

RICHLAND COUNTY'S

GREEN INFRASTRUCTURE

GIS ANALYSIS

September 16th, 2016

Brenda L. Carter, GIS Manager, GISP

Richland County South Carolina is a uniquely urban and uniquely rural community that is thriving and we must protect our natural life-sustaining systems that enrich our quality of life. If we expect to keep growing, to be sustainable, thriving and successful, we must upgrade and expand our green infrastructure just as we upgrade and expand our “gray infrastructure,” such as roads, sewer, utilities and other systems.

The accelerated consumption of land for development and the resulting fragmentation of open land are the primary conservation challenges today. Growth has advanced into many areas that were once rural. Development is converting farms and forests to other uses at an increasingly rapid rate and the result is urban sprawl.

A joint task force formed between Richland County's Planning GIS team and the Conservation Department (“Team”) prepared the formulation of the Green Infrastructure Plan. The Team's first objective was to make a list of what we wanted the plan to accomplish. We outlined our purpose, established goals, described the benefits, and executed intricate GIS analyses to help determine priority areas to preserve, protect, restore and sustain in Richland County.

Some of our goals are to: 1) improve water quality by providing a buffer to help prevent runoff, erosion and reduce pollutants; 2) maintain forested land cover in order to facilitate recharging groundwater aquifers for drinking water; 3) preserve and promote natural resource-based recreation, such as hiking, bird watching, hunting and fishing; and 4) conserve community character and heritage by protecting a historic landscape.

I found the manual “***Evaluating and Conserving Green Infrastructure Across The Landscape: A Practitioner's Guide***” by Karen Firehock to be an excellent resource to follow. The book provides methodology for building a habitat model, illustrations, and highlights a case study of South Carolina's Berkeley County. It outlines critical steps to take when implementing a plan. As the manual states, it is most important to use the right tools for the right projects, therefore, GIS software, at a minimum is required to

make asset maps and map intact habitats. The Spatial Analyst extension to the ArcGIS suite was an invaluable tool for conducting the landscape analysis. It allows for the manipulation of raster data in ways that are more complex. As the methodology relies on land cover data in raster format, the extension is necessary for completing the model.

The Technical Appendix presents a systematic guide to building a habitat model in South Carolina. The steps make it easier to deviate from the methodology along the way. The case study offers direction, ideas, and examples of the tools established by the South Carolina Green Infrastructure model to identify Habitat Cores. This was my roadmap to using GIS as the catalyst to create additional informative data in the process that evaluates areas and prioritizes them in our efforts to preserve, conserve, sustain, and restore the Green Resources of Richland County.

More notably, the data cultivated throughout this process will be more helpful in the decision making process. It will educate and enlighten our policy makers and citizens of the significance of conserving our natural resources and the economic and quality of life benefits to the people who live and visit Richland County.

The road to the Green Infrastructure Plan was now ready for the first phase of GIS Analysis where first of two major steps are executed. The first step to mapping the intact habitat cores is identifying the location and shape of habitat cores. The second step is ranking the cores based on their ecological integrity using the best available data and science.

The identification of existing Richland County GIS layers such as Conservation Easements, Address Points, Municipal Boundaries, Future Land Use, and Zoning was extremely important to this process.

Part 1

Identifying Core Habitat

There are several datasets necessary to identify the location and shape of the habitat cores. The Land Cover dataset show the geography of the different coverage types of the area. The infrastructure data sets are comprised of many layers such as roads, railroads, bridges or any other above ground infrastructure that divides the landscape. Development dataset refer to what land has been “developed” or “urbanized.” This is determined through the land cover layer. In addition, building locations are very important. It is not necessary, but it will make the results much more accurate. This procedure is used to pinpoint the landscapes that can contribute to a habitat core. It involves a series of Spatial Analysis commands to create and manipulate raster images. The combination of the raster images is the foundation of the project.

To determine the different coverage types that can contribute to a habitat core, first use the “reclassify” command with the National Land Cover Dataset (LULC) to extract forest, wetlands, and aquatic habitats and convert the results to raster format. Use the same command on the National Wetlands Dataset (NWI Wetlands), extract only the natural wetlands, and convert to raster. Reclassify the newly created wetlands raster to a binary raster. The cell statistics tool calculates a per-cell statistic from multiple raster datasets. Cell Statistics is the last command in this section that is used to combine the values of the Core Land Use raster and Core Wetlands raster to produce the Core Habitat raster.

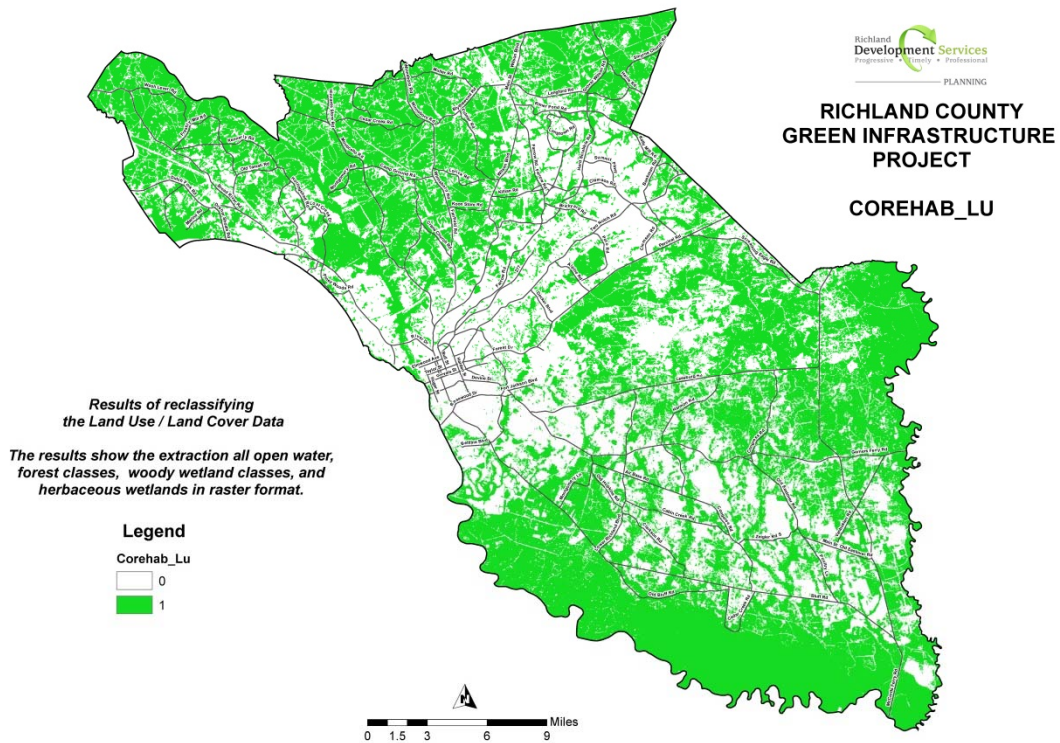


Figure 1 – Extracted Uses from National Land Use Land Cover Dataset CORE HABITAT LU

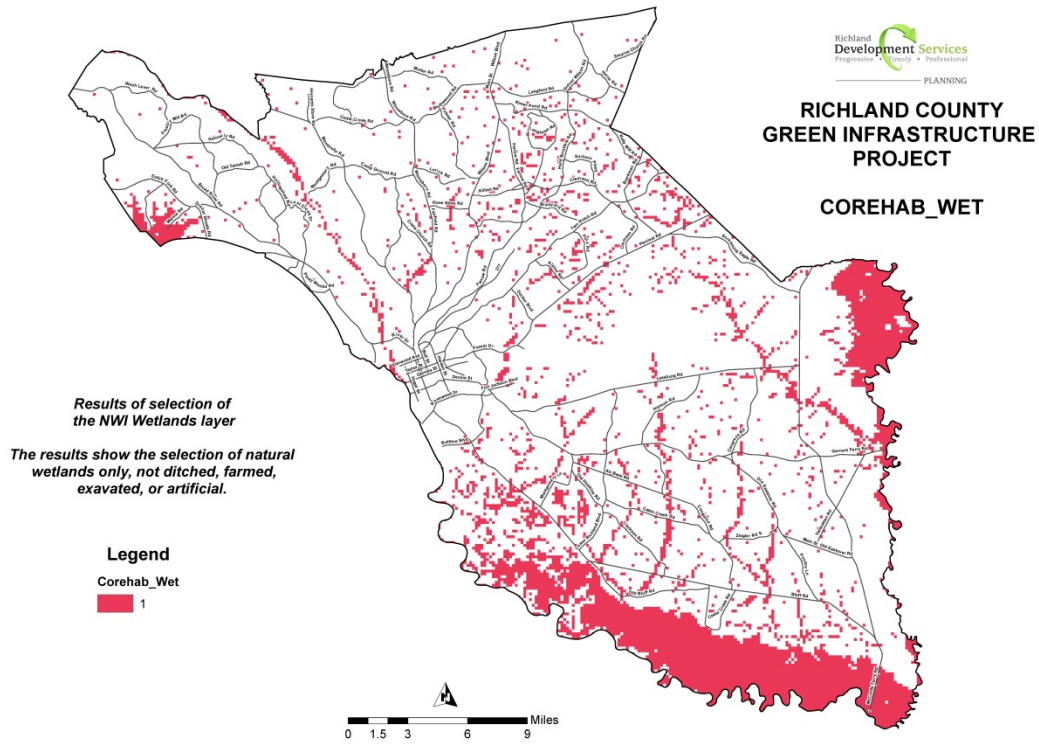


Figure 2: Extracted Natural Wetlands only CORE HABITAT WETLANDS

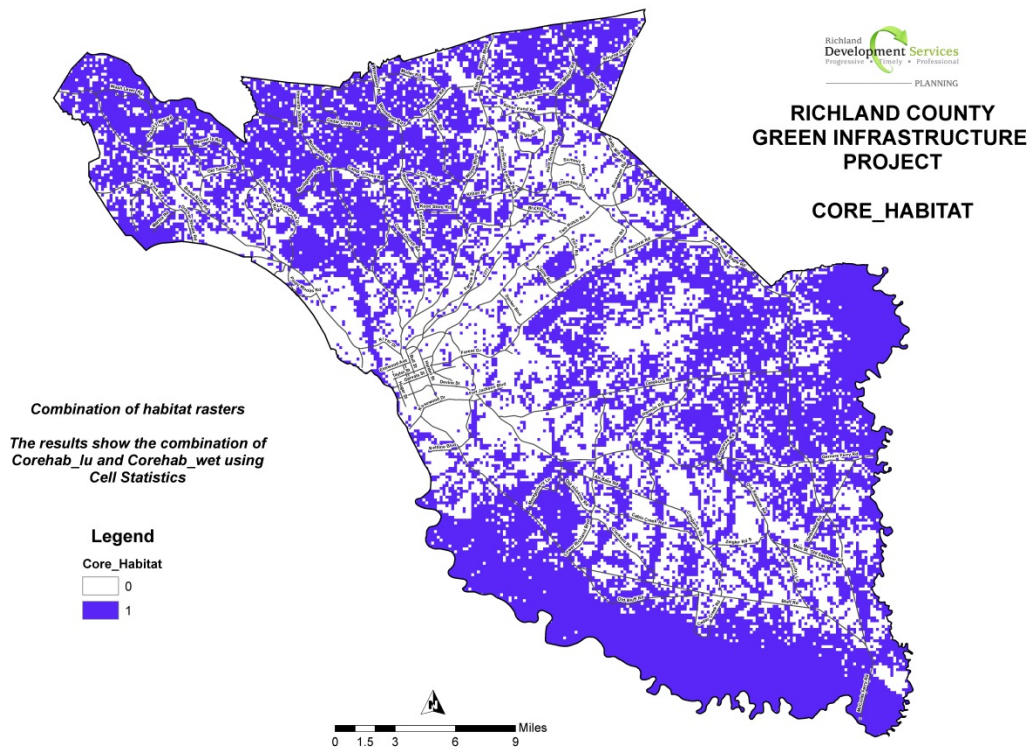


Figure 3: Combination of Land Use Raster and Wetlands Raster (CORE HABITAT RASTER)

Assessing Fragmentation

The core areas that can contribute to habitats were established, so in this next procedure, additional data layers are manipulated to assess fragmentation. It is only after fragmentation is evaluated that individual cores take shape.

Paved roads, railroad tracks and fragmenting features from the land use layers were reclassified selecting specific values then converted to raster images. A new field name had to be added to our address point layer so it could be used instead of the building footprint layer for location accuracy and because it was a preference. The added field was populated using the “Calculate Field”.

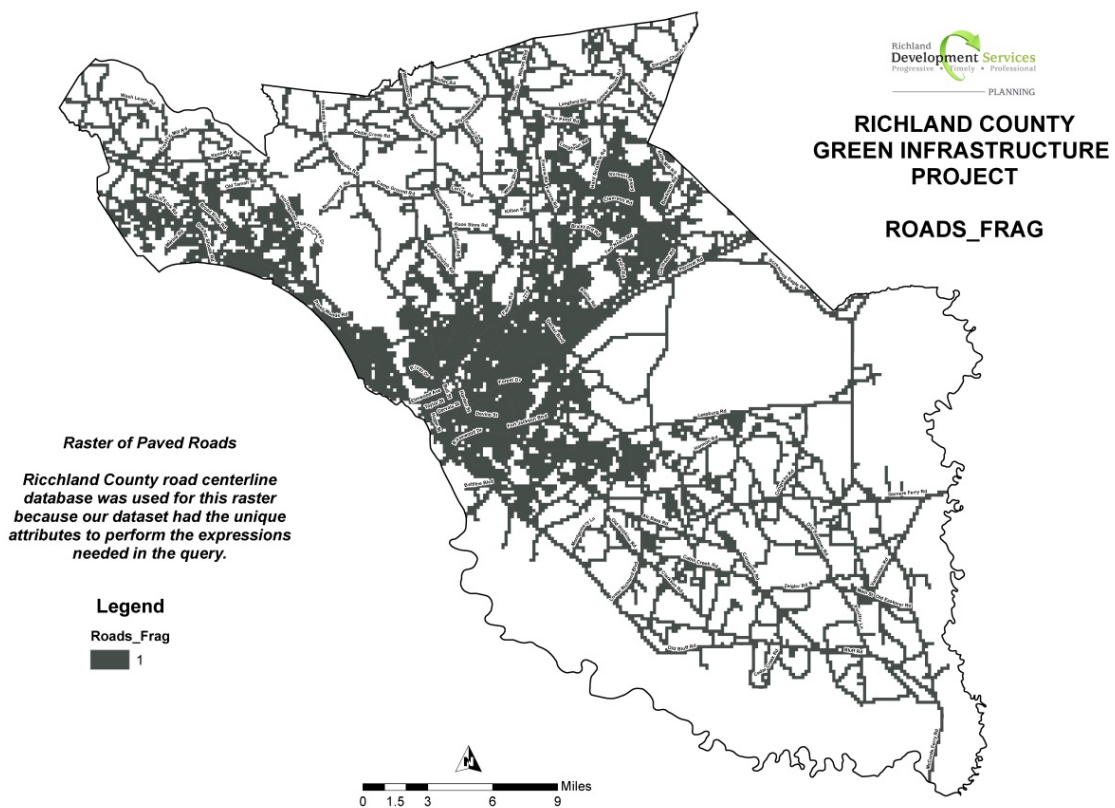


Figure 4: Road Fragment Raster

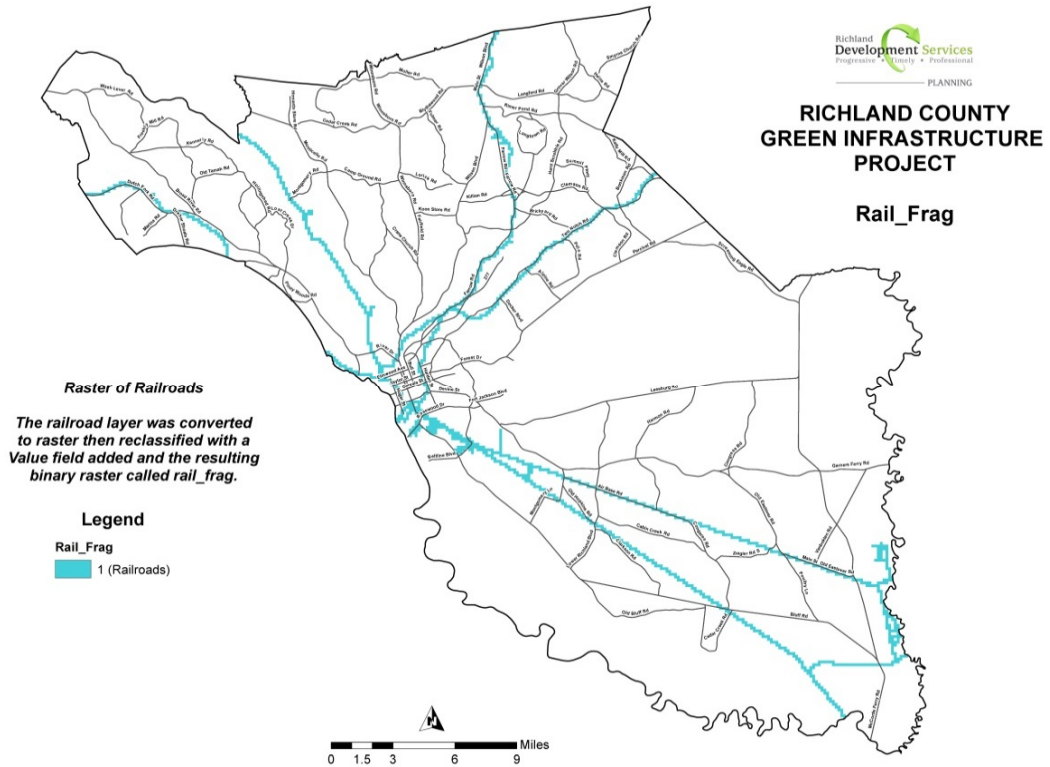


Figure 5: Railroad Fragmentation

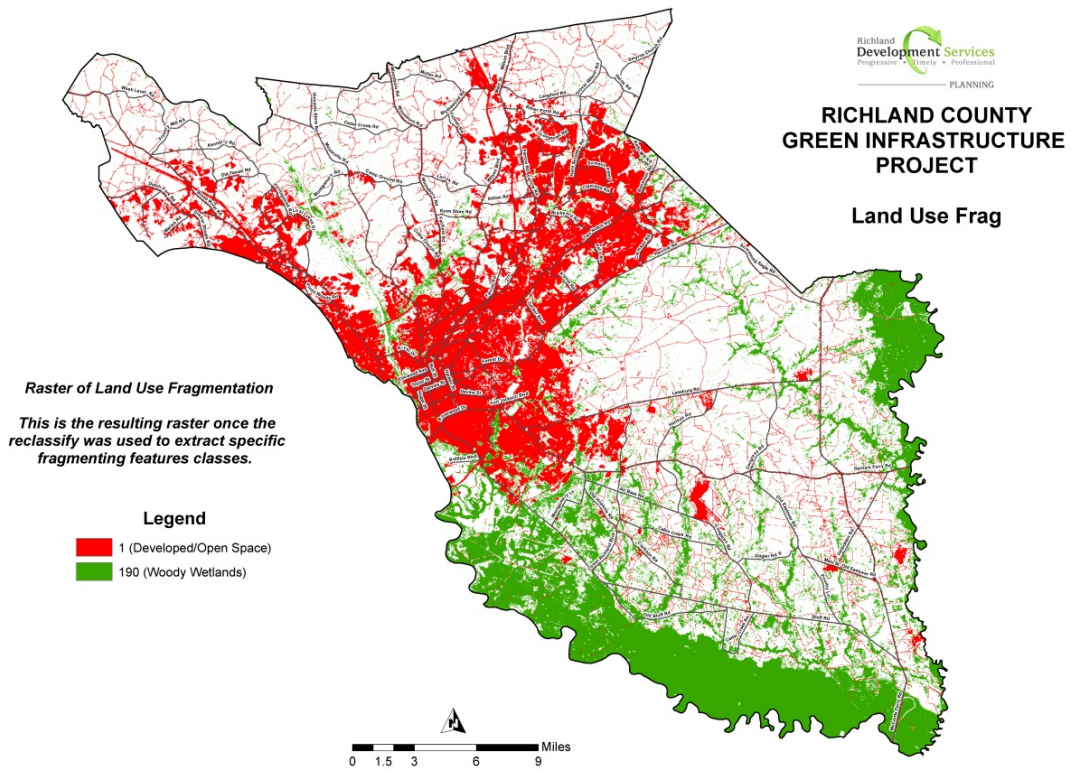


Figure 6: Land Use Fragmentations

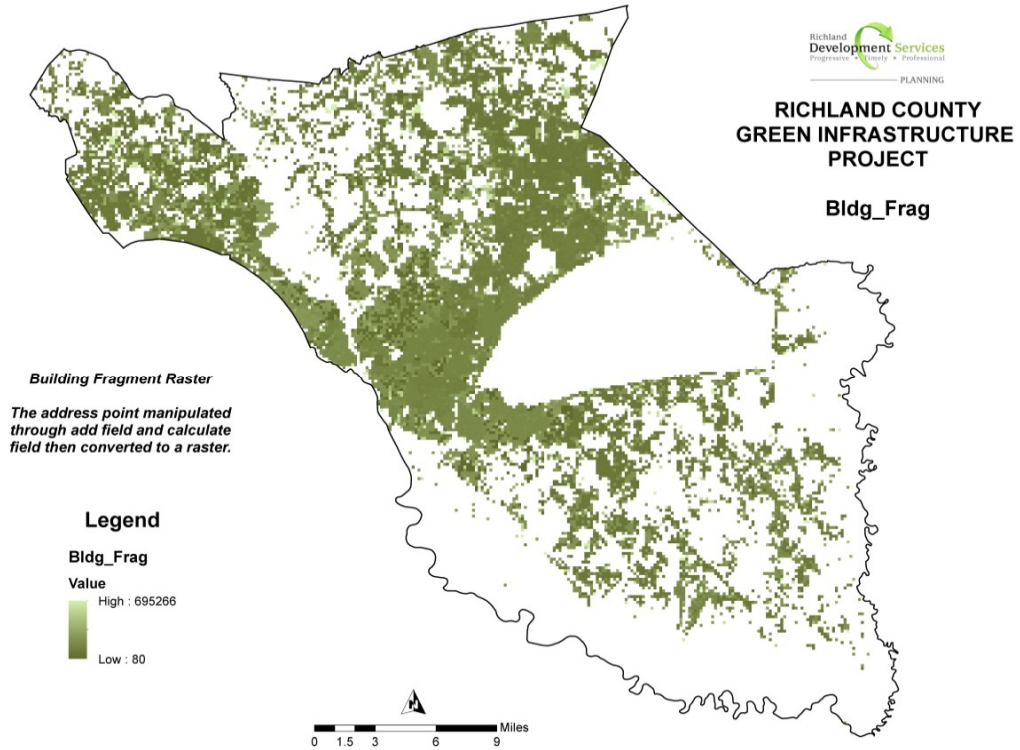


Figure 7: Building Fragment Raster

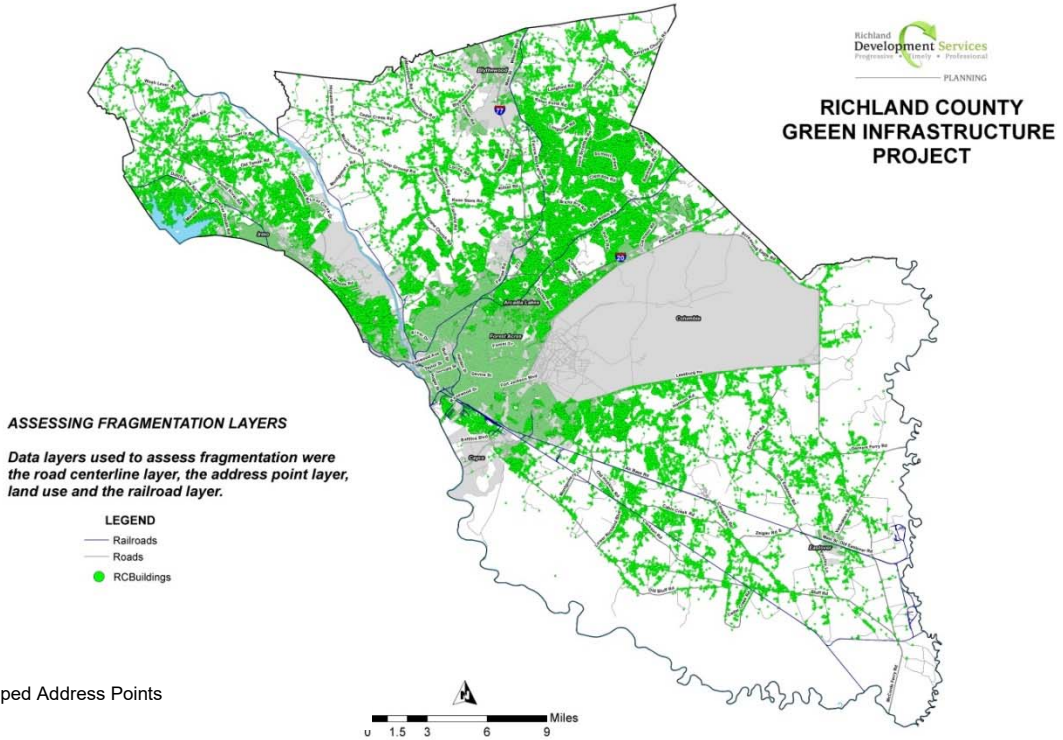


Figure 8: Mapped Address Points

The two graphics on this page represent the raster of the address points at the top and the actual mapped address points at the bottom

The cell statistics tool calculates a per-cell statistic from multiple raster datasets. The tool was executed with the “Maximum” option that determines the largest value of the inputs on a cell-by-cell basis. Using the Cell Statistics tool the raster images of the roads, railroads, buildings and land use were combined. Fragmenting cells were extracted from the combined raster using the Extract by Attributes tool. The output raster was Frag Cells

The Euclidean Distance tool measures the straight-line distance in a raster from each cell to the closest source; the source identifies the objects of interest, such as wells, roads, or in this case cores. The distance is measured from cell center to cell center. To identify the Edge Habitat Zones, the Euclidean Distance tool was used with a maximum distance of 100. The output raster was Edge Zone

The Raster Calculator tool allows you to create and execute Map Algebra expressions inside a tool. A specific expression was entered into the raster calculator to remove the edge zones from the raw core habitat raster and to identify interior core areas. The raster calculator was used a few steps later with a different expression to add edge habitat that had a natural land cover attribute type.

A zone is composed of all cells in a raster with the same value. Regions are a contiguous set of cells of the same zone type. Zones can consist of several disconnected regions. When the regions need to be processed separately, each must be identified as a separate entity. The Region Group tool assigns a new value to each region in a raster. Region group was used to identify and group unique cores within a certain distance of each other and the “extract by attributes” command to remove all cores 10 acres or less. To achieve this, first input the results of the region group then enter a where clause: Count >= 45. The operation will select only the cores composed of more than 45 cells because that is the approximately number of cells that equal 10 acres when using a cell size of 30 meters. The output raster was Cores Culled.

Not only can you determine the distance each cell is to the closest source, you can also calculate for each cell the direction with Euclidean Direction and determine which source is the closest with Euclidean Allocation.

The background value was calculated to NoData using the Set Null tool. Set Null sets identified cell locations to NoData based on specified criteria. It returns NoData if a conditional evaluation is true, and returns the value specified by another raster if it is false. The input conditional raster is cores culled, the expression: Value 0, the input false raster: cores culled and the output cores no null.

The output raster and potential edge areas surrounding the newly identified cores were located using the Euclidean Allocation tool. Any natural land cover type removed during

the previous process, were added back to the edge habitat raster using conditional expressions in the Raster Calculator tool. The output was Coretemp.

To create the final polygon layer, begin with the last two raster datasets created and use a conditional expression in the Raster Calculator tool to combine them. The results of the combination of Coretemp Raster and Core Habitat Raster produced Cores Raster Final, a single raster with unique cores. To create the polygon layer, use Cores Raster Final as the Input in the Raster to Polygon tool using the field option. The field or attribute to use from our raster is "Value" because it holds the data. The output polygon layer is Cores Poly

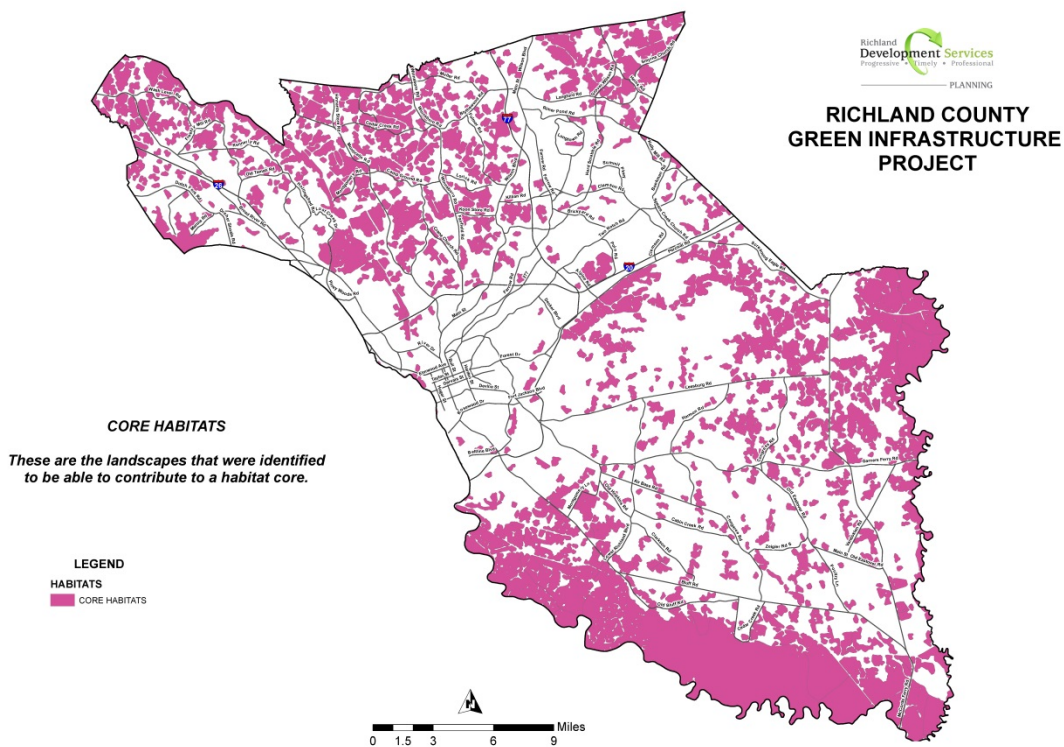


Figure 9: Cores in Polygon Format

Part 2

Calculate Metrics for Each Core

After unique cores were identified, several metrics needed to be calculated for each one. These statistics would help rank and prioritize in addition to providing useful measurements about the composition of each core.

Statistics were calculated for geometrics; topographic diversity; the average species richness; the amount of aquatic habitat; wetlands habitat; soil diversity; abundance of rare, threatened and endangered (RTE) species; the diversity of rare, threatened, and endangered (RTE) species; and the total length of streams.

Most of the statistics were calculated using the Zonal Statistics as Table command. However, intermediate processes called for the use of summary statistics, dissolves, spatial joins, and intersects. The geometric statistics was calculated with Zonal Geometry as a Table. The table below represents Richland County's GeoStats table. This table includes the attributes area, thickness, perimeter, and centroid coordinates. Each table has a unique set of attributes.

VALUE	AREA	PERIMETER	THICKNESS	XCENTROID	YCENTROID	MAJORAXIS	MINORAXIS	ORIENTATION
1	14238700.000	62821.200	774.205	505669.000	3789020.000	3491.040	1298.270	2.833
5	10422100.000	42470.700	911.571	512273.000	3789320.000	2676.210	1239.610	1.156
27	13015400.000	40701.100	781.947	473449.000	3786320.000	2431.150	1704.100	147.397
45	12624000.000	63706.000	553.004	511917.000	3785190.000	3117.200	1289.080	80.370
49	28859000.000	188464.000	553.004	517054.000	3785160.000	3265.460	2737.750	147.933
71	14825800.000	79632.500	553.004	496835.000	3786310.000	2479.200	1903.520	1.197
73	11792200.000	53083.400	553.004	486435.000	3784880.000	2623.700	1430.640	174.394
83	21822800.000	130951.000	469.168	501250.000	3783110.000	3648.670	1903.820	102.296
97	16783000.000	76093.300	598.792	479932.000	3782400.000	3542.690	1507.950	143.915
105	13357900.000	56185.200	469.168	492845.000	3784630.000	2626.430	1618.910	159.994
120	15804400.000	65033.200	781.947	473475.000	3782260.000	2626.100	1945.660	86.414
149	13211100.000	85383.800	690.370	477581.000	3780910.000	2163.170	1944.020	12.388
152	8220250.000	34005.000	469.168	485965.000	3782250.000	2216.220	1180.650	179.258
159	8220250.000	40701.100	377.591	489702.000	3782430.000	2084.830	1256.060	90.525
161	11058200.000	48664.300	690.370	497758.000	3781280.000	2430.240	1448.390	112.321
167	19180600.000	71226.900	774.205	493334.000	3780980.000	2849.550	2142.570	12.043
181	13602600.000	69899.700	553.004	483731.000	3778770.000	2828.290	1531.030	44.485
197	19229500.000	102195.000	690.370	487292.000	3777960.000	3441.300	1778.670	46.146
281	10764600.000	41143.500	1003.150	492952.000	3776170.000	2367.800	1447.120	96.856
297	7437370.000	44240.300	553.004	495985.000	3776960.000	2222.780	1065.060	102.237
307	8954210.000	45125.100	598.792	499103.000	3777450.000	1928.400	1478.020	25.867
321	13113300.000	99098.300	553.004	515885.000	3777410.000	3199.040	1304.790	145.552
340	8073460.000	37161.800	469.168	490479.000	3775900.000	1918.850	1339.270	90.681
352	16293700.000	122989.000	377.591	504011.000	3776590.000	2774.590	1869.270	24.501
363	29798400.000	173422.000	690.370	476426.000	3776000.000	4077.140	2326.420	162.935
394	9296720.000	49106.700	598.792	494077.000	3772850.000	2256.750	1311.290	58.878
403	24220400.000	115910.000	911.571	489235.000	3771910.000	3701.210	2082.990	143.028
404	12232500.000	87153.400	469.168	500308.000	3773300.000	2899.790	1342.760	135.359
435	22605700.000	180500.000	377.591	496215.000	3768810.000	3665.780	1962.920	67.678
443	102215000.000	510975.000	690.370	521961.000	3766170.000	8270.890	3933.800	120.681
452	98447300.000	257479.000	2643.140	531383.000	3764140.000	8355.430	3750.470	84.167
455	13553600.000	104849.000	598.792	508029.000	3773090.000	2648.810	1628.750	68.119
472	38263300.000	226510.000	690.370	509341.000	3767300.000	4716.500	2582.340	28.439
619	12036800.000	88038.200	377.591	515596.000	3762200.000	2704.680	1416.590	81.333
650	23780000.000	193330.000	331.802	509859.000	3760870.000	3818.760	1982.170	186.265
699	7437370.000	53530.800	377.591	522276.000	3759120.000	2531.690	935.101	114.937
730	27988000.000	168556.000	781.947	519526.000	3757180.000	3479.630	2560.290	138.220
829	4746220.000	29198.600	377.591	530464.000	3754420.000	1463.330	1032.420	94.752
839	10275300.000	66802.800	377.591	527102.000	3753740.000	2250.710	1453.200	29.904
856	4893010.000	26986.600	469.168	533335.000	3754560.000	1516.030	1027.350	27.541
874	11792200.000	72111.700	598.792	506655.000	3755070.000	2310.360	1624.670	36.418
881	210057000.000	361886.000	2681.180	514107.000	3743740.000	16391.500	4079.130	153.384
890	10520000.000	88480.600	331.802	499013.000	3755330.000	2715.480	1233.160	112.036
905	9688160.000	42470.700	911.571	508718.000	3753370.000	3058.390	1008.320	48.522
925	8807420.000	54415.600	598.792	533719.000	3750260.000	2362.870	1186.470	106.136
939	5186590.000	34507.400	377.591	528672.000	3751380.000	1733.390	952.435	17.795
944	13455800.000	71226.900	774.205	510698.000	3752160.000	3786.060	1131.280	53.438
969	12819700.000	88923.000	377.591	513145.000	3750400.000	3193.450	1277.810	64.672
973	7779880.000	62378.800	331.802	530242.000	3748880.000	1863.890	1328.630	71.713
989	18789200.000	133606.000	377.591	518717.000	3749660.000	2807.890	2129.990	118.142
1003	18789200.000	145993.000	377.591	524863.000	3747530.000	2792.370	2141.830	123.394
1066	11351800.000	65475.600	553.004	533060.000	3744950.000	2445.190	1477.750	109.349
1095	7877740.000	51761.100	469.168	515053.000	3746040.000	1852.860	1353.350	18.807
1157	10520000.000	61494.000	553.004	529482.000	3742610.000	2003.540	1671.350	141.606
1171	29407000.000	57512.400	2238.780	532457.000	3738580.000	3507.540	2668.690	139.985

Figure 10: GEO STATS Table

To prepare the Cores Poly layer to accept data from the statistics tables, their field names had to be added to the layer. The "add field" tool was used to add the field names making sure the field type was doubled. All of the names could be added at the same time but the format must be exact, meaning each field name was in all caps, enclosed in double quotes, and separated by comas. The step was repeated for each metrics table.

The next step involved joining the tables with the metrics to Cores Poly feature class. I added Cores Poly to ArcMap and used the join option there. The tables were joined to Cores Poly and the appropriate fields were populated using the expression provided.

Part 3:

Calculating the Core Quality Index

The goal of the second major step is to rank the habitat cores now that they have been identified. This is the first step in defining priority areas for conservation. This step involves using additional datasets to learn more about the cores that have just been identified. To rank the cores, it is necessary to use additional data layers to compute statistics about the cores, which can be summarized in a composite “score.” This score, called the Core Quality Index, represents the quality of the core using quantifiable metrics.



Figure 11: Metrics Used to Rank Cores

Each core is ranked according to ten attributes. They are area (acres), thickness (how many feet across at its widest), topographic diversity (standard deviation of elevation), species richness (mean predicted number of species), percent wetland cover, and soil

diversity (number of SSURGO associations). Also compactness ratio (optimal shape), stream density (linear feet per acre), and abundance of rare, threatened, and endangered species (number of total observations): and the diversity of rare, threatened and endangered species (number of unique species observed).

Based on the values, the cores are divided in quintiles for each ranking attributes and given a score corresponding their quintile, 1 through 5, with 1 being the lowest score (values in the 20th percentile). The scores for each value are then added, with a weighting factor applied to each score. The weighted factor placed on each category is an important factor in deterring the core quality index.

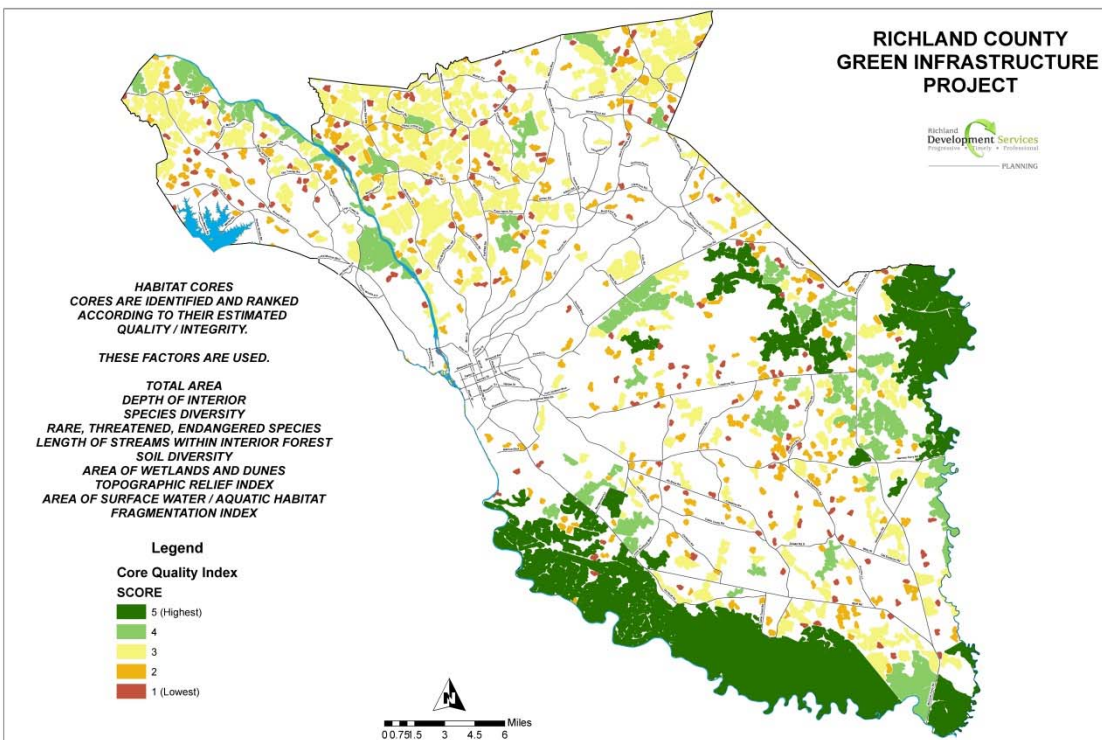


Figure 12: Core Quality Index Ranking

These are the intact habitat cores for Richland County and serves as a base map. The rankings are from 5 to 1. The highest core quality index is 5 (Green) while the 1 (red) have the lowest core quality index.

The final core polygon layer includes many valuable attributes such as CLASS. The breakdowns in Class Categories are Habitat Fragment (10-99 Acres), Small (100-999 Acres) Medium (1,000 – 9,999 Acres) and Large (> 10,000 Acres).

Part 4:

Assess Risks:

What assets are most at risk and what could be lost if no action is taken? Risk refers to whether a natural asset is likely to remain intact or not and will help to prioritize which area to conserve, how to rank them, and what actions may or may not be needed to protect them. Land uses can change and many lands may convert from one use to another, which is why it is so important to know what you have and which resources are likely to remain the same and which may change or even disappear using some type of analysis.

The Richland County risk assessment analysis included: checking areas zoned for development to see if they overlapped key natural resources; finding the areas at risk from natural disasters, such as extreme flooding; determining which of our natural resources are most threatened by present zoning and planned development districts; and where are the impaired areas where habitats can be restored.

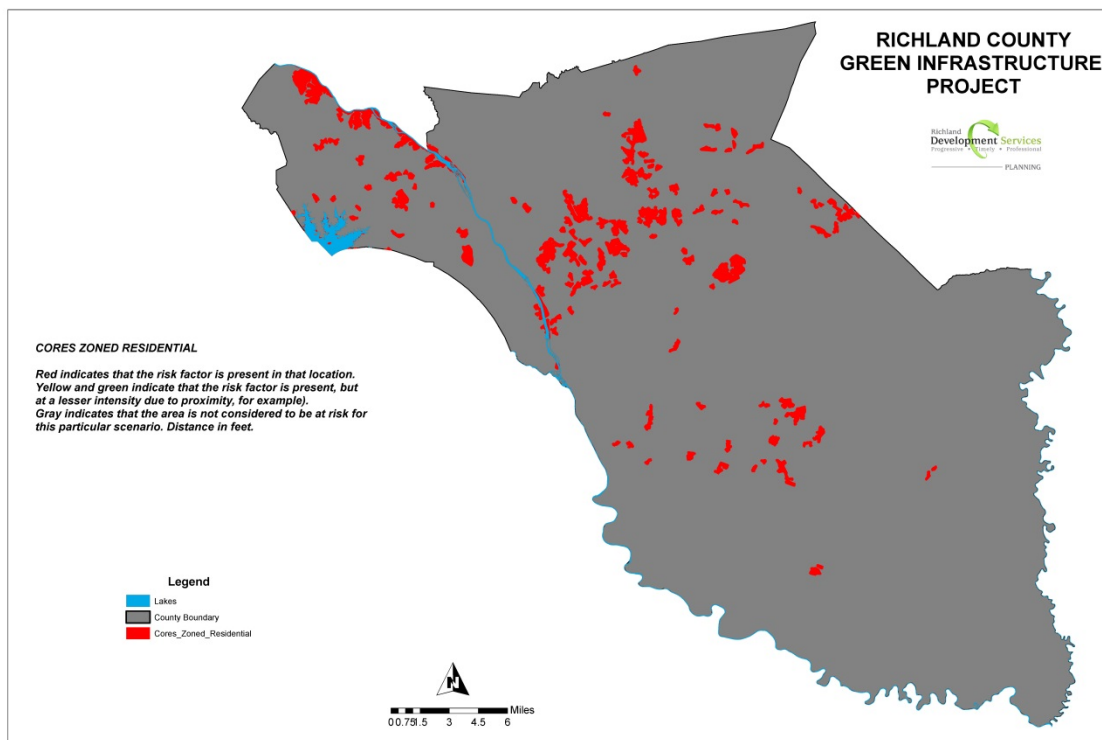


Figure 13: Cores Zoned Residential

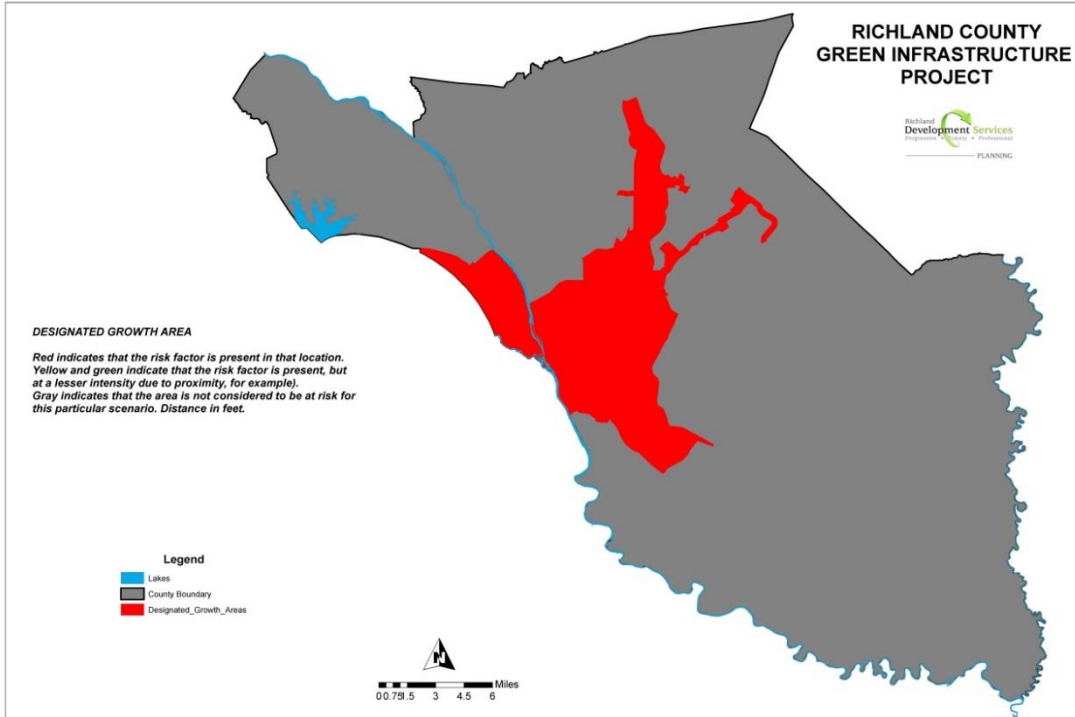


Figure 14: Designated Growth Areas

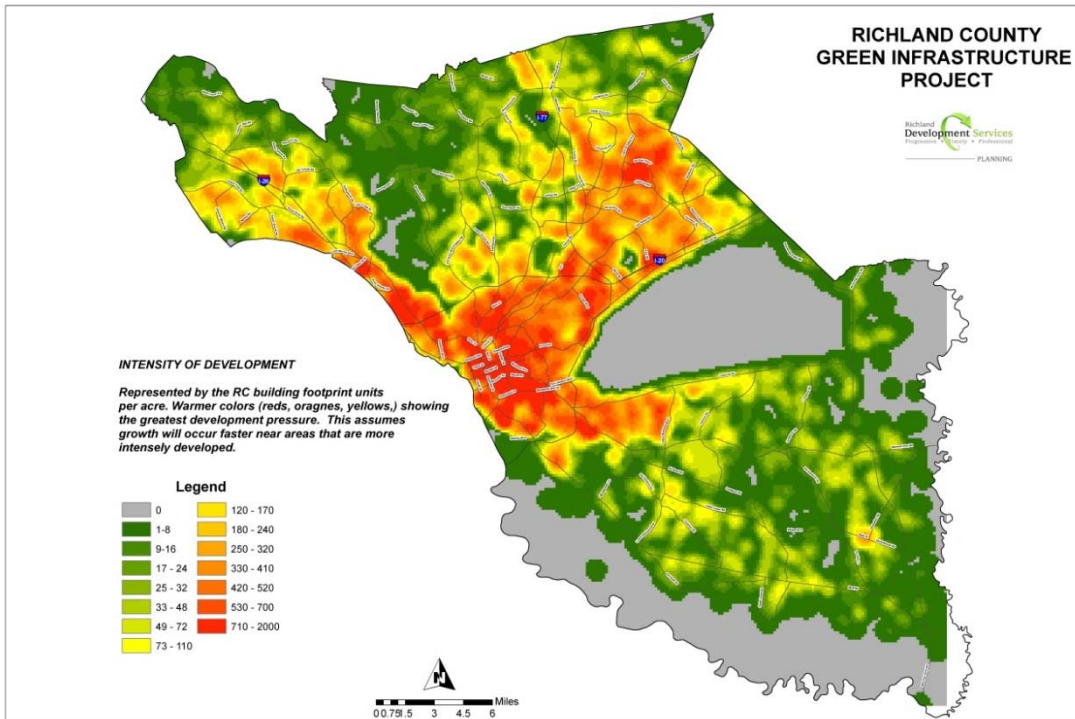


Figure 15: Development Intensity Raster

The intensity of development map was created by using the address points. This shows the development pressures throughout Richland County. The areas in green have a low concentration of population because of a lack of existing infrastructure, floodplain area, protected wetlands, incompatible zoning or other restrictions. Many of those options can

change so it is time for the County to consider recommendations for restoring, conserving, and protecting areas through our existing policies and the Green Infrastructure Plan.

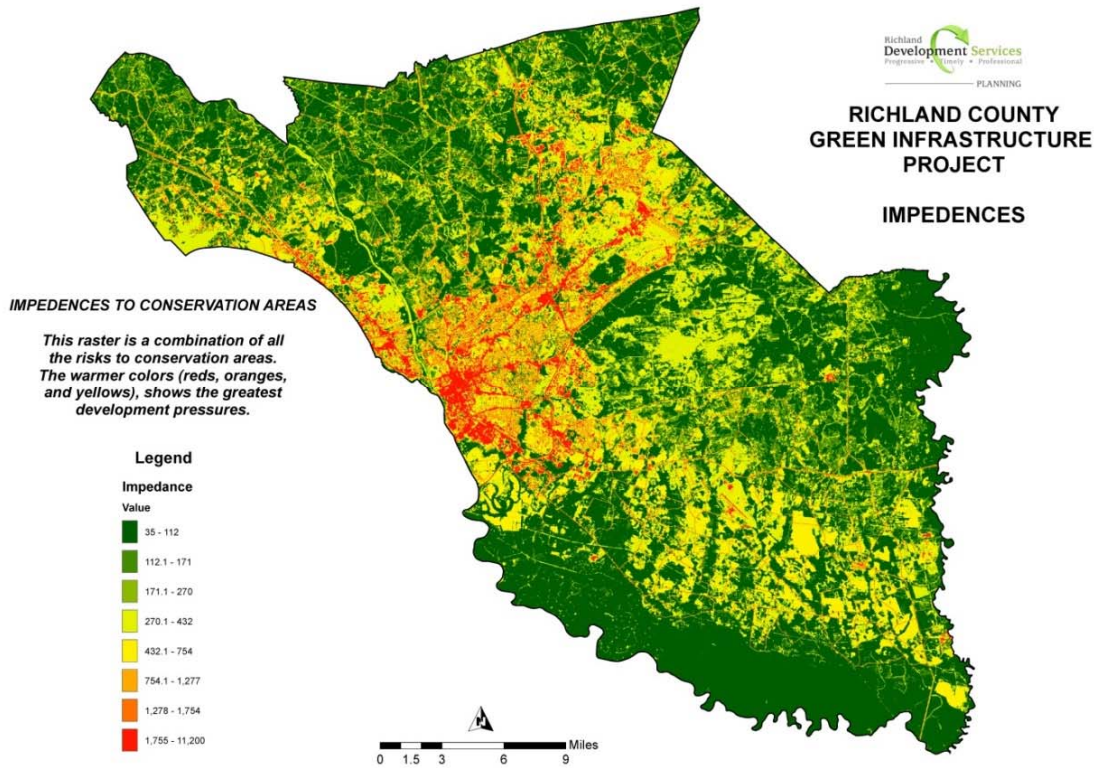


Figure 16: Impedance Raster

Having created asset maps, risk maps including the impedance map and studying the information at length, there was one final map to compare before making the final list of our priority areas.

The future land use vision for the County has been updated to provide a more refined land use framework that sets out uniquely urban, suburban, and rural areas. The Future Land Use map and categories provide guidance when making decisions about zoning and infrastructure investments by identifying the type and character of development that should occur in specific areas. Categories of the county's Future Land Use map when compared to the overall risk asset map complimented areas the data analysis identified as habitat areas with a high Core Quality Index.

Two categories in particular are Conservation and Rural (large lot) The Richland County Comprehensive Plan defines the Land Use and Character of **Conservation** as:

“Environmentally sensitive development that supports agricultural, horticultural, forestry, and related working lands uses, educational and research practices, recreational areas, and natural open spaces “

The Comprehensive Plan defines the Land Use and Character of **Rural (large lot)** as

“Areas of mostly active agricultural uses and some scattered large-lot rural residential uses. Limited rural commercial development occurs as Rural Activity Centers located at rural crossroads, and does not require public wastewater utilities. Some light industrial and agricultural support services are located here. These areas are targets for future land conservation efforts, with a focus on prime and active agricultural lands and important natural resources. Historic, cultural, and natural resources are conserved through land use planning and design that upholds these unique attributes of the community”.

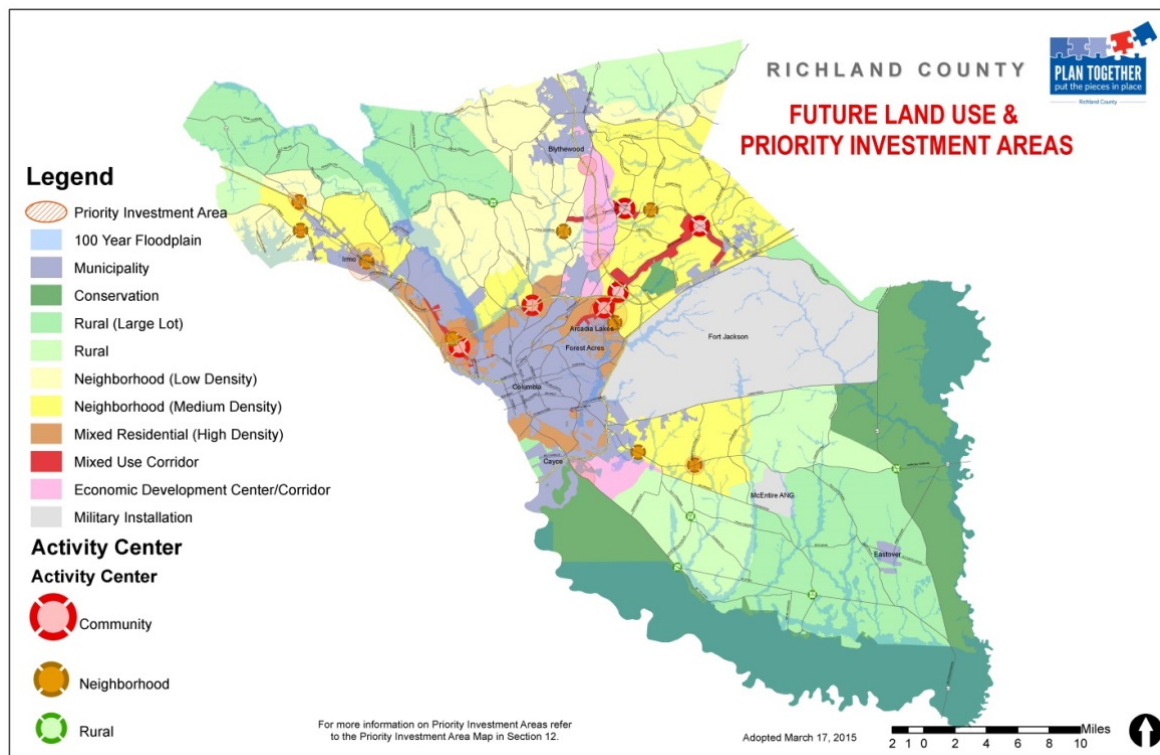


Figure 17: Richland County Future Land Use Map

Part 5:

Determine Opportunities

Based on the assets and risks identified we chose four (4) priority areas that should be conserved, protected, restored or improved. They are shown below.

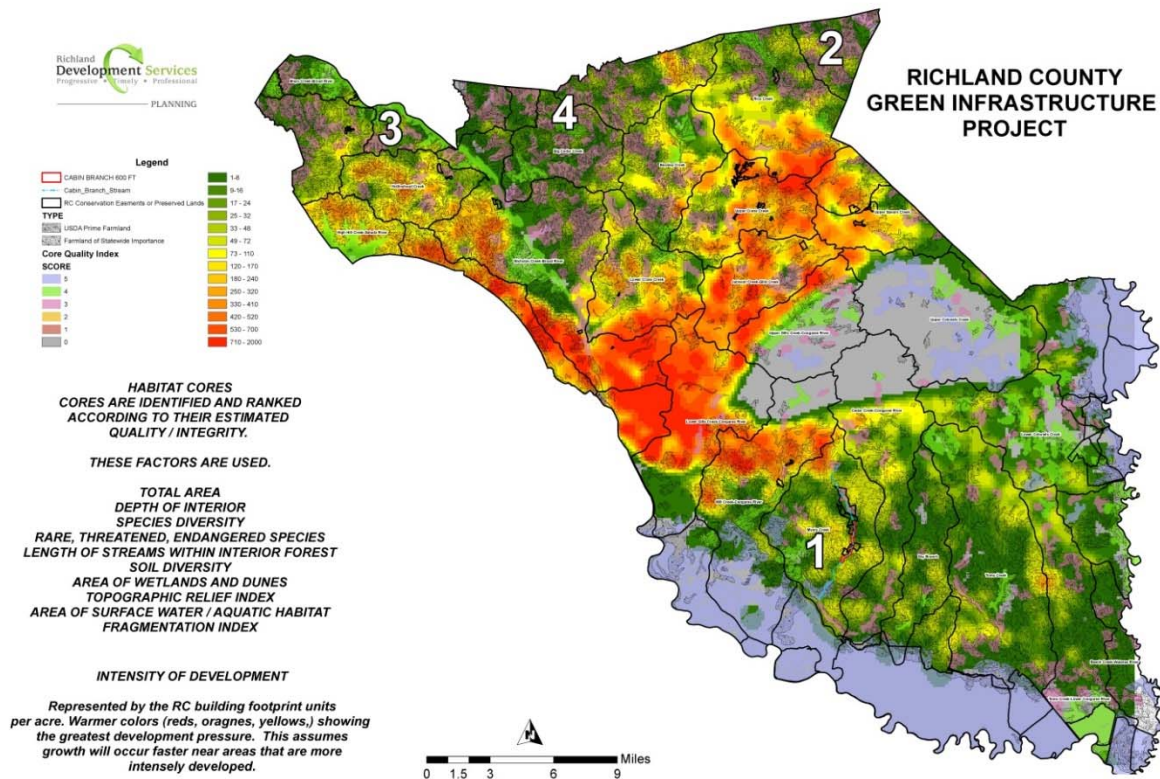


Figure 18: Priority Areas

The priority areas all have a high core quality index and are at risk of losing their natural assets. There are wetlands around Cabin Creek that need to be protected in order to ensure biodiversity and a healthy ecosystem in priority area 1. Priority area 2 is an area that is still uniquely rural so we can save money by directing development into area where services already exist and conserve the community character and heritage. Priority area 3 is an area that we want to preserve and promote for natural resource-based recreation like hiking, boating, hunting and fishing. Priority area 4 is an area where we want to maintain forested land cover in order to facilitate recharging groundwater aquifers for drinking water supplies.

We are fortunate to have a national park, state forest, state park, and heritage preserve, as well as thousands of acres in conservation easements within the county's

boundaries. Richland County has begun accepting more responsibility for natural resource protection through its acquisition of a mitigation bank and a conservation property. With this new Green Infrastructure tool, we will be able to identify and protect more of the uniquely rural lands and waters of Richland County for the benefit of future generations.

Part 6:

Implementation Opportunities

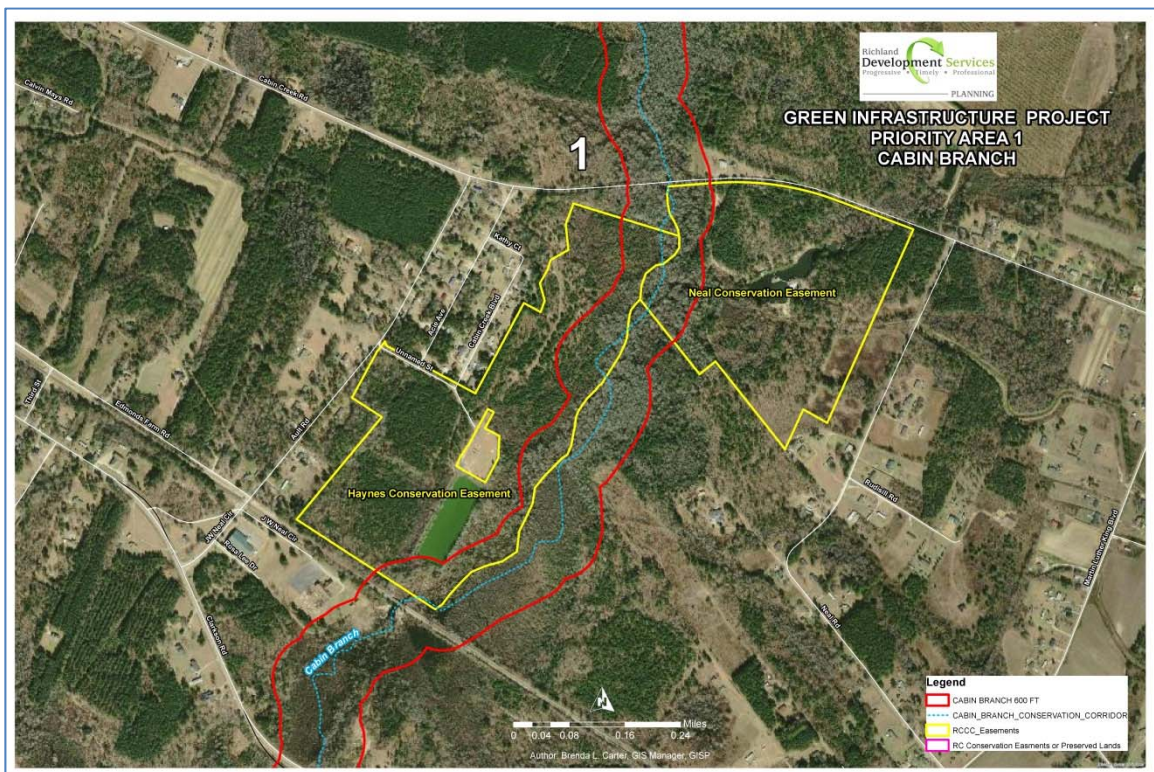


Figure 19: Cabin Branch Creek between Horrell Hill Rd and Clarkson Rd

Priority Area 1 : The county purchased a large tract of land for conservation purposes in 2014 which protects almost 2.5 miles of Cabin Branch. With two conservation easements in place on Cabin Branch, the county is pursuing easement with several dozen small landowners to maintain a vegetated buffer of at least 300 feet from each stream bank. The goal is to protect approximately 8 miles of stream, thus enhancing water quality, improving wildlife habitat, and potentially providing trails and greenways. Protecting Cabin Branch is important because it flows into Myers Creek, which joins Cedar Creek at the northwestern corner of Congaree

National Park, the main waterway through the park and the only Outstanding National Resource Water in South Carolina.



Figure 20: Twenty Five Mile Creek

Priority Area 2: The Northeastern most portion of Richland County is still rural although development is marching steadily in that direction. The county has focused on Twenty-five Mile Creek for conservation easements and a water improvement project through a 319 grant. The stream is on the 303D impaired waters list so staff is working with farmers to install best management practices to keep animals out of the stream. The county's Future Land Use Classification of the area is Rural (large lots). Our comprehensive plan classifies the area as the same. The goal of that classification is to protect the rural quality of the area. In order to be sure this area remains rural with its farms and forests, more protection is required.

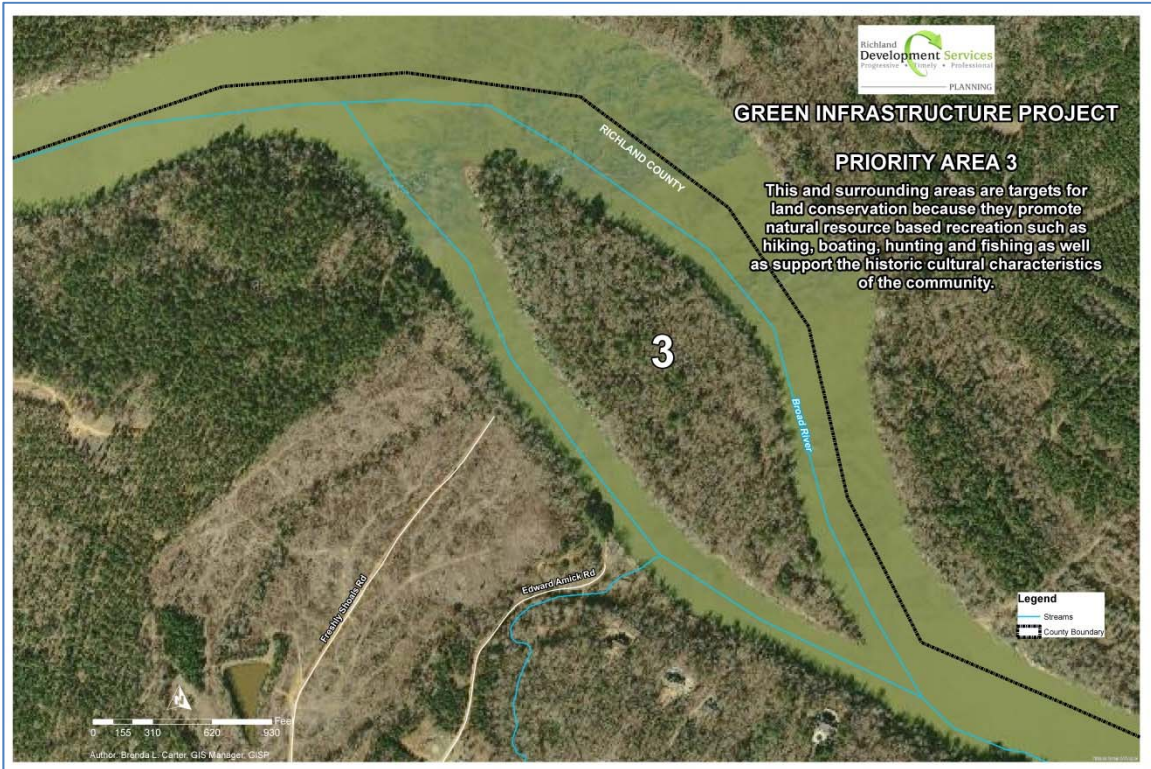


Figure 21: Broad River in Upper Richland County

Priority Area 3: The northwestern area of the county is experiencing many of the development pressures of the northeast. It has large tracts of undisturbed woodlands, steep slopes, and bountiful creeks. The Broad River is the defining natural feature of the area and many of the creeks drain to the river. The county has numerous easements scattered throughout but would like to concentrate easement activity in one or two areas to make more of an impact for water quality and wildlife. The intact habitat core analysis will be extremely helpful in those determinations. There are no public areas for passive recreation and access to the river is very restricted so the Green Infrastructure plan will help us identify suitable tracts. This area is zoned rural (large lot) by the Richland County future land use designations and could have added protection through the Green Infrastructure plan through an Green overlay district or enhanced regulations of existing ordinances and codes to include the Green Infrastructure initiatives. Protecting these lands will provide additional vital green space and offer greater opportunities for outdoor activities. Richland’s preservation efforts also may aid development efforts in adjacent counties where officials need to compensate for the loss of natural habitats. These areas are an investment in Richland County’s economic growth that will provide dividends to residents through cost savings, protection of natural resources and improved recreational opportunities.

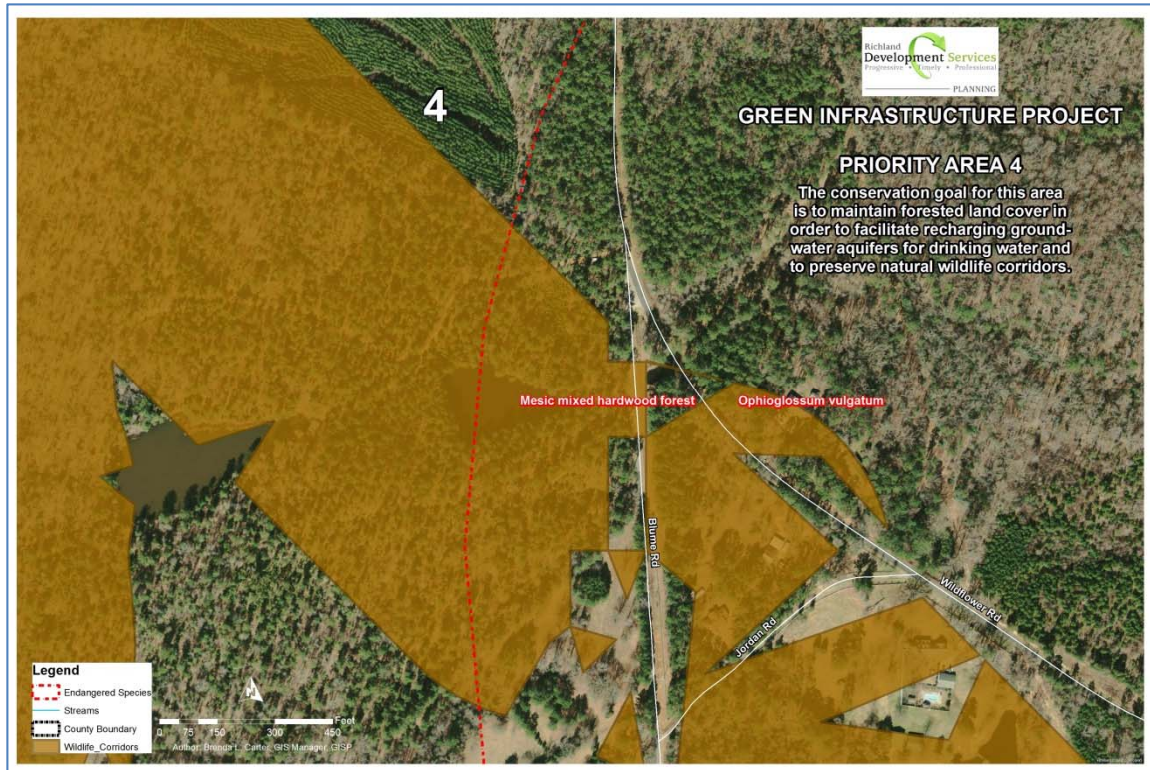


Figure 22: Upper portion of Central Richland County

Priority Area 4: The Cedar Creek community, in north-central Richland County, is an ideal candidate for preservation efforts, given its scenic rural character, strong community identity, and landowners with deep roots in the land going back many generations. The area has wildlife corridors, wetlands and endangered and threatened species. This area is zoned rural (large lot) by the Richland County Future Land Use designations. Rural (Large Lot) areas are targets for conservation easements and purchases of development rights programs undertaken by the Richland County Conservation Commission and the Soil and Water Conservation District. Developments should protect important natural features such as Carolina Bays, wetlands, creek banks, and floodplains to maintain the integrity and natural function of the County’s green infrastructure systems, active agricultural lands, prime farmlands, and erodible soils.

Conclusion

Planning GIS created a green infrastructure model for Richland County to guide strategically the planning efforts. Its subsequent green infrastructure map depicts the geography important to its natural resources. With the information, the county will promote and actively pursue land protection and acquisition with a focus on important natural resources by protecting and buffering high quality habitats.

The county will also use its Land Use Planning, regulations, and policies to balance natural resources protection with land development to help create attractive sustainable and desirable communities. One aspect would be by limiting imperviousness for all watersheds to less than 10 percent and utilizing conservation overlay districts to consider important natural resource areas. Another aspect is to update county zoning to reflect conservation priorities.

We must maintain and grow our coordination with conservation partners. Funding and incentives for on-going planning and conservation work includes strategies such as cost-share programs and conservation tax credits.

As always, education, outreach and stewardship are a key focus with each of these strategies

The Richland County Council recognizes the importance of the conservation of natural resources to enhance the quality of life for the citizens of the county and promote economic development and tourism. The Council created Richland County Conservation Commission in 1998 with the goals to: 1) Promote the conservation of natural resources; 2) Identify and promote the development and preservation of historical resources; 3) Promote passive outdoor nature-based recreation and; 4) Encourage and promote tourism emphasizing natural, cultural, and historical resources in Richland County among other goals and duties.

To incentivize developers to set aside land in association with residential development, Richland County has had various open space ordinances for over 25 years. The most recent ordinances since 2005 have permanently set aside 192 acres of undisturbed land.

In 2014, County officials conserved more than 2,300 acres of undeveloped land in Lower Richland where the properties, among other things, will provide additional vital green space and offer greater opportunities for outdoor activities. These properties are an investment in Richland County's economic growth that will provide dividends to residents through cost savings, protection of natural resources and improved recreational opportunities. These types of positive effects on our natural resources will pay off for generations to come.

SOURCES

Evaluating And Conserving Green Infrastructure Across The Landscape: A Practitioner's Guide by Karen Firehock (February 2015)

Keeping It Green In The Midlands: Preserving Open Space In South Carolina's Capitol Region Central Midlands Council Of Governments (2007) www.Centralmidlands.org

Richland County Conservation Commission
www.rcgov.us/Government/Commissions/ConservationCommission.aspx

Richland County Comprehensive Plan (2015)
www.rcgov.us/Government/Departments/Planning/ComprehensivePlanning.aspx

Richland County Conservation Department
www.rcgov.us/Government/Departments/Conservation.aspx

ESRI www.esri.com