

Green Infrastructure Planning at the Landscape Scale

A South Carolina Partnership Project

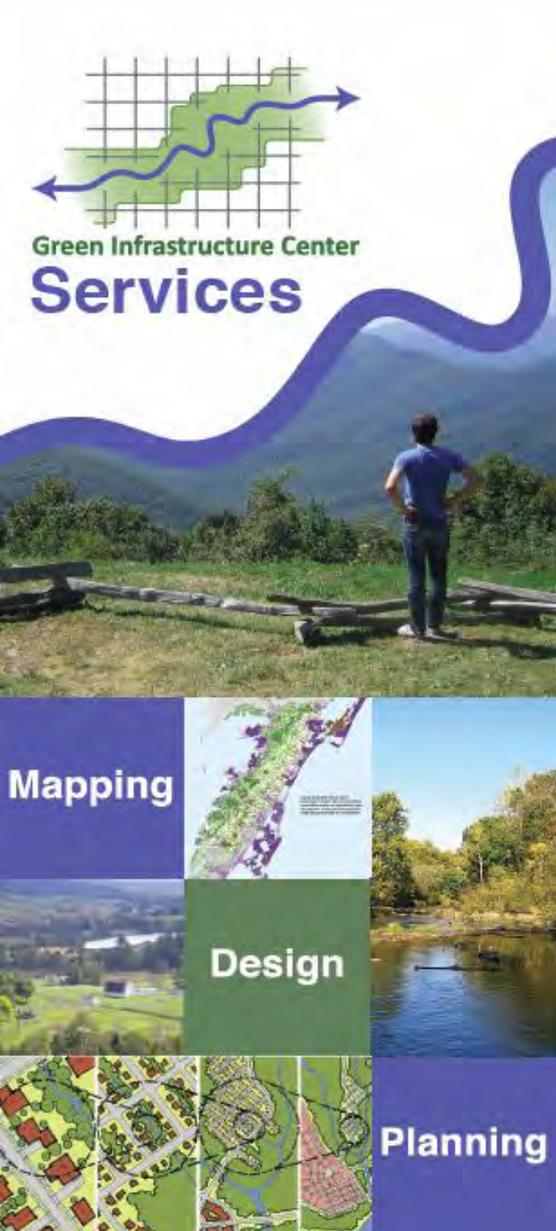


by Karen Firehock

Green Infrastructure Center Inc.

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Who We Are...

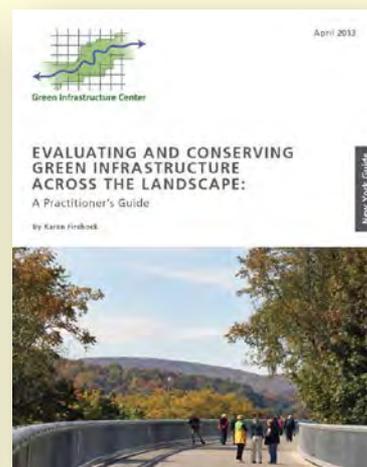
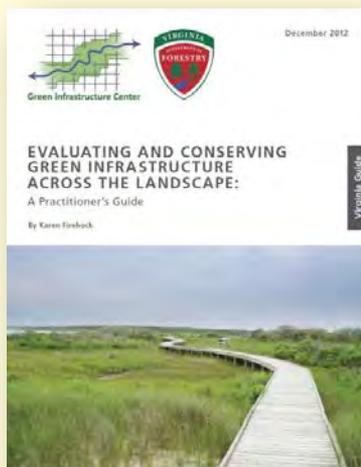
The **Green Infrastructure Center** is a nonprofit which helps communities evaluate their *green assets* and manage them to maximize *ecological, economic and cultural returns*.

We do this by:

Technical consulting and projects
Teaching courses and workshops
Research into new methodologies

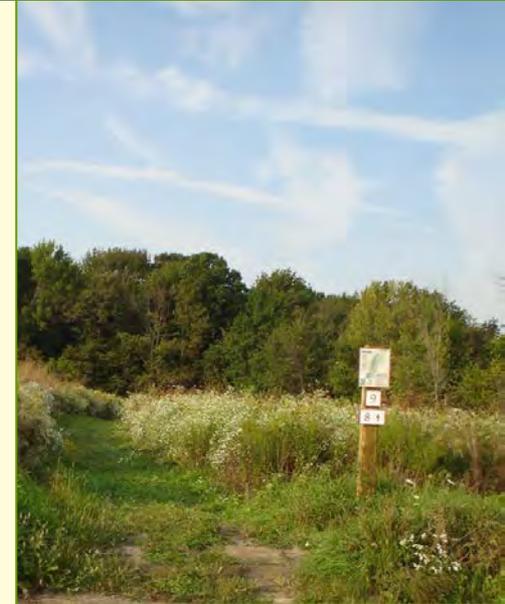
Case Studies and Models

Launched in Virginia, the GIC has conducted 15 projects from multi-county regions, to counties, cities, towns and watersheds. We have also worked in New York, Arkansas and North Carolina and are now working in South Carolina. We have partnered with the state to build a model to map green infrastructure connections. To view GIC's projects and case studies visit: www.gicinc.org/projects



Slide Show Topics

- Introduction to the Project
- Green Infrastructure Defined
- Green Infrastructure Habitat Concepts
- South Carolina's Green Infrastructure Model
- 6 Steps for GI Planning – adding in local data
- Applications for Planning
- Making the Case – Key Messages



A New Partnership Project for South Carolina

South Carolina Forestry Commission: launched the project and hired the GIC. The Commission oversees the project and will utilize the results to encourage counties to undertake a green infrastructure assessment. The project helps the Commission fulfill its stewardship role for SC Forests.

The Green Infrastructure Center: has created a computer model based on land cover and other environmental data to locate, rank and prioritize high value habitat.

State Agencies: can also use model to identify high priorities, areas at risk and key opportunities to conserve or better protect the landscape.

COGs and Counties: can use the model to inform everyday planning and zoning decisions, long range planning and more! Berkeley County has been selected as the test case.

Conservation Groups and Land Trusts: can use the model to prioritize their actions – tackling the most at risk/most unique places first.

Process Summary...

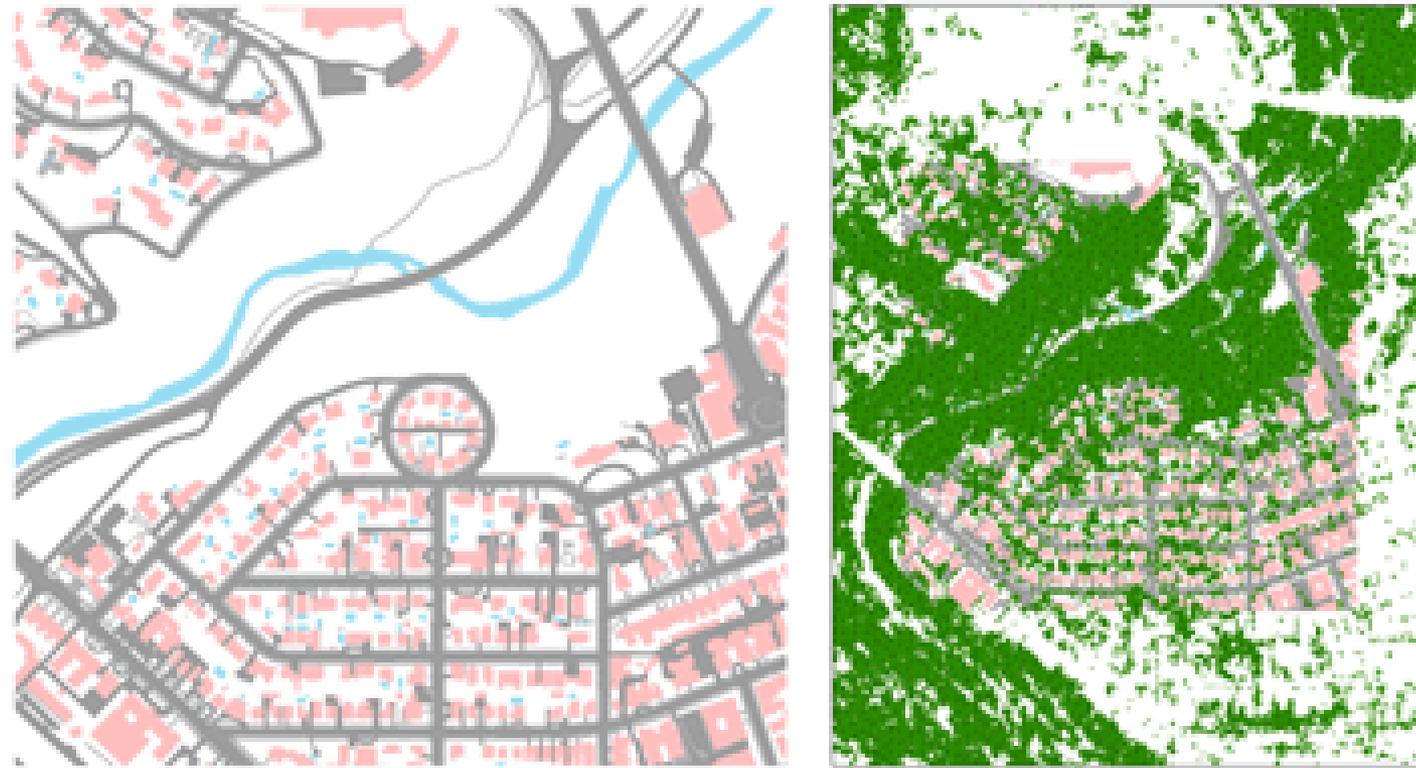
- 1) Coastal Counties solicited to request selection as a pilot county, interviews conducted and Berkeley County was selected.
- 2) State GI Model under peer review now.
- 3) State Data + County Data = GI Maps Berkeley
- 4) Case study to be written for Berkeley and included in state green infrastructure guide.
- 5) Any county or region can obtain the digital instructions to build their own models!

Infrastructure: What's in a name?

Infrastructure (n): the substructure or underlying foundation...on which the continuance and growth of a community or state depends.



What is Green Infrastructure?

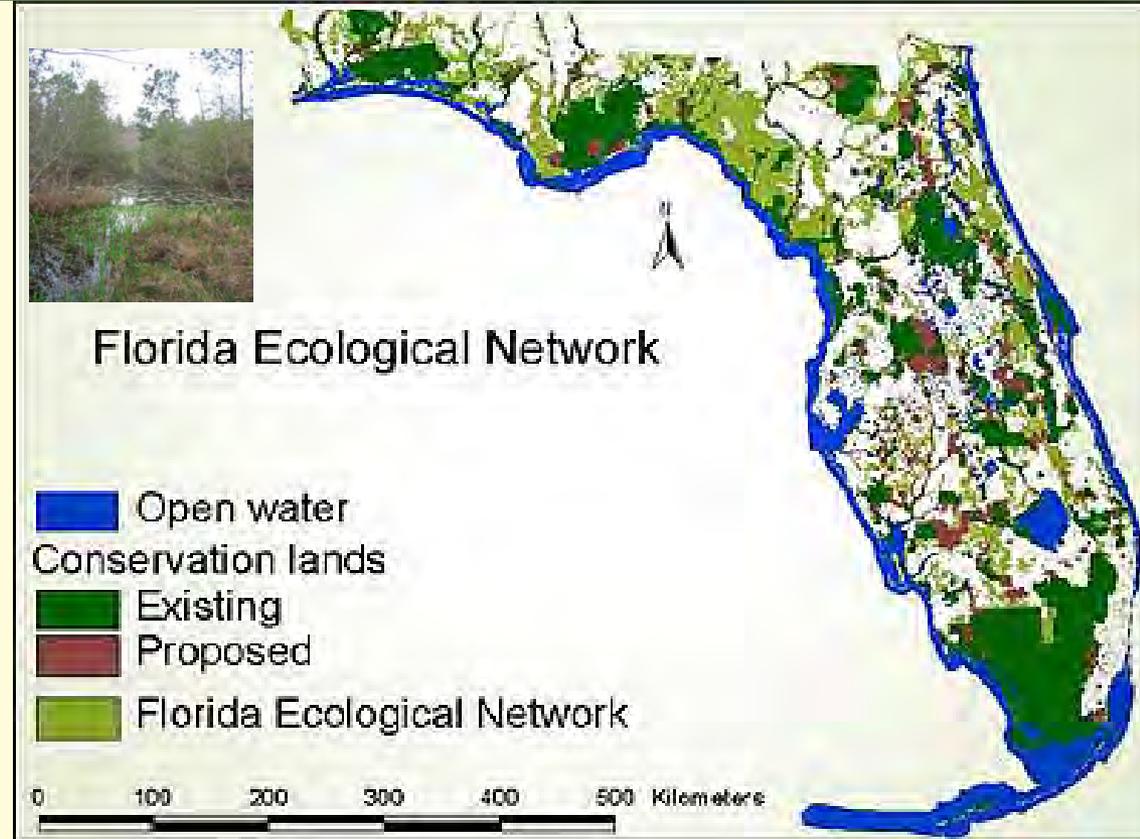


A planimetric map of a Washington DC shows a neighborhood's gray infrastructure including buildings and roads (left). Classified high-resolution satellite imagery adds a green infrastructure data layer (trees and other vegetation) (right). [Source: American Forests](#)

Origin of the Term “Green Infrastructure”

Florida coined the term “Green Infrastructure.” in a 1994 report to the governor on land conservation strategies.

It was intended to reflect the notion that natural systems are important components of our “infrastructure.”



When Did GI Definition Expand to Include BMPs?

2006: the U.S. EPA begins calling integrated best management practices -- previously referred to as **Low Impact Development** strategies -- “Green Infrastructure.” This led to confusion!



Used in concert – best management practices such as biofilters, no mow zones, permeable pavers, filter boxes, downspout protection and green roofs can significantly reduce urban runoff impacts.

How to think strategically about Green Infrastructure

For new development:

- 1) Is this the right site to develop?
- 2) If yes, how do natural features connect to other sites?
- 3) How can I minimize my site impacts (smaller footprint...) AND keep connections?
- 4) Once I have the right site, have maximized its connections and protected sensitive landscape features, *then and only then* can I ask, how to mitigate the impacts (hint: use LID approaches with a decentralized, small footprint, integrated approach)! Also consider restoring the site's natural features!

In summary, first ask, how can we avoid disturbing natural resources, then second, if we must disturb some area, how can we minimize impacts and lastly, how can we mitigate the harm caused. **So first, *conservation* and then, *mitigation* with LID.**



Think of Green Infrastructure as Natural Assets

Green infrastructure includes all landscape elements that support our existence.



Trees: the original green infrastructure!

Trees give us cleaner air, shade, beauty and stormwater benefits at a cost that is far cheaper than engineered systems!

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 species.

A nonprofit housing group once offered to do a green development by cutting down mature oaks to put in rain gardens! We told them save the oaks and their money! Trees were already working for free – and providing more benefits!



Natural Assets Include Land Suited for Forestry

Lands suited for forestry provide an ecosystem service and their locations vary and should be considered in land planning.

Forests currently occupy 67 percent or 13.1 million acres of the land area in South Carolina.

From 1992-97 SC had the 9th fastest rate of land conversion – from ag and forest to urban development.

And, while total acreage is important, the quality and intactness of these forests also matters. Forest fragmentation remains the greatest threat to southern forests.

While South Carolina's forest cover has been relatively stable in recent years, 60 percent of all forest lands are under private ownership of tracts less 10 acres. This can make it more difficult to manage these forests.



Natural Assets Also Support Cultural Assets

Natural assets support the landscape context for historic and recreation features.





Why do we need to identify and plan for 'green infrastructure'? When we don't do this we get...

Traffic congestion
Poor water quality
Bad air quality
Loss of critical habitat
Loss of working lands



While you viewed this slide, America lost another 3 acres of open space

Benefits of Conserving Green Infrastructure

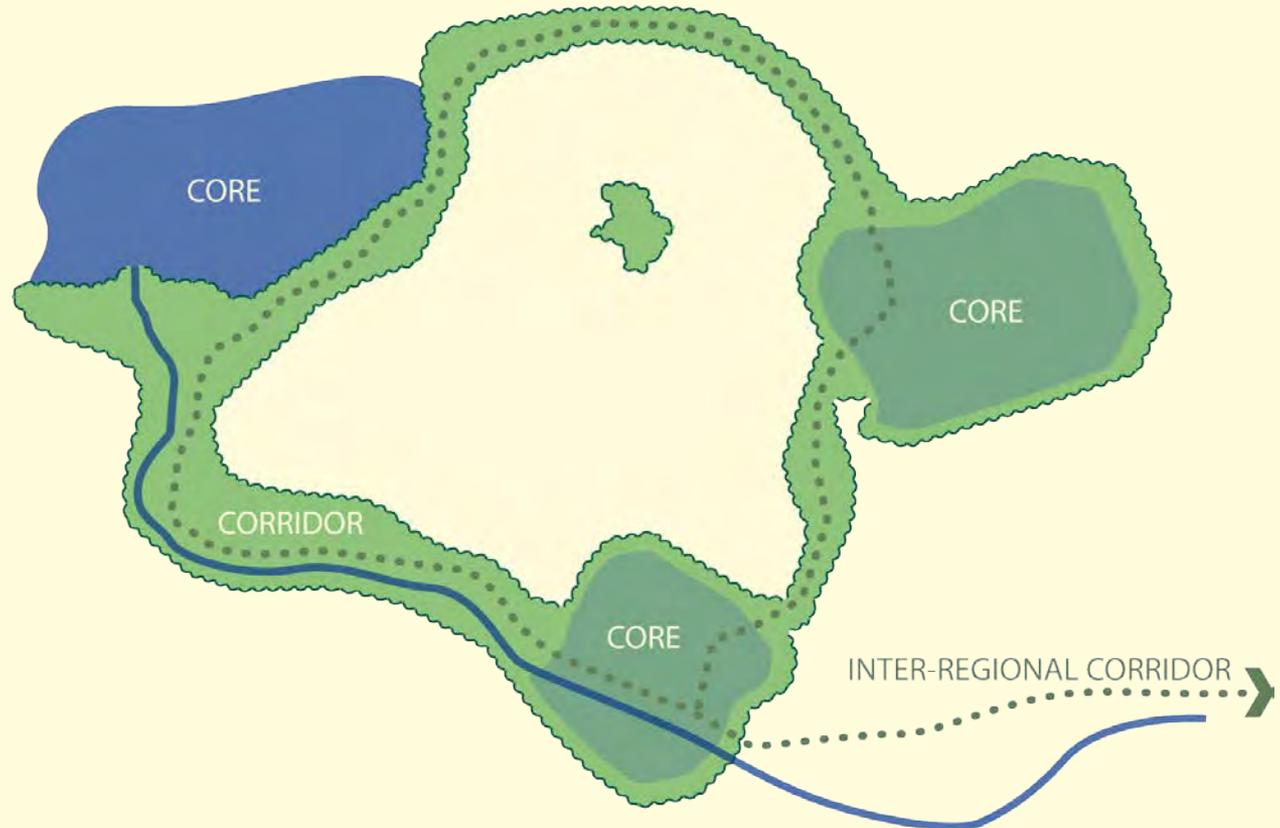
- ❑ Conserving working lands such as farms and forests, that contribute to the economy.
- ❑ Protecting and preserving water quality and supply.
- ❑ Providing cost-effective stormwater management and hazard mitigation.
- ❑ Preserving biodiversity and wildlife habitat.
- ❑ Improving public health, quality of life and recreation networks.



Green Infrastructure Planning For A Connected Landscape

It's about connecting the landscape!

Not just key habitats but how we connect them!



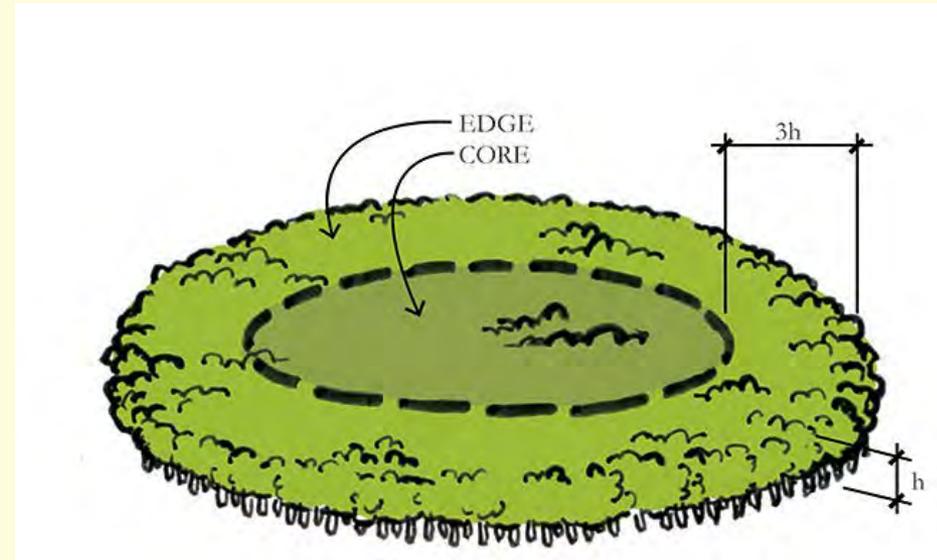
How to Calculate Interior Habitat

Take a distance of 2-3 “canopy heights” from the edge = 100 feet. Then, multiply by 3 to get edge.

Subtract the edge zone to learn what interior habitat remains and whether there is enough to constitute a core. If smaller, it may still be a key “patch” or “site.”

Interior = Total Area – 3(h)

Ideal interior \geq 100 acres



Who Prefers Interior Forest Cores?

Birds, e.g. cerulean warbler,
Scarlet tanager

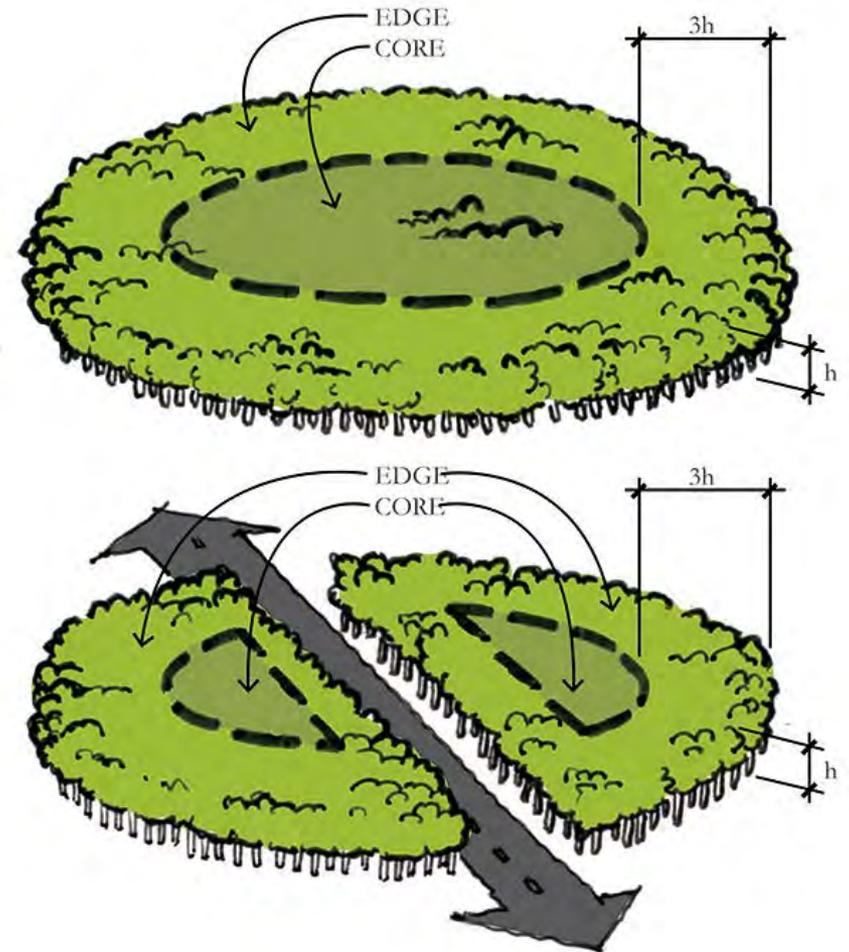


Mammals, e.g. black bear,
bobcat, n. flying squirrel

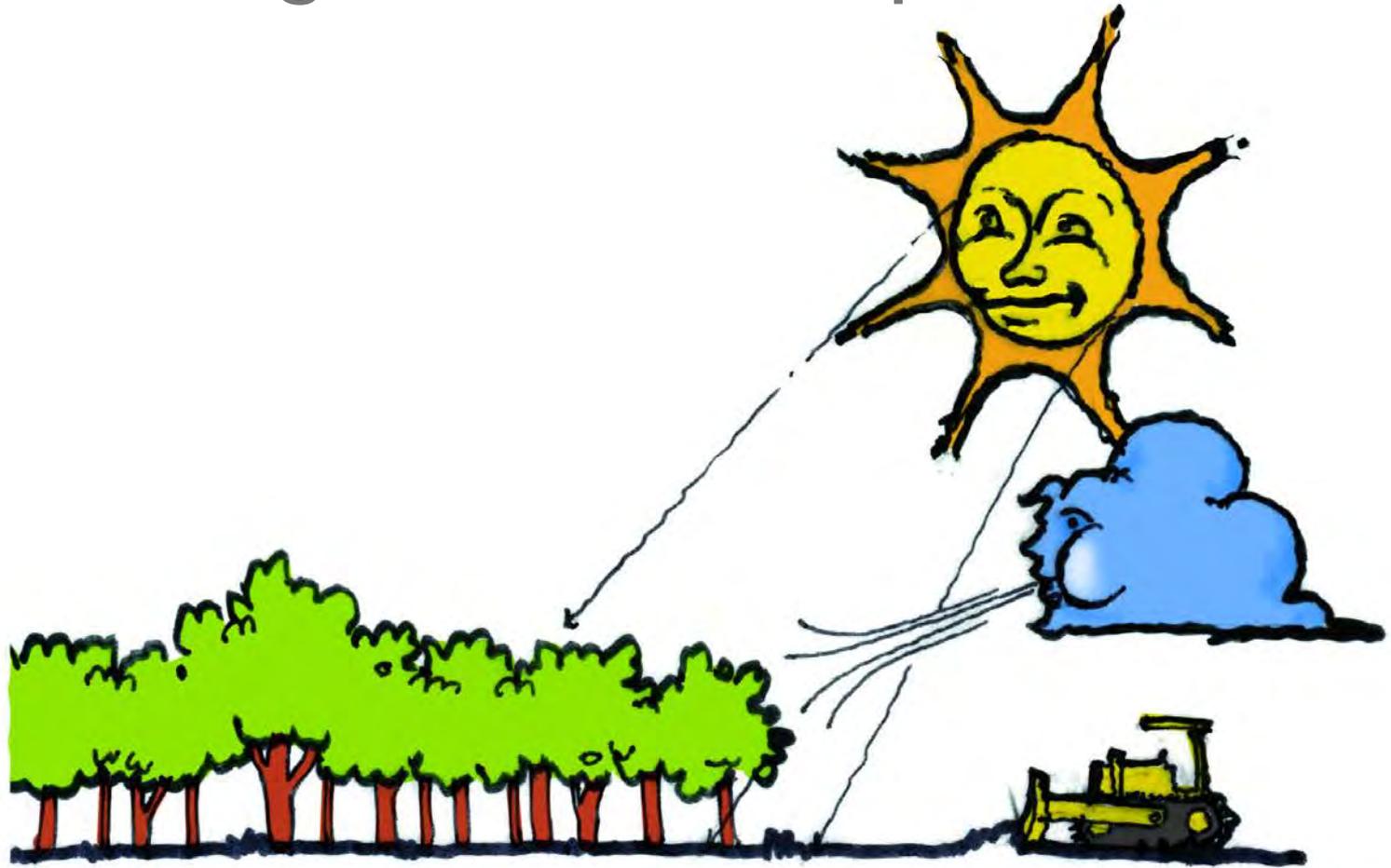
Amphibians, e.g. spotted
salamander



Dividing a large core into two smaller cores = less interior habitat after edge is subtracted



More Edge = More Impact Zones

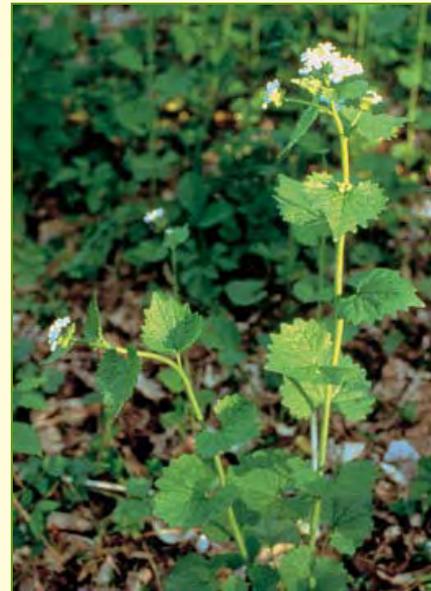


Who Causes Trouble at the Edges?

Brown Headed Cow Bird

Invasive plants/trees

Domestic (and wild) cats



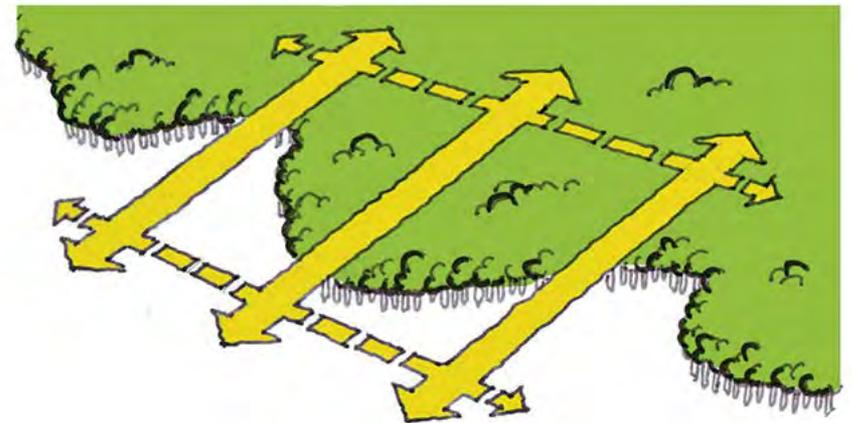
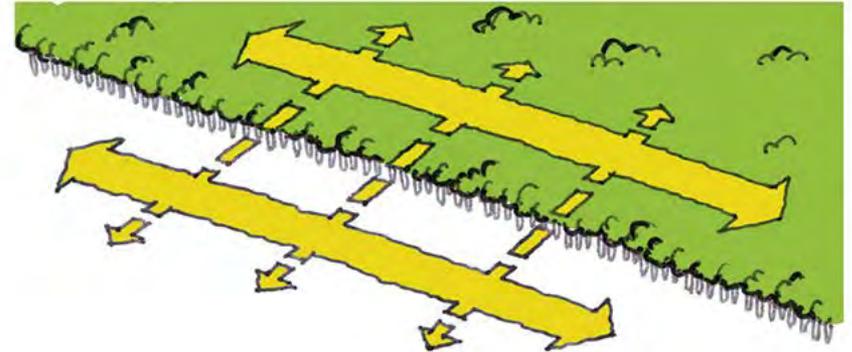
Type of Edge Matters Too!

The hard edge (top) is not as conducive to supporting species' diversity as the bottom soft (more gradual) edge.



Boundary Shape Also Matters

A straight edge facilitates more parallel animal movement, while a more curvilinear edge facilitates movement into and out of the core.



Who Can Use Corridors? (300 meters is ideal...)



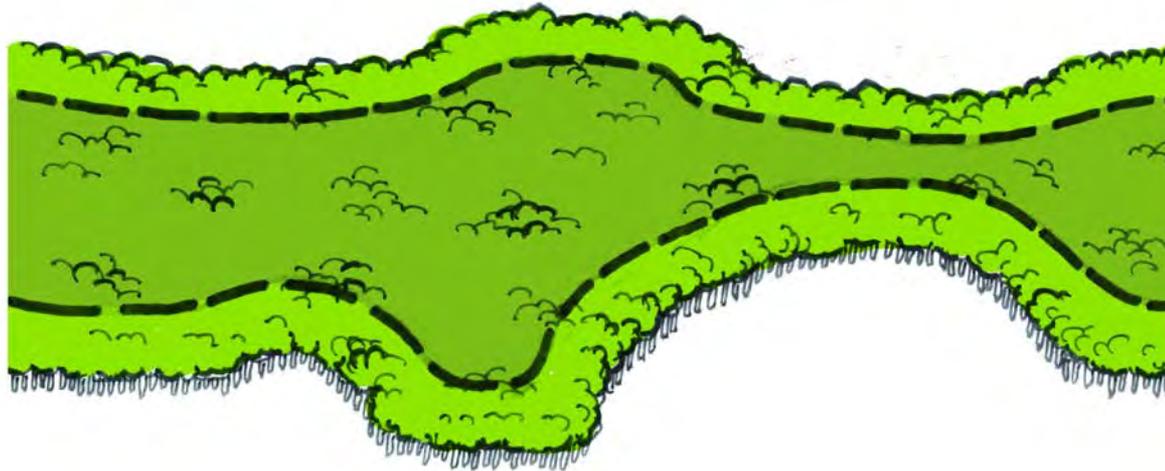
Cindi Johnson - 2010



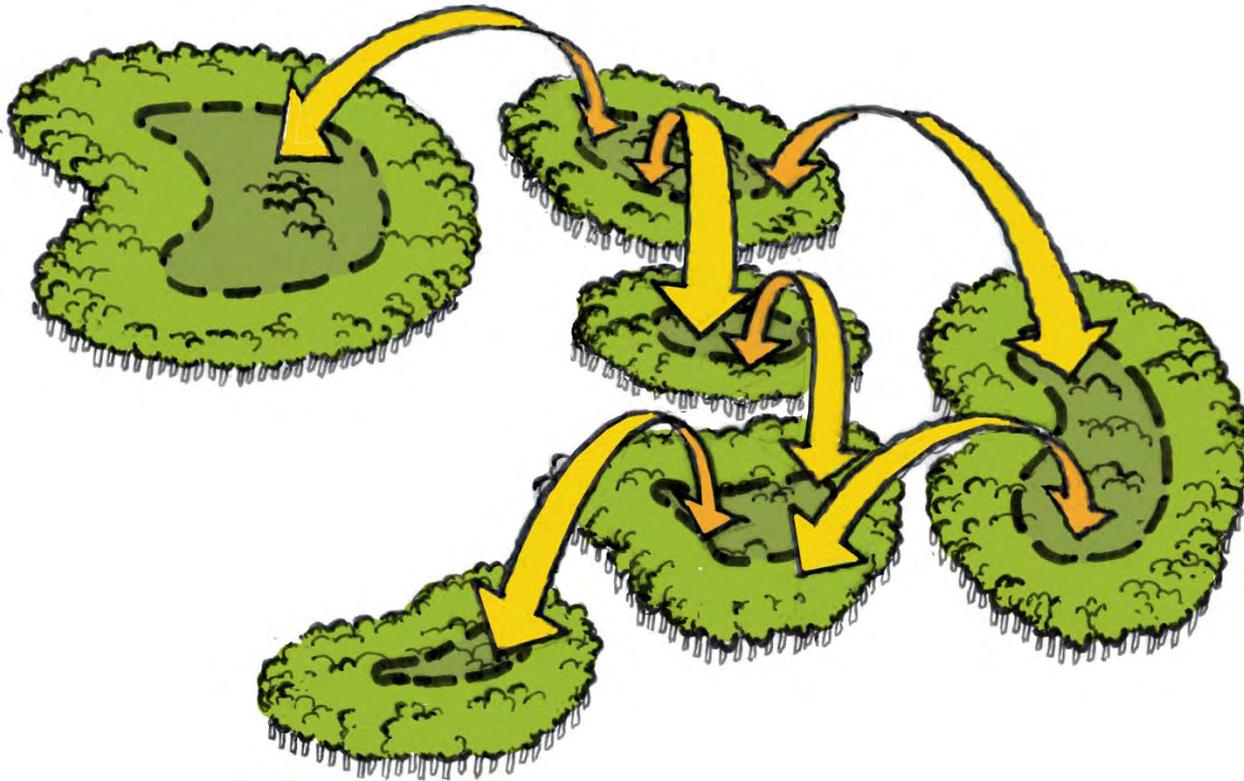
Corridors May Not Be Uniform.

The ideal is 100 meters (or more) of safe space in the middle and 100 meters of edge.

minimum width = 300 meters wide

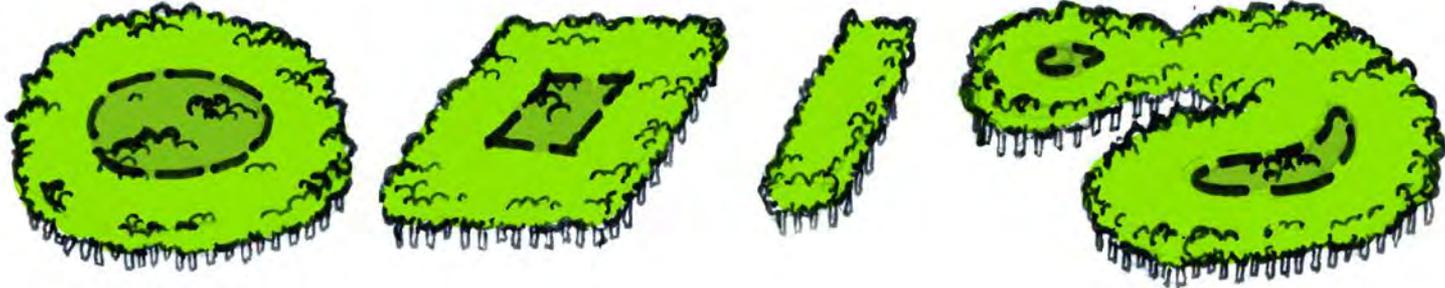


When Direct Corridors Are Lost, Some Species Can Still Hop Across.



Cores, Patches, Other Habitats

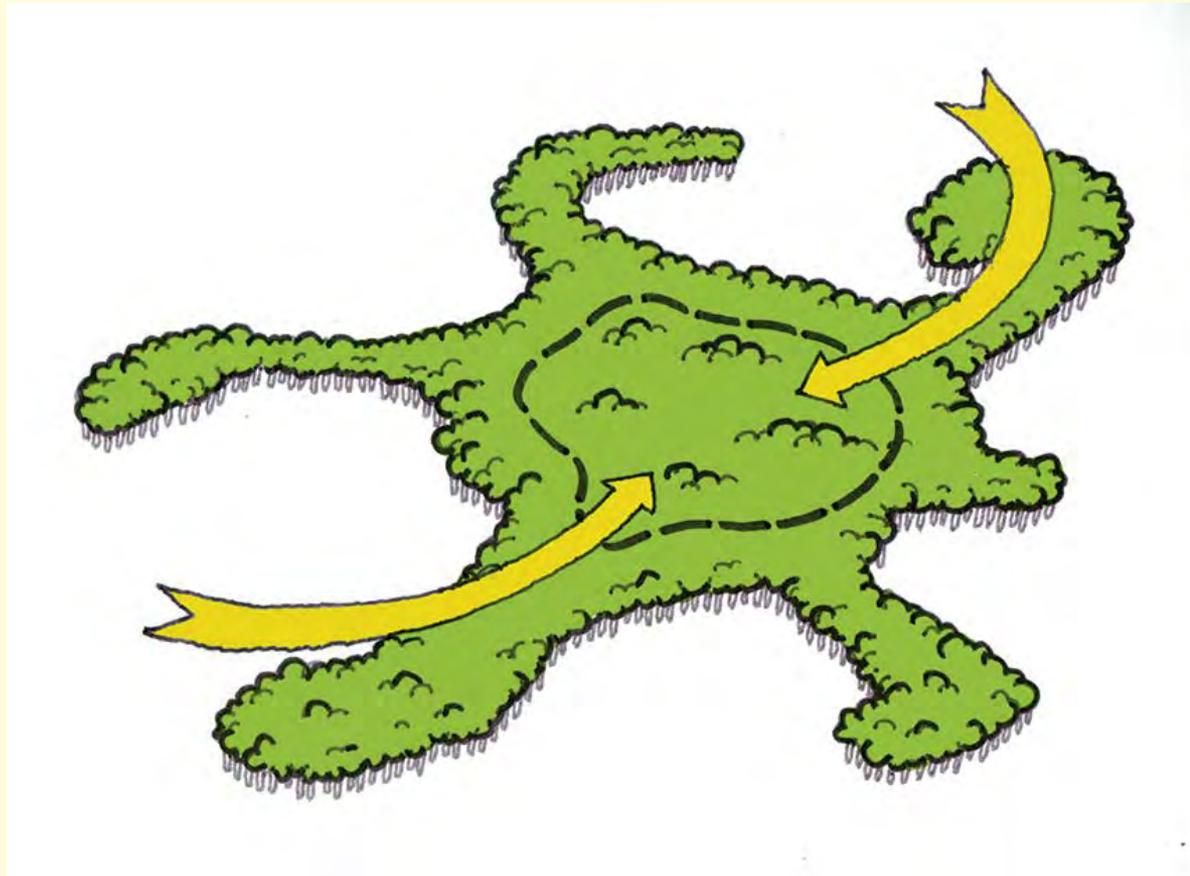
Forested landscapes, wetlands, etc.



Bigger is better and shape matters too. The above images show edge area (generally 300 feet) and interior. Notice which of these shapes have the most interior.

Core Shape Matters

In nature, cores are not usually round. Fingers of green help animals move into and out of cores.



Species Protection in South Carolina

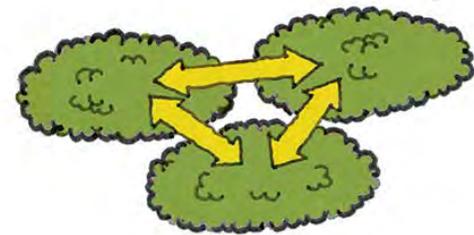
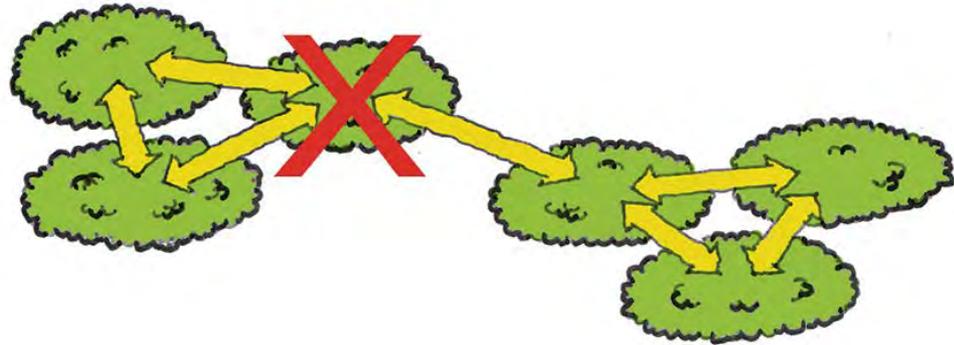


- Wood Stork
- Red cockaded woodpecker
- South Carolina Pool Sprite
- Flatwood salamander
- Gopher tortoise
- Eastern Cougar



When Cores Are Lost, Species May Decline

If cores or patches are too far apart, or if a core is lost, species may become isolated and decline over time.



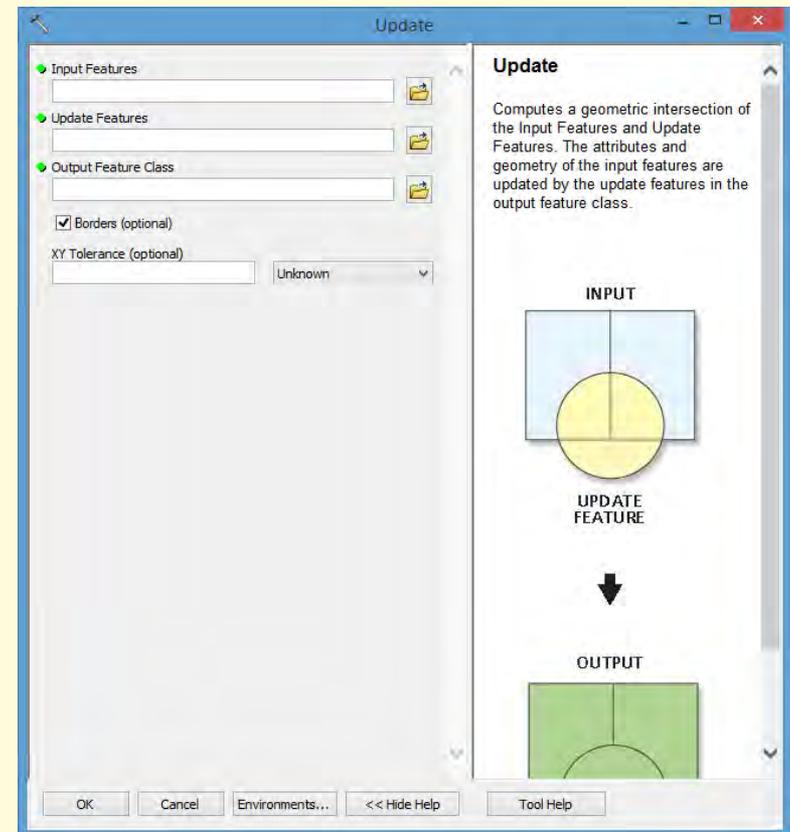
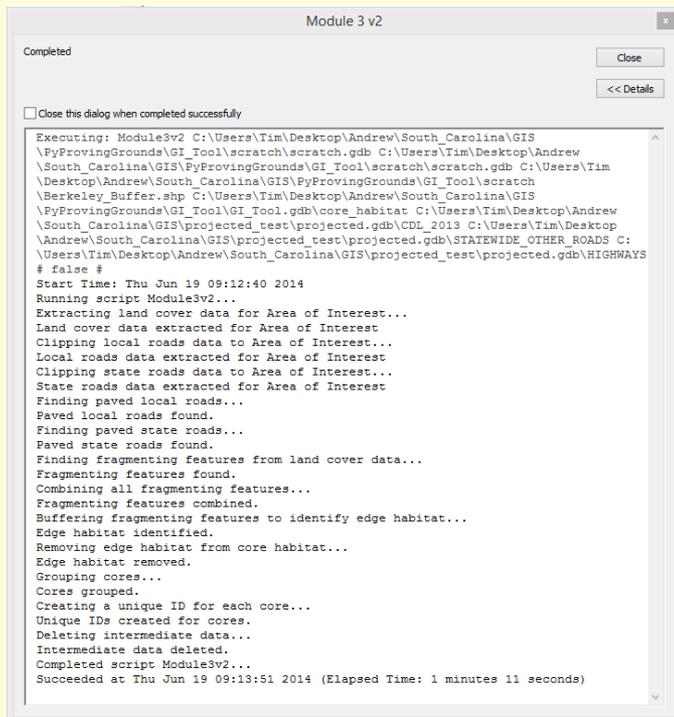
We are building a model of cores for South Carolina. The model is...

- ✓ Easy to Use
- ✓ Information Rich
- ✓ Flexible



Easy to use...

- ✓ Output to let the user know what's going on
- ✓ Help documentation
- ✓ Uses major, well known data sources



First, Download Data

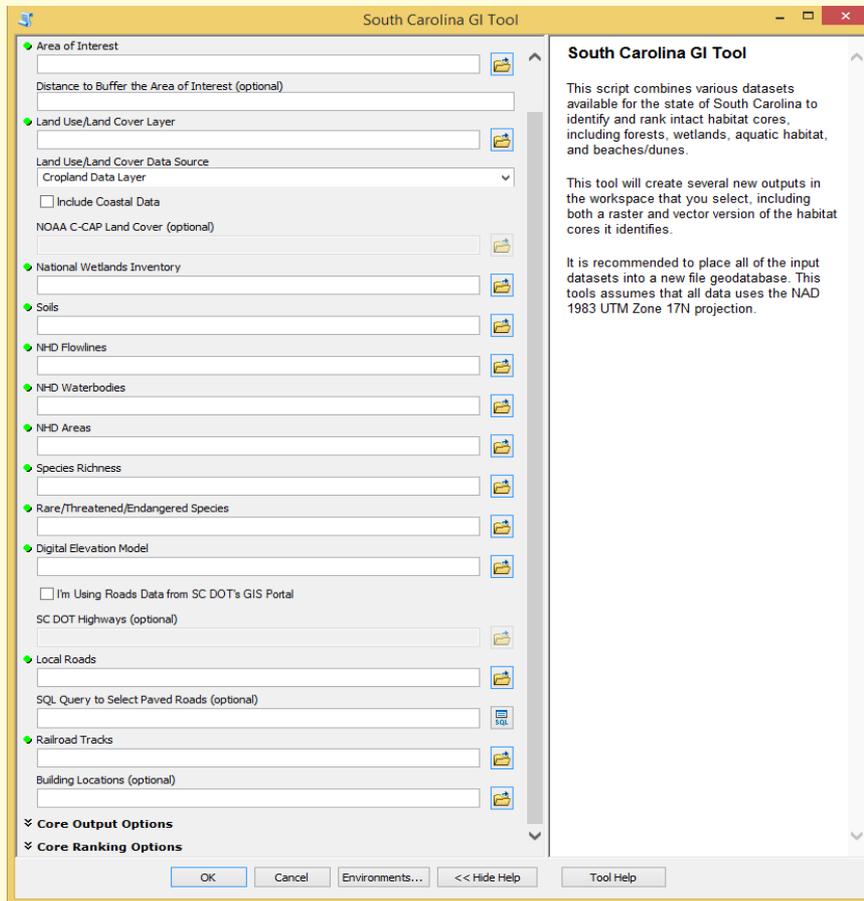
(we'll tell you where to get it)

Second, Input Data into the Model

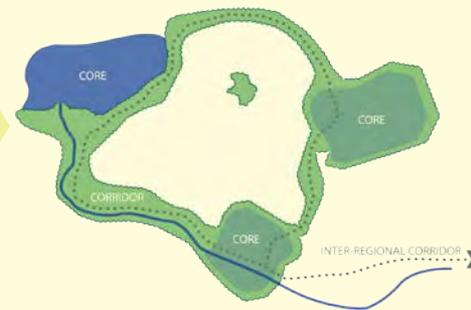
(there will also be a step-by-step walkthrough)

Third, Build your Network

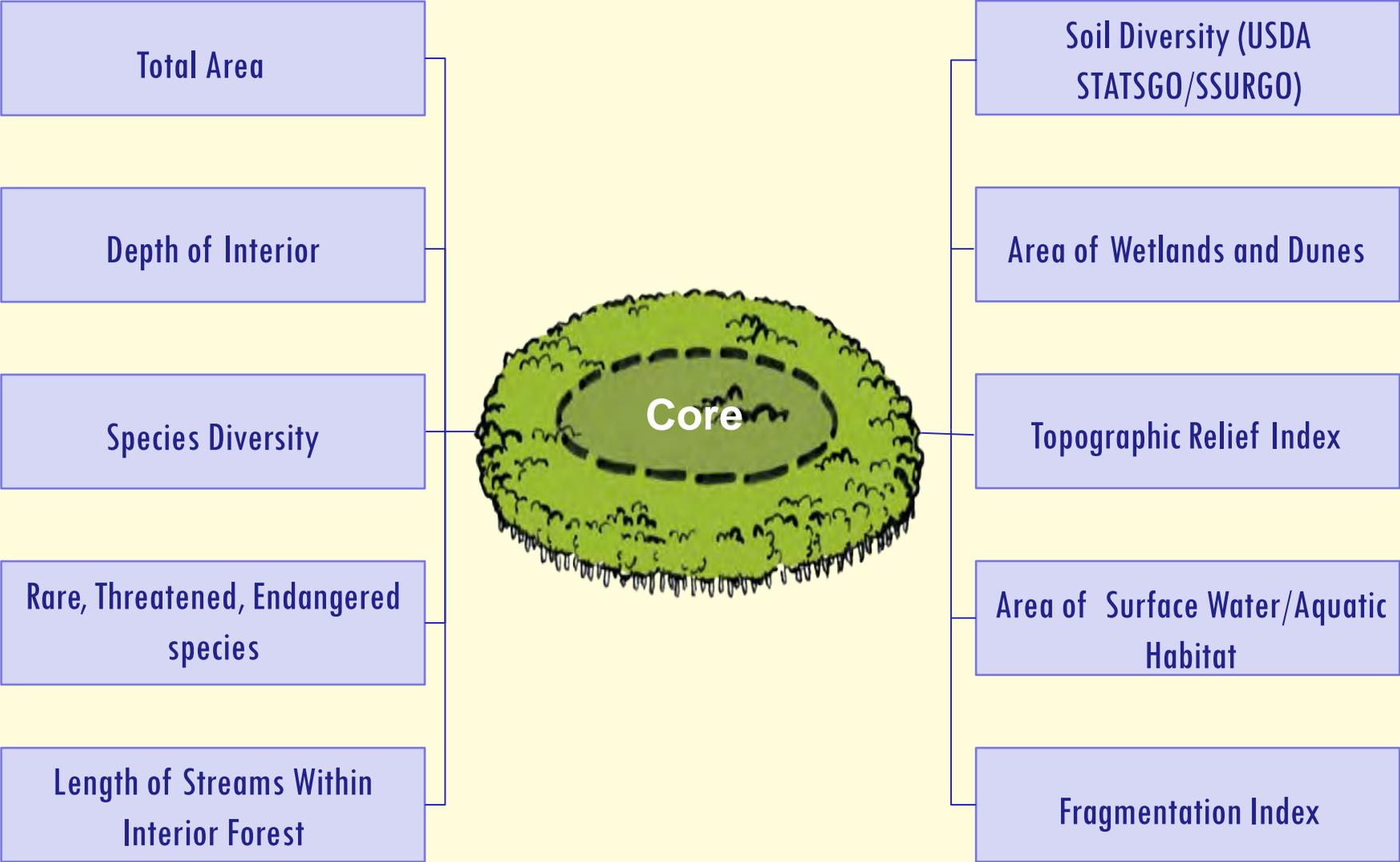
(this is just the beginning!)



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100110
000101
111001
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Information Rich: These characteristics are included in Core Model



Flexible...

Flexible enough to be easily updated and maintained as new data become available... For example,

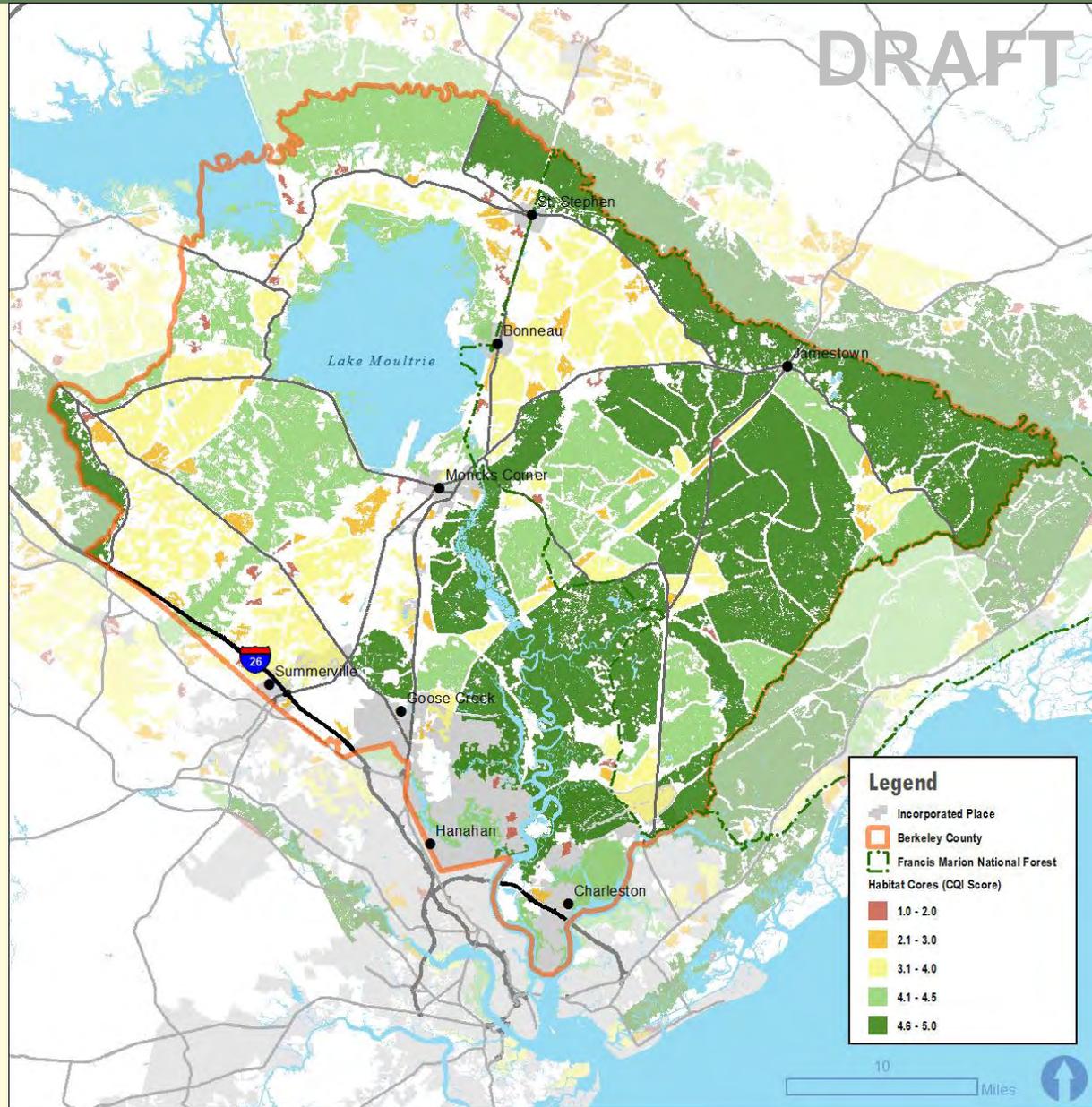
- Cropland Data Layer (CDL) vs National Land Cover Dataset – chose the most recent land cover
- Use new address points as more development occurs
- Use *either* address point data or building footprint data
- Use SC DOT roads data, or local roads data if more accurate

DRAFT

Berkeley County Draft Cores

Cores ranked 1 – 5
using several
metrics

A composite score is
created to give core
rank =
core quality index



BCD COG Draft Cores

The model can be run at any scale.

Here is the entire Council of Government's region.

A composite score is created to give core rank =
core quality index



DRAFT

Berkeley County Draft Cores

You can select
whichever rankings
are most useful.

Example: Just cores
in the top 2 classes
(4 & 5 as highest ranked)



DRAFT

Berkeley County Draft Cores

Or, just the highest
ranking cores #5

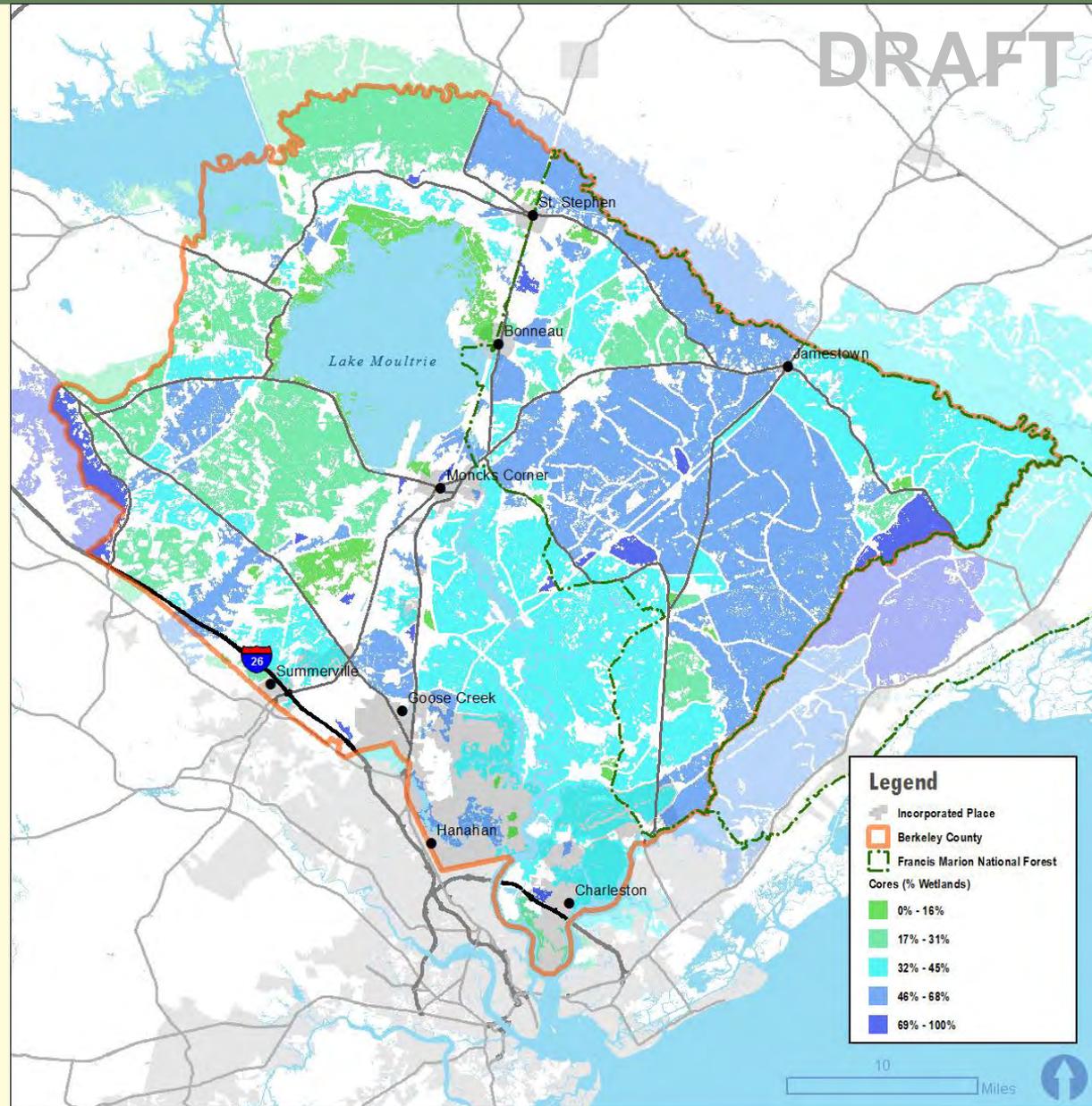


DRAFT

Berkeley County Draft Cores

You can use data table to select cores for various values.

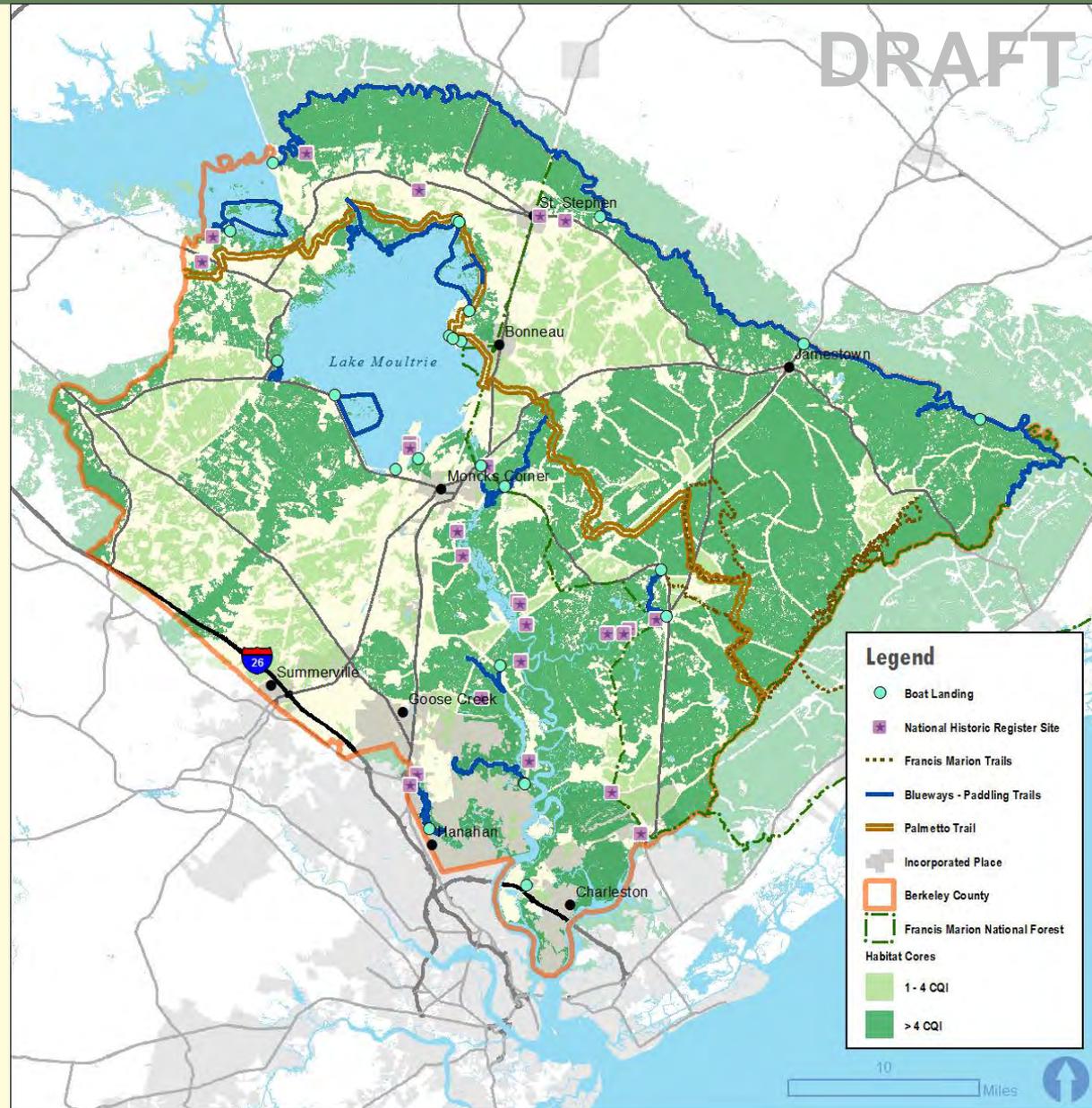
For example, which cores have the most wetlands, how much of a core's area is comprised of wetland habitat?



DRAFT

Recreational and Cultural Overlay

Overlay recreation and cultural points to determine how cores support those areas or, You may want to rank cores higher if they also support historic sites, e.g. Native American Burial Mounds

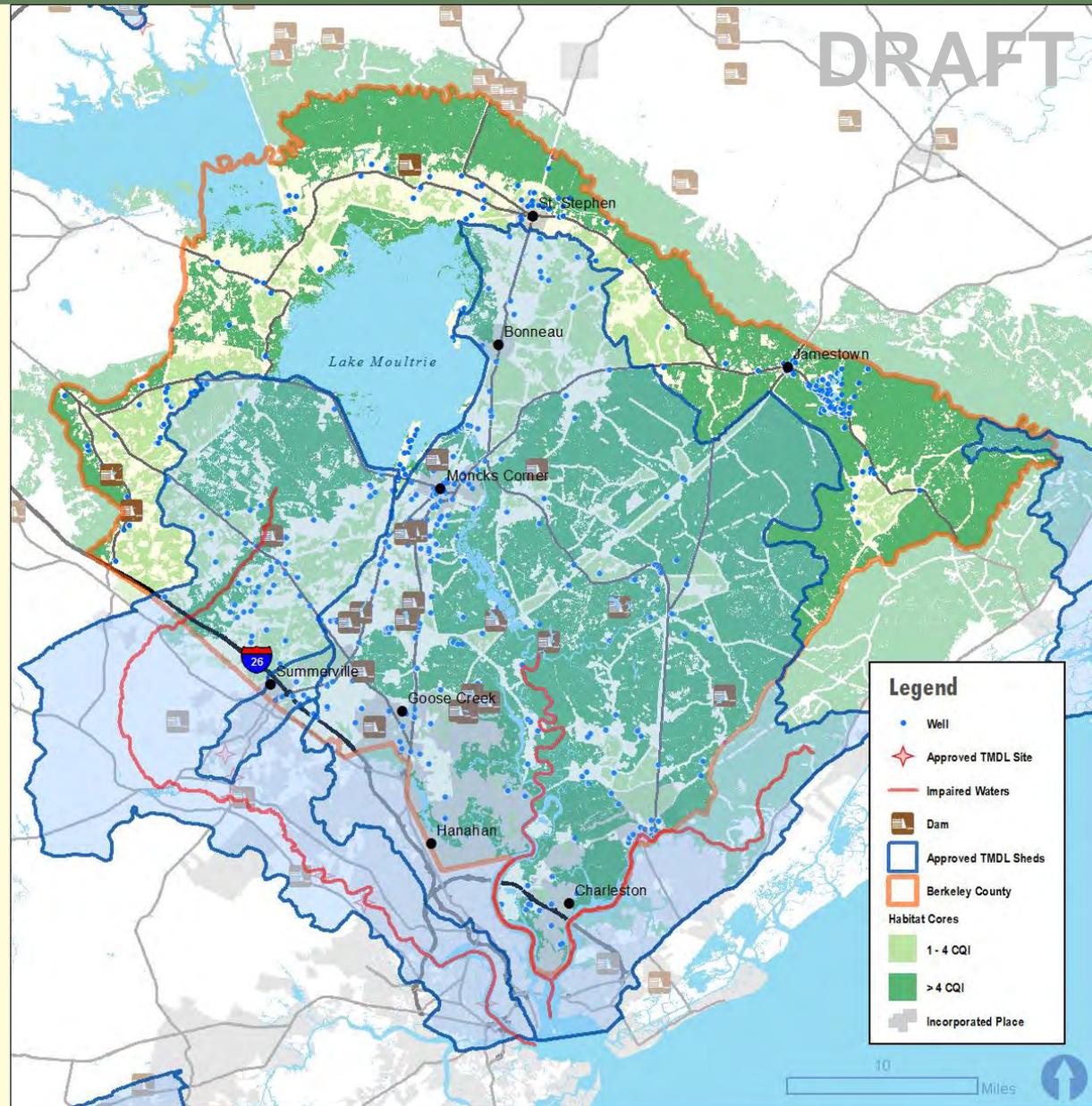


DRAFT

Water Resources Overlay

Which areas have impaired waters?

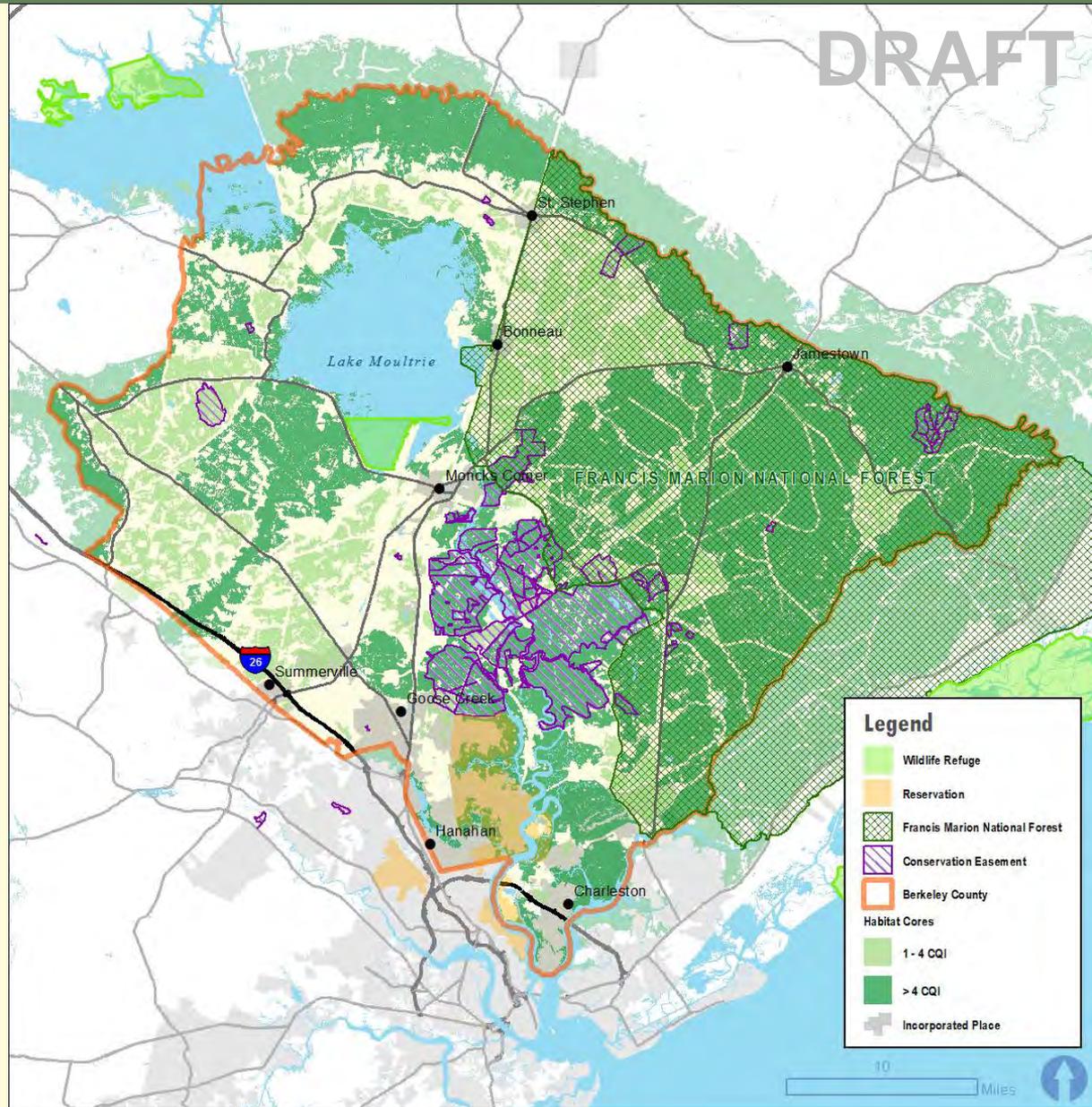
Can core protection help meet new water quality needs?



DRAFT

Conservation Overlay

Overlay protected lands to determine which areas are protected, and which are not. Are new strategies needed?



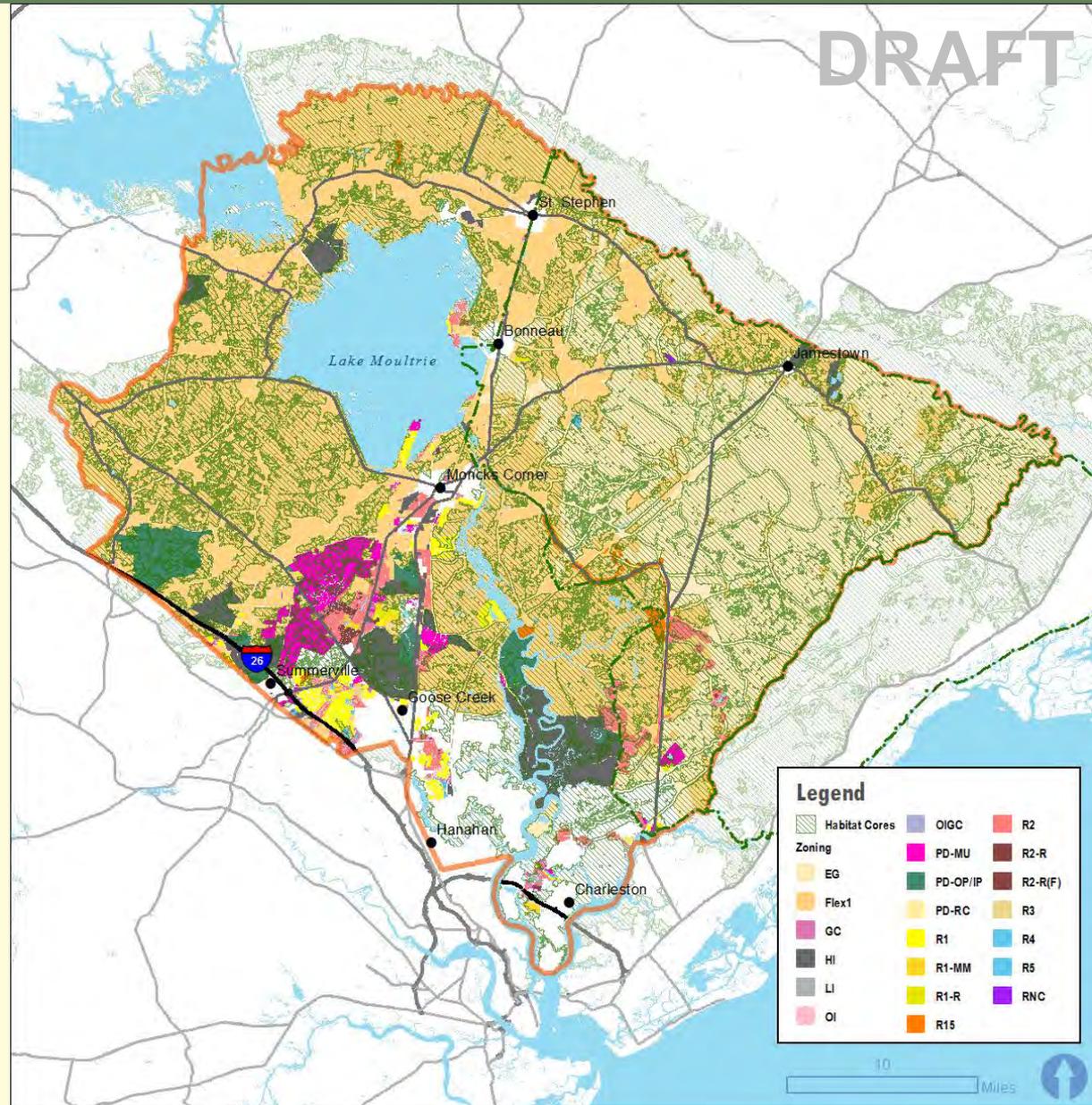
DRAFT

Zoning Overlay

How is the landscape zoned?

Are there areas where high value cores are threatened or supported by existing zoning?

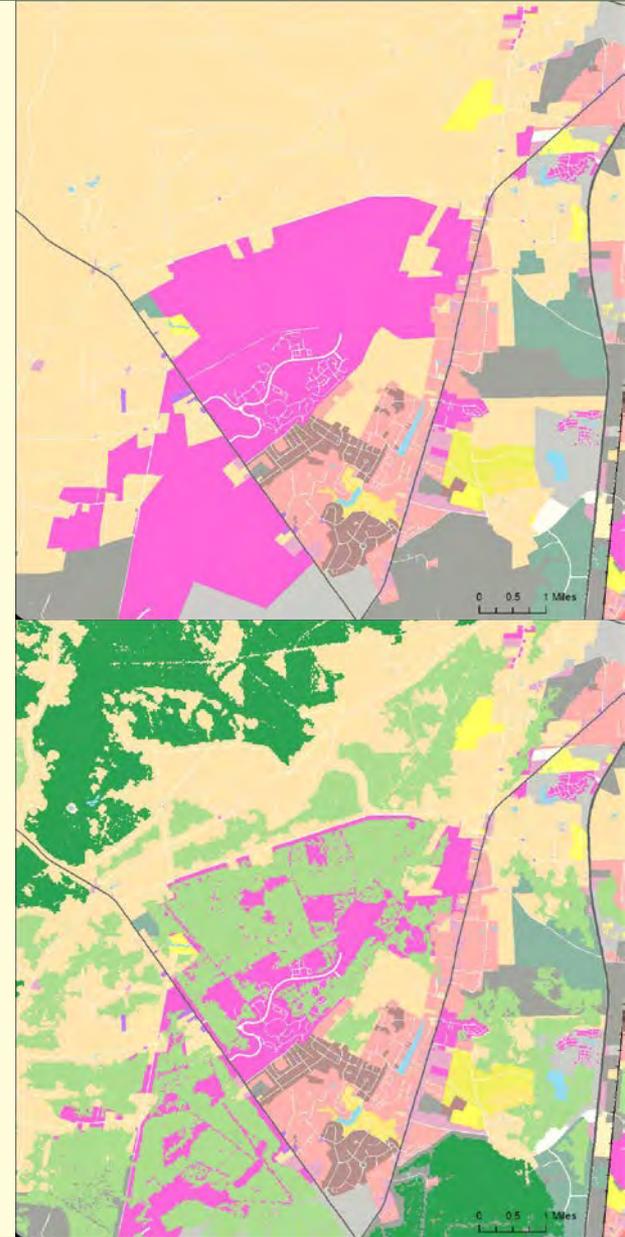
Which areas may go away? What may be restored?

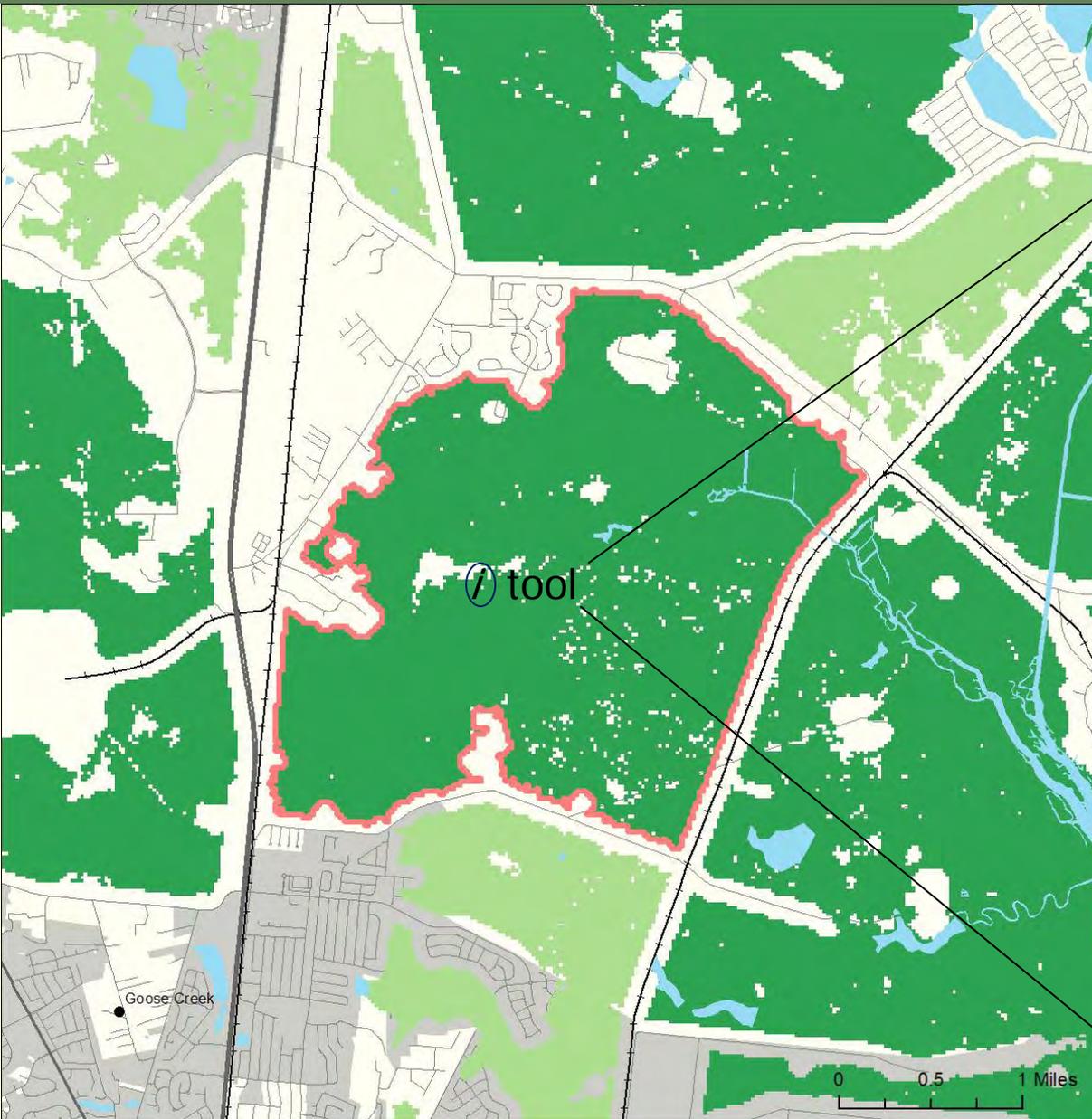


May need to update the model



Example: Cane Bay Plantation in Berkeley County. Above shows the zoning and below shows existing core.





Core Statistics

Use the  tool to query the database for any core

Area: 3,673 acres

Core Depth: 2,174 feet

Species Richness: 143

Soil Diversity: 13

Perimeter/Area Ratio: 66.9

Stream Density: 24.7 ft/acre

Wetlands: 1,408 acres (38%)

Water: 16 acres

Topographic Diversity: 7.12

RTE Species Abundance: 1

RTE Species Diversity: 1

Using the model with our Six Steps for Green Infrastructure Planning



- 1) **Set Your Goals:** What does your community/organization value?
- 2) **Review Data** – What do we know or need to know, to map identified values?
Combine the state modeled data with local data.
- 3) **Map Your Community's Ecological and Cultural Assets** – Based on the goals established in Step One and data from Step Two.
- 4) **Risk Assessment** – What assets are most at risk and what could be lost if no action is taken?
- 5) **Rank Your Assets and Determine Opportunities** – Based on those assets and risks you have identified, which ones should be restored or improved?
- 6) **Implement Opportunities** – Include natural asset maps in both daily and long-range planning (park planning, comp plans, zoning, tourism and economic development, seeking easements etc)

Berkeley County

1) What does the community value?

Examples (derived from Berkeley's 2010 Comp Plan)

- ❑ Farmlands and Timberlands
- ❑ Water Resources (wetlands, lakes, streams)
- ❑ Natural Resources (e.g. can include ecological habitat cores and corridors)
- ❑ Heritage and Cultural Resources (scenic, historic)



Make goals and objectives specific!

Bad example: **Save the water!**

Better example:

Select and prioritize intact habitat areas that help buffer surface waters from runoff and also provide wildlife habitat.

From this you can write a mapping rule to give to your GIS staff such as selecting cores of X value within X feet of an open waterbody/stream etc.

You may also rank areas more highly that meet multiple goals, such as those which provide habitat, views from scenic roads and contain historic artifacts.

2) Review Data – What do we know or need to know, to map identified values? State model + local data such as local parks, parcels ...

APPENDIX A - PROJECT DATA INVENTORY

The following table is an inventory of the spatial data used to develop New Kent County's asset maps.

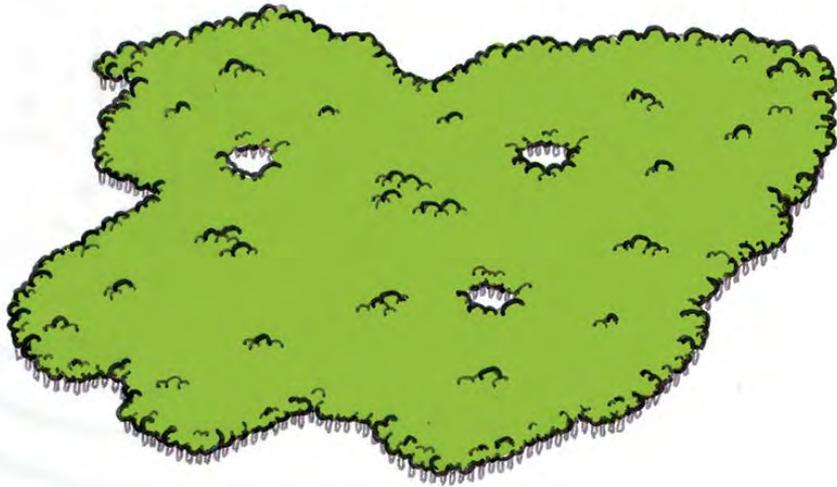
<i>Data related to the built environment</i>		
Dataset	Source	Description
Transportation	Available county data and VA Department of Transportation	Primary and secondary roads, bridges, driveways, and intersections
Parcels	Available county data	Parcel boundary and associated tax assessment information for each parcel
Buildings and Structures	Available county data	Building and structure polygons and 911 address location points
Zoning	Available county data	New Kent County zoning
Land Cover	VA Department of Forestry	2006 grid (raster image) showing land uses in Virginia
Places	US Geological Survey	Populated and non-populated locations (towns, mountain peaks, schools, etc.)

<i>Data related to the non-built environment</i>		
Dataset	Source	Description
Water	Available county data, National Hydrography Dataset, National Wetlands Inventory	Rivers, streams, open water (ponds, reservoirs), wetlands, and watershed basins
Floodplain	FEMA	FEMA designated floodplains
Soils	U.S. Dept. of Agriculture, Natural Resources Conservation Service	Soil productivity derived from the Soil Survey Geographic (SSURGO) database
Forest Cover	Virginia Department of Forestry	2006 grid (raster image) showing forested, non-forested and water areas in Virginia
Elevation	USGS National Elevation Dataset	Topography, elevation, slope, landform can be derived from NED
Impaired Streams	VA Department of Environmental Quality	2008 303(d) impaired rivers and streams
Species	VA Department of Conservation and Recreation Division of Natural Heritage and Department of Game and Inland Fisheries	Rare, threatened, and endangered species information is available

- 3) Map Berkeley County's Ecological and Cultural Assets** – Based on the goals established in Step One and data from Step Two.

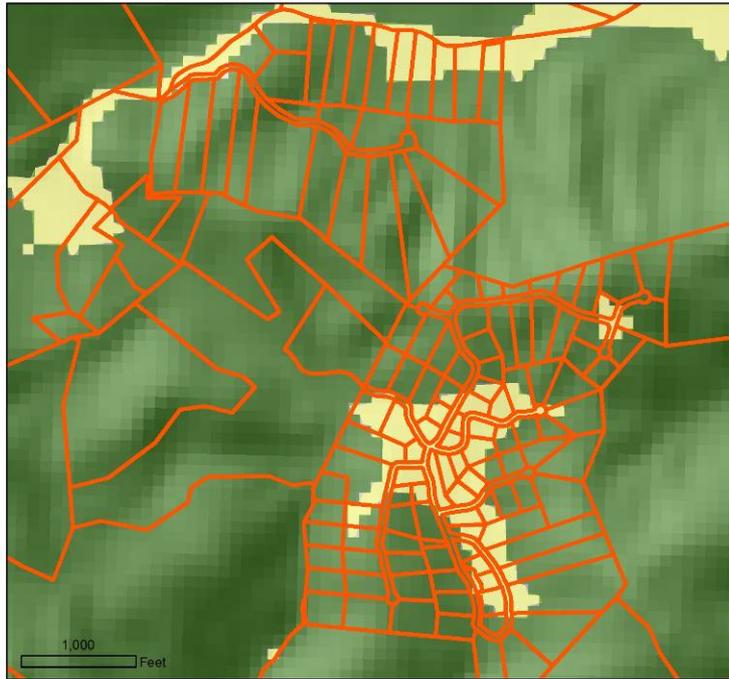
4) Risk Assessment – What assets are most at risk and what could be lost if no action is taken? Are there impaired streams, new developments, road projects?

Cores May Need to Be Updated



If a core is developed, the fragmented landscape may no longer constitute a core.

Intact Forests = possibility for sustainable timber or wildlife management



Small parcels fragment forest into many owners



Large parcels create contiguous forest blocks

We use local parcel data to determine current and future intactness.

Timber Asset = Contiguous Large Forested Parcels (>25 acres). A wildlife asset = > 100 acres

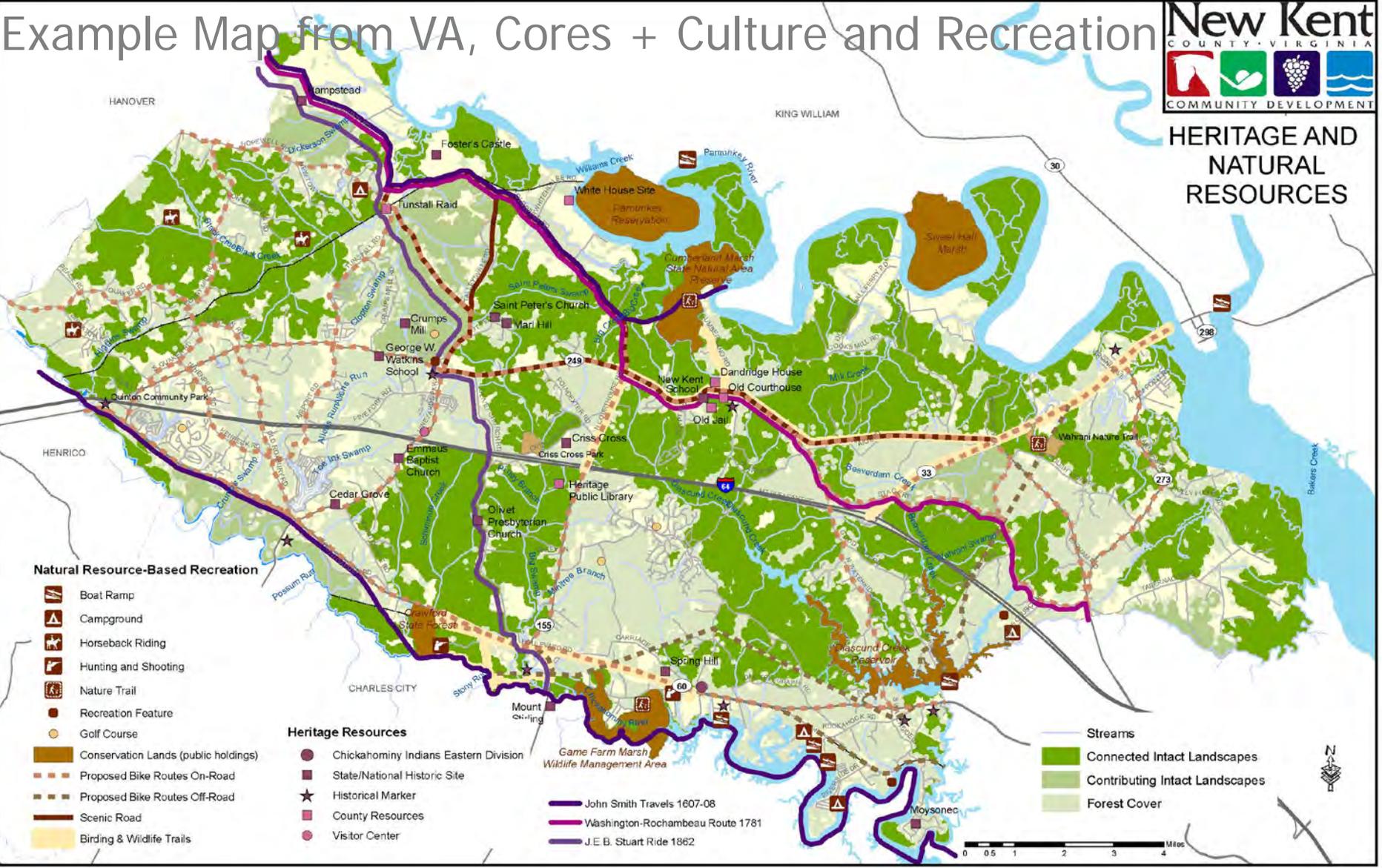
- 5) Rank Your Assets and Determine Opportunities** – Based on those assets and risks you have identified, which ones should be restored or improved?

- 6) Implement Opportunities** – Include natural asset maps in both daily and long-range planning (park planning, comp plans, zoning, tourism and economic development, easements, regional plans etc.)



HERITAGE AND NATURAL RESOURCES

Example Map from VA, Cores + Culture and Recreation



How Do We Link Up and Down In Scale?

Smaller scales change focus



Green Infrastructure Toolkit: what to do at the site scale



Urban Water

- Vegetated swales/bioswales
- Rain gardens/bioretention areas
- Vegetated filter strips
- Stormwater wetland



Community Spaces

- Pocket park
- Informal recreation
- Meadow/native habitat
- Outdoor classroom
- Community garden



Site Planning

- Green street design
- Reducing impervious surfaces
- Vegetated landscaping
- Urban forestry
- Urban stream restoration
- Riparian buffers



Community Stewardship

- Green space grant programs
- Land banking
- Mow-to-own
- Adopt-a-block

Smaller scales ...

Trees and woodlots

Habitat patches

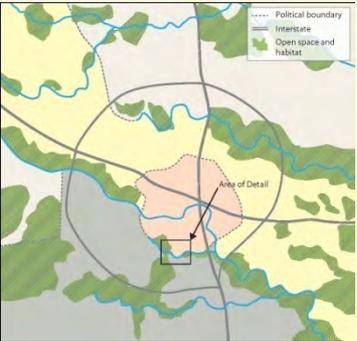
Streams and wetlands

Trails and smaller parks

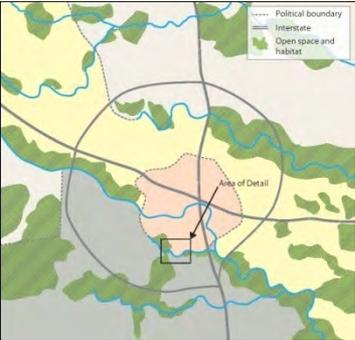
Still can connect to larger networks ...



How can we restore green infrastructure across urban areas?



Vacant parcels can provide corridor opportunities to re-green and reconnect the urban landscape.



If each parcel leaves or replants a green strip, they can be connected for form a corridor – urban greenway trails can be created within an urban fabric.

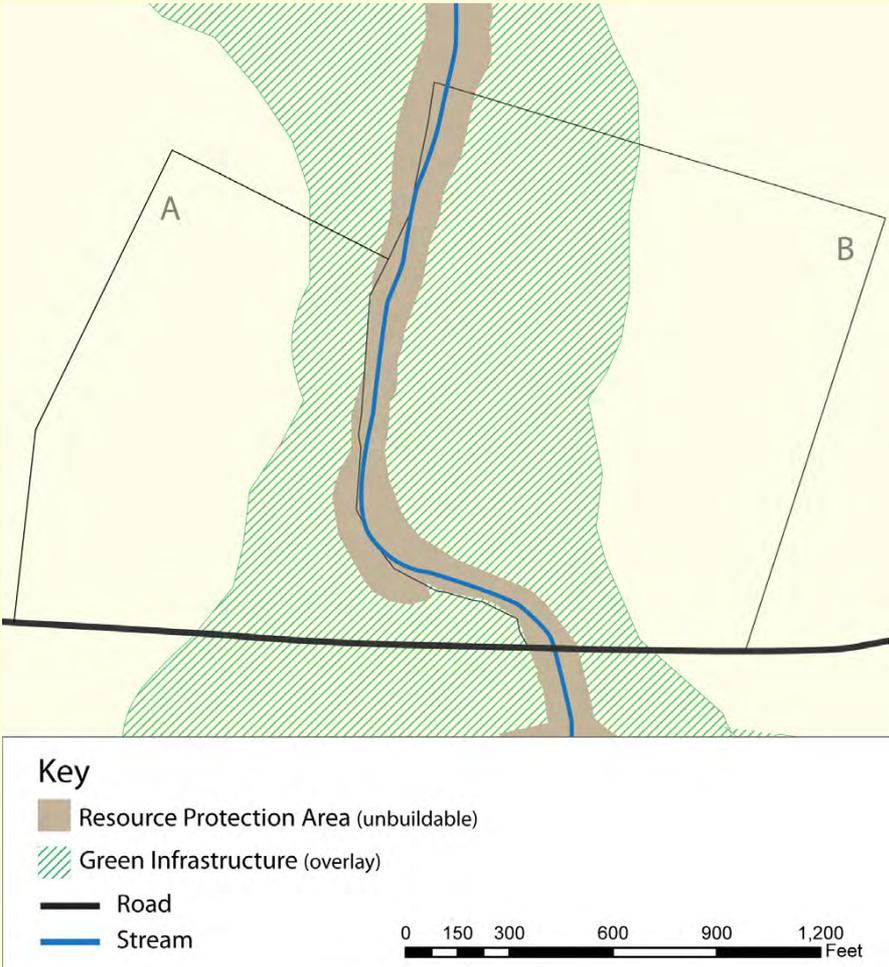


Look for other ways for existing parcels to link to greenways.



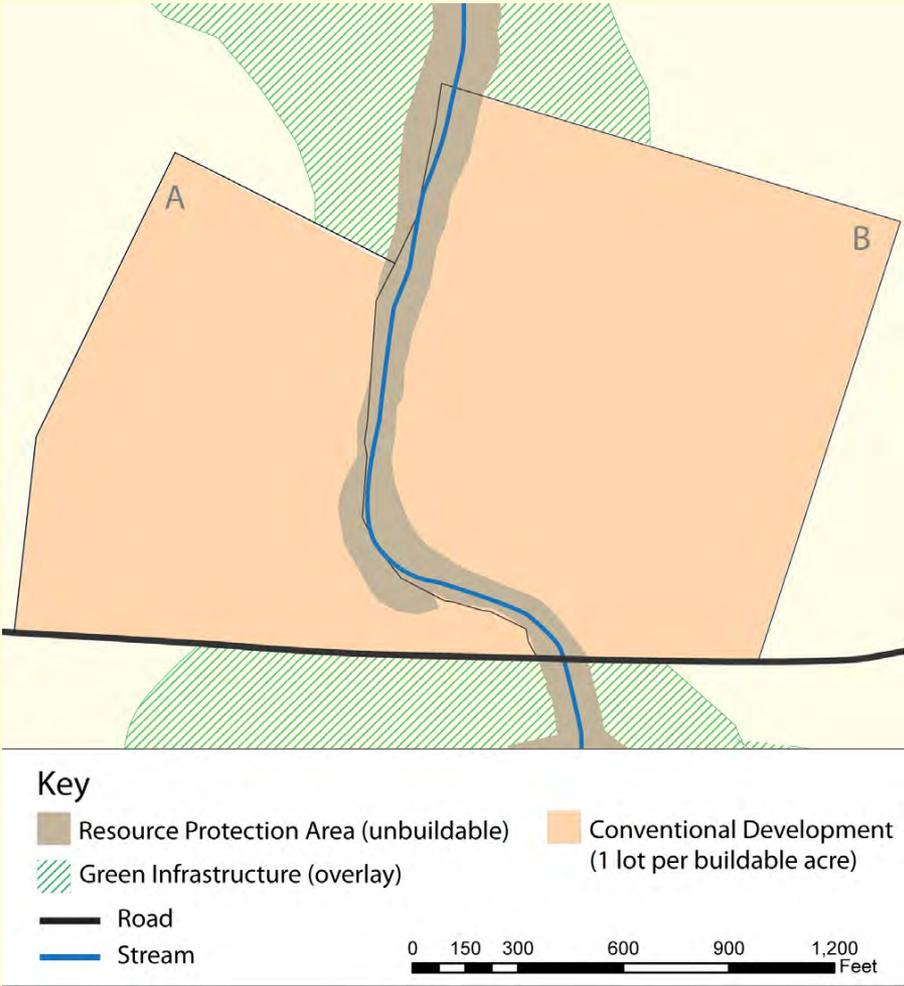
Example Parcel Strategy: strategic conservation

Existing
riparian
buffer



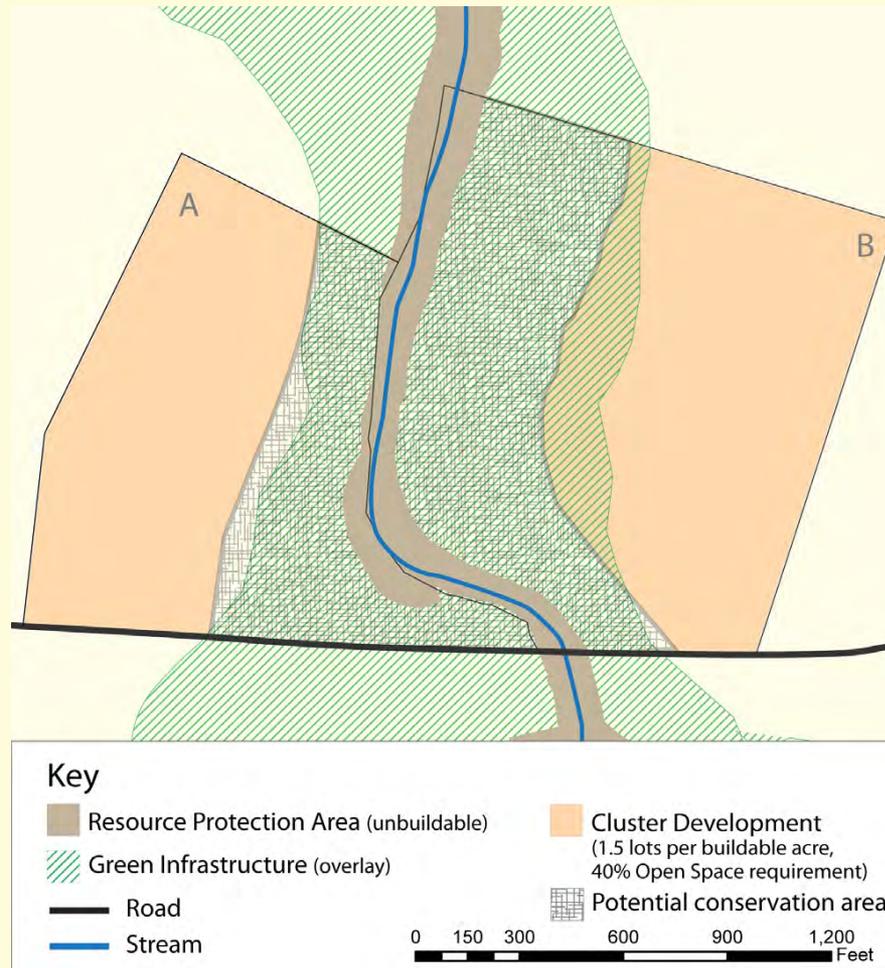
Parcel Strategy: strategic conservation

Conventional Development

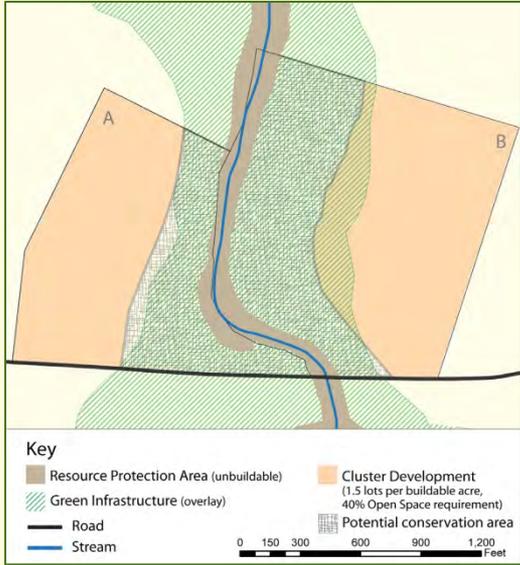
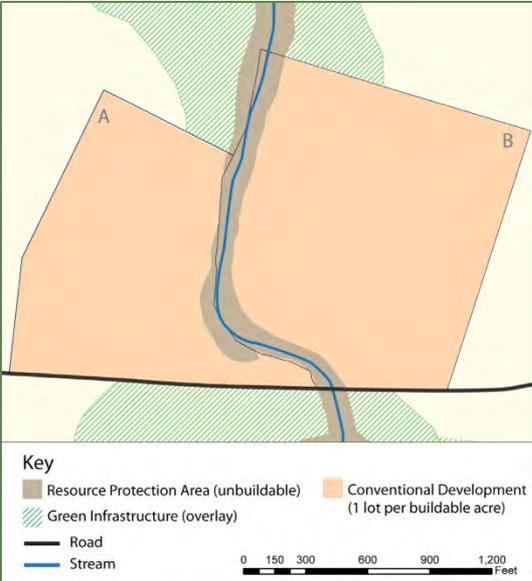


Parcel Strategy Ex: strategically conserving green infrastructure

Existing
riparian buffer
preserved by
clustering
development



Parcel Strategy: Comparison



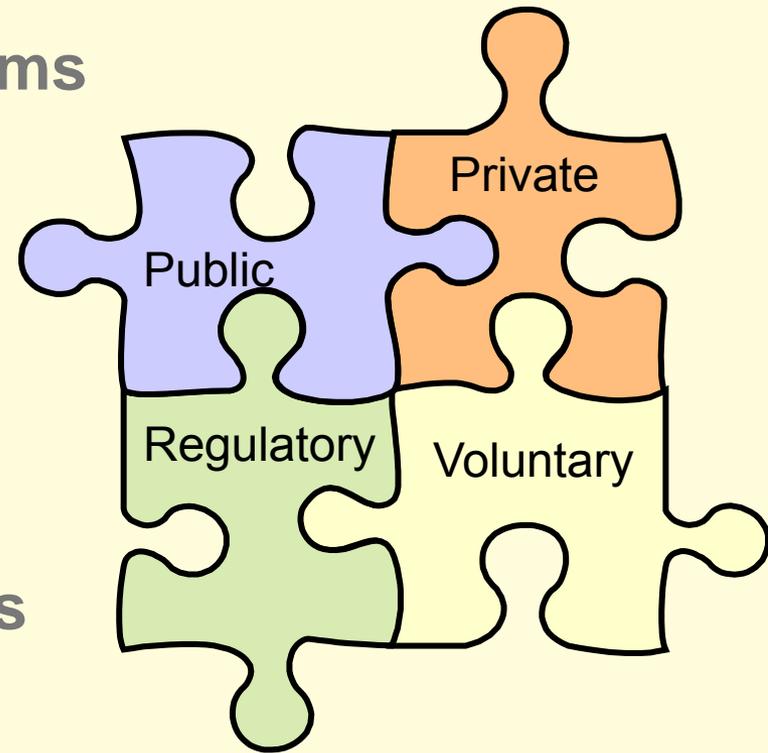
	# of Lots	
Parcel (acres)	Conventional Development (1 lot/acre)	Clustered Development (1.5 lots acre)
A (32)	26	39
B (38)	30	45
Total	56	84

Applications for Planning



Green Infrastructure Planning Applications

- ✓ Zoning Tools and Comp Plans
- ✓ Park and open space planning
- ✓ I.d. lands for PDR or TDR programs
- ✓ New ordinance development
- ✓ Species protection
- ✓ Heritage tourism and viewsheds
- ✓ Easements
- ✓ Transportation plans: roads/trails
- ✓ Land management

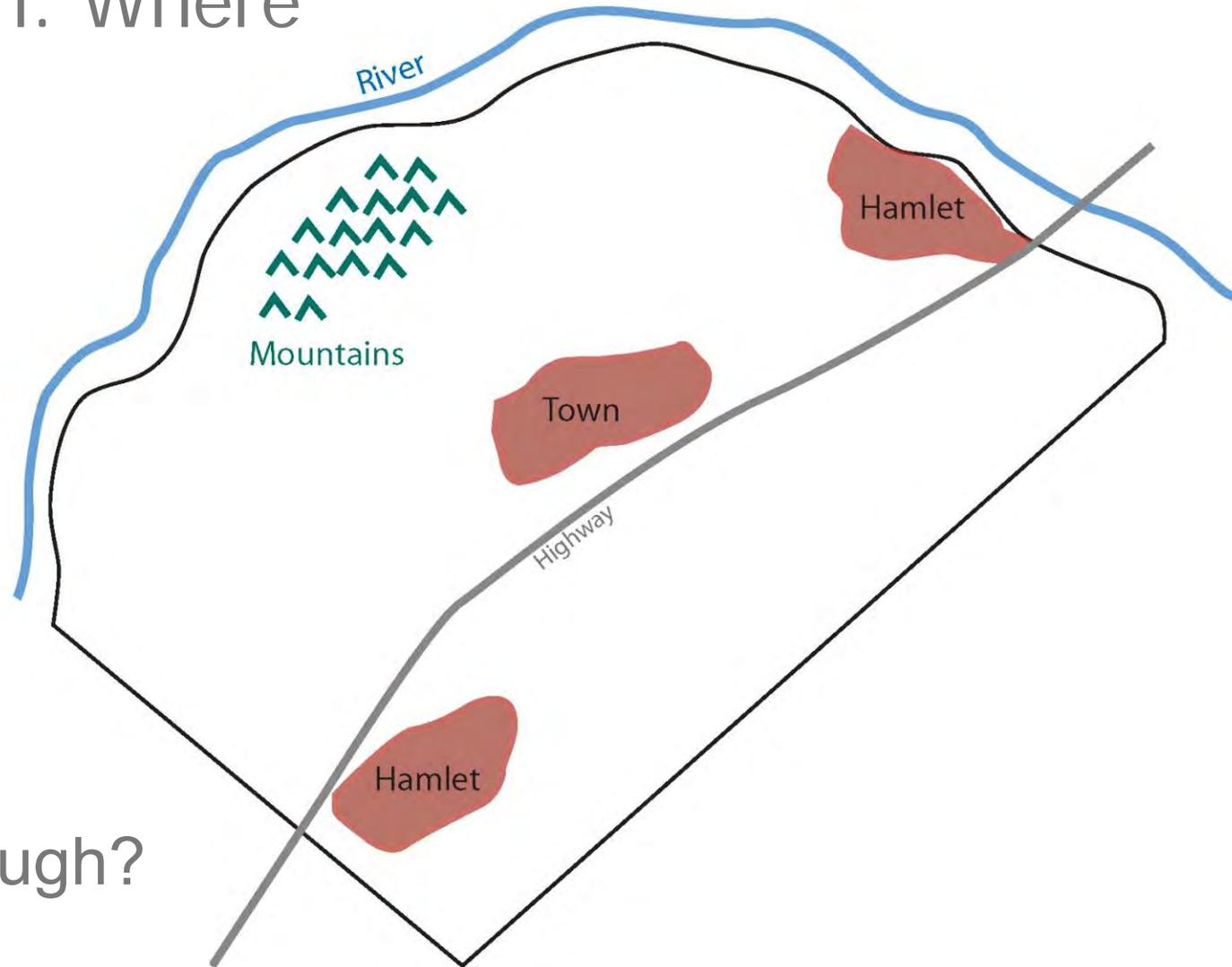


First Question: Where to develop?

Smart Growth =

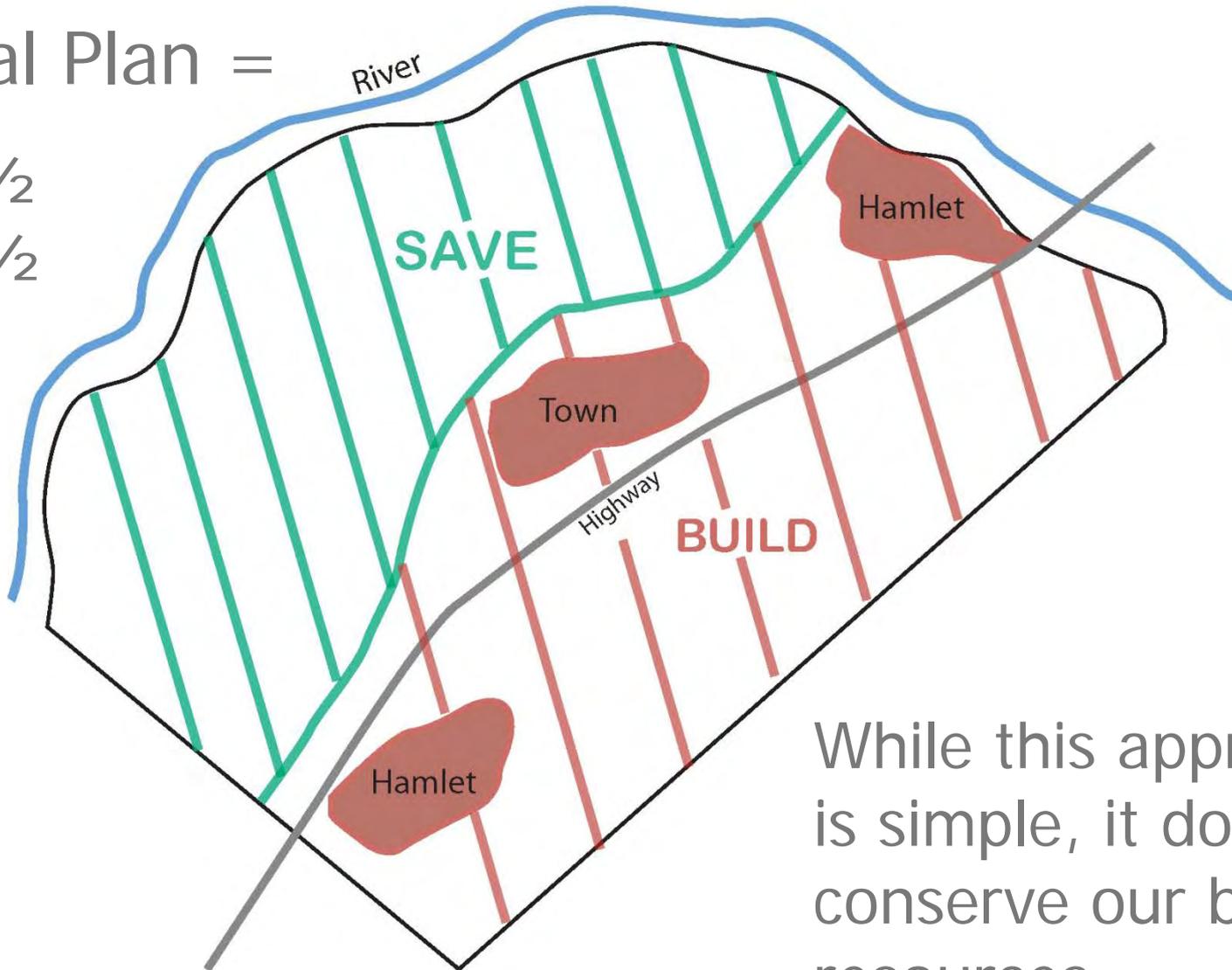
Using Existing (grey) Infrastructure

But is this enough?



Typical Plan =

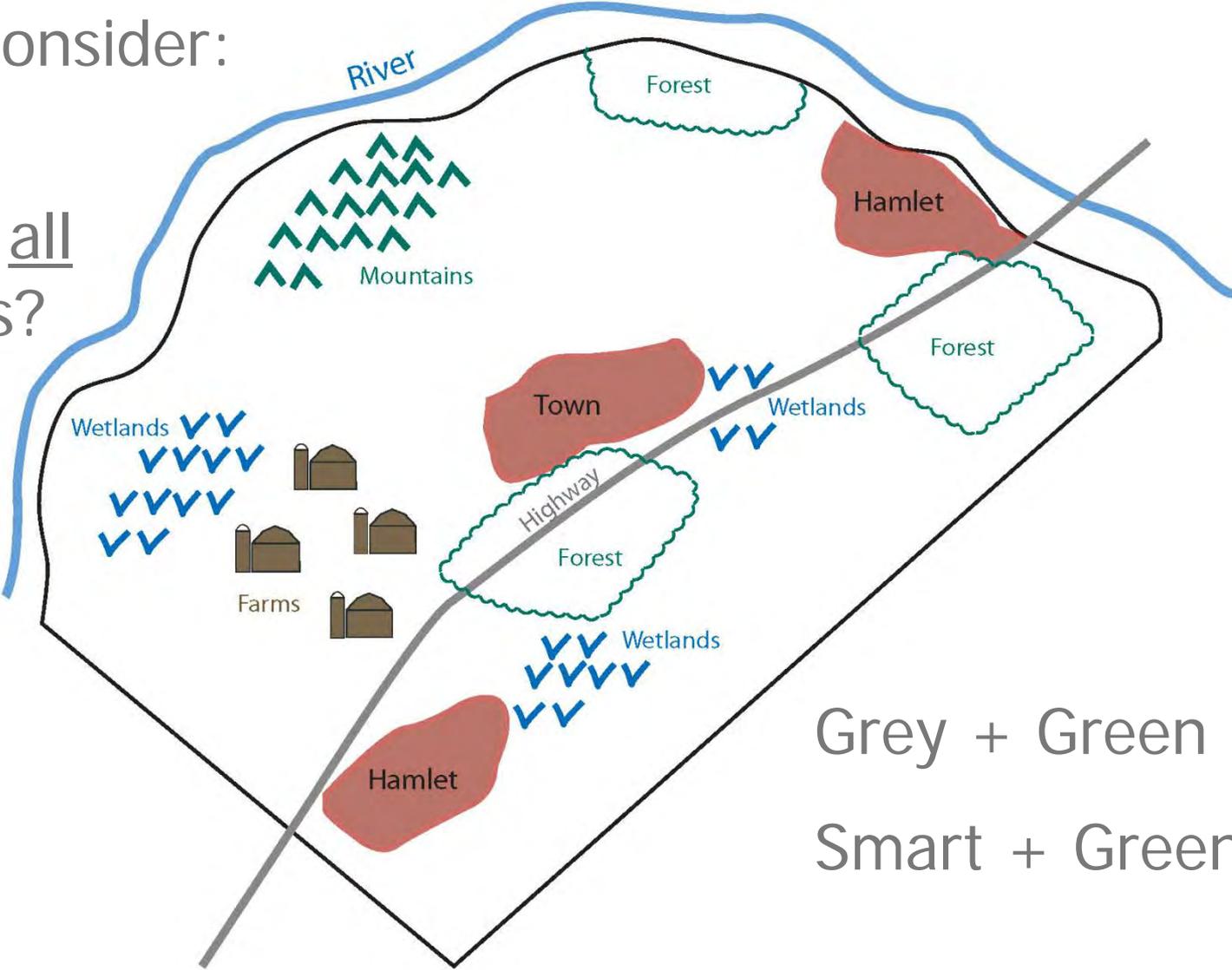
Save $\frac{1}{2}$
Build $\frac{1}{2}$



While this approach is simple, it does not conserve our best resources.

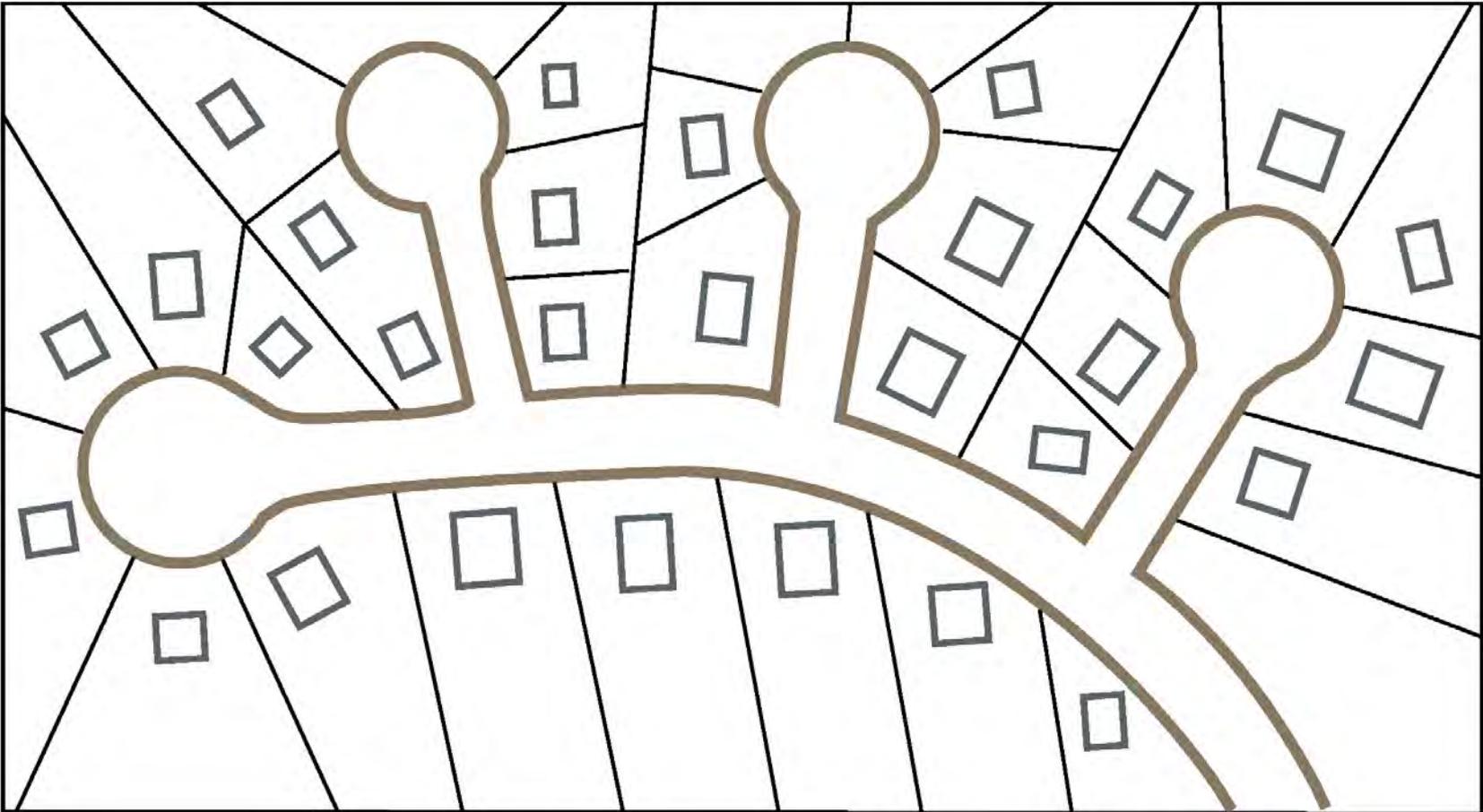
Need to consider:

What are all the assets?



Grey + Green =
Smart + Green

Traditional Development



Clustering =
setting buildings
closer together
to conserve
green space

Within a subdivision,
clustering can add to open
spaces and provide an
amenity for wildlife and
recreation. But which land is
protected and how it is
connected are critical.



The problem of clusters that don't look beyond parcel boundaries



Traditional Development

Green Infrastructure Based-Development

Plan for grey infrastructure first (roads, stormwater pipes)

First, assess natural features and functions and protect them.

Green spaces in leftover lands (e.g. steep slopes and floodplains)

Plan for parks, trails, habitat connections before siting buildings.

Work within confines of parcel = pocket parks, inner trails, gated systems

Connect land and water habitats to region and across ownerships

South Carolina's Comprehensive Planning

Article 3: Local Planning -- The Comprehensive Planning Elements

Key Elements related to Green Infrastructure

(1) inventory of existing conditions;

(3) a natural resources element which considers coastal resources, slope characteristics, prime agricultural and forest land, plant and animal habitats, parks and recreation areas, scenic views and sites, wetlands, and soil types. Where a separate board exists pursuant to this chapter, this element is the responsibility of the existing board;

(4) a cultural resources element which considers historic buildings and structures, commercial districts, residential districts, unique, natural, or scenic resources, archaeological, and other cultural resources.

(7) a land use element which considers existing and future land use by categories, including residential, commercial, industrial, agricultural, forestry, mining, public and quasi-public, recreation, parks, open space, and vacant or undeveloped;



Better GI Planning Helps Meet or Avoid Regulations

TMDLs: Identify areas that may be subject to impairment and protect them to prevent future TMDL's. Use your natural assets maps to indentify areas to restore to mitigate the pollution loadings. Choose practices that will affect runoff such as retain or restore forested stream buffers etc.

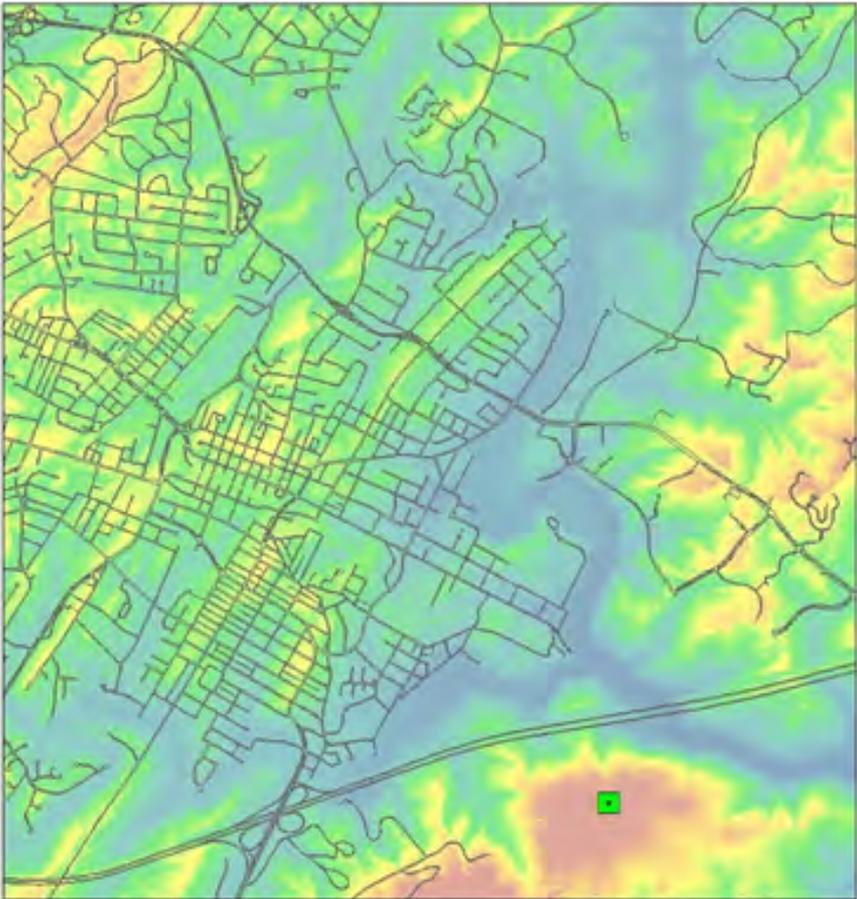
Stormwater Programs: Prevent new stormwater problems and erosion by identifying sensitive landscapes, steep slopes as well as natural assets to retain on site.

Park and Open Space Planning

Where might future parks be located based on population centers, need to protect key habitats or species, opportunities to increase recreation or site interpretation?



Viewshed Protection



Sample Viewshed Analysis

Legend

- Sample Observation Point
- RoadEdges

Digital Elevation Model

Value

High : 454.6

Low : 82.1



Easements

- ✓ A voluntary agreement by a landowner to put land into easement, permanent land use protection
- ✓ Carries with the land, in perpetuity
- ✓ Reserves rights to the land but generally restricts land to certain uses (e.g. can still conduct forestry or farm land but can't convert use to a subdivision)
- ✓ Can reduce tax rate
- ✓ Use a green infrastructure map to prioritize easements

South Carolina Conservation Easement Act of 1991

<http://www.scstatehouse.gov/code/t27c008.php>

New Ordinance Development

Scientific basis for new ordinance
development such as:

Upzoning or downzoning

Historic districts, landscapes

Watershed protection e.g. drinking water
reservoirs



Green Infrastructure Can Also Inform Forest Stewardship Planning

Green Infrastructure Network

- Forest Stewardship Plans
- Incorporated Town
- Green Infrastructure Network
- Contributing Landscapes

Source habitat data supplied by:
Virginia Department of Conservation and Recreation, Division of Natural Heritage;
Virginia Department of Game and Inland Fisheries; and
Virginia Commonwealth University Center for Environmental Studies



Blue/Green Infrastructure Study Accomack County, Virginia



Site level planning to protect water quality



- ❖ Sites designed to protect and enhance buffer for waterways.
- ❖ Multiple opportunities for water infiltration.
- ❖ Improvements to increase habitats for people, animals, fish.

Making the Case

How to sell the importance of natural asset mapping and conservation.

Social Marketing

Social marketing arose as a discipline in the 1970s, when Philip Kotler and Gerald Zaltman applied the same marketing principles used to sell products to consumers to now *sell ideas, attitudes and behaviors*. Social marketing seeks to influence social behaviors to benefit the target audience and the general society.

Adapted from "What is Social Marketing", by Nedra Kline Weinreich, <http://www.social-marketing.com/Whatis.html>



Positive Messages

Positive messages sell while negatives do not.

So if you want to save a forest, it would be more effective to say, “Conserve large connected tracts of forest whenever possible to ensure the best possible wildlife conservation” rather than saying things such as,

“Don’t fragment the forest.” or “Stop building in the woods.”

Green Infrastructure Planning Can Help Save Water Treatment Costs

Forest cover protects surface water sources and aquifer recharge zones and reduces the cost of drinking water treatment. American Water Works Association found a 10% increase in forest cover reduced chemical and treatment costs for drinking water by 20%. (Ernst et al. 2004)



Trees = cheaper water treatment

Urban Tree Canopy Values

Trees provide more attractive areas for development, historic districts, commercial areas opportunities for people to interact with nature.

A study by the University of Washington found that people shopped longer and more often in tree-lined retail areas and spent about 12 percent more money.

**Trees = more tax revenue
even in developed
commercial districts!**



Job development

Small companies, especially those that are have well paid and skilled workforce place a strong importance on the “green” of the local environment.

Crompton Love and Moore, 1997

The creative class: artists, media, lawyers, analysts, make up 30 percent of the U.S. workforce and they place a premium on outdoor recreation and access to nature.

Florida, 2002

Key message: Natural assets attract better paid jobs and thus a better tax base = \$



Trees: for Health

- ❑ Access to fitness opportunities. (addresses obesity, nature deficit disorders)
- ❑ Clean air – trees absorb pollutants, VOCs, filter runoff, cool the city. (combat asthma)
- ❑ Well being and mental health - -people heal faster when they can see or access green. (hospitals need this for patients, reduces absenteeism of workers)
- ❑ Less crime occurs near trees. (issue especially for downtowns and public housing areas)
- ❑ Employees will exercise if they can access green where they work and on the way to work. (addresses employee health)



Key Message: Treed areas = healthy safer communities!

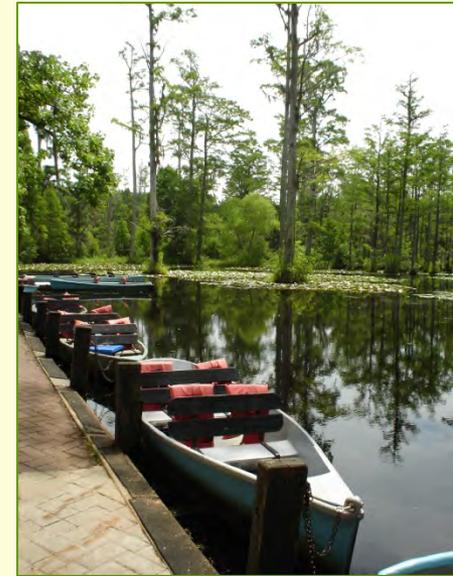
Green Assets = Real Estate \$\$\$

- \$ Having a park within 1,500 feet of a home increased its sale price between \$845 - \$2,262 (in 2000 dollars). *Economic Benefits of Recreation, Open Space, Recreation Facilities and Walkable Community Design, 2010*
- \$ The larger the park, the more significant the property value increase. (ibid)

Key message: Parks = better tax base = \$!

- \$ Large natural forest areas have a greater positive impact on nearby property prices than smaller urban parks or developed parks such as playgrounds, skate parks or golf courses.

Bigger intact forests/natural areas = more \$!



FAQs for Stakeholders ...

1) **Can anyone make a green infrastructure map?** Yes it will be available in a format that allows anyone with ArcView GIS10.1 + Spatial Analyst (*a GIS extension*) to run it – the model will help you download the right data from state/federal sources.

2) **Do we just run the model and presto we are done?**

Nope. You'll first need to make sure it is up to date (*consider where there could be new development or road projects*), create your goals for what's important, add local data to further evaluate the landscape (e.g. local parks, parcel data) and assess risks and opportunities!

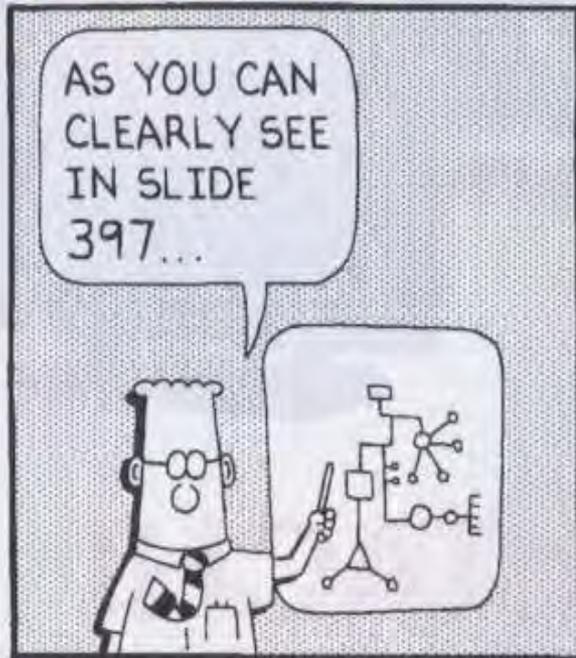
3) **When will the model be available?** March 2015.

Recap: Next Steps

- 1) Model Peer Review – Going on Now!
- 2) Consult with Berkeley County Pilot through end 2014 – customize model to reflect local priorities, assets, risks and needs (planning commission review + public meeting + stakeholder consultation)
- 3) Write up pilot case study and instructions for using and customizing the model in SC
- 4) Publish the SC GI planning guide in spring 2015
- 5) State training workshop – day long “how to” meeting
- 6) Everyone get going on GI planning!

Hope you've made it this far...

DILBERT



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Because we are done! But we have time for questions -- from those still upright ...

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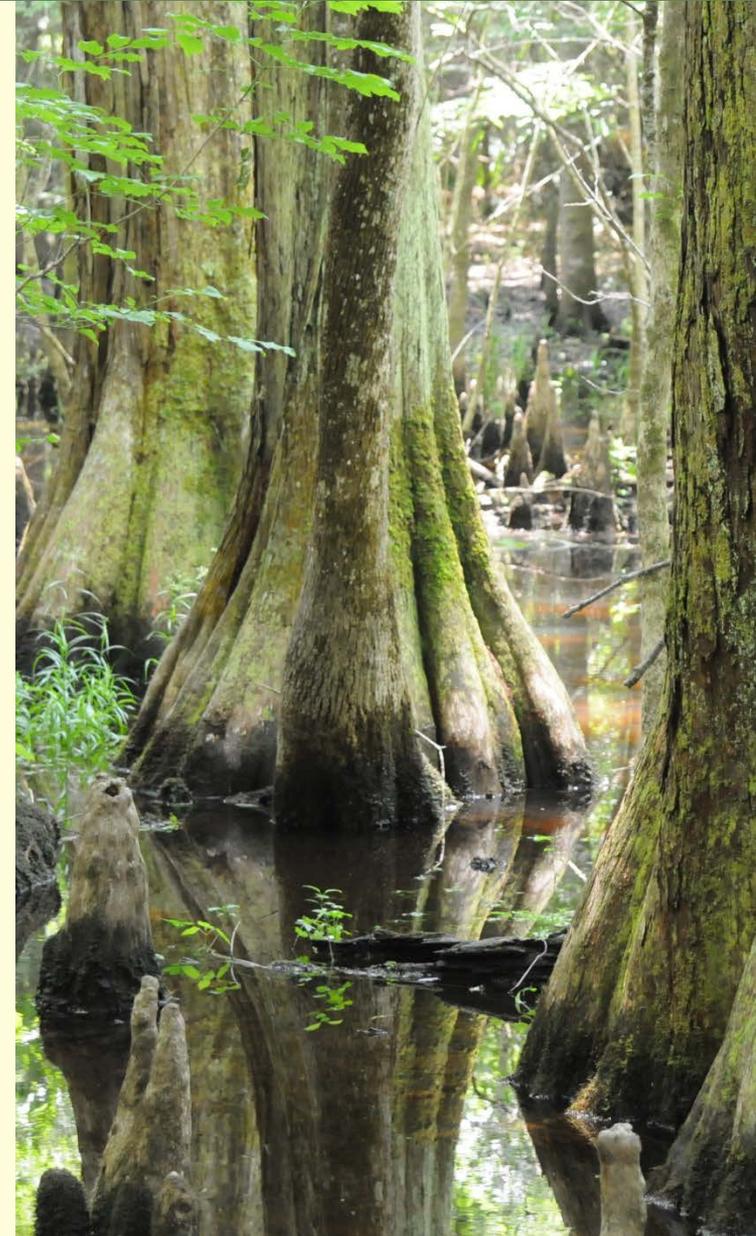
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Discussion

- 1) Any questions about what you heard?
- 2) How can the model inform planning in SC?
- 3) How will you use the tools from today?
- 4) How can you share the values of your natural assets with decision makers and colleagues?

