



Date: October 17, 2016  
To: Chatham County Board of Commissioners  
From: Climate Change Advisory Committee  
Re: Update on Natural Capital

Per the request of this board, our committee has further investigated the process of determining the Natural Capital / Ecosystem Services currently available within Chatham County, and what would be necessary to bring this information into a usable form for future planning. Below are described four steps in developing a usable model and scenario data that could inform policy decisions as well as provide information for local residents on the natural capital they possess within their own lands and strategies that could be used to help protect it.

1. Establish a baseline model of the Natural Capital in Chatham County.
  - Apply existing map data of the county, which is available through a variety of sources, to the InVEST software (free Natural Capital modeling software developed at Stanford University) to identify and plot the existing Natural Capital in Chatham County. This will identify types of capital including forests, farmland, wetlands, grasslands, etc., as well as minerals (including nitrogen, for example, that, were land developed, would be washed into streams, rivers and lakes, harming ecosystems.)
  - This baseline model uses information available from existing mapping systems, compiled together to calculate areas of highest natural capital value.
  - Establishing a baseline should also consider existing impacts not available through existing mapping sources, as well as future planning, to include significant developments, such as Chatham Park. (Much of the Natural Capital we currently have in Chatham County will be greatly reduced by the development of Chatham Park.)
2. Baseline Model Review and Planning
  - A baseline model will provide general information on where our Natural Capital is located throughout the county and what form it takes. It will also show us, generally, what areas have the highest value in providing ecosystem services.
  - A baseline model will also allow us to understand where we are weakest and where we need to enhance our Natural Capital.
  - A baseline model is only as good as the information included in the calculations. Much of this information does not contain details that could greatly change the larger picture. Additional models and on-the-ground data need to be collected manually in order to inform a more usable model for future planning. This is data specific to each community or modeling situation.
3. Identify Stakeholders and Areas of Inadequate Data to Finalize Model
  - The data included in developing Natural Capital models does not include detailed data that may be quite different than a generalized label, such as "grasslands" or "farmland." Therefore, a greater analysis must be performed in those areas specific to our county in order to provide a more accurate working model. One anticipated area is in agriculture, for example. We have a large number of sustainable and organic farms in our county. Likely, including this data in our model would impact the outcome and inform planning beyond the general numbers obtained for more general "agriculture land."

#### 4. Develop Scenarios

- Scenarios in Natural Capital can perhaps be thought of as being somewhat similar to the models used in planning a sustainable building. There are a number of options and directions you can take for any given development problem. One factor, perhaps the factor given the greatest weight in decision-making, is financial. But when we use the ideals behind valuing Natural Capital we can quickly see that with the additional information provided by our final model, we can often reach the same objective.
- Simple Scenario Example: We have 1,000 acres of forested land along a river. It contains a great number of streams and significant native habitat. The owner wishes to develop this property and construct a housing development. You could approach this using scenario a, b, or c, below, to result in much different outcomes.
  - a. Bulldoze the property and apply a design for a neighborhood to fit within the confines of the existing 1,000 acres.
  - b. Design a clustered development, retaining part of the woods behind the development.
  - c. Identify the areas of greatest Natural Capital and design a clustered development that protects the area that provides the greatest ecosystem services.
- Provided below is a chart that includes descriptions of four scenario types. Any number of scenario approaches can be done, including an approach that touches on many of the goals identified across scenarios types.

Scenario	User Goals	Question Asked	Scenario Storyline	Possible Context
Intervention	Choose among alternative interventions  Identify effective and equitable interventions that meet policy goals	What are the best ways to achieve the future we want?	Designs for real policies, plans and projects	Strategic Environmental Assessment to compare options for new development
Exploratory	Anticipate uncertain future circumstances  Test how policies cope with unexpected change	Where might the future take us? What can we do to prepare?	Possible but unexpected futures	Government review to assess resilience of existing policies with possible climate change
Vision	Reach a shared vision  Determine how to reach a desired future  Resolve stakeholder conflicts	What future do we desire?	Stakeholders' concepts of desirable or undesirable futures	Community planning based on a shared vision for local land and water management
Future Projection	Evaluate consequences of current policies  Compare scenarios against future baseline  Identify likely risks or opportunities	What future do we expect?	Depictions of the expected future with no new interventions	Identifying baseline to include and determine whether other mitigation plans (sustainable building, traffic infrastructure, etc.) will provide additional benefits

#### Recommendations:

Obtain estimates on developing an informed model of the Natural Capital of Chatham County.