 1: For public properties and Town maintained roads that fall under a certain percentage of tree canopy (to be determined), develop a yearly planting plan.

Task 2: Work with Public Works department to allow tree planting to offset detention/retention requirements.

Task 3: Enhance the landscaping along the Sawmill Branch Canal Trail. Work with the Army Corps of Engineers where necessary to allow tree plantings.

Objective B 5: Minimize stormwater runoff in the built environment by decreasing the amount of impervious surfaces in new develop-

ments and in existing development where possible.

Task 1: Amend ordinance to provide developer incentives for the utilization of LID techniques, such as expedited stormwater permitting and reduced stormwater fees.

Task 2: Develop a permitting process for the addition of impervious surfaces even if no building permit is required.

Task 3: Educate developers (commercial and residential) about the benefits of LID techniques through links on the Town's website and information about workshops hosted by partner organizations.

GOAL C: HISTORIC AND CULTURAL RESOURCES: PROTECT THE CULTURAL AND SCENIC RESOURCES THAT CONTRIBUTE TO UNDERSTANDING AND EXPERIENCING THE AREA'S HISTORY AND CULTURE.

Rationale: Within the Summerville Planning areas, historic buildings and sites should be protected. As part of site interpretation, it is important to avoid overdevelopment of facilities so as not to mar the site or the natural features that have reclaimed the landscape. In addition, the natural landscape surrounding scenic sites throughout the Summerville Planning Area must be protected in order to preserve their context, historic settings and community enjoyment.

Objective C 1: Encourage property owners to maintain the historic integrity of their properties and preserve the surrounding setting.

Task 1: Work with the Town's BAR to continue to expand the Town's Historic District.

Task 2: Create a development buffer around historic properties identified in the National Register.

Objective C 2: Develop grant programs for façade enhancements and beautification of historic and cultural landscapes.

Task 1: Research similar grant programs throughout the state to identify possible funding sources and grant guidelines.

Task 2: Work with the Town's Grants Administrator to develop grant guidelines and an application process.

Objective C 3: Develop a comprehensive list of historic sites and locations throughout the Town Planning area.

Task 1: Work with the Summerville-Dorchester Museum to identify the sites and locations.

Task 2: Make the list available to the public on the Town's website.

Objective C 4: Develop a wayfinding signage program for the Historic District and other historic properties outside of the Historic District.

Task 1: Work with the Town's Public Works Department

and SCDOT to develop distinctive street signs for streets within the Historic District and develop wayfinding signs for historic properties outside of the current Historic District.

GOAL D: NATURE BASED RECREATION AND HEALTH: PROMOTE APPRECIATION AND ACCESS TO NATURE TO ENSURE HEALTHFUL LANDSCAPES AND HEALTHY COMMUNITIES.

Rationale: Summerville should encourage the use of nature-based recreation to help promote public health. By creating walkable and bikeable places and providing better waterway access for all users the Town can make recreation a part of everyday lifestyles. Community gardens can also be utilized as teaching tools for healthful lifestyles and to create a greater appreciation for locally sourced food.

Objective D 1: Encourage community gardens throughout the Town.

Task 1: Amend ordinance to allow for the use of community gardens as a conditional use in all zoning districts.

Task 2: Partner with SCE&G and/or other public agencies to allow community gardens on easements or other publicly owned land.

Objective D 2: Improve the Town's facilities and the Ashley River blue trail to provide better access to the river and provide additional amenities for non-motorized boating.

Task 1: Expand the amenities of the Town's public boat landing and provide a canoe/kayak launch.



Task 2: Consider working with local outfitters to promote eco-tourism on the Ashley River.

Task 3: Educate the public about the Ashley River Blue Trail by promoting it on the Town's website and social media.

Objective D 3: Encourage interconnectivity between developments and sidewalks and/or trails in all developments.

Task 1: Amend ordinance to require sidewalks in all commercial development.

Task 2: Provide incentives for developers to provide interconnectivity to adjacent properties and/or open space, such as expedited review, open space credits, and/or reduced impact fees (i.e. Parks and Recreation).

Objective D 4: Expand the pathway system throughout all areas of the Town as highlighted on the green infrastructure network map.

Task 1: Create a walkability/bikeability map of completed sidewalks, bike lanes, multi-use paths, including proposed connections.

Task 2: Work with Colonial Dorchester State Historic Site to find a feasible trail connection to the Jessen Boat landing.

Task 3: Require master pedestrian access system plan in developments over 25 acres.

Task 4: Partner with the appropriate County departments, as applicable, to pursue grant opportunities for bike and pedestrian connections identified in this plan or other bike/pedestrian plans.

Task 5: Update street specification to reflect complete streets elements.



Objective D 5: Encourage other entities (SCDOT and Berkeley, Charleston, Dorchester Counties) with transportation projects in the Summerville Planning Area to involve the Town during the design and construction process to ensure cohesion of pedestrian/bicycle network.

Task 1: Request notification from applicable agencies when transportation projects are originally proposed.

Task 2: Collaborate with applicable agencies throughout the planning and construction process on transportation projects in areas where bike and pedestrian connections are identified in this plan or other bike/pedestrian plans.

CONCLUSION AND NEXT STEPS FOR IMPLEMENTATION

Challenges and barriers to sound GI planning include lack of data and research, lack of coordination between stakeholders, and a general lack of public awareness. Mechanisms for increasing opportunities for GI planning and preservation stem from taking initial steps in research and data collection. Once data is collected and a plan is in place, the municipality becomes much more organized in its efforts and the likelihood of obtaining funding for GI projects greatly increases.

This project allowed Town agencies and key stakeholders to coordinate across boundaries and demonstrated that innovative ideas come from working collaboratively. This plan reflects interagency cooperation and builds upon recent Town plans and policies such as the Vision Plan. It should be updated to reflect new Town initiatives and should be utilized daily to inform planning and the Town's growth and development into the future.

Special Thanks to the following persons and/or organizations for their support of this project:

Frances Waite, Coastal Region Urban Forester, SC Forestry Commission

Members of the Summerville, SC Planning Commission

Members of the Technical Committee

Lisa Shealy, Ashley D. Demosthenes, and Garrett Budds, Lowcountry Open Land Trust

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Berkeley County and Charleston County GIS staff

Mike Dawson, Center Director and Sanctuary Manager, Audubon Center at Beidler Forest

Ashley A. Chapman II, Park Manager, Colonial Dorchester State Historic Site

Kim Counts Morganello and Guinn Wallover, Program Co-Coordinators, Ashley Cooper Stormwater Education Consortium

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- National Association of Realtors: <https://www.nar.realtor/>
- Sculpture in the South B.I.R.D.S. Program: <http://sculptureinthesouth.com/perm-birds.html>
- South Carolina Department of Health and Environmental Control (SCDHEC) Watershed Program: <https://www.scdhec.gov/Home-AndEnvironment/Water/Watersheds/index.htm>
- United States Census Bureau American FactFinder: <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>
- Visit Summerville, South Carolina: <http://www.visitsummerville.com/>

APPENDIX A: RESOURCES

Funding Resources:

Paddling Grants for Water Trail and Facilities (apply in March):

Outdoor Foundation

419 7th Street NW, Suite 401, Washington, DC 20004

<http://www.outdoorfoundation.org/>

Grants for Low Impact Development, Habitat Restoration and More
National Fish and Wildlife Foundation

<http://www.nfwf.org/whatwedo/grants/pages/home.aspx>

Urban Waters Small Grants from U.S. EPA (usually release RFP in the fall)

<https://www.epa.gov/urbanwaters/urban-waters-small-grants>

Backyard and School Butterfly Gardens (apply by Oct. 15)

The WildOnes

Cash grants of \$500 for plants and seeds, and prefer students and teachers apply.

<http://www.wildones.org/seeds-for-education/sfe/>

Alliance for Community Trees (tree planting grants)

<http://actrees.org/what-we-do/grants-and-awards/planting-trees/>

Transportation Enhancement Grants

(multi-modal, trails, depends on Congressional allocation)

http://www.fhwa.dot.gov/Environment/transportation_enhancements/guidance/

Rails to Trails Conservancy: funding links

<http://www.railstotrails.org/build-trails/trail-building-toolbox/acquisition/financing-and-funding/>

In addition, visit the Foundation Center

<http://foundationcenter.org/> to learn of private foundation sources such as the

Walton Family Foundation: <http://www.waltonfamilyfoundation.org/our-impact/environment>

Birding Resources

Wings Across the Americas

Program to Recognize Flyway Conservation by the USDA Forest Service

<http://www.fs.fed.us/global/wings/awards.htm>

Audubon Center and Sanctuary at Francis Beidler Forest

Provides educational programming, hosts events, and supports and organizes conservation efforts

<http://sc.audubon.org/chapters-centers/audubon-center-sanctuary-francis-beidler-forest>

Urban Forest

South Carolina Forestry Commission

Urban & Community Forestry Program Coordinator: Lowe Sharpe: (803)896-8864, lsharpe@scfc.gov

Coastal Region Urban Forester: Frances Waite: (843) 571-0136, fmwaite@bellsouth.net

TreesSC

Educational resources, training opportunities, advocacy, and networking

<http://www.treessc.org/>

Urban Forestry South
Research and best practices for tree care and management
<http://www.urbanforestrysouth.org/>

Arbor Day Foundation
Educational resources, tree care, and tree planting
<http://www.arborday.org/>

Water Resources

Clemson Extension: Carolina Clear
Educational resources about water quality and quantity and the effects of stormwater
<http://www.clemson.edu/extension/carolinaclear/index.html>

Low Impact Development in Coastal South Carolina: A Planning and Design Guide
<http://www.northinlet.sc.edu/lid/>

Water Trails

American Rivers Blue Trails Guide:
<http://www.bluetrailsguide.org>

River Network River Voices on Water Trails
<https://rivernetwork.org/files/rv/rv2006v16n2.pdf>

Guidelines for Paddling Trail Development
<http://myfwc.com/boating/waterway/paddling-trails/>

Chesapeake Bay Gateways Network: Water Trail Toolbox <http://www.baygateways.net/watertrailtools.cfm>

APPENDIX B: PUBLIC COMMENTS

Staff from the Town of Summerville and the Green Infrastructure Center and members of the Advisory and Technical Committees hosted two public forums on March 3, 2016 and August 25, 2016 to solicit public input. Members of the public were able to look at maps of the Town's green infrastructure assets as well as provide input about which assets they value the most. Example strategies for enhancing the city's green infrastructure were displayed, and visitors were encouraged to "vote" for the ones they supported (see the following charts below the public comments for the voting results).

Public Forum Comments from August 25, 2016:

Habitats for Wildlife and People Station:

- Volunteer program to promote yard habitats (ex. Butterfly gardens) (through HOAs) Door to Door outreach?
- Educate Town employees on habitats and native plantings
- Connection from Miles-Jamison road to ballfields
- Education on native species (already said)
- Round-about at Parsons Rd. and Central Ave.
- Avoid Monocultures

Water Quality Station:

- Increase Riparian Buffer to 100'
- Beautify Sawmill Branch Trail along Canal-remediate natural areas during extension of Berlin G. Myers Expressway
- Protect seasonally ponded isolated depression wetlands for their unique wildlife habitat and hydrological values (storm water retention + groundwater recharge)
- Become a national wildlife federation city for wildlife habitat designation
- Pavilion area at Dorchester State Park for families to picnic-would encourage more use of this beautiful area

Historic and Cultural Resources Station:

- Work with existing museum, libraries, garden club, chamber and DREAM
- Tax deferment policy with the façade grants
- Comprehensive list of historic sites/locations
- Tour of historic sites/buildings
- Wayfinding for Historic District and Trails
- Help promote retail in the Downtown area vs. services
- New comers guide
- Protect CPW building/old post office
- Designate neighborhoods-History of them
- Preservation without limits on historic classification –not necessarily a historic district
- Newington location-better preservation & signage-like plant identify, benches, dedications
- Better labels on historic sites on map
- Corner of central & Dorchester –site of first free school in Summerville
- Impact fees-raise prices

Nature Based Recreation and Health Station:

- Linear Park
- Reuse CPW Buildings
- Outfitters->ecotourism
- Complete Sawmill Branch Trail from E. Richardson Ave. to hotel district near interstate
- Extend sidewalk on W. Richardson Ave. from W. Carolina Ave to N. Maple Street
- Create round-about at 5 point intersection to keep traffic moving & eliminate traffic signals
- Create sidewalks throughout Historic District to connect downtown, schools and encourage walking over driving in town
- Create a round-about at new N. Maple/Parsons/ W. Richardson Ave to keep traffic flowing
- Connect existing bike paths
- Protect Eagle Creek
- Sidewalks to bike paths
- Sidewalk on Central from Carolina to Summerville Estates (Connect)
- Path through bamboo at Gahagan Park
- Way to use unpaved side of Sawmill Branch Trail, cross drainage creek near sewer treatment plant; better maintained
- Buffer between parkway extension and trail

PUBLIC COMMENTS CONTINUED

- Enhance Sawmill Branch Trails (trees, etc.)
- Wayfinding signage on upper portion of Sawmill Trail

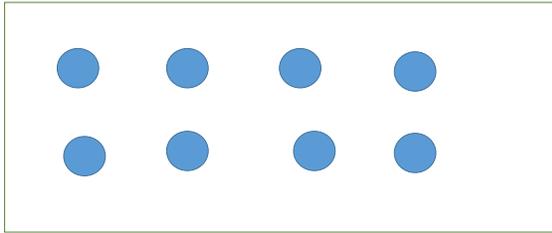
Other Comments From Public Forum Meetings (March 3, 2016 and August 25, 2016):

- Save the trees on the Town Square
- Do not cut many trees when the new Dorchester Hotel is built
- More sidewalks and bike paths
- Promote the Dorchester Museum and have a nature habitat display
- Put the museum on the map
- Foster a non-profit to raise funds for green infrastructure project-talk to Danny Burbage about Charleston Tree
- Expand the Historic District-need more sidewalks and bike paths
- Beautify downtown
- Keep trees and plants in the picture
- Canopy over walking trails (Hiker/Biker) and other walkways
- Save the trees at Town Square
- Eagle Creek flooded in 2015-Army Core of Engineers dug the creek out in 1988, no issues until 2015
- Continue to provide more pedestrian and greenway access- enhance the sawmill branch trail
- Oakbrook kayakers need a place to congregate after kayak-picnic area, sandwiches/beverage place
- Save the trees, squirrels, birds and other critters
- Stop cutting down trees in subdivisions
- Strengthen Tree Committee guidelines
- Rose Lane-Twin Oaks drains through wooded patch-on map-an at risk area-{corner of Berlin G. Myers Parkway and Carolina/Bacon's Bridge Road (Interchange)}
- Re-include Pine trees in the Tree Ordinance
- Like Tree plan for Hutchinson Square
- Color ponds blue not just on stream Maps
- Central Ave., Have Bike Lanes
- Extend Eagle Creek Trail from Ladson down to Dorchester Park
- Tree inventory on Public Lands
- Look at Nexton parks and trails

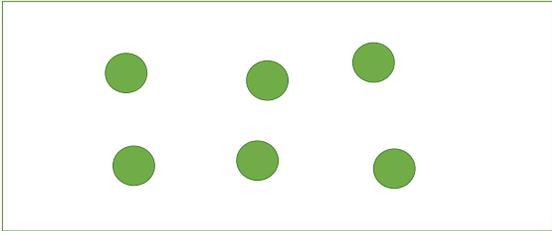
Voting Charts on proposed strategies from the public forum on March 3, 2016 are on the following pages. Each colored circle represents a single vote.

Strategies: HABITATS

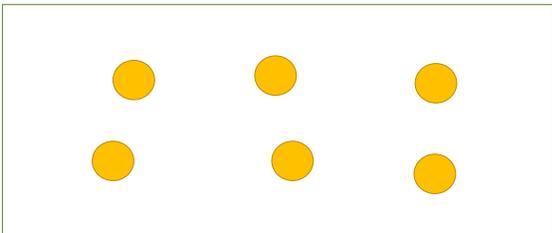
Ideas!



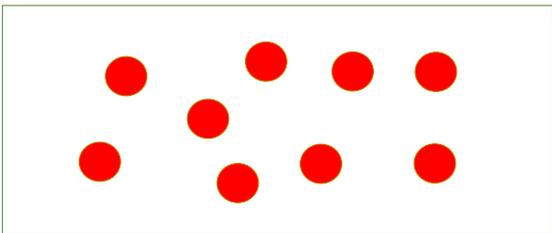
Connect the forests across the landscape – create planted corridors to support wildlife, birds, bees, and butterflies.



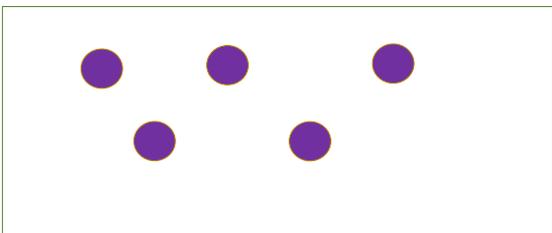
Create a neighborhood backyards bird and butterfly program – save bees and butterflies!



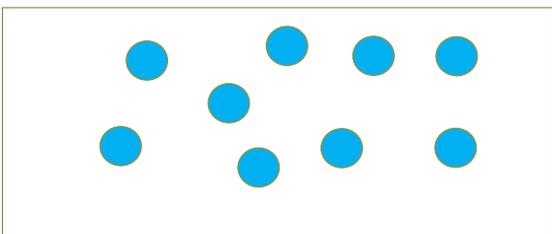
Encourage developers to consider natural, cultural, and historical assets first in the planning process.



Preserve and protect existing and native vegetation, especially trees, and remove invasive species.



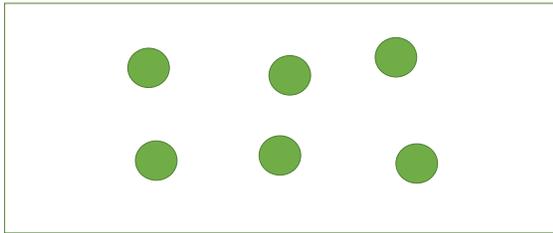
Increase the overall tree canopy coverage of the Town by 10% in the next five years.



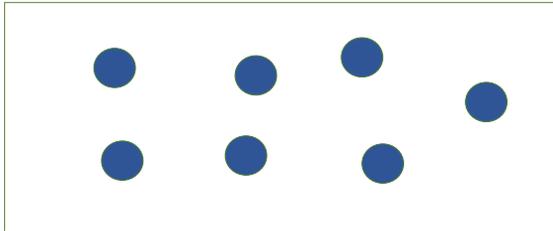
Require better maintenance for tree planted on commercial properties and trees planted for mitigation purposes.

Strategies: WATER

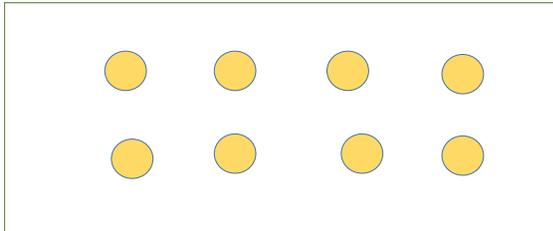
Ideas!



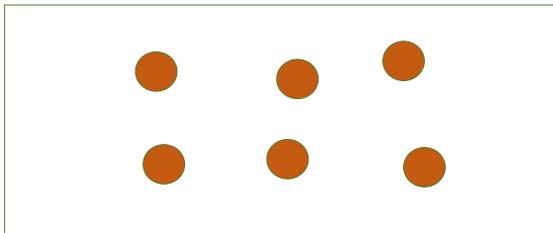
Replant areas along streams to buffer runoff (voluntary)



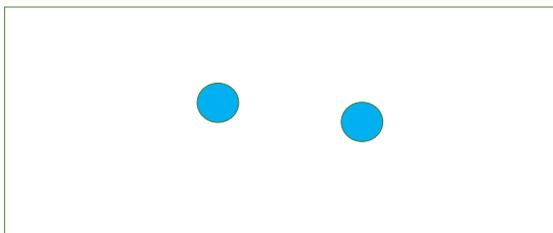
Require trees to not be removed along streams (mandatory buffer ordinance).



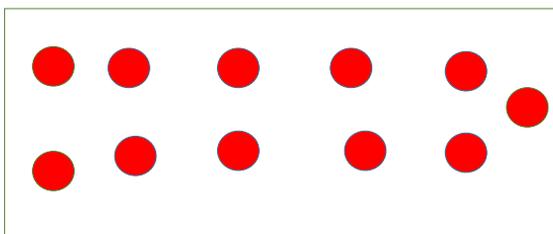
Plant more trees on public lands (schools, parks, etc.) to soak up more runoff.



Add permeable technologies such as pervious pavement or raingardens to catch more water.



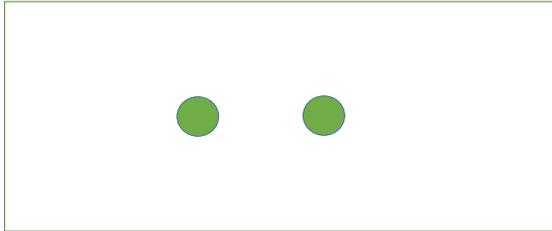
Reduce impervious surfaces in new construction by 50% in the next five years.



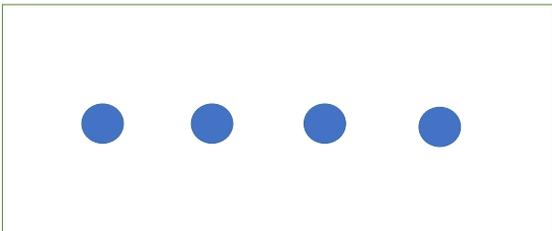
Protect and preserve lands adjacent to the river and other waterways to improve water quality.

Strategies: Culture and Aesthetics

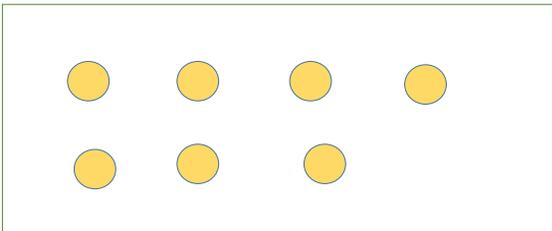
Ideas!



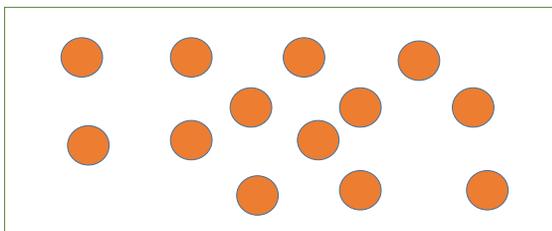
Expand the historic district to include additional historic properties and buildings.



Provide incentives to restore facades and walkways.



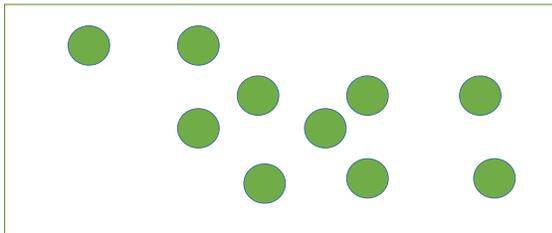
Preserve the remaining farms and working lands and protect them from development.



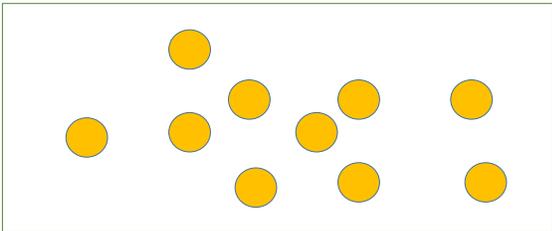
Work with Colonial Dorchester State Historic site to provide trail connections from the Sawmill Branch Canal trail and to Jessen Boat Landing.

Strategies: Recreation and Public Health

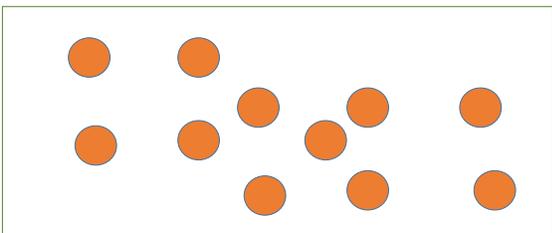
Ideas!



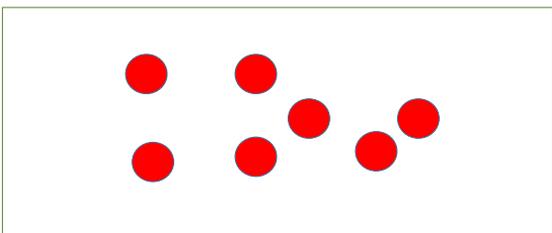
Extend the Sawmill Branch Canal Trail to the river on the South end and to the N. Main Street shopping area on the North end, and create connections to existing parks/playgrounds.



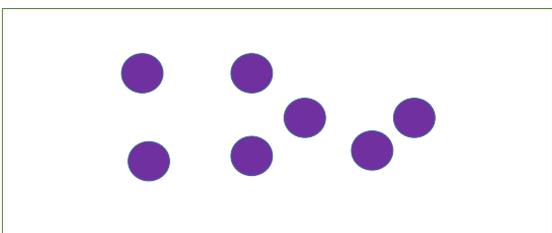
Require interconnectivity between developments including connections/coordination between green spaces and parks.



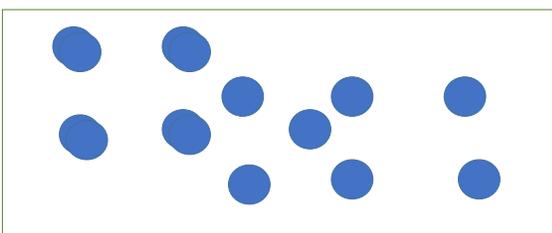
Create walkable places (walkability to schools, townwide walkability). Require sidewalks and/or trails in all new developments.



Continue to work toward making Summerville a fully designated bicycle friendly community.

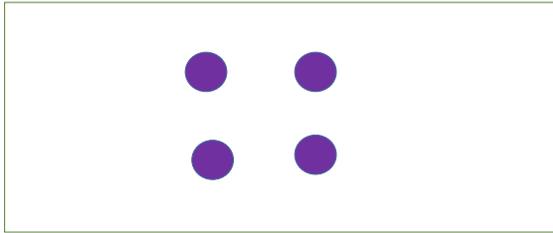


Improve Jessen Boat Landing and Rotary Centennial Park to provide better access to the river and provide additional amenities.

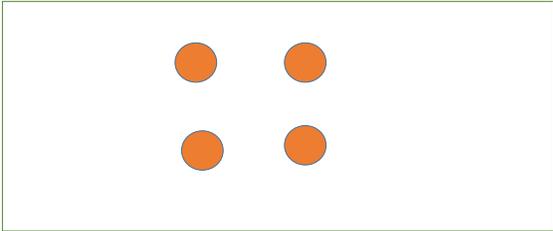


Improve the Ashley River blue trail and provide better access to the Ashley River for all users.

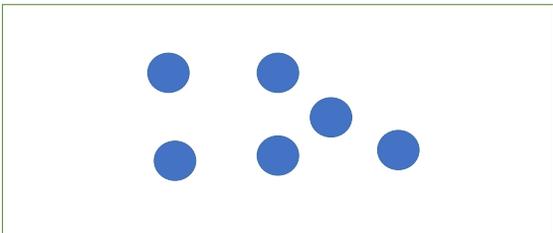
Strategies: Create your own Ideas!



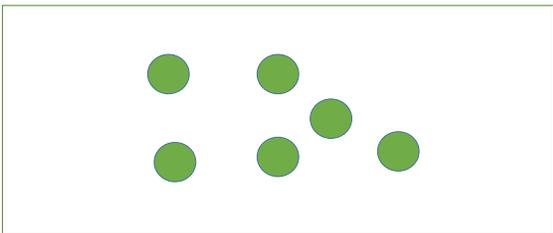
Build a bike path on Central Ave. from Knightsville to Town.



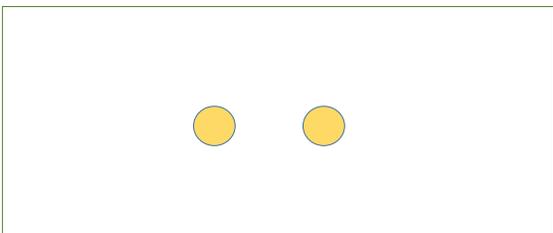
Promote the B.I.R.D.S. Project



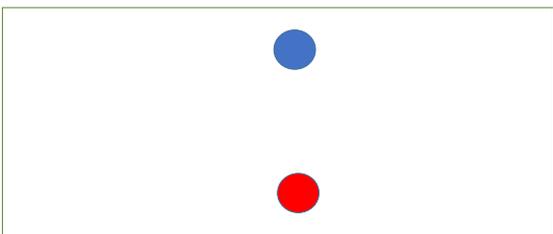
Promote the Parks' names so we know they are there! Provide maps and descriptions



When renovating the Town Square, leave lots of trees! On the edges (added comment)



Strengthen Tree Committee guidelines



Add bike trails in Old Summerville

Start non-profit like Charleston Tree to raise money for restoration