

Impoverished County Finds Gold in Sustainable Technologies

Steve Pophal

From one coast to the other, U.S. development practices are arriving at a crossroads. With open spaces dwindling and an increasing number of Americans demanding environmentally conscious growth, traditional development methods are satisfying fewer and fewer people. This fact isn't being lost on the nation's public works officials; they know their greatest challenge today is finding ways to marry ecology, commerce, and human interaction in a sustainable fashion.

In Northampton County, Virginia, government leaders are drawing a blueprint for this type of growth. In improbable fashion, this rural and impoverished county may already have found the leading edge of a trend—sustainable economics.

The Setting

Located between Chesapeake Bay and the Atlantic Ocean on Virginia's Eastern Shore, Northampton County is rich in natural and cultural assets. Settled in 1614, it offers miles of unspoiled ocean and bay coastline, barrier islands, vast marshes and woodlands, tidal creeks, and abundant fish and shellfish. The United Nations Educational, Scientific, and Cultural Organization (UNESCO) recognizes the area as a World Biosphere Reserve.

But Northampton County also is one of the poorest places in the nation, and the poorest county in Virginia. In the early 1990s, 27 percent of the county's 13,000 inhabitants lived below the poverty level. It was during these years, following a series of plant closings, that Northampton County's residents realized they must confront their future, or lack of one.

"Northampton County [has] an embarrassment of riches when it comes to natural and cultural resources. But in the early 1990s, it had practically no tax base," says Tim Hayes, the county's director of sustainable development. "When the day of reckoning arrived for county residents—when they had either to increase industry or to accept their poverty—they proved to be something other than average thinkers. They didn't swallow the line that you can have either abundant natural amenities or job-creating industry but not both. They felt that, with new thinking, they indeed could have both."

Arrival of Eco-Industry

Thanks to its willingness to take a different and mainly uncharted course,

Northampton County today is building an environmentally friendly, sustainable economy. The different ways in which it is doing this revolve around the new Sustainable Technologies Park, the nation's first eco-industrial park. Encompassing about 200 acres, the industrial park already has a 31,000-square-foot office and manufacturing center open for business. Early tenants include ProVento America, a manufacturer of wind turbines; Delisheries, a gourmet cookie maker; and Hague Technologies, a Norwegian company that manufactures components for water desalination equipment. Although these companies already have created about 50 new jobs, county officials believe that this is only the beginning. By the time the park reaches buildout, about 200 companies are expected to be operating in and around it.

Northampton's sustainable technologies park already is paying dividends. ProVento America has signed contracts predicted to bring Northampton County \$8 million, or \$125,000 per year, in additional tax revenue. That's nearly as much as the entire county was generating during the worst years of the early 1990s. Within the next two years, the three initial tenants alone are expected to bring in \$500,000 annually in local taxes.

Perhaps ironically, Northampton County's march into the future has been a result of those gloomy conditions that existed in the county during the late 1980s and early 1990s. During that period, many area businesses were unable to sustain themselves. The major reason, according to county officials, was that these businesses were based on old-economy models. For county residents, then, sustainability became the driving force behind their search for a different type of future.

Concept and Early Strategy

The fashioning of a more sustainable tomorrow began with a series of public meetings. Organized during the early 1990s, they were attended not only by residents and politicians but also by local, state, and federal regulators, consultants, and a design team from the University of Virginia School of Architecture and Urban Design. When design work began, a similarly diverse group of participants rolled up their sleeves, including experts in sustainable design, the Work and Environmental Initiative of Cornell University, and even Blue Earth Films, which works closely with *National Geographic* magazine on its coastal films projects.

"During the preliminary meetings, residents began to think long and hard about any advantages they might have," Hayes says. "First to come to mind was the fact that the area is awash in sunshine, wind, water, and ecological attractions. As they began to discuss these attributes, it seemed possible to create a form of commerce linked to the environment.

“The goal then was to find forward-thinking enterprises willing to sustain themselves in an environmentally proactive way. Frankly, the industrial park wasn’t designed to be a place only for manufacturers of environmental products and services—that was never the goal. But these types of companies are showing a strong interest in being here, and they’re a perfect fit.”

Following the town meetings, Northampton’s board of supervisors in 1994 adopted a Sustainable Development Action Strategy to lend guidance to the effort. Leaders then began hunting for \$8 million in local, state, and federal funds with which to build the project’s first phase. Once funds had been secured, the county formed a Sustainable Technology Park Authority to build, manage, and market the park, with the county and the towns of Cape Charles (largest in the county), Cheriton, and Exmore appointing the authority’s seven-member board.

Design

Completed in January 2000, the park’s showcase building was intended to set a precedent for future construction in the park. (There should be enough room for an additional 20 to 30 similarly designed buildings, depending on their size.) The first facility was designed in accordance with the U.S. Green Building Council’s LEED rating system, which awards points to green construction projects based on the use of recyclable materials, the efficiency of HVAC systems, and other criteria.

In keeping with these guidelines, the debut building features tilt-up concrete panels, purchased from a nearby concrete plant, as well as the highest feasible level of recycled steel. Along with extra insulation throughout, the building also features automatic sensors that control air quality. On the roof, an integrated solar photovoltaic system converts sunlight into 42,000 watts of electricity. The building’s many skylights combine natural light with the low-energy interior lighting, and its plumbing systems rely on low-water fixtures.

The sustainable design does not end when you leave the building either. In fact, the facility is surrounded by a natural wonderland of beaches and dunes, migratory bird habitat, trails and boardwalks, ponds, archaeological sites, and 90 acres of protected natural assets. To promote the diverse wildlife, park planners designed retention ponds so they would draw waterfowl, frogs, and other animals. Other landscaping features include aquatic plants and other types of horticulture that produce fruit and berries for migrating songbirds.

For planners, the management of stormwater runoff was seen as key to the park’s sustainability. Toward that end, pavements have been built with porous material that allows stormwater to percolate into the soil. In addition, at the center of the park is a wastewater plant linked to shallow marshes that are

themselves a link in the park's biofiltration system, which will return reclaimed water to the site to be used for irrigation and other purposes.

In Other Developments . . .

Northampton County's Sustainable Technologies Park, located partly on county land and partly within the jurisdiction of the town of Cape Charles, is the only project of its type in the United States. It's not, however, the only sustainable development under way in the county. In fact, the technologies park is bordered by two environmentally conscious golf courses in the making, one designed by Arnold Palmer and the other by Jack Nicklaus.

In Cape Charles, meanwhile, a major harbor renovation has been completed in the past few months. Even the former town dump is about to join the county's makeover. Recently designated by the Environmental Protection Agency (EPA) as one of its 50 pilot brownfields sites, the former dump is master-planned for the development of a conference and training center. With a \$200,000 grant from EPA, planners are conducting an environmental assessment of the dump; early findings indicate the need for only minor remediation.

Today, the golf courses are nearly complete. Around the courses, homes gradually are being built in the Bay Creek subdivision, a residential community with environmentally oriented covenants.

Another important aspect of the county's pursuit of a more sustainable economy is at the harbor at Cape Charles. For hundreds of years, this harbor has served Atlantic Ocean and Chesapeake Bay mariners. In fact, the harbor was a major reason why Cape Charles was designated as a National Historic District in 1977. Over the past 20 years, however, little revenue has been generated by the declining harbor. By the mid-1990s, the boat slips were falling apart, the wooden bulkheads were collapsing, and the water and electrical systems were only partly operable.

Once the Virginia Port Authority had agreed to fund about 75 percent of a \$1 million upgrade of the harbor, town leaders contracted with consultants to begin a revitalization project. The first step was an underwater assessment conducted by a scuba team. What the team found was a bulkhead system deteriorated beyond repair. Sinkholes were forming behind the bulkhead and causing adjacent service roads and utility poles to collapse.

Since the assessment, construction has included the removal of 1,030 linear feet of wooden decking and pilings. The old bulkheads have been replaced with vinyl sheet pilings, timber wales, fender piles, tiebacks, and dead-man piles. Crews then built a new pier for additional boat slips, as well as water and electrical systems, storm drainage inlets, and a roadway leading to the harbormaster facility, where fuel is sold.

Originally designed to accommodate only 15 boats, the new harbor contains slips for 51 boats, ranging in size from 10-by-20 feet to 20-by-60 feet. At its height, the old harbor was providing the town with about \$15,000 a year in revenue. In the next couple of years, the newer and larger harbor is expected to bring in about \$70,000.

Northampton County's effort to create a more sustainable economy, with the Sustainable Technologies Park serving as its crown jewel, is a work in progress. How large this economic model will become depends on marketing, national environmental policy, economic conditions, and many other factors. But for the people of Northampton County, the sky seems to be the limit. In only a few years, the area has generated an infinitely more sustainable economy, one that is filling tax coffers faster than expected.

What has been accomplished on Virginia's Eastern Shore, however, can be achieved in practically any area of the country. There only needs to be the will to do so, plus proper guidance.

"Any community, whether on the Kansas prairie, in the mountains of West Virginia, or in the lowlands of South Louisiana, can do what Northampton County has done, in some form or fashion," Hayes says. "Communities just need to identify what is unique about their geographic location, history, and nature and then use that understanding to develop a more sustainable economy, one that doesn't jeopardize future generations.

"The environment, if protected and nurtured, offers many economic opportunities. Environmental protection isn't an impediment to economic growth; it's an engine for growth. Communities need to realize they only need to turn it on."

Steve Pophal, CLA, is a senior project manager with PBS&J, Newport News, Virginia (e-mail, sepophal@pbsj.com; Web site, www.pbsj.com).