

Shaping Delaware's Future: Managing Growth in 21st Century Delaware

Strategies for State Policies and Spending

Approved

12/23/99

**By the Governor's Cabinet
Committee on State Planning Issues**

**The Governor's Cabinet Committee on State Planning Issues
The Delaware Office of State Planning Coordination**



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STATE OF DELAWARE
OFFICE OF THE GOVERNOR

THOMAS R. CARPER
GOVERNOR

January 1, 2000

Dear Friend in Planning:

At the dawn of the 21st Century, my Cabinet Committee on State Planning Issues approved a set of management strategies designed to continue my mission of improving Delaware's quality of life.

"Shaping Delaware's Future: Managing Growth in 21st Century Delaware" outlines strategies to ensure that by 2020, the First State is still a viable place to live, work and play. The initiative embraces the concept of wise development, directing new construction to where it makes the most economic, environmental and social sense – not to where it contributes to unfocused and costly sprawl. State agencies will use the strategies to coordinate state spending to revitalize existing cities and towns while protecting the environment. Furthermore, since much of Delaware's infrastructure is state-funded, local governments will benefit by linking their projects with the state's approach. The result should be the wise expenditure of taxpayer money and a sensible, efficient pattern of growth.

I am pleased that my Cabinet Committee on State Planning Issues, staffed by the Office of State Planning Coordination, steadfastly worked on these strategies with the leadership and cooperation of local government officials, civic leaders, business leaders, and other State agency planners. The stakeholders understood that Delaware's quality of life was imperiled with inaction. I commend and thank them for a unified start in protecting and preserving the First State's virtues.

Finalizing this set of strategies is yet another step in "Shaping Delaware's Future," a vision started with a land use planning conference in 1994. By amending the Quality of Life Act the following year, our counties were required to submit updated comprehensive land use plans to the State, and for the State to share its land use plans and projects with the counties.

Legislation passed in 1998 mandated that all local governments regularly convey their comprehensive plan intentions to the State, and vice versa. These events were especially important because Delaware lost 48,000 acres of farmland between 1983 and 1994, and Delaware faces a 20 percent projected population increase by 2020. Today, Delaware has permanently protected 37,000 acres of farmland – the highest percentage of any state preserved nationwide – nearly 3 percent of Delaware's total land area, and another 18,000 acres of open space greenways, nature preserves and local parks.

I've enclosed a copy of "Shaping Delaware's Future: Managing Growth in 21st Century Delaware." I hope you will read it to further understand Delaware's current land use patterns, our predicted development growth, and the resulting vision for the 21st century and beyond. The report is also available on the Office of State Planning Coordination's web site at <http://www.state.de.us/planning>.

I am proud to present you with this set of spending and management strategies designed to make Delaware a better place to live.

Sincerely,

A handwritten signature in blue ink that reads "Thomas R. Carper".

Thomas R. Carper
Governor

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Contents

Section Title		Page
1 Introduction.....		1
2 The issues.....		2
3 Delaware is changing		4
4 A Delaware Response: The “Shaping Delaware’s Future” initiative ...	10	
5 A Foundation for the strategies.....		13
6 Managing Growth in 21 st Century Delaware: Strategies for state policies and spending		16
7 Purposes and Limitations.....		28
8 Approval		32

Appendices

Appendix 1 – The Strategy Maps

Appendix 2 – The Legal Basis

Appendix 3 – The Role of the Cabinet Committee on State Planning Issues

Appendix 4 – A Planning History

Appendix 5 – The Original Ten Goals

Appendix 6 – An Absorption Analysis of the Strategies for state policies and spending (12/8/99 Draft Maps)

Appendix 7 – Gross Land Uses Changes in Delaware, 1992 to 1997

Appendix 8 – Population Growth in Delaware

Introduction

All across Delaware, people are talking about growth.

No matter how they differ, communities from center city Wilmington to downtown Dover, from historic Seaford to the beachfront resort communities, are facing the same question: How can we handle the myriad challenges that arise from the First State's phenomenal increase in population and land development?

These increases present both opportunities and problems: more jobs, but more traffic; greater housing choices, but fewer acres of farmland; a gain in shopping options, but a loss of community character; a larger pool of potential employees for businesses, but a poorer quality of life for those employees.

The mix of benefits and difficulties that result from growth are nothing new – they have been part of the “suburbanization” of America since the 1950s, when an exodus began from urban areas (the traditional population centers) to outlying areas.

Although the pace of change was somewhat slower in Delaware, it has accelerated in recent years at a startling pace – and it shows no indication of slowing down, as this report will show.

What can we do to manage this explosive growth?

In workshops conducted by the Cabinet Committee on State Planning Issues, Delawareans said they want well-planned, efficient and orderly growth. They said the state should protect farmlands and natural resources while promoting a healthy economy. They said people should have more housing and transportation options, and should have better access to educational opportunities, health care and other human services.

Accomplishing all that requires new development to be directed to where it makes the most economic, environmental and social sense. The strategies for doing so are based on common-sense distinctions between highly developed areas, rural areas and the transition areas between them.

Although most decisions concerning land-use remain at the local and county level, the state can influence the way development occurs through its spending and management policies. By making sensible decisions about building and managing highways, water and sewer systems, and other public facilities (commonly called “infrastructure”), the state can reduce the negative effects of unfocused growth.

By promoting development and redevelopment in places where adequate infrastructure exists or is planned, the state can reduce congestion, preserve farmland, enhance community character and protect important state resources. In short, it can preserve Delaware’s high quality of life.

To do so, state agencies have to work closely with county and municipal governments, and all parties need guidelines to help make smart land-use decisions.

Managing Delaware’s rapid growth is no small task. How the state will work with the counties and municipalities to do so is at the heart of this document.

An introduction to the issues

Whether in the national press or the local newspaper, or on the nightly news or at the ballot box, growth issues have become part of citizens' mass consciousness.

Whether they call it "smart growth" or "growth management" or some other planners' term, public and private spokesmen from the Vice President to bank CEOs, from the National Governors Association to the National Association of Homebuilders, from landowners to preservationists, have taken up the debate. Across the country and here in Delaware, the issues of the pattern, intensity, timing and character of development are increasingly dinner table discussion topics. The National Association of Homebuilders captured the essence of the debate in their 1999 policy statement on what has been called "smart growth:"

"(This concept) has exploded onto the national consciousness as one of the most critical issues confronting America today. It touches on choices we Americans hold close to our hearts – where we live, work, and play, the education of our children, commute times to work, and the economic and job opportunities created by new growth in our communities. It is an idea that addresses the questions of how best to plan for and manage growth, when and where new residential and commercial development as well as schools and major highways should be built and located, and how to pay for the infrastructure required to serve a growing population."

State governors throughout the U.S. are facing the challenges that arise from poorly planned growth, and they recently discussed the importance of finding a balance between growth's good effect – economic prosperity – and its inherent threats to the environment and citizens' quality of life. Here's an excerpt from a recent statement issued by the National Governors Association:

"Public officials at the state and local level are becoming increasingly aware of the impact that public expenditures can have on growth and the need for a more balanced approach to providing financial support for development. In hindsight, it appears that financial assistance has been provided without adequate consideration of the long-term effects on farmland, ranches, forests, or other natural resources of economic, recreational or aesthetic value."

Growth is inevitable but the loss of natural areas and community character is not. The question is not whether development occurs, but how – on that point most stakeholders agree. The issue comes down to choices – not just residential subdivisions spread farther and farther across the landscape, but a range of safe, attractive, functioning places to live, work and play. These are the kinds of places that don't require using a gallon of gas to get a gallon of milk.

As Hugh L. McColl Jr., Chairman and CEO of Bank of America, recently said:

"(It) is about families and communities. It's about thinking and acting to create neighborhoods – whether in the city, in existing suburbs, or in newly developed areas – with housing, employment, schools, houses of worship, parks, services and shopping centers close enough together that our kids can ride their bikes wherever they need to go, without asking us for a ride every 10 minutes."

For most of our history, people banded together for mutual security or to be close to essential resources. The auto provided a means to disperse – to go beyond the range of walking or streetcars. Historic central city problems of crime, congestion, disease and overcrowding offered reasons to leave. After World War II, suburbia became the lifestyle choice for most Americans –

but it brought fragmentation of our society and produced costs that probably can not be sustained through another generation.¹

Americans moved to the suburbs for privacy, security, and home-ownership. Now they have isolation, congestion, rising crime, pollution, and increasing costs – conditions that frustrate rather than enhance daily life. We continue to build post-World War II suburbs as if families were large, there was only one breadwinner, jobs were all downtown, land and energy were endless and another lane on the expressway would end traffic congestion.²

Most housing continues to be built in expanding “suburbs” because most people still prefer a single-family house on its individual lot. But many people don’t have other good choices and many buy in places that they know have flaws – and many never consider the other costs until they face the congestion or realize how far away the most basic service is – or need that second or third car to meet all their transportation needs.

Suburbs, with their separation of uses and isolated houses on dead-end cul-de-sacs with few connections to anywhere else, impose a high price: total dependence on cars and a vehicular, not human scale. They become sterile pods of housing, shopping and working, separated from each other as though there were no need for integration. But demographics, congestion and longer commutes, constantly rising infrastructure costs and deficiencies are contributing to a renewed interest in the cultural values and other attributes of “communities” found in the population centers traditionally called towns or cities. At the same time, there is a growing call from both buyers and builders for more efficiently designed suburban developments.

The widespread interest in managing growth is not new, but it has gained incredible momentum in just the last five years. In both the 1996 and 1998 national elections, a record number of ballot issues concerning growth, conservation, and open space were approved by voters. In 1998 alone, voters approved 72 percent of the 240 state and local conservation measures on the ballot, according to a study of that election.³ Some analysts said the huge success of the measures was a dramatic national rebellion against sprawl, an urgent call for land preservation, and a clear message of support for smart growth policies.

The measures approved in 1998 addressed such issues as land conservation, habitat restoration, watershed protection, historic preservation and outdoor recreation programs. They appeared on ballots in older, declining urban neighborhoods as well as growing communities, in rural areas as well as metropolitan regions. Citizens took action on growth issues in 31 states from California to New Jersey.

The rapid growth that inspired a record number of ballot initiatives nationwide has also caught the attention of Delaware residents, who are seeing its ramifications every day – in the loss of rural vistas, in increased traffic, in declining water quality and in many other ways. The next section takes a look at this rapidly changing landscape, and the effects of that change.

¹ Adapted from Peter Katz in [The New Urbanism, Toward an Architecture of Community](#).

² Adapted from Peter Calthorpe in [The New Urbanism](#).

³ The Brookings Institution Center on Urban and Metropolitan Policy.

Delaware is changing

Overall indicators of development concern

The mix of benefits and difficulties that result from growth are nothing new – they have been part of the “suburbanization” of America since the 1950s, when an exodus began from urban areas (the traditional population centers) to outlying areas.

Although the pace of change was somewhat slower in Delaware, it has accelerated in recent years at a startling pace. Here are a few indicators of that growth:

- Delaware’s population increased by almost 67 percent between 1960 and 1998.
- Most of that increase was in unincorporated areas, where population virtually doubled.
- Delaware’s residential areas grew by almost 50 percent between 1984 and 1992.¹
- Commercial and industrial uses increased by more than 60 percent during that period.
- The state lost 21 percent of its farmland to development between 1970 and 1997.
- The Delaware Population Consortium predicts that 95,000 more people will call Delaware home in the next two decades, a growth rate of more than 12 percent. Much of the growth will come from people moving into Delaware, attracted by employment, quality of life, low taxes and prices, and in coastal areas by natural amenities.
- Over the 30-year span between 1990 and 2020, according to the Population Consortium’s projections, Kent County will have grown by nearly 32 percent, New Castle County by almost 21 percent, and Sussex County – the fastest-growing county – by just over 56 percent.
- Households, the consumers of land, will grow almost twice as fast as population – almost 22 percent – as a result of declining family size, greater longevity, and growing numbers of singles.
- With people come vehicles and both total numbers of vehicles and the miles they are driven are increasing faster than population growth. Total miles driven grew by 4.5 times the rate of population growth in the 1980s and shows no signs of slowing in the future, primarily as a result of the very dispersed way various uses and services are located.

Over the last four decades, the First State has shifted from a place with strong vibrant cities and towns supported by a thriving rural sector to a sprawling suburban place whose overall quality of life and rural economy are in danger. That trend is likely to continue, unless steps are taken now to better manage the state’s inevitable population growth.

The trend in Delaware has been toward growth in unincorporated areas outside towns. In 1960, Delaware’s population was more evenly distributed between incorporated places (cities and towns) and unincorporated, rural areas. According to the 1960 census, more than 39 percent of Delawareans lived in town and cities and almost 61 percent lived outside of towns. By 1998, according to the latest population estimates from the U.S. Census Bureau, the population in incorporated places had fallen to less than 28 percent of Delawareans. More than 72 percent now live outside town and city limits.²

¹ For more information on land use changes, see Appendix 7.

² For more information on population growth, see Appendix 8.

The cost of sprawling development in Delaware

“Many of our state’s most serious problems are directly related to poor land use planning – water pollution, dirty air associated with traffic congestion, erosion, flooding and loss of open space. If we don’t begin to do a better job of planning for future development in our state, we risk losing some of the very things that make the quality of life here so special.” – Delaware Gov. Thomas Carper

Everyone in Delaware pays some cost of the development pattern called sprawl. Its consequences reach far beyond race, ethnic background, income, status or location. Here’s a brief look at some of the ways unmanaged growth affects residents, businesses, farmers and the environment.

Effects on citizens’ quality of life

Sprawl affects our daily quality of life in many ways, whether just in time spent commuting or in ways that increase health and safety risks. Here are some examples:

- Drivers spent 43 more hours in their car during the year 1995 than they did in 1990. Women – especially mothers – spend more than an hour each day just fulfilling the family’s needs and running errands, a total of almost 17 days per year in the car, according to a national survey.³ The survey says that women have become “the bus drivers of the 1990s” because spread-out, vehicle-dominated development patterns significantly reduce opportunities for using other transportation modes. Only about 10 percent of children’s trips are by foot or bike, whether to school or to play.⁴
- As a society we drive 88 percent farther to go shopping and 137 percent farther to accomplish errands than we did in 1969.⁵
- Sprawling patterns of development increase health and safety risks as fire intensity doubles every five minutes and brain death occurs after four to six minutes of cardiac arrest – response times that are exaggerated by distance from fire stations and emergency medical services. A recent report says that with response times of 15 minutes for paramedics and up to 17 minutes for ambulances, “Delaware EMS arrivals are 66 percent longer than other EMS systems which are known for superior levels of service.”⁶
- Poorly planned, sprawling development creates water-demand problems as new homes and businesses compete for water.
- Other effects of unfocused, poorly planned development are harder to quantify, but are no less obvious – it robs citizens of pleasant rural vistas, it creates traffic congestion and longer bus rides for students, it adds stress, often in the form of road rage, and it reduces the sense of community that can help support a healthy psychological life.

Residents as Taxpayers

Taxpayers may pay less in the short-term by purchasing houses in the suburbs or in rural areas, but they inevitably pay “hidden” costs. Here are some examples:

- Taxpayers have to pay the increased cost of building and maintaining highways, schools, water and wastewater systems and other infrastructure to distant neighborhoods. As one example, the Delaware Department of Education says the cost per square foot for a newly

³ Nationwide Personal Transportation Survey conducted by the Federal Highway Administration.

⁴ Surface Transportation Policy Project. *Mean Streets: Children at Risk*, 1998.

⁵ Nationwide Personal Transportation Survey.

⁶ Fitch and Associates, quoted in a study by Christian Schlosser, of the University of Delaware.

constructed school (excluding land acquisition) rose from \$135 to \$145 in July 1998. Delaware's total public school enrollment increased from 106,813 in 1994 to 113,082, including charter schools, in 1998.

- The development of land outside traditional population centers increases the cost of solving environmental problems, such as water pollution and the loss of wildlife.
- Suburban residents share the cost of solving air pollution problems that are caused by the significant increase in vehicles that come with a growing population.
- Overcrowding in classrooms has led to special legislative funding for construction in one school district.
- The cost of police service increases as population spreads across the landscape. The Delaware State Police report a 130 percent increase in the number of complaints received between 1985 and 1998. Also, new highways, such as the new sections of Route 1 in Kent and New Castle Counties, put greater patrol demands on the State Police.

Sprawl also hurts citizens living in cities, towns and older suburbs:

- When employers leave older neighborhoods, residents have difficulty getting to jobs and conveniences. Those relying on public transportation, particularly poor and working-class citizens, may not be able to reach outlying jobs because of a lack of public transit, disjointed public transit routes or other before- and after-work obligations, such as child care.
- When new development occurs on the urban fringe (or well outside of it), higher income individuals typically leave older existing communities, reducing social stability and often leading to economic, and at times racial, segregation. This shift can trigger a cycle of disinvestment that leaves vulnerable populations – such as the low-income elderly and single parent households – in neglected and abandoned neighborhoods.
- Historically significant buildings may suffer neglect when development occurs on the urban fringe versus in or near the historic town center. About 90 percent of all Delaware buildings listed in or eligible for the National Register are located within town limits, according to the State Historic Preservation Office. Maintaining downtowns and urban residential areas in historically compatible ways is critical to the integrity and ultimate survival of these properties.
- Metropolitan dwellers and business owners' properties may decline in value. Buildings once harboring successful businesses sit as abandoned or underdeveloped investments, or they may be demolished unnecessarily. The U.S. Department of Defense's report, "The Benefits of Cultural Resource Conservation," explains how buildings represent a certain amount of "embodied energy." For example, the shell of a two-story brick residential structure contains more than one billion BTUs of energy in construction materials alone, equal to about 8,000 gallons of gasoline. Replacing a building loses that "embodied energy," plus there is the added energy cost of demolition, removing and disposing debris, and manufacturing, delivering and placing materials for a new building.
- Since the economically comfortable middle class is most attracted to suburban areas, the political, economic and social problems of the older communities tend to be left behind.

Effects on businesses

“Smart growth is pro-growth. We know that developers, banks and the entire community rely on growth to fuel the economy. The goal is not to limit growth, but to channel it to areas where infrastructure allows growth to be sustained over the long term.⁷” – Hugh L. McColl Jr., chairman and chief executive officer of Bank of America

Growth in areas that have adequate infrastructure is good for the economy, but poorly planned, unfocused growth has a negative impact on businesses because it diminishes Delaware’s quality of life, in ways such as these:

- Potential new employers increasingly choose sites reflecting their employees’ preferences. New employers do not want parcels engulfed by traffic congestion, poor air quality, and badly planned shopping and housing districts, served by poor schools and few outdoor recreational opportunities. They search for a prime quality of life featuring low tax rates, healthy communities and green space. According to the Trust for Public Land’s report “The Economic Benefits of Parks and Open Space,” owners of small companies ranked the presence of recreational facilities, parks and open space as the most important factor in choosing a new location for their businesses. “We are living in the era of the global marketplace,” says Tracy Grubbs of the Sierra Business Council. “Because capital is mobile, companies will leave locations if they no longer provide the quality of life necessary to attract employees.”
- Businesses choosing to settle in highly congested, poorly planned areas may face direct costs of initiating employee carpooling programs or participating in aggressive anti-pollution efforts.
- Geographically misplaced employees may face lengthy commuting distances, which weighs on their personal, family and professional life. Some may miss out on advancements because their homes are far away from their workplaces.
- Current employers may look for new sites on which to expand their businesses. If properly zoned land, land with utilities already installed, and (in some cases) annexed land is unavailable, employers may seek sites in other communities or states. Many electric utilities support growth patterns that increase development density in urban areas because such patterns reduce the investments needed to expand service lines and build equipment in outlying areas. “Electric utilities have a vested interest in reducing sprawl, especially in the emerging competitive marketplace,” says Paul Radcliffe of the Electric Power Research Institute. Bruce Rasher, vice president of Michigan’s Consumers Renaissance Development Corporation, agrees: “On Halloween, parents take their kids trick-or-treating in the cities rather than the countryside because it is more efficient to move from house to house. The same principle is true for utilities. It is economically preferable for utilities to provide service in densely populated communities. Smart growth and brownfields redevelopment promote dense development and provide economic benefits to the business community.⁸”
- Already used sites, many bearing the pollution and obsolete improvements of an earlier time, are allowed to deteriorate, diminishing tax revenues, breeding crime and pests, and adding to the overall impression of despair and neglect all too common in urban areas.

⁷ From the 1999 report “Profiles of Business Leadership on Smart Growth,” published by the National Association of Local Government Environmental Professionals.

⁸ Ibid.

Effects on farmers

“For three centuries, America built villages, towns and cities with clearly identified centers and well-defined edges beyond which lay farms, forests and countryside. Since the 1950s, the centrifugal forces of sprawl have blurred the distinction between city and countryside, taking all the elements that once made up human settlements – homes, schools, shops, offices, factories and so forth – and flinging them randomly across the landscape.” – Edward T. McMahon in Land Development magazine

Agriculture has long dominated Delaware’s list of leading industries. Poorly planned, unfocused growth affects Delaware agriculture in such ways as these:

- Productive farmland becomes permanently developed and historic farmsteads and vistas are lost. According to the National Agricultural Statistics Bureau, Delaware lost 21 percent of its farmland between 1970 and 1997. In 1998 the state lost an average of 5,000 acres each year. Highly productive, prime farmland cannot be replaced. While forests and other lands can be converted to agricultural lands, this may carry huge environmental and archeological consequences along with generally reduced agricultural productivity.
- The loss of one farm can start a chain reaction. Development that spreads out over the rural landscape encourages farmers to “sell out.” Once a destructive construction pattern begins on former farms, nearby farms eventually follow suit, often as a result of the conflicts that arise between modern agricultural activities and neighboring uses (difficulties moving equipment, dust and noise, and restrictions on applications of herbicides, fertilizers and other agricultural chemicals).

Effects on the environment

“Just as communities need to upgrade and expand their gray infrastructure (roads, transit lines, sewers and so forth), so too communities need to upgrade and expand their “green” infrastructure (parks, greenways, natural areas and so forth.)” – Edward T. McMahon in Land Development magazine

In an ecologically complex and fragile state such as Delaware, poorly planned, unfocused growth injures land, air, and water. Here are some examples:

- Delaware’s natural resource lands are being lost in their entirety as well as in sections due to dispersed development. Remaining natural areas are endangered. Since forests are often converted to residential uses and to agricultural land to replace farmland lost to development, forested habitats are disappearing rapidly. The smaller the parcel of open space, the more it is degraded through land uses on its edges. Natural areas adjacent to lawns, roads and structures are degraded through polluted runoff, sedimentation, non-native invasive species and trash.
- Delaware’s native plant and animal populations are dwindling. Most of Delaware’s native species require relatively large undisturbed areas. According to the Delaware Division of Fish and Wildlife, an alarmingly high percent of Delaware’s native plants and animals are now at risk of being entirely eliminated from our state – a direct result of the loss of, or alterations to, precious habitat. Of Delaware’s more than 1,600 native plant species, more than 10 percent are believed to be extinct, another 10 percent are extremely rare; and another 20 percent are uncommon. Division of Fish and Wildlife statistics show that 84 percent of our native freshwater mussel species are either extinct or extremely rare; 50 percent of our native reptiles and amphibians are extremely rare; 31 percent of our native fish species are uncommon; and nearly 20 percent of the 379 bird species naturally nesting here are considered rare or extinct.
- With sprawl come inevitable complaints about wildlife. When housing developments invade previously natural areas, citizens complain about deer damage to shrubbery and automobiles,

as well as their role in Lyme disease. Residents also complain about biting insects, goose droppings, and raccoons invading trash cans.

- Delaware lost 42,000 acres of wetlands between 1951 and 1981, according to the October 1986 report, “Status and Recent Trends of Wetlands in Five Mid-Atlantic States,” published by the U.S. Fish and Wildlife Service. Another 2,000 acres of vegetated wetlands (most of which were forested wetlands) were destroyed between 1981 and 1992, according to an updated U.S. Fish and Wildlife Service inventory.
- Delawareans like to drive, and need to because of development patterns that offer little choice but to use cars to get to work, to shop, or to carry out other daily requirements of life. That contributes to more traffic, more emissions and poorer air quality. The number of vehicle miles traveled increased more than 12 percent between 1994 and 1997, according to the Delaware Department of Transportation’s Office of Planning, while the state’s population rose by only 3.6 percent, according to the Delaware Population Consortium. Most Delaware households also have two or more vehicles. Between 1994 and 1997, Delaware-registered autos, buses and trucks rose by 9.6 percent while nationwide these vehicles rose by only 6.7 percent, according to the federal highway statistics manuals.
- Motor vehicles travelling on Delaware roads contribute over 24% of the total emissions that make up ozone, according to the Delaware Department of Transportation. Delaware exceeds the national standard for this pollutant, resulting in public health risks and potential threats to continued economic development and future transportation investments.⁹ Federal Clean Air Act Amendments require that the state address this issue.
- Northern Delaware residents rely primarily on drinking water from surface water sources such as the White Clay Creek. Southern Delaware residents rely on public and private water supplies from groundwater sources. Both the quantity and the quality of both surface water and groundwater resources are threatened by over-use, the elimination of recharge areas, saltwater intrusion and contamination from a variety of sources.

⁹ Delaware Department of Transportation, Long Range Transportation Plan, 1996.

A Delaware response: The “Shaping Delaware’s Future” initiative

Creation of the Cabinet Committee on State Planning Issues

The ramifications of growth in Delaware, and efforts by the state to guide it, are not new.

Just as the “suburbanization” of America began in the 1950s, so did Delaware’s concerns about its effects. Since the establishment of the State Planning Council in 1959, Delaware officials have sought ways to manage growth. From its 1968 comprehensive plan to its 1976 Delaware Tomorrow Commission to its 1988 Quality of Life Act, the state has tried, with varying degrees of success, to direct new development to already developed areas, to protect farmland and to maintain a high quality of life— all the while encouraging economic vitality.¹

In June 1994, Governor Thomas R. Carper created the Cabinet Committee on State Planning Issues (CCSPI). The Governor charged the CCSPI with coordinating state planning to guide Delaware into the 21st Century. He instructed this body to address state, county and local government planning issues and especially to coordinate similar planning initiatives. The Cabinet Committee on State Planning issues is charged with the responsibility for considering matters relating to the orderly growth and development of the state, including recommending the most desirable general pattern of land use in the State and making recommendations on the location of public facilities.

The Committee, chaired by Chief of Staff Jeffrey W. Bullock, originally consisted of the Budget Director, the Directors of the Delaware Economic Development Office, and the Secretaries of the Departments of Transportation, Agriculture, and Natural Resources and Environmental Control. In August 1995, the Governor expanded the CCSPI’s membership to include the Secretaries of the Department of Health and Social Services and the Department of Education. By February 1996, the Committee grew to 11 when Gov. Carper added the Director of the Delaware State Housing Authority and the Secretaries of the Department of Finance and the Department of Public Safety.

Statewide Planning Sessions in 1994 and 1995

The Cabinet Committee held Delaware’s first Statewide Planning Conference in December 1994. Governor Carper challenged a group of 120 leaders – from the public and private sectors as well as civic and environmental groups – to identify areas of concern and create a vision to prepare Delaware for the 21st Century. At that historic gathering, attendees identified four issue areas: development, infrastructure, economy, and quality of life.

Delawareans said:

- Housing and business development should be focused in existing communities and growth areas;
- People want other transportation options besides their cars;
- They want a wide variety of good-paying jobs matching their skill levels;
- Agriculture and tourism should continue to be a major part of the state’s economy;
- Investments in roads, water and sewer systems, schools and other public facilities should be focused in existing or planned communities;
- Improved housing, health care and education opportunities are needed;

¹ For more on the history of planning efforts in Delaware, see Appendix 4.

- The State's environmental and cultural treasures should be protected; and
- Planning decisions should be coordinated between the State, county and municipal governments.

Through an intensive public outreach campaign in early 1995, the Cabinet Committee asked Delaware's citizens what they'd like Delaware to become by the Year 2020. The CCSPI completed research and interviewed more than 30 people representing all levels of leadership positions in government and business. Interactive workshops in each county attracted over 250 people. The Cabinet Committee also made presentations to more than 40 civic and professional groups and initiated discussions with county and municipal governments. The committee also conducted a telephone survey of over 900 Delawareans (roughly 300 from each county) about their quality of life expectations. The outcome led to the document "Shaping Delaware's Future," which listed 10 development goals.

In April 1995, the Cabinet Committee held a second planning conference that attracted nearly 300 people. Governor Carper presented the Cabinet Committee's report, and officially adopted the 10 "Shaping Delaware's Future" goals, saying they laid out actions to move Delaware in a positive direction. The State of Delaware still follows these goals today.

At the same conference Gov. Carper signed an Executive Order establishing the 28-member State Planning Citizens' Advisory Council to supplement the legislatively mandated eight-member Advisory Panel on Intergovernmental Planning and Coordination. These appointees assist the CCSPI in gathering planning-related research and providing essential feedback on policy proposals.

The "Shaping Delaware's Future" goals

By adopting the Cabinet Committee's 10 Shaping Delaware's Future development goals, Gov. Carper officially called for Delaware's future growth to be guided toward – and encouraged in – existing cities and towns where costly infrastructure already exists. The goals call for farmland preservation; open space retention; re-use of aging industrial sites and historic buildings; and developing Delaware's transportation, water, and telecommunications networks. These goals are important if Delaware is to protect its natural resources, its air and water quality, its heritage, and the uniqueness of its small towns and crossroads.

In 1998, the wording of two of the goals was slightly revised, and an 11th goal was added.²

The Shaping Delaware's Future Goals, as amended³

Goal 1 – Direct investment and future development to existing communities, urban concentrations, and growth areas.

Goal 2 – Protect important farmlands and critical natural resource areas.

Goal 3 – Improve housing quality, variety and affordability for all income groups.

Goal 4 – Ensure objective measurement of long term community effects of land use policies and infrastructure investments.

Goal 5 – Streamline regulatory processes and provide flexible incentives and disincentives to encourage development in desired areas.

Goal 6 – Encourage redevelopment and improve the livability of existing communities and urban areas, and guide new employment into underused commercial and industrial sites.

² The original 1995 goals appear in Appendix 5.

³ Revised goals, Office of State Planning Coordination, October 30, 1998.

Goal 7 – Provide high quality employment opportunities for citizens with various skill levels to retain and attract a diverse economic base.

Goal 8 – Protect the state's water supplies, open spaces, farmlands and communities by encouraging revitalization of existing water and wastewater systems and the construction of new systems.

Goal 9 – Promote mobility for people and goods through a balanced system of transportation options.

Goal 10 – Improve access to educational opportunities, health care and human services for all Delawareans.

Goal 11 – Coordinate public policy planning and decisions among state, counties and municipalities.

Follow-up survey

The Cabinet Committee repeated its telephone survey in 1997, randomly polling over 980 Delawareans about quality of life issues. Since more people had opinions about Delaware's land use planning direction, the surveyor attributed this change to the public education efforts led by the Cabinet Committee, State Planning, the Delaware Public Policy Institute, and other public and private entities.

In the 1997 survey, Delawareans preferring a house in the country decreased by 9.8 percent. Most indicated they'd like to live in suburban developments while others said they preferred living in small towns or cities. More people favored paying for infrastructure and buying more open space, parks and greenways. More also favored mixing appropriate commercial services with residential development: almost 65 percent agreed or strongly agreed with that idea in the 1997 survey, compared to 56 percent in 1995.

These changes show that as their understanding of the many issues involved in the rapid development of the state increases, people tend to change their views on some of the basic questions raised by that development.

A foundation for the strategies

This document outlines strategies that will guide state decisions about growth. The philosophy behind these strategies is based on two important points:

- State spending should promote quality and efficiency – not sprawl.
- State policies should foster order and resource protection, not degradation.

Regarding the first point, the state spends public funds to provide many critical services and much of the infrastructure that adds to the quality of life for its citizens. Whether through the construction of transportation systems, the protection of critical natural areas, the provision of money for water and wastewater facility construction, or the funding of educational facilities and programs, the state influences the way development occurs.

To achieve the “Shaping Delaware’s Future” goals, state investments should promote efficient public services, reduce the threats of continued loss of important agricultural areas, open space and natural areas, and contribute to the preservation and enhancement of existing communities and neighborhoods. It should do so while promoting jobs for Delaware citizens and a stable, diverse economic base.

On the second point, the state directly and indirectly manages resources important to Delaware’s quality of life. The state responds to and supports growth through permitting, licensing and other regulatory programs, ownership of public lands and waters, management of state-owned infrastructure, location of services and facilities, and other actions. These resource management activities, coupled with spending policies, should foster an efficient and orderly development pattern that enhances the daily quality of life, preserves the variety and integrity of cultural, historical and natural settings, enhances critical habitat, and promotes a strong economy.

Simply put, state actions should not promote sprawl and inefficiencies. State spending and policies should promote development and redevelopment where adequate infrastructure exists or is planned, enhance community character, integrity and identity, and protect important state resources, both natural and man-made.

In addition to points above, the following premises are also part of the foundation of the state’s strategies for managing growth in 21st century Delaware:

- The state must be at the table.
- Leadership and commitment from the Governor and the CCSPI is critical.
- The state must support local efforts to manage growth.
- The strategies require all levels of government to work together.
- The strategies will be continually refined.

Being at the table

The state is a major provider of services and facilities that serve its residents, many of which are directly related to where and how development occurs. But land use decisions are primarily responsibilities of county and municipal governments.

Significant problems arise when the necessary infrastructure to support growth and development is not provided in a timely or efficient manner. These include unnecessary congestion and failing roadway systems, inadequate schools, overextended police and emergency services, stressed natural habitats, and other problems that reduce the quality of life, add costs, and frequently result in inefficient use of land and water resources.

Because of the state's important role as a provider of needed services and facilities, the state must be a regular and active participant in the overall planning process.

Leadership and commitment

Without a strong commitment from the Governor and the member agencies of the Cabinet Committee on State Planning Issues, broadly stated policies and strategies would be for naught. State agencies must reflect that commitment in their own planning efforts and in the delivery of services and operation of resource management activities, if in fact other agencies and the public are to feel comfortable relying on such policies and strategies.

Past planning efforts at the state level have failed in large part because there was little follow-through and no real commitment. All too often in such cases land use decisions were made at local and private levels but appropriate state infrastructure was delayed by a failure of coordination and planning.

The state developed these specific strategies to promote a meaningful state role in guiding development and to better link spending and policy decisions to land use.

Local efforts

Planning and zoning are traditional local responsibilities that the state recognizes and supports. An important responsibility of the state is to ensure that local governments have appropriate tools, training, and other resources with which to make land use decisions. A clear sense of state policy and direction is also critical.

To that end the Cabinet Committee and the Office of State Planning Coordination will continue to develop and share planning data, provide technical and financial assistance, support education and training programs, and undertake research activities to assist local governments in carrying out their responsibilities.

State efforts also include working to promote intergovernmental coordination, improving state responsiveness to inquiries about local land use actions, promoting regional planning projects, and developing close relationships between state and local agency staffs and officials.

Partnerships

Properly managing growth requires that all levels of government work closely together and that they effectively use all existing avenues for coordination and cooperation. Likewise, regular and ongoing coordination and consultation with the private sector is critical.

The state, as part of this effort, has developed, and will continue to foster, close relationships with such entities as the League of Local Governments, The Association of Counties, the Sussex County Association of Towns, the Delaware Public Policy Institute, and many others in both the public and private sectors.

In addition, the state recognizes that considerable expertise exists in the College of Human Resources, Education and Public Policy at the University of Delaware to assist in understanding and addressing growth and development matters. Particularly important are the capabilities of the Institute for Public Administration, the Center for Applied Demography and Social Research, and the Center for Historic Architecture and Design, as these organizations provide important data and analysis, as well as local technical assistance and training on planning and development matters.

Continual refinement

Comprehensive planning documents are but a reflection of public policies at a particular point in time, and as such, they require continual review, revision and refinement. This document represents the culmination of activities over a five-year period, but it is in no way complete, nor should it be. Its purpose is to provide the basis for near-term spending decisions, for better definition of longer-term development issues, and for necessary assistance with local planning efforts. It must be periodically revisited, just as county and municipal plans must be, to reflect demographic, economic and land use changes and trends, and to address specific issues that require closer analysis.

The strategies in this document are based on a vision that extends at least 20 years into the future, but they are to be reviewed and updated every five years. Such review must be synchronized with county and municipal planning efforts, and with all state planning documents, such as the Statewide Long Range Transportation Plan, the Statewide Housing Assessment and the State Historic Preservation Plan. These reviews must address federal requirements such as those defined in the Clean Air Act Amendments and the Clean Water Act.

For a myriad of reasons, it is unlikely that state, county and municipal planning and development policies and strategies will perfectly align. For example, state, county and municipal governments address issues on different scales, they make spending decisions for different reasons, and they interact with taxpayers on different levels.

That such differences and inconsistencies occur does not indicate planning failure; rather they represent opportunities for more detailed analyses and discussions. Indeed, they are one of the fundamental reasons the state's strategy and map were initially prepared.

Throughout the process, regular discussions with county and local governments resulted in numerous adjustments and refinements to reflect actual uses of land and local knowledge of development interests and constraints. Is it complete? No. The strategy will serve Delaware best if it is continually refined to reflect new data, to address emerging trends, and to respond to local planning decisions. To this end, the state is working with county and municipal jurisdictions to develop sub-area plans, to analyze 1997 land use data, to incorporate other new data as it becomes available, and to focus on specific land use and infrastructure issues that might not be addressed at a statewide scale.

Managing growth in 21st century Delaware: Strategies for state policies and spending

The “Shaping Delaware’s Future” initiative seeks to guide Delaware’s new growth while revitalizing existing towns and cities and protecting its environment and unique quality of life. This initiative embraces the concept of wise development, which directs new construction to where it makes the most economic, environmental and social sense – not where it contributes to unfocused growth. It also encourages both the reuse of historic structures and the revitalization of run-down or underused sites.

Pursuant to Titles 9 and 22 of the Delaware Code, most decisions concerning land use are made at the local and county level, however the state does influence the way development occurs through its spending and management policies. By making carefully considered decisions about building and managing highways, water and sewer systems, and other public facilities (commonly called “infrastructure”), the state can reduce the negative effects of unfocused growth.

When the state promotes development and redevelopment in places where adequate infrastructure exists or is planned, it can manage congestion, preserve farmland, enhance community character, obtain air and water quality objectives, and protect important state resources. It can preserve Delaware’s high quality of life. To do so, state agencies must work closely with county and municipal governments, and all parties need guidelines to make smart land use decisions.

To that end, the Cabinet Committee on State Planning Issues developed a set of spending and management strategies to guide decisions about where the state will spend taxpayers’ money and how it will use its other resources to foster sensible growth. These strategies will be a guide for state agencies as they make spending and resource management decisions and for local governments as they carry out their statutory land use planning and regulatory responsibilities.

The Strategies

In workshops conducted by the Cabinet Committee on State Planning Issues, Delawareans said they want well-planned, efficient and orderly growth. Achieving that requires strategies addressing the differences between existing types of development.

Broadly defined, land use in Delaware falls into three categories: developed areas, rural areas and the transition areas between them. Within those categories are special areas, such as employment centers and environmentally sensitive zones. Because the types of development are so different, spending and policies for each type would also differ.

Trying to neatly fit all areas of the state into just a few categories is impossible, and complicating that challenge is the problem of describing both what actually exists as well as what the state would like to see. With those challenges in mind, this document will use the following terms as convenient shorthand for the range of developed-through-undeveloped areas:

- **Communities** – In these areas where population is concentrated, commerce is bustling and a wide range of housing types already exists, state policies will encourage redevelopment and reinvestment.
- **Urban centers** – In the cities of Wilmington, Newark and Dover, the state will pursue the same goals listed under “communities” as well as specific strategies that address the special conditions of these places with major concentrations of population and economic, governmental, academic, and cultural activities.
- **Employment centers** – In these specially designated areas, the state will promote new economic development, and a balance between workplaces and residences.

- **Developing areas** – These are areas where state investments and policies will be targeted to accommodate existing development and orderly growth.
- **Environmentally sensitive developing areas** – In these areas surrounding the Inland Bays, where development is putting pressure on both the natural environment and infrastructure such as roads, the state will seek a balance between resource protection and sustainable growth.
- **Secondary developing areas** – In these areas designated for growth by county plans, but not included in the state's developing areas, the state will promote efficient, orderly development and the coordinated phasing of infrastructure investment, consistent with the extent and timing of future growth, and within the limitations of state financial resources.
- **Rural areas** – In these historically open areas, state policies will encourage the preservation of a rural lifestyle and discourage new development.

Following is a more detailed look at the strategies that will guide state spending and policy decisions.

What are communities?

People have historically congregated for access to convenient housing, commerce and social interaction. Whether we call them villages, towns or cities, these areas are characterized by a lively pace, a core commercial area, several modes of transportation and a variety of housing options, including detached single-family homes and multi-family apartments.

These population centers were often built around a traditional central business district or “downtown,” which offers a wide range of opportunities for employment, shopping and recreation. They usually have a concentration of cultural and entertainment facilities, and a wide array of public institutions, services and amenities (such as post offices, police and fire stations, libraries, hospitals and other health care). Although the scale of these population centers varies throughout the state, from cities such as Wilmington to smaller towns such as Milton, this document will call them all by one name: communities.

These relatively compact patterns of development have a human scale and are notably walkable. Communities provide a range of transportation alternatives, making it possible to pursue daily requirements by foot, bike, bus or private vehicle depending on needs and circumstances.

Communities are also overlooked opportunities with underused or previously used sites (some of which are called “brownfields”), as well as a century or more of public and private investment in services, facilities and buildings. These are places where significant investments already exist in roads, bridges and airports, water and sewer systems, schools, commercial and industrial buildings, and houses.

Communities provide regional and local identity and a sense of place for personal and business activities. Delaware is a collection of 57 incorporated communities, from its largest cities – Wilmington, Newark and Dover – to smaller cities such as Milford, Georgetown, Seaford, Middletown and even to numerous smaller communities throughout the state. There are also many intensely developed areas throughout the state that function in a similar manner. These communities drive Delaware’s economic engine.

The state’s goals clearly recognize the value of these communities and call for their continued health and vitality through reinvestment and redevelopment, and through the efficient use and maintenance of existing public and private investments.

Strategies for nurturing communities

In communities, state investments and policies should support and encourage a wide range of uses and densities, promote alternative transportation options, foster efficient use of existing public and private investments, and enhance community identity and integrity. To do so, decisions about investments and policies should be based on these principles:

- **Transportation** – In communities, the state will provide the greatest number of transportation options with an emphasis on public transportation, walking, and bicycling. It will also make existing infrastructure and planned improvements as safe and efficient as possible. Typical transportation projects will include new or expanded facilities and services for all modes of transportation, including public transportation facilities and services when favorable development patterns and densities exist. Projects will also include those that manage traffic flow and congestion, support economic development and redevelopment efforts, and promote local street networks.
- **Water and wastewater** – The state will direct maximum assistance to upgrades, reconstruction, treatment improvements, and system expansions within communities. Priority will be for investments in existing water and wastewater systems for improved efficiency, enhanced water quality management, and additional capacity for redevelopment, infill, and for new community development that supports efficient and orderly land use patterns.
- **State facilities and investments** – Communities are priority locations for new public uses and expanded existing uses, except where a particular use is otherwise incompatible (such as a prison). The state should promote locations for schools and other facilities that would enhance community integrity and encourage the use of more than one transportation option. State investments in public facilities, such as schools, libraries, courts and health-care and public safety buildings, would be strategically located to foster community identity and vitality, in a manner that complements the historic character of these communities. In communities, the state will renovate, reconstruct or replace existing educational facilities that have community support and fit into sensible development patterns and densities. The state will use existing school sites wherever possible within or contiguous to existing towns, if those sites are adequately served by public water and sewer, and do not place additional strain on land use or transportation.
- **Open space, parks and other resources** – The state supports development and maintenance of recreational and open space facilities to serve community needs, including urban parks and recreational areas, waterfronts, and links between uses and throughways (greenways, bikeways, etc.). State funds for open space protection and similar purposes would be used primarily to protect a specific critical resource and also for greenways and other green areas that provide clear visual boundaries. The state will promote the wise use of communities' land and water resources, and the protection of habitat for species that are compatible with developed areas. The state will establish a baseline inventory of natural areas and open space needed to maintain sustainable natural resources for the area.
- **Housing** – The state will promote a mixture of housing types and prices, and protection and enhancement of existing housing stock and choice. Investments in housing, community revitalization and critical public services will be used to restore and improve existing neighborhoods, promote viable downtowns and reuse of older residential, industrial and commercial zones, and to improve access to health, safety, education and other services.
- **Economic development** – The state will work with communities to identify and aggressively market underused, abandoned, or "brownfield" sites, in a manner consistent

with the communities' character and needs. These programs should promote creation of jobs near residential areas, focusing on jobs for the underemployed, and should include state assistance for community-based redevelopment and revitalization efforts.

Leadership should be local, but technical expertise and regional coordination are a critical mission of state economic development professionals.

- **Other public services** – The state will focus health and social services on under-served and disadvantaged populations, and support community-based programs for revitalization. Public safety objectives include providing adequate law enforcement services and safety, effective emergency services, and reduced vulnerability to natural and man-made hazards. Incentives and other tools to promote revitalization, historic preservation, reinvestment, viability, and enhancement of community character and livability¹ will be developed and used as appropriate.

Communities would most appropriately be designated as receiving zones under county Transfer of Development Rights programs, providing for a greater range of densities and housing options for future growth. (Such programs allow the sale of development rights from areas where development is being discouraged to areas where it is being encouraged, such as in communities. These are tools that address the issue of property rights, as they give property owners financial options other than developing.)

Overall, it is the state's intent to use its spending and management tools to maintain and enhance community character, to promote well-designed and efficient new growth, and to facilitate redevelopment in communities.

What are urban centers?

Wilmington, Newark and Dover are Delaware's urban centers. They are places with major concentrations of economic, governmental, academic, and cultural activities. They have high concentrations of population, extensive and often specialized employment, established land uses and development patterns, significant infrastructure investments, and locations where redevelopment and revitalization opportunities exist. Urban centers help define the character of the state, reflect its social and economic history, and provide a unique location where the critical mass of a variety of activities and uses come together. These are also places with the oldest infrastructure, the least unused land, the greatest redevelopment requirements, the greatest diversity of people and activities, and the greatest range of public service needs.

Strategies for enhancing urban centers

While falling within the broader category of "communities," urban centers require more specialized strategies to address transportation, housing, redevelopment, historic preservation, employment, and other issues. The strategies set forth for "communities" will also apply to urban centers, except as more specifically set forth below:

- **Transportation** – In urban centers, the state will provide the greatest number of transportation options with an emphasis on public transportation, walking, and bicycling. It will also make existing infrastructure and planned improvements as safe and efficient as possible. Typical transportation projects will include new or expanded facilities and services for transit users, bicyclists, and pedestrians, as well as projects that manage traffic flow and congestion, support economic development and redevelopment efforts, and promote local street networks.

¹ "Livability" is an admittedly fuzzy word that conveys the idea that communities can be nice places to live and raise a family. A livable place is a place one can walk in, and a place one can find the services and shopping one needs. It is a place "of such security and ease that a well-dressed businessman ... would feel comfortable taking an after-lunch nap lying on the lawn of a park." (From *City Comforts, How to Build an Urban Village*, by David Sucher)

- **Economic development** – The state will work with Wilmington, Newark and Dover to identify, clean up and aggressively market underused, abandoned, or contaminated sites (“brownfields”), consistent with redevelopment plans and community needs. State efforts will also promote employment opportunities that take advantage of the resources, both human and otherwise, that are available in urban centers. State efforts to provide financial assistance and workforce development will include a focus on urban centers, coupled with initiatives to improve the delivery of state services to such areas.
- **Other state facilities and investments** – The state will support the renovation, reconstruction and replacement of educational facilities to offer the greatest access to educational opportunities, to encourage school buses, walking, and bicycling as primary modes of student transportation, and to foster community support of educational facilities.
- **Open space, parks and recreation** – In urban centers, the state will promote the wise use of water and land resources, protect habitat for compatible species, limit pollution, support conservation design, and enhance aesthetic and environmental conditions. Urban open spaces will provide resource protection, recreation, urban forests, vistas, and improved quality of life for residents, workers and visitors in these densely populated places.

What are employment centers?

Employment centers are locations that have been specifically designated by local and state officials for strategic concentrations of generally new economic development activities. These areas are properly zoned, and adequately served or scheduled to be served with required major infrastructure. They will be aggressively marketed, and primarily publicly managed or owned. Urban centers, as well as many locations within communities and developing areas, also generally serve as centers for employment and related economic activities; but these specifically identified employment centers are intended to capitalize on Delaware's regional location, improve its competitive advantage for highly sought-after opportunities, and position the state for sustained long-term economic growth.

Strategies for promoting employment centers

Strategies for promoting employment centers include aggressively marketing these sites through the state's economic development efforts, and through continued cooperative ventures with county and local entities, both public and private. In employment centers, the state will promote a balance between places of work and residence, provide several transportation options and seek reductions in peak-hour traffic congestion. The state will also strive to improve compatibility with adjacent uses, minimize impacts on natural resources through good design and development practices, support agribusiness, and achieve agricultural and forestry program objectives. These employment centers should support overall state goals to achieve more efficient land use patterns, protect farmlands and natural areas, and enhance the vitality of existing municipalities and communities.

What are developing areas?

Suburban neighborhoods surrounding many municipalities (as well as lower-density residential areas within municipalities) seem to be the most popular portion of Delaware's developed landscape. They serve as transition areas between the communities described above and the state's more open, less populated areas – you'll find them, for example, south of Dover, around Middletown, or outside Seaford.

First appearing in the late 1950s and early 1960s, suburban neighborhoods are characterized by a limited variety of housing types (predominantly detached single-family dwellings), commercial and office uses serving primarily local residents (examples: food, drugs, video rental, etc.), and a limited range of entertainment, parks and recreation, cultural and institutional facilities (most likely churches, branch libraries, police/fire substations). For the purposes of this document, these suburban neighborhoods will be called “developing areas.”

Because they were planned in an age dominated by rapid increases in automobile ownership and the dispersion of activities, developing areas have a vehicular scale, and their residents are dependent on their cars. In such areas, land uses historically are separated into zones of similar intensities and styles, with limited mixing of uses. This results in a transportation system dominated by private automobiles competing for limited road capacity, often during the same peak travel periods.

Developing areas often are identified by subdivision names or names that reflect their geographic location (as in Bear in New Castle County, or Capitol Park in Kent County, or Nanticoke Estates in Sussex County). While they may have many attributes of communities, they lack both the specific governance inherent in a municipality and often the range of services, facilities, and other attributes of communities.

Innovative developers, architects and land use experts recognize that the historic design of suburban developments could be improved by incorporating a mix of housing types and limited commercial uses, as well as interconnecting roads and bikeways between developments. These elements, designed with a greater concern for aesthetics and the environment, would revive the feel of the traditional “village,” providing a stronger sense of community. Pike Creek in New Castle County is an example of this kind of innovative development.

Strategies for managing developing areas

In developing areas, state investments and policies should be based on available infrastructure to accommodate orderly growth. They should also encourage a departure from the typical single-family-dwelling developments, promoting instead a broader mix of housing types and commercial sites. Decisions about investments and policies should be based on these principles:

- **Transportation** – In developing areas, the state will encourage sensible development through a planned set of phased transportation investments, land use coordination, and policy actions consistent with zoning densities and designations. A minimum net density of four units per acre will be used as a guideline in making transportation investments. Transportation projects in developing areas will typically expand or provide roadways, public transportation, pedestrian walkways, bicycle paths, and other transportation modes. Projects will also include those that manage traffic flow and congestion, support economic development and redevelopment efforts, and promote local street networks.
- **Water and wastewater** – State investments will support extensions of existing systems or creation of new systems where logical, phased to reflect development pressures, consistent with the availability of other infrastructure, and fiscally prudent, or where they would prevent future environmental or health risks without providing for additional development outside designated developing areas.
- **Open space, agriculture and forestry** – State investments and policies should protect critical waterways and other natural resources, promote establishment of greenways, and maintain “green” separators between more intensely developed areas. The state should establish a baseline inventory of natural resources and open space to maintain sustainable natural resources in developing areas, and provide transition zones between developing and rural areas. Agricultural preservation activities and agribusiness may be appropriate

on a very limited basis where such actions help to define the boundaries of developing areas. An expansion of forest protection and urban forestry programs within developing areas will provide recreational and environmental benefits.

- **Housing and community facilities** – State investments in housing, community redevelopment, health and other services will enhance smaller communities, and support moderate levels of primarily residential growth supplemented with essential neighborhood services, such as churches, convenience stores, day-care centers, branch libraries, health clinics, dentists, hairdressers, etc. The state will encourage a broader mix of housing types and rehabilitation efforts to ensure safe and habitable housing in developing areas.
- **Economic development** – State economic development efforts will focus on appropriately locating large, high-quality employers to keep employment opportunities close to these largely residential areas. Such efforts will help minimize impacts on transportation facilities and air quality (e.g., by locating employers in the designated Employment Centers²). The state will focus on the mixing and linking of commercial and retail uses in these areas.
- **Educational facilities** – In developing areas, the state will plan and construct new school facilities that fit into sensible development patterns. Projects will include the location of school facilities on property currently owned by school districts, contiguous to existing towns or where access to public water and sewer services exists. The focus will be to support development goals, control undue expansion of current school transportation routes, and foster community support of local educational facilities.
- **Other public services** – State actions will focus on providing adequate law enforcement, traffic and vehicle safety, reduction of hazard vulnerability, and needed emergency services.

Developing areas could be receiving areas, or in some cases sending areas, for Transfer of Development Rights programs.

Overall, the state's intent is to use its spending and management tools to promote well-designed moderate-density development. Such development provides for a variety of housing types and choices, coupled with a mix of local commercial and other services, serviced by a mobility-friendly transportation system, and provided with essential open spaces and recreational facilities, other public facilities, and services to promote a sense of community.

What are environmentally sensitive developing areas?

Lands near the Inland Bays of Sussex County, an area of unique and sensitive resources, are experiencing a variety of environmental problems because of significant development pressure. Public investment is required in these areas to address groundwater pollution threats from failing septic systems, surface water pollution from point-source discharges of wastewater, increasing traffic congestion and system inadequacies as a result of rapid development, and the future expansion of schools and other public facilities to meet the needs of an increasing permanent population.

The Inland Bays have been designated as “waters of exceptional recreational or ecological significance” under the state’s water quality standards, and as “impaired waters” under the Federal Clean Water Act. These designations reflect the vulnerability of the area to insensitive development. Yet the attractiveness of the Inland Bays area makes it ideal for second-home,

² See maps in Appendix 1.

resort, retirement and related commercial uses. Because of public concern about this dual nature, the Inland Bays area has been designated as an “Environmentally Sensitive Developing Area.”

The Comprehensive Conservation Management Plan for the Inland Bays notes that “in the past, inattention to environmentally sensitive land use planning has greatly contributed to current losses of valuable habitat in uplands, along shorelines and in shallow waters” and “has also resulted in excessive levels of sediments and nutrients in waterways.” The CCMP calls for the development and implementation of ordinances and regulations to promote environmentally sound land use.

For this fragile coastal area to develop wisely, and so that sewer service (intended to prevent water pollution) does not trigger other infrastructure and land use problems, detailed regional planning is required. Such planning is needed to better define desired growth patterns, provide for efficient infrastructure phasing, promote better community design, and provide more comprehensive environmental standards.

Strategies for managing environmentally sensitive developing areas

In these coastal areas, the state, county and local governments will work to cooperatively pursue creation of land use techniques and development and infrastructure investment phasing agreements that:

- Meet the need to provide necessary sewer and transportation improvements to achieve water quality objectives and provide safe, efficient transportation while ensuring the protection and enhancement of the Bay's fragile resources and retaining the character and integrity of the area. Implement ordinances, as recommended in the Comprehensive Conservation and Management Plan for the Inland Bays, that: promote environmentally sensitive development; include design, density or process incentives for such development; and incorporate zoning classifications and development standards (setbacks, buffers, tree protection, impervious cover limitations, etc.) to ensure environmentally sound land use.
- Further the protection of important agricultural lands in the Inland Bays Watershed outside of the designated developing area through Transfer of Development Rights programs, Purchase of Development Rights programs, zoning, or other methods.
- Protect areas designated as particularly critical or valuable natural resources or habitats.
- Ensure efficiency and flexibility in land development activities that protect community identity, respond to local transportation requirements, support essential emergency services and evacuation requirements, and accommodate changing demographic conditions, particularly the future growth in the population of senior citizens.
- Provide mechanisms for addressing unforeseen circumstances and major development proposals, establishing infrastructure phasing timetables and procedures, and processes for consideration and analysis of new land use, population, or other data that becomes available.

What are secondary developing areas?

Secondary developing areas are those portions of county designated growth zones or development districts that are not included in the primary designation on the state's Strategy Map. They represent areas that each county believes will eventually develop, because of existing wastewater systems or long-range plans for areas intended to eventually be served by public sewer. In New Castle County these areas reflect phases 2 and 3 of the county's adopted wastewater facility plan. In Kent County they include areas outside the Developing areas but within the county-designated "Growth (Overlay) Zone", an area determined by a two-mile radius from existing wastewater

system pumping stations. In Sussex County, these areas include the balance of county-designated "Development Districts", which are described in the county comprehensive plan as the planning area for the future and potential growth areas where central wastewater systems either exist or are planned. While these areas may be primarily used for agriculture today, they are experiencing development pressure, and may not remain predominately rural in the long term. These are areas whose development is not necessary to accommodate expected growth in the next 5 or 10 years, or perhaps significantly longer depending on the pace and density of development, and which should only be developed as the Community and Developing areas are more fully built out.

Strategies for managing secondary developing areas

State infrastructure investments will always be limited by finite financial resources, hence state spending priorities will be for investments that support strategies for communities, urban centers, employment centers and developing areas.

Many of the secondary developing areas designated by the counties include significant areas of important farmlands and natural resources as well as portions of roadways designated for corridor capacity protection. Consequently, for these broadly defined areas to be considered for development and to be properly served with state- and county-provided infrastructure at some time in the future, continued planning must adequately address: the character, pattern, spatial separation and timing of growth; federally mandated air and water quality goals and objectives; and the phasing of future sewer services.

This planning must consider the likely absorption rates for land, the expected requirements for various land uses, the anticipated growth in population, the value of the underlying land and water resources, and the magnitude of public expenditures for infrastructure and services required as such land comes into development.

All three counties plan to provide central wastewater facilities and services to service future growth and to prevent future pollution problems. The timing and provision of sewer systems must be coordinated with other infrastructure concerns, resource protection issues, and the anticipated pace and pattern of growth. The state's interest is to cooperatively plan for and provide state infrastructure and services so that they are consistent with the phased extension or construction of wastewater systems, in order to achieve a compact, efficient growth pattern.

A joint phasing plan for extension of infrastructure is essential to provide consistency between the counties' plans and the state's policies and spending plans. Such a joint plan should reflect both the expected pace of development and the constraints of providing other critical infrastructure in priority areas (particularly transportation improvements and schools).

The development of these areas should reflect an orderly, phased and guided policy of infrastructure investment to ensure that future development is timely, at densities and patterns which promote efficiency and protect critical resources, adequately considers natural resource and agricultural lands preservation objectives, can be adequately served with necessary public services (safety, health care, emergency response, libraries, etc.) and is consistent with comprehensive plans and policies as these are revised over time.

Agribusiness and forestry activities in these areas may be appropriate long-term uses that would provide employment opportunities, create identifiable edges for development, and provide recreational and environmental benefits. Agricultural preservation actions are appropriate to define the borders between secondary developing areas and rural areas, and for protection of farmlands of high value and of sufficient scale to ensure continued agricultural viability, or which are an expansion of an existing preservation district. All such lands within a designated secondary developing area must be approved by the county planning body, the county-appointed agricultural lands preservation advisory board, and the Delaware Agricultural Lands Preservation Foundation.

- Adequately address, through land use controls and infrastructure timing, the character, pattern, spatial separation and timing of growth, as well as the phasing of future sewer services as part of the required review and revision of the county comprehensive plans.
- Incorporate incentives, zoning classifications and land development standards to ensure protection of important natural resources, archeological or historic sites, and open spaces.
- Incorporate innovative subdivision design that includes greater attention to the environment, aesthetics, and interconnections with nearby subdivisions.
- Further the protection of important agricultural lands through Transfer of Development Rights programs, Purchase of Development Rights programs, zoning, or other methods, where appropriate, particularly to better define the boundaries of developing areas.
- Provide mechanisms for establishing phasing timetables and procedures, and processes for consideration and analysis of new land use, population, or other data; and for addressing unanticipated major development proposals.
- Recognize that state infrastructure investments may be appropriate where state and local governments agree that such actions are necessary to address unforeseen circumstances involving public health, safety, or welfare.
- Provide for a continuing reassessment of the extent of the secondary developing areas, the magnitude of development activity, the expected population and employment growth, the desires of landowners and residents in the areas, and the fiscal limitations of state, county and local governments to support additional growth and infrastructure investment.

What are rural areas?

Delaware's leading industry today is agriculture, as it was a century ago. The state's open spaces and rural vistas are critical components of the quality of life Delawareans enjoy, as are the small settlements and historic villages reflecting earlier times. Marshlands, wooded areas and a network of waterways support an abundance of wildlife, provide recreation and help define the Delaware scene.

Delaware's rural areas are predominantly agricultural. They feature agribusiness activities, and are dotted with farm complexes and small settlements, typically at historic crossroads or points of trade, often with rich cultural ties. (For example, such unincorporated areas as Clarksville in Sussex County, Star Hill in Kent County and Port Penn in New Castle County.)

Rural areas also boast undeveloped natural areas, such as forestlands, and large recreational uses, such as state and county parks and fish and wildlife preserves. In some cases, private recreational facilities, such as campgrounds or golf courses (often with associated residential developments), are also situated in rural areas.

Some limited institutional uses, including those with very specific public safety or health considerations, such as a prison or landfill, may exist in such areas.

Delaware's rural areas are also the location of scattered residential uses, featuring almost entirely single-family detached residential structures. These are homes for those who value the quiet and isolation provided by locations away from more developed settings, albeit with an almost total reliance on private vehicles for every transportation need.

Delaware's rural areas also include many unincorporated communities, typically with their own distinctive character and identity. These places reflect the rich rural heritage of the state.

Rural areas depend on a transportation system of primarily secondary roads linked to roadways used as regional thoroughfares for commuting, trucking, etc.

Strategies for preserving rural areas

In rural areas, the state's investments and policies should retain the rural landscape and preserve open spaces and farmlands, while establishing defined edges to more concentrated development. Decisions about investments and policies should rely on these principles:

- **Transportation** – In rural areas, the state will preserve existing transportation facilities and services, and manage the transportation system to support the preservation of the natural environment. Transportation projects will include only necessary drainage, maintenance, and safety improvements, and programs to efficiently manage regional highway facilities.
- **Water and wastewater** – Additional state investments in water and wastewater systems will be limited to existing or imminent public health, safety or environmental risks only, with little provision for additional capacity to accommodate further development. However, the needs of isolated rural communities, particularly those identified as part of the Strong Communities initiative, will be addressed comprehensively. The intent of such consideration will be to provide critical health, safety, environmental, transportation, employment and housing services for these residents without creating new growth incentives. Rural areas are appropriate locations for large spray irrigation wastewater treatment systems, particularly where they can achieve open space, forestry and agricultural objectives.
- **Development** – The state will manage its resources to limit continued development in rural areas, to enhance agriculture, agribusiness, and similar economic activities which are land- or water-dependent, to protect present and future water supplies, to preserve critical habitat to support a diversity of species, to preserve and enhance the housing stock, to maintain existing educational facilities and services where economically feasible, to maintain effective public safety and emergency services, and to maintain the functionality and efficiency of transportation and other infrastructure.
- **Open space and farmland** – Farmland preservation actions focus on preserving a critical mass of agricultural land to ensure the health of the agriculture industry. They will also be used to develop permanent green edges around development areas by targeting farmlands at risk of development, , promoting agribusiness activities, and preserving historic farmsteads and archeological sites. Open-space investments should emphasize the protection of critical natural habitat and wildlife, aquifer recharge, sustainable agriculture and forestry activities, and increased acquisition of state forest lands. Open space investments will also provide for recreational activities, while helping to define growth areas.
- **Rural communities** – The state will carry out programs to promote revitalization, historic preservation, reinvestment, vitality and enhancement of small rural communities. Some of these programs include working with residents to establish Crime Watch and other public safety efforts, improvements to streets and lighting, stricter code enforcement, neighborhood clean-up, weatherization and rehabilitation of housing, and recreational activities for teenagers. Public investment in infrastructure and services to address social, economic and environmental concerns is appropriate in these communities. Developing vacant spaces within rural communities and contiguous development to maintain and enhance the character of those communities is also acceptable. So too are suitably scaled commercial and service uses that support sustainable communities, but development that significantly expands the boundaries of a rural community or does not have a positive impact on the community is discouraged.
- **Other uses** – Rural areas may be the location for certain uses that because of their specific requirements are not appropriate for location elsewhere. Such uses, expected to

be very limited in number, could involve public safety or other uses (such as a prison or waste-disposal site) that require their location outside designated development zones.

Industrial activity would be limited, except where specific requirements of major employers may dictate an exception for a use which, because of specific siting and potential conflicts with neighboring uses, should not be placed elsewhere.

Rural areas would logically be the sending areas for Transfer of Development Rights programs, allowing agricultural and rural uses to continue while promoting increased options for development in communities and developing areas.

It is the state's intent to discourage additional development in rural areas unrelated to the area's needs. It will do so through consistent policy decisions and by limiting infrastructure investment, while recognizing that state infrastructure investments may be appropriate where state and local governments agree that such actions are necessary to address unforeseen circumstances involving public health, safety, or welfare.

Purposes and limitations

“To change the old [sprawl] patterns will require a lot of partnerships [and the creation of] new visions to get beyond the ‘growth-versus-no-growth’ debate. It is not a matter of whether we grow, but how.” – EPA Administrator Carol Browner

Purpose of the strategies

The strategies outlined in this document are intended to guide state infrastructure investment decisions, whether regarding direct investments (as in the case of those facilities for which the state is fully or primarily responsible) or indirect (as in the case of infrastructure which is supported through state grants, loans or appropriations).

The strategies are also intended to set priorities for, and to direct, the state’s management of regulatory programs, land protection and state lands and buildings. They also provide a framework for state comments on local comprehensive planning and land use decisions.

Supporting policies and actions need to be identified and developed further, through the state planning process and continued coordination with counties, municipalities and various stakeholders. These policies and actions will have to be flexible enough to reflect the diversity of areas in Delaware, particularly to reflect the character and needs of specific portions of the state that do not neatly fit with the strategy classes. But state agency decisions will now have the added framework of an overarching set of criteria that reflect the intent of state policies on land development.

The criteria will be continually refined, with a comprehensive review of the strategies and their underlying data every five years. This regular review will allow for adjustment of the strategies and map to reflect changing conditions and trends, and will provide the state comments for the county and municipal governments’ reviews of their comprehensive plans, which is required every five years. Such review will keep the strategies current and will continue the intergovernmental coordination necessary for the proper linking of land use, infrastructure and resource protection decisions.

State agencies will still be required to make site-specific or area-specific decisions about particular infrastructure issues or in the context of regulatory processes. Such decisions will consider the specific data and unique circumstances that prevail at each site. But those decisions will be based upon the overall guidance set forth by the investment and resource management strategies.

The accompanying strategy map is intended to be a graphic representation of the state’s overall policies and to serve as a guide to individual state agencies as they make investment and resource management decisions. It reflects the overall development pattern envisioned by the Shaping Delaware’s Future Guiding Principles and Goals, adopted in 1995 and revised in 1998.

Neither the set of strategies nor the map is intended replace local land use plans. They are not intended to restrict county and municipal authority in land use decisions but rather to guide the development of county and municipal plans. The state is not determining where the counties or municipalities can or cannot exercise their responsibilities nor where they should allow or not allow development to occur. The strategies do not restrict landowners’ rights to use or develop their lands nor do they restrict a purchaser’s option to live anywhere desired.

The strategies do create a framework for where the state will most likely allocate its resources and focus state program efforts. The strategies and the map recognize that some development will continue to occur in outlying areas in response to individual decisions, to the extent permitted by county plans and regulations.

How will the state implement the strategies?

The state will initially use the investment and resource management strategies and the accompanying map to make decisions about allocating new state funding for farmland preservation, open-space preservation, transportation investments, housing development, and water and wastewater financing. The Cabinet Committee on State Planning Issues will develop guidelines and coordination procedures to ensure that these funds are directed at existing communities and growth areas and at protecting critical farmland and open space from sprawl.

Longer-term, as part of the broader state planning process and in consultation with other jurisdictions and various stakeholders, the map will be the basis for a review by each state agency to determine whether existing programs and plans are consistent with the intent of the strategies for the designated areas. This analysis may result in policy and regulatory provision amendments and revisions, new or revised intergovernmental agreements, new tools such as the recently enacted open space and historic tax credits or other incentives, and perhaps additional or refined authority.

How will the counties and municipalities use the strategies?

While the strategies and map are not intended to prohibit development nor limit local authorities' control over land use, they will be a critical component of the information to be considered for county comprehensive plan implementation and revision processes required by the Quality of Life Act, as amended.

They will also be part of the state guidance for municipal planning and for intergovernmental coordination between counties and municipalities. The strategies and map will be an integral part of the criteria used for state review and comment to local governments under the provisions of the Land Use Planning Act.

The state's relationship to county and municipal authorities

Delaware's county and municipal governments have the authority to plan for and manage land use and to institute zoning and other controls required to implement comprehensive plans. This tradition of local control over land use is appropriate and reflects the conviction that decisions about land use should be made by those most closely involved.

The state respects this longstanding tradition of local control over land use. Yet, the state government has a continuing involvement in the overall land use pattern since it provides or financially supports many major public services and facilities (transportation, health care, education, corrections and public safety) and is responsible for protecting the state's natural resources, and for ensuring the overall economic health of the state. It is for these reasons that the Cabinet Committee on State Planning Issues is charged by statute with recommending the overall pattern of development for the state and the need for and location of major public facilities.

The development of spending and resource management strategies does not change the basic relationship between levels of government as it relates to land use, nor do these strategies reduce the local governments' authority to make land use decisions consistent with either their statutory authority or their locally adopted comprehensive plans.

The state is not telling the counties or municipalities where they should allow or discourage development. The strategy does establish a framework for where the state will most likely allocate its resources and focus its program efforts. In this way, the state fulfills its obligations to efficiently and effectively make public investments and manage taxpayers' resources, while respecting the tradition of local government authority over basic land use decisions.

Regional planning initiatives

Regional, multi-jurisdictional approaches to planning and to the timing of infrastructure investment are increasingly important for those areas of the state where development pressures are strong, infrastructure capacity is lacking, and the interests of the various jurisdictions involved might not be entirely consistent. In addition, such regional efforts can consider otherwise overlooked natural functions such as watersheds and drainage basins, and such overarching issues as their ability to absorb pollutants.

Such areas include both the northern and southern portions of the Sussex coast where the need for such planning became readily apparent following a recent rezoning adjacent to the City of Rehoboth Beach. (That rezoning, just off Route 1A and west of the Lewes/Rehoboth Canal, raised a specific concern about a traffic issue that had potential impact on the city, as well as other concerns about transportation and natural resource protection.) Development pressures adjacent to communities, annexation and public service concerns, the emergence of large-scale development projects, and traffic issues have intensified the need for a regional approach in the southern coastal area.

In Kent County, development is occurring south of Dover near U.S. Route 13 where neither the county's comprehensive plan nor the state's overall strategy suggests that it should be encouraged. In another portion of the county, north of Cheswold, recent economic development initiatives identified areas where further review is warranted.

Issues related to sewer planning and timing in southern New Castle County clearly identified the classic difficulties of providing needed infrastructure in the face of significant development pressures, particularly where different units of government, with sometimes-different objectives, are responsible for critical public services.

Even where multi-jurisdictional visions for these rapidly developing areas are generally consistent, public policy could lead to even greater development, traffic problems, and increased stress on natural resources unless well planned. There is a clear and growing need for better intergovernmental coordination that would lead to significant resource protection and more efficient, timely investments in infrastructure.

Working as part of a team effort with county and local jurisdictions, state efforts include undertaking regional planning efforts in selected sub-areas, not unlike some of the work that facilitated the Vision for the Rivers project in Wilmington.

Regional planning is critical because state and county plans are fairly general, resulting in the need for more thorough analysis of specific sites and development considerations (carrying capacity, site limitations, interconnections between developments, overall character, community values, developer and landowner interests, etc.). These efforts would result in policies and spending strategies that better address timing, design and development requirements, as well as resource protection.

This initiative represents a logical continuation of the intergovernmental coordination efforts and the efforts to facilitate comprehensive planning at county and local levels.

It also puts the state at the table in areas where, because of significant development pressures, the state will have a major investment and resource management responsibility.

The strategy map

The strategy map¹ accompanying this document was created using a Geographic Information System (GIS) to combine geo-referenced data from a variety of sources. These data outline state policy in areas such as agriculture, natural resources, transportation, wastewater disposal, and education.

State agencies were asked to “map” their data and policies. These maps were designed to indicate, for defined areas of the state, whether that agency’s policies would favor or discourage new growth. These data maps were combined using a GIS system to develop a strategy map showing the combined growth concerns of state agencies.

The map was refined using other data sets, including 1997 aerial photography. It was also refined based on a series of meetings with county and municipal leaders and examinations of local land use plans.

The strategy map is not a land use plan, but rather a graphic representation of the state’s overall policies.

Will the strategies accommodate growth?

The strategies outlined above allow more than enough room to accommodate expected growth in all three counties through 2020, based on a comparison of the defined development areas, 1997 land uses, and the Delaware Population Consortium’s 1998 Population Projections Series.²

This analysis – an Absorption Analysis – matches the strategies against the recently available 1997 land use data to make sure that the strategies does not unduly constrain the development that is expected, and needed, to meet the housing needs of projected new population in Delaware. The analysis was designed to measure the amount of undeveloped land that is available, and buildable, within the communities and emerging communities defined by this document. It takes into consideration the need for new commercial, recreational, transportation, and utility development to support new housing units. A generous estimate of acreage for these uses has been subtracted from the estimate of total available, buildable acres.

The analysis shows that there is more than enough land available in all three counties, even if all new housing units developed to meet projected growth between 1997 and 2020 were to be built only within the community and developing areas defined in this document. This is unlikely, given that the state anticipates growth will continue to occur outside these areas. In fact, in each county there are developments within this document’s defined rural areas that have already been approved and may develop before 2020.

This analysis also leaves out the question of redevelopment, which is likely to provide housing for at least a part of anticipated growth, as well as changes to land use patterns necessary to meet federal Clean Air Act and Clean Water Act goals and objectives.

¹ For maps of the state and each county, see Appendix 1.

² For more details on the Absorption Analysis, see the Appendix 6.

Importance of approving these strategies

“Delaware has a solid history of taking decisive action to ensure that we retain our quality of life and promote continued prosperity. With that in mind, we have a strong foundation on which to build. Our challenge is to work together, bridge our differences, identify common ground, and create a vision – a set of goals and a list of action steps – to take Delaware into the 21st century and beyond.

*“Let me be clear – this is not a paper exercise designed to produce a report that will gather dust on bureaucrats’ shelves. This is a process that will produce a vision for Delaware [in the future] and guide the creation of specific action plans. These action plans will help shape the state’s investment and regulatory policies well into the next century.” – **Delaware Governor Thomas R. Carper, on the “Shaping Delaware’s Future” effort***

In January, 1999, The Cabinet Committee on State Planning Issues accepted an interim version of these strategies for specific state programs where such guidelines were required by the Fiscal Year 1999 Bond Bill, and for ongoing state agency planning purposes.

However, the Cabinet Committee needed to officially approve and endorse the strategies, map and other items prepared for the committee so that they assume the status of official goals and policies as required by the Land Use Planning Act and the Quality of Life Act.¹

Approval is also required to provide the foundation for functional plans being developed by state agencies, most importantly the revised Long-Range Transportation Plan.

Approval is also critical to ensure that the extensive planning efforts are carried into the next state administration and are available to provide necessary state input to the revision of county comprehensive plans early in the next century.

¹ For a discussion of the legal basis for the strategies, see Appendix 2.

Appendix 1 – The Maps

Strategies for State Policies and Spending

Approved 12/23/99

- Municipal Boundaries
- State Parks
- Public Owned/Protected
- Purchased Development Rights
- Agricultural Preservation Districts
- Investment Strategy Levels
 - Community
 - Developing Area
 - Environmentally Sensitive
 - Secondary Developing Area
 - Rural
- UC Urban Center
- EC Employment Center



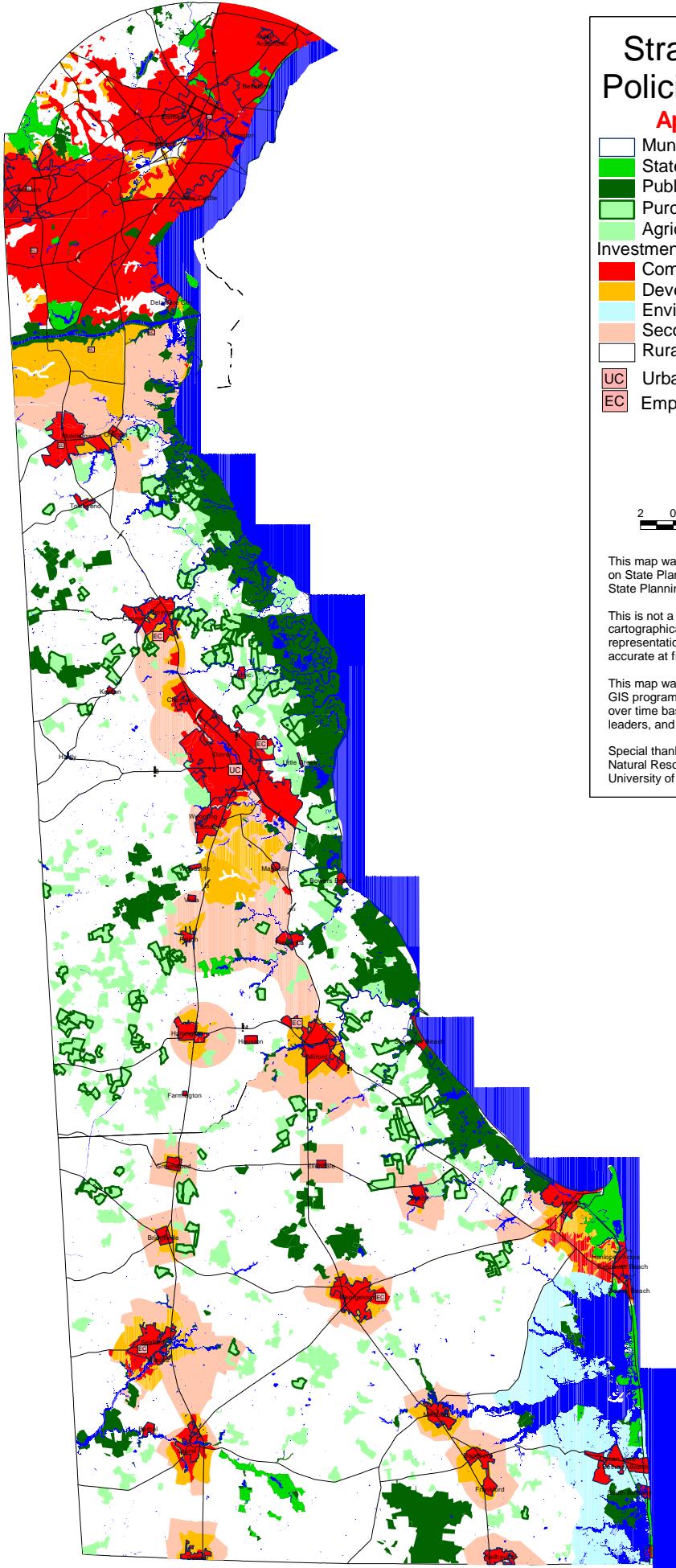
2 0 2 4 6 8 10 Miles

This map was created for the Cabinet Committee on State Planning Issues by the Delaware Office of State Planning Coordination.

This is not a land use map, nor is it intended to be a cartographically accurate map. This is a graphic representation of state policies and goals. It is less accurate at finer scales.

This map was created and edited, using several GIS programs and a wide variety of data sources, over time based on input from state agencies, local leaders, and the public. Some inaccuracies exist.

Special thanks to the Departments of Agriculture, Natural Resources, and Transportation; to the University of Delaware; and to Thompson Mapping.



Strategies for State Policies and Spending

Approved 12/23/99

New Castle County

- Municipal Boundaries
- State Parks
- Public Owned/Protected
- Purchased Development Rights
- Agricultural Preservation Districts
- Investment Strategy Levels
 - Community
 - Developing Area
 - Environmentally Sensitive
 - Secondary Developing Area
- Rural
- UC Urban Center
- EC Employment Center
- 2 County Sewer Phasing Order



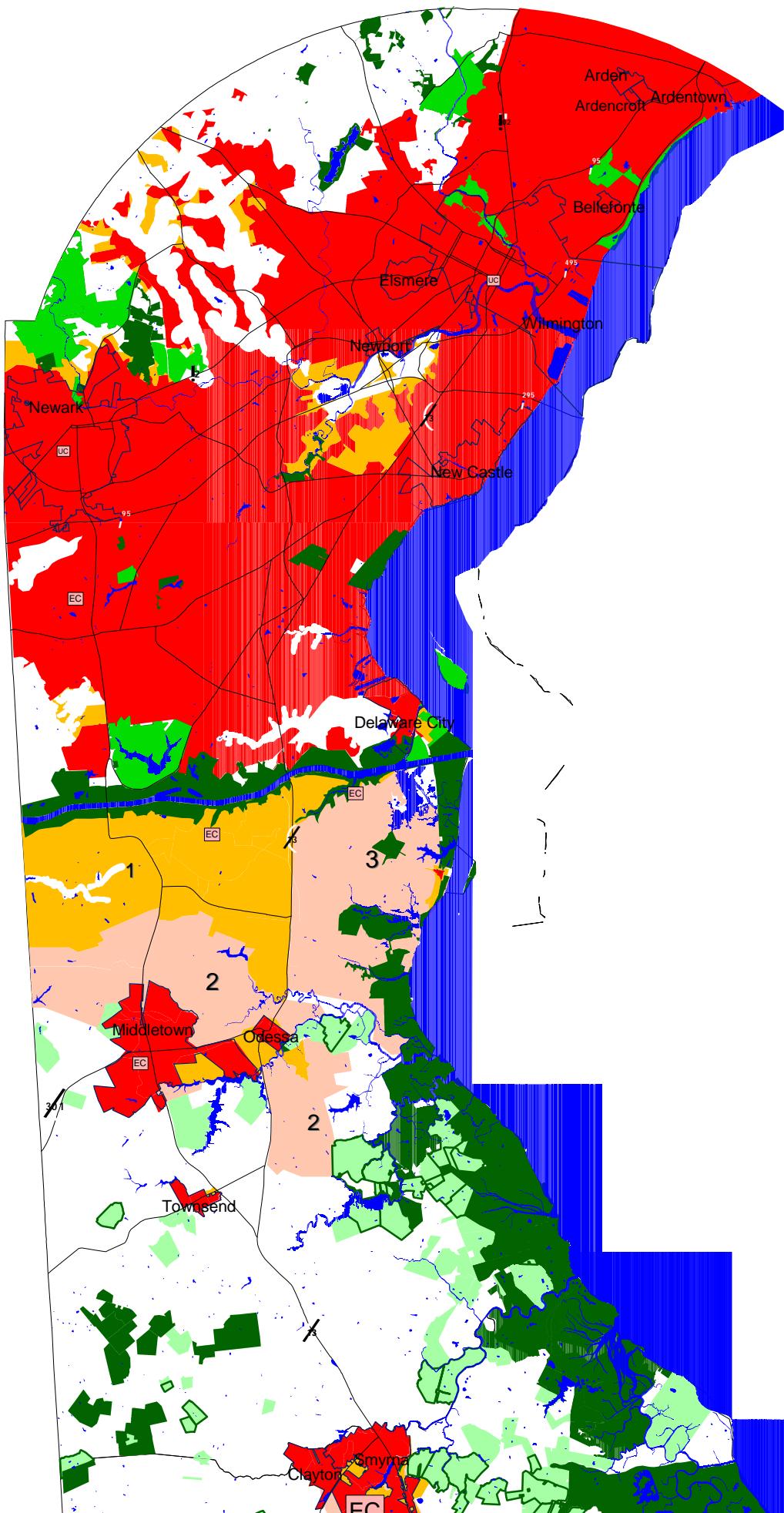
1 0 1 2 3 4 5 Miles

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Strategies for State Policies and Spending

Approved 12/23/99

Kent County

- Municipal Boundaries
- State Parks
- Public Owned/Protected
- Purchased Development Rights
- Agricultural Preservation Districts

Investment Strategy Levels

- Community
 - Developing Area
 - Environmentally Sensitive
 - Secondary Developing Area
 - Rural
- UC Urban Center
EC Employment Center



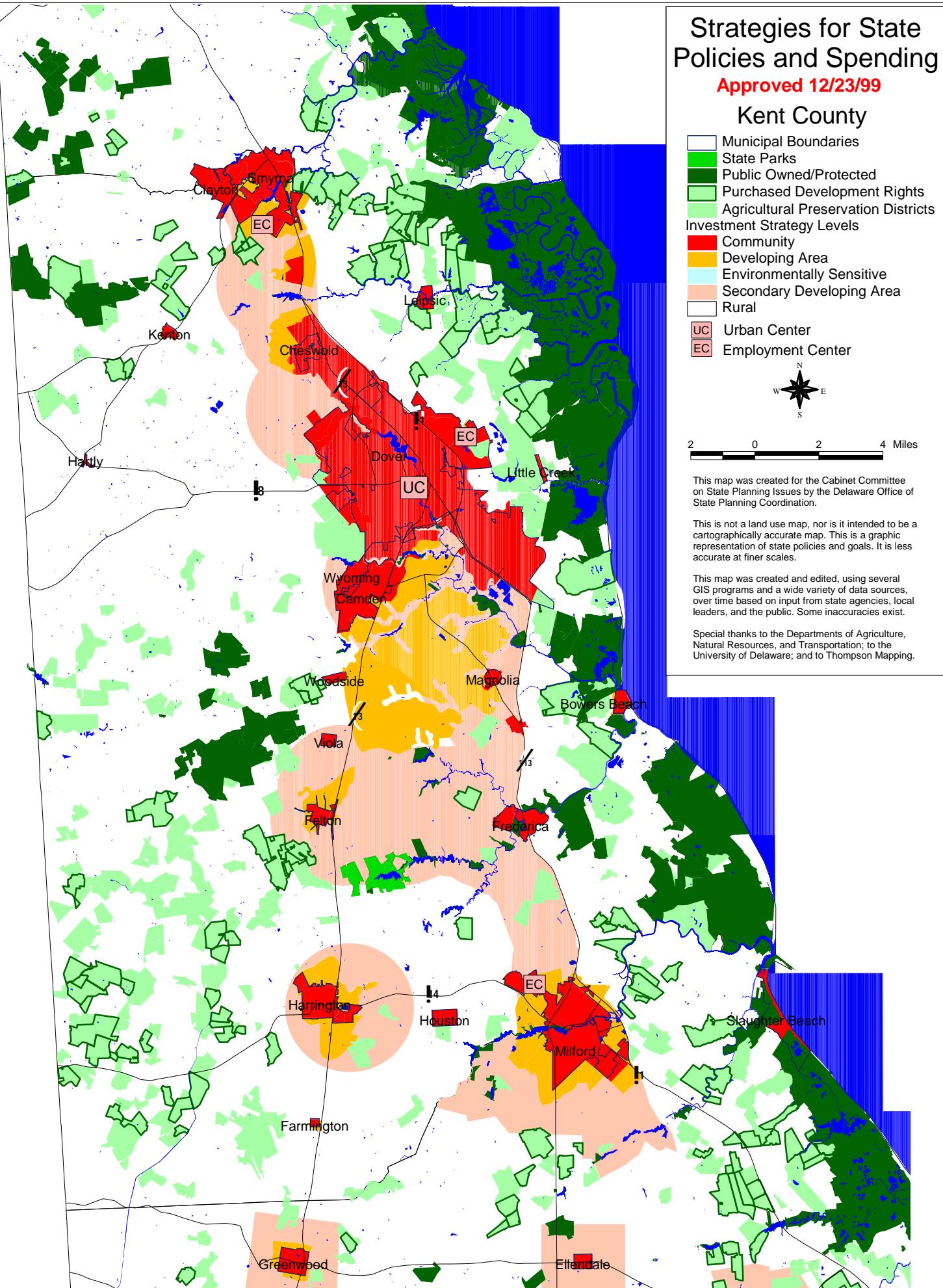
2 0 2 4 Miles

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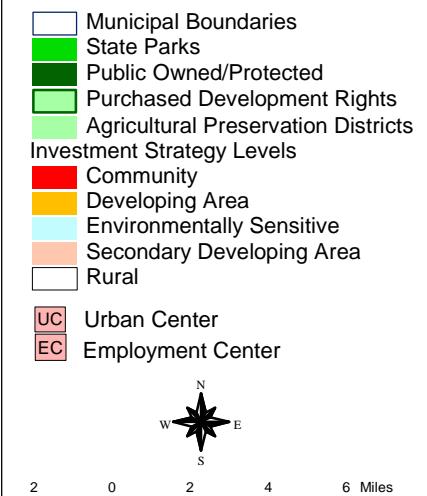
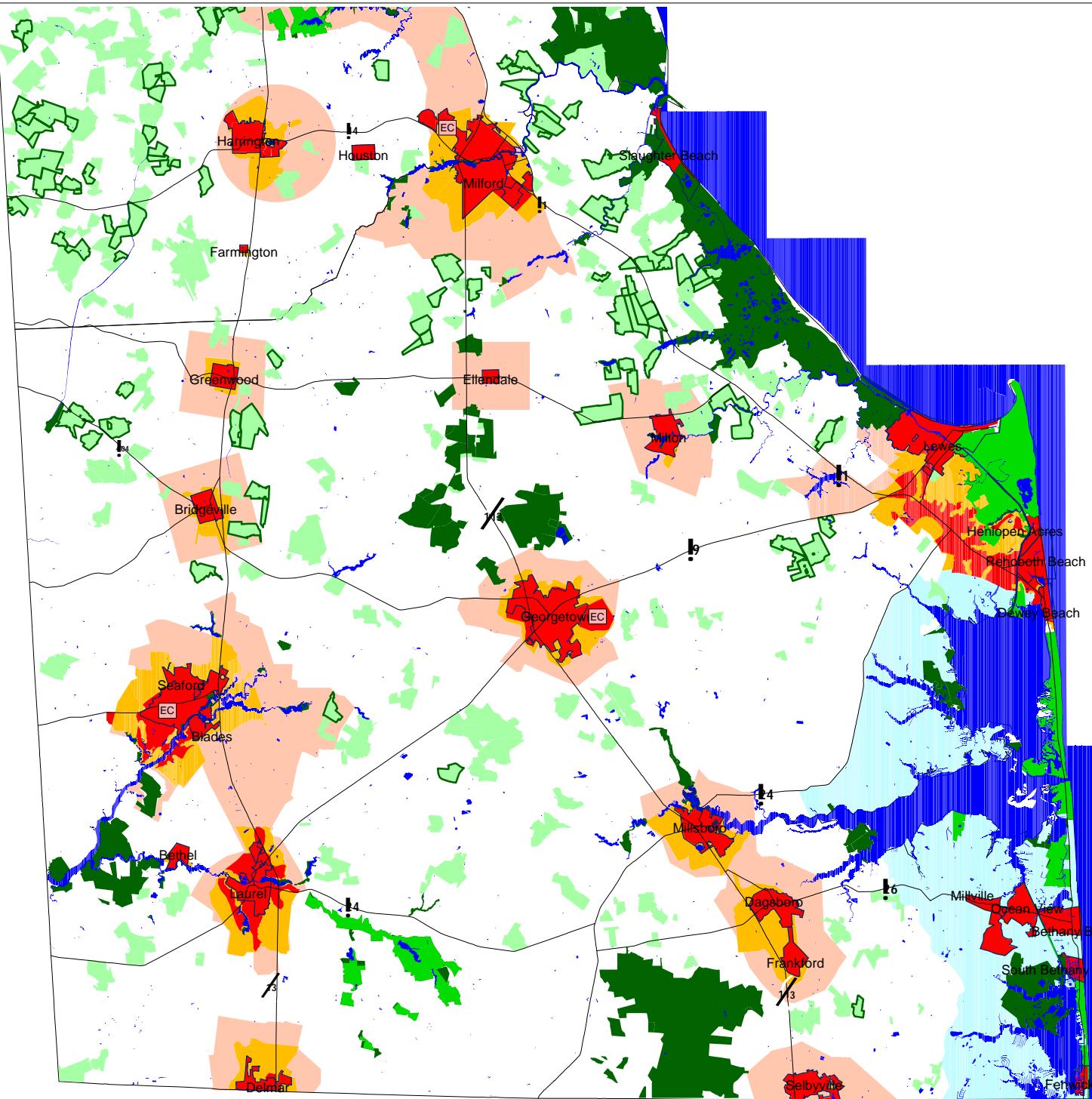
This map was created and edited, using several GIS programs and a wide variety of data sources, over time based on input from state agencies, local leaders, and the public. Some inaccuracies exist.

Special thanks to the Departments of Agriculture, Natural Resources, and Transportation; to the University of Delaware; and to Thompson Mapping.



Strategies for State Policies and Spending

Approved 12/23/99
Sussex County



This map was created for the Cabinet Committee on State Planning Issues by the Delaware Office of State Planning Coordination.

This is not a land use map, nor is it intended to be a cartographically accurate map. This is a graphic representation of state policies and goals. It is less accurate at finer scales.

This map was created and edited, using several GIS programs and a wide variety of data sources, over time based on input from state agencies, local leaders, and the public. Some inaccuracies exist.

Special thanks to the Departments of Agriculture, Natural Resources, and Transportation; to the University of Delaware; and to Thompson Mapping.

Appendix 2 – Implementation actions and refinement process

Relationship to LUPA, Quality of Life, Municipal Planning

The Land Use Planning Act - (29 Delaware Code, §9225(1)) provides that “adoption or amendment of State Development Goals and land development policy recommendations” by the CCSPI are state land use planning actions subject to the LUPA process. Therefore, The Office of State Planning Coordination on behalf of the CCSPI provided notice and opportunity for review and comment to counties and municipalities, as well as general public notice of the impending action, at least 30 working days prior to official action.

The Quality of Life Act, as amended (22 Delaware Code, §2657/2658, §4957/4958, and §6957/6958) requires that the state provide to counties “state land use and development goals” and that the basis for CCSPI review of county plans shall be “statewide land development goals, policies and criteria as have been adopted by the Committee”. Likewise, state grant programs require that local government planning activities include consideration of state development policies, and the basis for state review of those plans under the Land Use Planning Act includes those goals and policies approved by the CCSPI. In order to satisfy its statutory requirements, formal consideration of the Strategies is essential.

Public review and CCSPI consideration

In January, 1999, the Cabinet Committee on State Planning Issues accepted the Interim Investment and Resource Management Strategy and Map for specific state programs where such guidelines were required by the FY99 Bond Bill, and for ongoing state agency planning purposes.

However, there is a need to provide for “official” approval/endorsement of the strategies, map and other items prepared by the CCSPI (now known as *Managing growth in 21st century Delaware: Strategies for state policies and spending*) so that they assume the status of “state development goals and land development policy” and “long range land use or resource management plans and policies” per the Land Use Planning Act and in order to meet the requirements of the Quality of Life Act.

Approval is also required to provide the foundation for functional plans being developed by state agencies, most importantly the revised Long-Range Transportation Plan. Approval is also critical to ensure that the extensive planning efforts are carried into the next state administration and are available to provide necessary state input to the revision of county comprehensive plans early in the next century.

Development of these strategies reflects the extensive public discussions since 1994 as part of the Shaping Delaware’s Future initiative and the “Choices for Delaware: Land Use” summit sponsored by the Delaware Public Policy Institute. The proposed strategies, map, revised goals and implementation actions have undergone public review at formal “hearings” in each county, and have also been reviewed by the Advisory Panel on Intergovernmental Planning and Coordination, the Cabinet Committee on State Planning Issues, the Sussex County Association of Towns, officials from each county, regional transportation planning entities, and a number of municipalities. The CCSPI revised the draft document to reflect issues raised during this review period.

Appendix 3 – The CCSPI’s role in growth issues

Purpose and code provisions:

The Cabinet Committee on State Planning issues is charged with the responsibility for considering matters relating to the orderly growth and development of the state, including recommending the most desirable general pattern of land use in the state, as well as the need for and general location of major public facilities (§9101, Title 29, [Delaware Code](#)). In order to fulfill its responsibilities and to better guide the allocation of state resources, the Cabinet Committee on State Planning Issues (CCSPI) instructed the Office of State Planning Coordination, working with planners from various state agencies, to prepare a map and supporting strategies based on departmental plans and policies as well as the Shaping Delaware’s Future goals.

Membership:

The Cabinet Committee on State Planning Issues includes the Secretary of Agriculture, the Secretary of Natural Resources and Environmental Control, the Secretary of Transportation and the Director of the Economic Development Office by official designation in the Delaware Code. Others may be added by the governor. Gov. Carper has added his Chief of Staff (who serves as chairman), the Budget Director, the Secretary of Education, the Secretary of Finance, the Secretary of Health and Social services, the Secretary of Public Safety, and the Director of Housing. Staff support is provided by the Office of State Planning Coordination working with member agency planning staff.

The Office of State Planning Coordination, which staffs the Cabinet Committee on State Planning Issues, speaks with one voice for the state on significant land development issues. It provides coordinated comments on land use development proposals to local governments, landowners and developers. It continuously explores innovative approaches to guiding the state’s land development approaches.

Responsibilities relating to county and municipal planning:

Provisions of the Quality of Life Act (specifically 9 [Delaware Code](#), §2657/2658, §4957/4958, and §6957/6958) require that the state provide counties with “state land use and development goals” and that the state coordinate with county planning activities in regard to critical components or elements of the county comprehensive plans. Likewise, the Quality of Life Act provides that the basis for CCSPI review of county plans shall be “statewide land development goals, policies and criteria as have been adopted by the Committee”. County comprehensive plans are expected to have considered planning information provided by the state, and a burden is placed on state agencies to supply copies of plans, policies, criteria, and fiscal constraints.

Similarly, municipalities are required to engage in planning and development policy activities.

Appendix 4 – The history of planning concerns in Delaware

Just as the “suburbanization” of America began in the 1950s, so did Delaware’s concerns about its effects.

In part due to economic good fortune after World War II, Delaware surged in population and economic activity in the late 1940s and ‘50s. The affordability of automobiles and first homes prompted Delaware to build suburbia, a practice still continuing today.

A growing population and many new businesses and housing developments quickly changed Delaware’s landscape. Gradually, far-sighted Delawareans questioned this fast-paced development. Throughout the years and various gubernatorial administrations, solutions were sought, land use planning reports were issued, and recommendations were made.

Starting with the establishment of the State Planning Council in 1959, Delaware officials have sought ways to manage growth. From its 1968 comprehensive plan to its 1976 Delaware Tomorrow Commission to its 1995 “Shaping Delaware’s Future” goals, the state has tried, with varying degrees of success, to direct new development to already developed areas, to protect farmland and to maintain a high quality of life -- all the while encouraging economic vitality.

Here’s a brief chronology, which clearly shows that concerns about growth, and efforts by the state to guide it, are not new.

1959 – Delaware establishes a State Planning Council, charged with developing a Preliminary Comprehensive Development Plan, detailing the most desirable pattern of land use, and defining a transportation plan, open space plan, and public facility plan for the state.

1968 – The Delaware State Planning Office submits its 1967 Preliminary State Comprehensive Development Plan to Governor Charles L. Terry Jr. The plan contains a generalized land use map for the entire state, and these seven goals:

- To concentrate urban development.
- To preserve agricultural and other open land.
- To maximize the utility of major highways through control of access.
- To encourage mass transportation, especially rail, throughout the state.
- To provide an adequate level of health, welfare, and educational services.
- To provide adequate urban services in the development areas.
- To encourage the growth of non-polluting industries.

1976 – The Delaware Tomorrow Commission, created by Governor Sherman W. Tribbitt, issues its report. Among the commission’s goals were to discourage sprawl in new community development, to preserve prime farmland and to encourage the use of existing unused industrial sites and buildings. The commission concluded that the time had come to supplement the original Coastal Zone Act, enacted in 1971 to control industrial uses in a defined coastal area, with a comprehensive statewide land use planning act.

1979 – The Intergovernmental Task Force, created by Governor Pierre S. du Pont through Executive Order, issues its report. The Task Force reviewed and examined the delivery of services (exclusive of educational services) by each level of government, and determined whether its method or manner of delivery are the most cost effective. The Intergovernmental Task Force’s findings suggested reforms in several areas.

1987 – The Environmental Legacy Committee submits its report “Shaping Tomorrow’s Environment Today,” to Governor Michael N. Castle. The report led to the passage of the Quality of Life Act, which requires regular revision of county comprehensive land use plans.

June 1994 – Gov. Thomas R. Carper establishes the Cabinet Committee on State Planning Issues, which begins public outreach efforts to create a vision for Delaware in the 21st Century.

January 1995 – Gov. Carper appoints David S. Hugg III as State Planning Coordinator to lead the Office of State Planning Coordination. The Office staffs the Cabinet Committee on State Planning Issues.

Mid-January 1995 – Gov. Carper unveils his \$220 million 21st Century Fund investment strategy using funds from the New York State abandoned property settlement. The Delaware General Assembly supports his proposal to improve education and Delaware’s economic competitiveness, revitalize communities and preserve the environment. Between Fiscal Years 1996 and 1999, Delaware directs \$160 million to program areas related to land use -- \$80 million of it for the preservation of farmland and open space. The rest is divided among community redevelopment and housing programs, and water and wastewater infrastructure.

April 1995 – Gov. Carper adopts the Cabinet Committee’s recommended 10 “Shaping Delaware’s Future” development goals and guiding principles.

July 1995 – Gov. Carper signs the “Shaping Delaware’s Future” amendment to the Quality of Life Act, which requires Delaware counties to submit comprehensive plans by Dec. 31, 1996, and every five years thereafter. Gov. Carper also signs Transfer of Development Rights legislation that permits counties to develop and adopt regulations governing the transfer of development rights from identified low-density residential districts, zones or parcels of land to residential districts, zones or areas in the county.

July 1996 – Gov. Carper amends the Land Use Planning Act to strengthen the state’s commenting process on major development proposals. The Act also establishes the Office of State Planning Coordination, which was disbanded under a previous governor. This restructuring allows the Office to provide timely and effective land use planning comments to county and municipal planning departments so they, in turn, can weigh the state’s opinion before making decisions. Gov. Carper also signs the Corridor Preservation Act, allowing the Delaware Department of Transportation to protect certain highways from development, in order to preserve their capacity.

December 1996 – First county comprehensive plans are due as mandated by the “Shaping Delaware’s Future” Act. The plans must address these issues: mobility, water and sewer, conservation, recreation/open space, housing, community design, historic preservation and economic development.

1997 – The Office of State Planning Coordination creates the Delaware Geographical Information System, the first of its type in the nation. DEGIS is a computerized system which layers information such as transportation infrastructure, agricultural suitability and distance to employment to provide an overview of how such factors interact.

In 1997, the Office of State Planning Coordination releases the 1996 Annual Assessment Report to the Cabinet Committee on State Planning Issues. The report calls for managing anticipated growth in new development areas while promoting older communities for infill development and redevelopment, thereby reducing development pressure on prime farmland and countryside. The report reveals that Sussex County can expect a 29 percent population increase between 1995 and 2020; that the City of Dover’s growth rate will impact beyond its boundaries, particularly to the west; and that in New Castle County, the majority of new residential development is occurring in the southern portion of the county.

Also in 1997, The Cabinet Committee, the Delaware State Chamber of Commerce, the Delaware Public Policy Institute and others sponsor a “Choices for Delaware” growth summit. The summit results in 11 proposed pieces of legislation. One proposal would enable the state to prepare the Delaware Conservation, Development and Redevelopment Plan. Its purpose would be to ensure the coordinated, integrated and orderly social, physical and economic growth and development of the state in accordance with Delaware law and infrastructure investment goals and policies set by the Cabinet Committee. Local governments express concerns that the plan would usurp their authority. None of the 11 planning bills passes the Delaware General Assembly that year.

June 1998 – The Delaware General Assembly establishes a \$116 million Infrastructure Investment Plan. Of the total, \$69 million is specified as a Growth Management Fund “to complement state and county land use goals by directing investments in existing communities and growth areas; and (to protect) critical farmland and open space from urban sprawl.”

July 1998 – Gov. Carper signs bills expanding the membership of the Advisory Panel on Intergovernmental Planning and Coordination and involving the Panel in the review and acceptance of the State Plan; establishing a Delaware Geographic Data Committee to coordinate data management; and strengthening planning at the town and city level.

Summer 1998 -- Responding to a public increasingly interested in land use issues, the Office of State Planning Coordination updates its Web site, <http://www.state.de.us/planning>. The Web site includes public meetings, legislative happenings, policy descriptions and columns by the State Planning Coordinator. Also included are current and past development proposals reviewed through the Land Use Planning Act process. Internet users can see if the proposed land use change fits the state’s draft Investment and Management Resource Strategy.

November 1998 -- The Cabinet Committee accepts an Interim Investment Resource Management Strategy and map to guide state spending on future facilities, including highways, schools, public housing, water and wastewater infrastructure.

January 1999 – The American Farmland Trust awards the State of Delaware for leading the nation in the percentage of land permanently preserved with public funds. Between 1995 and December 1998, the Delaware Aglands Foundation preserved nearly 37,000 acres of farmland on more than 150 farms.

June 1999 – The General Assembly passes two land use bills, one making the transfer of development rights easier both within counties and between counties and municipalities, and another linking the adequacy of schools to residential land development throughout New Castle County.

By June 1999, the Cabinet Committee had awarded \$1,239,959 to local governments in the form of infrastructure planning, wastewater and water grants. Municipal and county governments also received additional funding from other sources.

Summary of historical overview

From the Delaware General Assembly’s establishment of the State Planning Council in 1959 to the Cabinet Committee’s new “Managing Growth in 21st Century Delaware” report, history resounds with advisements to plan land use wisely. At no other time in Delaware history have so many Delawareans understood that we cannot continue to build around our past mistakes.

As is obvious from the above chronology, four decades after creation of State Planning Council and State Planning Office, Delaware is still wrestling with same land use and development issues.

More than three decades after publication of the 1967 Preliminary Comprehensive Plan, its warnings still ring true:

“Rapid urbanization is encroaching on valuable farmland. Many wildlife areas are being threatened by industrialization. Potential problems include both water supply and sewage disposal in areas throughout the state. The highway system will need major improvements in order to adequately serve anticipated growth.”

Every governor from Charles Terry to Tom Carper has addressed the issues of guiding growth, properly investing resources, protecting fragile areas and promoting a healthy economy. The plans and panels they created include:

- Preliminary Comprehensive Development Plan (Gov. Charles Terry)
- Task Force on Marine and Coastal Affairs (Gov. Russell Peterson)
- Delaware Tomorrow Commission (Gov. Sherman Tribbitt)
- Intergovernmental Task Force (Gov. Pierre du Pont)
- Environmental Legacy (Gov. Michael Castle)
- Shaping Delaware’s Future (Gov. Thomas Carper)

For 40 years, task force after task force has made the same recommendations. For example, take a look at these goals from the 1967 Comprehensive Plan, which said the state should:

- Concentrate urban development
- Preserve agricultural and other open land
- Maximize the utility of major highways through control of access
- Encourage mass transportation

A number of significant steps have been taken in the interim, but the issues are as relevant now as they were in 1967.

Shaping Delaware's Future -- The Original Ten Goals

As adopted in 1995, replaced by revised “11 Goals” in 1999

The original ten “Shaping Delaware’s Future Goals” were adopted in April 1995 by Governor Thomas R. Carper’s Cabinet Committee on State Planning Issues. They served as the basis for state infrastructure investment and resource management planning and programs, as well as for state review and consideration of local land use actions. The Goals also served as the foundation for county and local comprehensive land use plans. They have been replaced by the revised eleven goals found in the body of this document.

- Direct state investment and future development to existing communities, urban concentrations, and designated growth areas.
- Protect important farmlands from ill-advised development.
- Protect critical natural resources areas from ill-advised development.
- Develop methods for assessing the fiscal impact and cost-benefit analysis of development for use by both state and local governments when considering land-use policies and infrastructure investments.
- Streamline regulatory processes and provide flexible incentives and disincentives to encourage growth in desired areas.
- Encourage redevelopment and improve livability of existing communities and urban areas, and guide new employment into underused commercial and industrial sites.
- Provide high quality employment opportunities for citizens with various skill levels, and attract and retain a diverse economic base.
- Protect the state's water supplies, open spaces, farmlands and communities by encouraging revitalization of existing water and wastewater systems and the construction of new systems.
- Promote mobility for people and goods through a balanced, multi-modal transportation system.
- Provide access to educational opportunities and health care for all Delawareans.

Appendix 6 -- An Absorption Analysis Of the *Strategies for state policies and spending* (12/8/99 Draft Maps)

Absorption Analysis

Of the *Strategies for State Policies and Spending*
Based on 1997 Land Use/Land Cover Data
And The Delaware Population Consortium's
1999 Population Projections Series

Overview

The investment strategy areas defined in the state's *Strategies for State Policies and Spending* document allow more than enough room to accommodate expected growth in all three counties through 2020, based on a comparison of those areas, 1997 land uses, and the amount of new population forecast though 2020 in the Delaware Population Consortium's *1999 Population Projections Series*.

This analysis was undertaken as a "truth test," matching the strategy areas against the 1997 land use data to make sure that the *Strategies* do not unduly constrain the development that is expected, and needed, to meet the housing needs of projected new population in Delaware.

Table 1
**Ratio of Buildable Acreage to Needed Acreage,
Calculated Without Secondary Developing Areas**

	At 1 HU/Acre	At 3 HU/Acre	At 5 HU/Acre	At 7 HU/Acre
Kent	1.00	3.00	5.00	6.99
New Castle	0.66	1.98	3.30	4.62
Sussex*	1.42	4.26	7.10	9.94
State	0.93	2.78	4.63	6.48

*Includes Environmentally Sensitive Developing Area

The analysis was designed to measure the amount of undeveloped land that is available, and buildable, within the various investment areas defined by the *Strategies* – Community, Developing, Environmentally Sensitive Developing, and Secondary Developing Areas. It takes into consideration the need for new commercial, recreational, transportation, and utility development to support new housing units. An estimate of acreage for these uses, based on the ratio between residential land uses and these uses in the 1997 land use data, has been subtracted from the estimate of total unbuilt acreage in each county.

Background

The Governor's Cabinet Committee on State Planning Issues has been working with county and local governments to define a set of strategies for state spending and policies for several years. The *Strategies for State Policies and Spending* document reflects state agency policies and defines levels of intended state investment for different areas of the state. These areas range from those in which the state is most willing to spend its resources and tailor its policies to encourage growth – Community Areas – to those in which state actions should be linked to land preservation – Rural Areas. In between are Developing, Environmentally Sensitive Developing Areas, and Secondary Developing Areas.

According to this analysis, at average densities of around three housing units per acre, there would be enough available and buildable land, within the Community and Developing Areas defined in the *Strategies* document, to accommodate between two and four times the expected growth in all three counties. (See Table 1) Adding the Secondary Developing Areas defined in the *Strategies* document raises that ratio to between two and a half to almost nine times expected growth. (See Table 2)

Table 2
**Ratio of Buildable Acreage to Needed Acreage,
Calculated With Secondary Developing Areas**

	At 1 HU/Acre	At 3 HU/Acre	At 5 HU/Acre	At 7 HU/Acre
Kent	2.66	7.97	13.29	18.60
New Castle	0.91	2.73	4.55	6.37
Sussex*	3.00	8.99	14.98	20.98
State	1.78	5.34	8.90	12.47

*Includes Environmentally Sensitive Developing Area

The strategy areas, and the strategies that go with them, are not intended to function as a state land use plan that directly controls land use development. They are simply a mapped reflection of combined state agency policies that are expected to influence development patterns.

Data Analysis – Population Projections

Data from the Delaware Population Consortium's *1999 Population Projections Series*¹ were used to estimate the existing number of households in each county in 1997 and the projected number of households needed to handle the projected population in each county in 2020.

The Consortium published both total population and total household data for Delaware and each county in five-year intervals between 1990 and 2020. Those data were used to calculate the persons per household in each of those years. The number of persons per household in 1997 was determined by a linear trend analysis, based on the persons per household calculations for 1995 and 2000. That number and the projected total population for 1997 were used to estimate the number of households existing in each county in 1997.

The difference between estimated households in 1997 and projected total households in 2020 was used to determine the number of households needed to accommodate projected population growth between 1997 and 2020. Each "household," in population terms, can be considered a "housing unit" in land use terms.

According to this analysis, Kent County will need 14,564² new housing units between 1997 and 2020 to handle a projected population growth of 23,281 persons. New Castle County will need 42,611 housing units to handle 54,725 new persons. Sussex County will need 22,439 housing units to handle 43,085 new persons over the same period. (See Table 3)

Table 3
Projected Growth, Population and Households, 1997 to 2020

	1997			2020			Change, 1997 - 2020	
	Pop.	Pers/HH*	HH's	Pop.	Pers/HH	HH's	Pop.	HH's
Kent	122,736	2.7049	45,375.45	146,017	2.4361	59,939.00	23,281	14,563.55
New Castle	478,743	2.5936	184,587.51	533,468	2.3480	227,199.00	54,725	42,611.49
Sussex	133,659	2.4510	54,532.46	176,744	2.2962	76,971.00	43,085	22,438.54

*Persons per household in 1997 was determined by linear trend analysis, based on persons per household calculations for 1995 and 2000 using published population and household projections in the *1999 Series*.

GIS Analysis – Land Uses

Data layers reflecting the Community, Developing, Environmentally Sensitive Developing, and Secondary Developing Areas were brought into ArcView and mapped over 1997 Land Use/Land Cover³ data layers for each county. Using ArcView's "clip" function, the 1997 Land Use/Land Cover layer for each county was cut into new layers, reflecting the many different existing land uses within those different investment areas.

This process created a set of polygons covering those parts of the state defined as being in one of those strategy areas. For each polygon, there is attribute data that defines both its investment level, as defined in the *Strategies* document, and its 1997 land use or land cover. The area of each of these polygons was calculated, in acres. These data were then summarized to produce tables showing the amounts of different land uses and land coverage within the Community, Developing, Environmentally Sensitive Developing, and Secondary Developing Areas. (See Supplemental Data Tables A, B, and C)

¹ The Delaware Population Consortium is a cooperative consortium of analysts from the state, the counties, local governments, the University of Delaware, and the private sector that works together, using objective data sources, to produce independent population projections for the state and the three counties. State law requires the use of this data series in state planning activities.

² Numbers used in the narrative portion of this analysis are rounded. They are based on numbers calculated to two or four decimal places, as reflected in the tables.

³ The 1997 Land Use/Land Cover data were derived from aerial photography flown in 1997 for the Delaware Department of Transportation. The data are available as a GIS layer in which different land use/land cover categories are assigned to discrete polygons throughout the state. The land use/land cover categories follow the *Anderson et al Land Classification System*.

From the tables showing existing land usage within those areas, specific use categories (such as croplands, pastures, idle fields and different types of forest) were selected and flagged as having development potential. This takes various “unbuildable” land uses – such as industrial areas, recreational areas, commercial areas, and already built-up residential and urban areas – out of the equation. The “buildable” lands were re-aggregated into new tables for each county, showing acreage by land use, for each investment strategy level and in total, and the percentage distribution of these land uses.

In Kent County in 1997, there were 8,994 acres available in Community Areas, 10,421 acres in Developing Areas, and 32,226 acres in Secondary Developing Areas for a total of 51,641 “buildable” acres. The majority of this acreage – 79 percent – was in cropland. (See Table 4)

Table 4
Kent Co. "Buildable" Land Uses, by Investment Level, by Acre, 1997 Data

Land Use	Community	Developing Areas	Secondary Developing Areas	Total	%Usage
Cropland	6,671.92	8,519.44	25,595.43	40,786.78	78.98%
Mixed Forest	378.50	716.00	3,478.13	4,572.63	8.85%
Deciduous Forest	1,547.31	447.81	2,376.72	4,371.84	8.47%
Orchards/Nurseries/Horticulture	21.63	613.99	303.17	938.80	1.82%
Shrub/Brush Rangeland	185.64	64.39	96.58	346.60	0.67%
Confined Feeding Operations/Feedlots	19.60	20.38	191.72	231.71	0.45%
Evergreen Forest	35.59	2.82	90.50	128.91	0.25%
Mixed Rangeland	73.11	0.00	0.00	73.11	0.14%
Idle Fields	23.73	23.64	24.96	72.33	0.14%
Herbaceous Rangeland	27.79	10.58	14.17	52.54	0.10%
Clear-cut	0.00	0.00	45.53	45.53	0.09%
Pasture	9.25	0.34	5.99	15.59	0.03%
Truck Crops	0.00	1.59	2.94	4.53	0.01%
Total	8,994.06	10,420.98	32,225.83	51,640.87	100.00%

In New Castle County in 1997, there were 26,467 acres of “buildable” land in Community Areas, 13,133 acres in Developing Areas, and 14,952 acres in Secondary Developing Areas for a total of 54,552 acres. Most of this acreage was in either cropland – 59 percent – or deciduous forest – 33 percent. (See Table 5)

Table 5
New Castle Co. "Buildable" Land Uses, by Investment Level, by Acre, 1997 Data

Land Use	Community	Developing Areas	Secondary Developing Areas	Total	%Usage
Cropland	10,209.19	10,172.73	12,018.80	32,400.73	59.39%
Deciduous Forest	13,602.12	2,268.78	2,074.94	17,945.84	32.90%
Shrub/Brush Rangeland	987.18	177.57	213.50	1,378.26	2.53%
Pasture	161.61	143.72	422.40	727.74	1.33%
Mixed Forest	326.13	109.92	114.48	550.53	1.01%
Idle Fields	246.45	148.19	20.85	415.49	0.76%
Herbaceous Rangeland	388.56	3.31	0.00	391.87	0.72%
Evergreen Forest	211.05	55.84	38.75	305.64	0.56%
Mixed Rangeland	212.37	45.25	5.54	263.17	0.48%
Cropland and Pasture	86.34	0.00	0.00	86.34	0.16%
Confined Feeding Operations/Feedlots	25.38	6.50	0.37	32.25	0.06%
Other Agriculture	0.00	0.74	28.23	28.97	0.05%
Orchards/Nurseries/Horticulture	5.66	0.00	14.60	20.26	0.04%
Truck Crops	5.28	0.00	0.00	5.28	0.01%
Total	26,467.31	13,132.56	14,952.47	54,552.34	100.00%

In Sussex County in 1997, there were 8,045 “buildable” acres in Community Areas, 13,909 acres in Developing Areas, 16,995 acres in Environmentally Sensitive Developing Areas, and 43,291 acres in Secondary Developing Areas, for a total of 82,241 “buildable” acres. Of these lands, a majority – 69 percent – was in cropland and another large portion – 20 percent – was in mixed forest. (See Table 6)

Table 6
Sussex Co. "Buildable" "Buildable" Land Uses, by Investment Level, by Acre, 1997 Data

Land Use	Community	Developing Areas	Env. Sens. Developing Areas	Secondary Developing Areas	Total	% Usage
Cropland	5,826.79	10,339.42	9,152.80	31,822.93	57,141.94	69.48%
Mixed Forest	1,321.71	2,297.83	5,637.60	7,233.65	16,490.79	20.05%
Evergreen Forest	164.25	186.75	488.24	1,139.59	1,978.82	2.41%
Confined Feeding Operations/Feedlots	149.89	262.48	404.07	929.14	1,745.58	2.12%
Deciduous Forest	147.16	239.85	539.67	701.71	1,628.39	1.98%
Clear-cut	39.86	141.17	230.93	444.87	856.83	1.04%
Shrub/Brush Rangeland	18.90	112.20	178.69	420.36	730.14	0.89%
Idle Fields	109.64	127.12	141.41	73.60	451.77	0.55%
Pasture	32.45	110.64	99.51	130.96	373.57	0.45%
Mixed Rangeland	160.67	49.40	65.32	96.03	371.43	0.45%
Orchards/Nurseries/Horticulture	0.00	37.29	0.00	229.44	266.73	0.32%
Herbaceous Rangeland	58.43	5.25	56.93	8.70	129.31	0.16%
Other Agriculture	15.59	0.00	0.00	35.77	51.35	0.06%
Truck Crops	0.00	0.00	0.00	24.12	24.12	0.03%
Total	8,045.34	13,909.38	16,995.17	43,290.87	82,240.77	100.00%

To determine the percentage of buildable lands that should be considered in calculating new residential acreage, the 1997 land use data were used to calculate the amount of land that was already built in each county and the percentage of different land uses within those built areas. Percentages were calculated for residential/urban⁴, commercial, transportation/utility, institutional/governmental, and recreational uses.

In Kent County, in 1997, just under 75 percent of the built lands were in residential development. In New Castle County, just over 71 percent were residential. In Sussex County almost 82 percent were in residential uses. (See Table 7)

Table 7
Land Use Distribution Within "Built Areas" in 1997

	Kent County		New Castle County		Sussex County		State	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Total Built	52,632.91	100.00%	113,951.27	100.00%	75,483.69	100.00%	242,067.87	100.00%
Residential/Urban*	39,447.94	74.95%	80,970.10	71.06%	61,722.30	81.77%	182,140.33	75.24%
Commercial	5,123.28	9.73%	15,194.00	13.33%	6,650.80	8.81%	26,968.07	11.14%
Transportation/Utility	4,616.59	8.77%	7,755.39	6.81%	3,578.53	4.74%	15,950.51	6.59%
Institutional/Governmental	1,618.70	3.08%	3,895.74	3.42%	1,367.61	1.81%	6,882.05	2.84%
Recreational	1,826.42	3.47%	6,136.04	5.38%	2,164.45	2.87%	10,126.91	4.18%

*Includes transitional areas, likely in development in 1997.

These percentages were applied to the available lands totals (See Tables 8 and 9, following section) to ensure that this analysis is as conservative as possible. In addition, because the Community and Developing Areas envisioned in the *Strategies* document tend to center on developed cities and towns, much of the commercial, transportation, institutional and other affiliated land use needed by new housing unit growth already exists. Therefore, these percentages are inherently conservative. In addition, the more centered growth patterns outlined in the Strategy should require less acreage for these affiliated uses than the current "spread-out" land use pattern shown in the 1997 data.

Land Needed and Land Available

In Kent County, according to this analysis, there would be almost exactly enough land available in the Community and Developing Areas defined by the *Strategies* (red and yellow on the maps in the *Strategies* document) to accommodate expected population growth between 1997 and 2020 at average densities of one housing unit per acre. (See Table 8)

⁴ In this analysis, residential uses were combined with "urban" uses and with those areas that were flagged as being in "transition" in 1997. Most of the transition areas from the 1997 data appear to be in early stages of residential development.

Table 8
Available Acreage vs. Needed Acreage, 1997 to 2020,
Community and Developing Areas (Including Environmentally Sensitive Developing Areas)

	Buildable Acreage, 1997 Land Use			Ratio of Buildable Acreage to Needed Acreage			
	Total	% Residential*	Available	At 1 HU/Acre	At 3 HU/Acre	At 5 HU/Acre	At 7 HU/Acre
Kent	19,415.04	74.95%	14,551.57	1.00	3.00	5.00	6.99
New Castle	39,599.87	71.06%	28,139.67	0.66	1.98	3.30	4.62
Sussex	38,949.90	81.77%	31,849.33	1.42	4.26	7.10	9.94
State	97,964.81	75.24%	73,708.72	0.93	2.78	4.63	6.48

*Percentage expected to be developed for residential use, based on 1997 total county land uses.

If the acres contained in the Secondary Developing Areas defined in the *Strategies* were added, there would be over two-and-a-half times enough land, at one housing unit per acre. (See Table 9)

Table 9
Available Acreage vs. Needed Acreage, 1997 to 2020,
Community, Developing, Environmentally Sensitive Developing, and Secondary Developing Areas

	Buildable Acreage, 1997 Land Use			Ratio of Buildable Acreage to Needed Acreage			
	Total	% Residential*	Available	At 1 HU/Acre	At 3 HU/Acre	At 5 HU/Acre	At 7 HU/Acre
Kent	51,640.87	74.95%	38,704.84	2.66	7.97	13.29	18.60
New Castle	54,552.34	71.06%	38,764.89	0.91	2.73	4.55	6.37
Sussex	82,240.77	81.77%	67,248.28	3.00	8.99	14.98	20.98
State	188,433.98	75.24%	141,777.73	1.78	5.34	8.90	12.47

*Percentage expected to be developed for residential use, based on 1997 total county land uses.

In New Castle County, without the Secondary Developing Areas, there would be room for about two-thirds of expected growth at one housing unit per acre. With the Secondary Developing Areas added, there would be room for almost all expected growth at that density.

In Sussex County, at one housing unit per acre, there would be nearly one-and-a-half times enough room for expected growth within the Community, Developing and Environmentally Sensitive Developing Areas. Adding the Secondary Developing Areas defined in the County Comprehensive Plan would increase the buildable acreage to enough to accommodate three times the growth projected by the Delaware Population Consortium.

If growth occurs in a more compact pattern, but at the still low – and more likely – density of three units per acre⁵, there is more than enough land available in the defined strategy areas in all three counties. In fact, at three units per acre, without including the Secondary Developing Areas, there would be three times as much land as needed in Kent County, almost twice as much land as needed in New Castle County, and over four-and-a-quarter times as much land as needed in Sussex County. At higher densities, which are likely to be part of the mix of development densities in the real world, the surplus of available land in the Community and Developing areas is higher.

This is true even if all new housing units developed to meet projected growth between 1997 and 2020 were to be built only within the strategy areas defined in the *Strategies* document. This is unlikely, given that the approach outlined in the *Strategies* document anticipates some growth outside these areas. In fact, in each county there are developments within the defined rural areas that have already been approved and may develop before 2020.

This analysis also leaves out the question of redevelopment, which is likely to provide housing for at least a part of anticipated growth. Many areas already considered residential in the 1997 land use analysis are not at maximum build-out. Some land uses listed as commercial or industrial within the Community and Developing Areas may be transformed into residential uses. In Newark, for example, creative developers are creating new housing units from old industrial property. In Lewes, builders are capitalizing on a strong housing market and filling in empty lots with new “historic” houses.

⁵ Three dwelling units per acre is a reasonable assumption given that much of the new development will be on public water and sewer, which would allow for somewhat smaller lots. This level of density is also consistent with development projects in many parts of the state, particularly in and near communities.

Supplemental Data Tables

The Supplemental Data Tables show all the land uses within the Community, Developing, Secondary Developing, and Environmentally Sensitive Developing Areas of each county as defined by the *Strategies* document. These tables were the basis for the “available land” calculations of this analysis.

**Supplemental Data Table A
Kent County Land Use, Community, Developing, and Secondary Developing Areas, by Acre**

Land Use	Community	Developing Area	Secondary Developing	Total	%Usage
Cropland	6,671.92	8,519.44	25,595.43	40,786.78	44.37%
Single Family Dwellings	6,195.93	3,720.14	4,106.29	14,022.37	15.26%
Wetlands	2,047.58	1,034.22	5,418.73	8,500.53	9.25%
Mixed Forest	378.50	716.00	3,478.13	4,572.63	4.97%
Deciduous Forest	1,547.31	447.81	2,376.72	4,371.84	4.76%
Retail Sales/Wholesale/Professional Services	2,805.93	408.03	157.19	3,371.16	3.67%
Airports	2,045.09	24.63	0.00	2,069.72	2.25%
Transitional (incl. cleared, filled, and graded)	678.27	376.27	394.64	1,449.18	1.58%
Other Urban or Built-up Land	1,047.36	215.03	153.81	1,416.21	1.54%
Institutional/Governmental	1,180.67	103.28	110.77	1,394.71	1.52%
Recreational	810.02	334.93	95.06	1,240.00	1.35%
Highways/Roads/Access roads/Freeways/Interstate	737.18	243.59	156.77	1,137.54	1.24%
Orchards/Nurseries/Horticulture	21.63	613.99	303.17	938.80	1.02%
Multi Family Dwellings	791.05	86.77	24.65	902.47	0.98%
Industrial	801.32	32.91	32.67	866.90	0.94%
Mobile home Parks/Courts	358.38	314.21	148.00	820.59	0.89%
Farmsteads and Farm Related Buildings	87.35	295.15	415.41	797.91	0.87%
Man-made Reservoirs and Impoundments	277.06	48.96	359.42	685.44	0.75%
Mixed Urban or Built-up Land	432.32	16.03	46.53	494.88	0.54%
Bays and Coves	78.17	5.23	354.20	437.59	0.48%
Shrub/Brush Rangeland	185.64	64.39	96.58	346.60	0.38%
Extraction	1.19	78.27	157.94	237.41	0.26%
Confined Feeding Operations/Feedlots/Holding	19.60	20.38	191.72	231.71	0.25%
Waterways/Streams/Canals	68.47	8.57	61.69	138.73	0.15%
Evergreen Forest	35.59	2.82	90.50	128.91	0.14%
Other Commercial	56.41	30.31	7.04	93.76	0.10%
Natural Lakes and Ponds	34.28	12.46	45.11	91.85	0.10%
Mixed Rangeland	73.11	0.00	0.00	73.11	0.08%
Idle Fields	23.73	23.64	24.96	72.33	0.08%
Junk/Salvage Yards	0.00	41.67	27.81	69.48	0.08%
Herbaceous Rangeland	27.79	10.58	14.17	52.54	0.06%
Clear-cut	0.00	0.00	45.53	45.53	0.05%
Utilities	15.99	8.00	0.81	24.80	0.03%
Pasture	9.25	0.34	5.99	15.59	0.02%
Parking Lots	9.49	0.00	0.00	9.49	0.01%
Vehicle Related Activities	0.00	6.14	0.00	6.14	0.01%
Truck Crops	0.00	1.59	2.94	4.53	0.00%
Total	29,553.57	17,865.78	44,500.38	91,919.74	100.00%

Supplemental Data Table B
New Castle County Land Use, Community, Developing and Secondary Developing Areas, by Acre

Land Use	Community	Developing Area	Secondary Developing	Total	%Usage
Single Family Dwellings	35,165.07	3,900.34	2,808.41	41,873.83	27.57%
Cropland	10,209.19	10,172.73	12,018.80	32,400.73	21.33%
Deciduous Forest	13,602.12	2,268.78	2,074.94	17,945.84	11.82%
Retail Sales/Wholesale/Professional Services	7,333.05	241.17	91.39	7,665.61	5.05%
Wetlands	3,527.00	1,280.21	2,721.89	7,529.10	4.96%
Transitional (incl. cleared, filled, and graded)	4,615.48	410.80	189.28	5,215.57	3.43%
Industrial	4,619.02	77.03	0.33	4,696.37	3.09%
Mixed Urban or Built-up Land	3,976.78	132.66	22.86	4,132.30	2.72%
Recreational	3,841.70	221.13	33.42	4,096.25	2.70%
Multi Family Dwellings	3,758.05	30.07	0.00	3,788.12	2.49%
Highways/Roads/Access roads/Freeways/Interstate	3,130.37	223.95	104.03	3,458.35	2.28%
Institutional/Governmental	3,251.84	15.08	0.15	3,267.06	2.15%
Other Urban or Built-up Land	2,410.63	144.39	6.90	2,561.92	1.69%
Shrub/Brush Rangeland	987.18	177.57	213.50	1,378.26	0.91%
Farmsteads and Farm Related Buildings	428.69	220.47	662.43	1,311.59	0.86%
Airports	299.19	930.71	0.00	1,229.90	0.81%
Bays and Coves	659.24	123.47	304.91	1,087.62	0.72%
Man-made Reservoirs and Impoundments	698.51	49.74	330.76	1,079.01	0.71%
Utilities	801.34	17.62	68.89	887.85	0.58%
Pasture	161.61	143.72	422.40	727.74	0.48%
Mobile home Parks/Courts	699.10	14.73	0.77	714.60	0.47%
Mixed Forest	326.13	109.92	114.48	550.53	0.36%
Railroads	515.68	0.00	0.00	515.68	0.34%
Marinas/Port Facilities/Docks	449.66	0.00	0.00	449.66	0.30%
Vehicle Related Activities	378.33	33.43	16.15	427.92	0.28%
Idle Fields	246.45	148.19	20.85	415.49	0.27%
Herbaceous Rangeland	388.56	3.31	0.00	391.87	0.26%
Waterways/Streams/Canals	252.83	62.71	23.39	338.92	0.22%
Evergreen Forest	211.05	55.84	38.75	305.64	0.20%
Other Commercial	289.80	0.99	0.00	290.79	0.19%
Warehouses and Temporary Storage	274.44	0.00	0.00	274.44	0.18%
Mixed Rangeland	212.37	45.25	5.54	263.17	0.17%
Extraction	209.07	0.00	45.51	254.58	0.17%
Junk/Salvage Yards	105.10	0.00	0.00	105.10	0.07%
Cropland and Pasture	86.34	0.00	0.00	86.34	0.06%
Natural Lakes and Ponds	31.79	10.03	10.16	51.98	0.03%
Confined Feeding Operations/Feedlots/Holding	25.38	6.50	0.37	32.25	0.02%
Other Agriculture	0.00	0.74	28.23	28.97	0.02%
Orchards/Nurseries/Horticulture	5.66	0.00	14.60	20.26	0.01%
Commercial	14.94	0.00	0.00	14.94	0.01%
Communication - antennas	12.86	0.00	0.00	12.86	0.01%
Truck Crops	5.28	0.00	0.00	5.28	0.00%
Parking Lots	0.13	0.00	0.00	0.13	0.00%
Total	108,217.01	21,273.28	22,394.10	151,884.40	100.00%

Supplemental Data Table C
Sussex County Land Use, Community, Developing, Environmentally Sensitive Developing, and Secondary
Developing, by Acre

Land Use	Community	Developing Area	Sensitive Developing	Secondary Developing	Total	%Usage
Cropland	5,826.79	10,339.42	9,152.80	31,822.93	57,141.94	37.65%
Single Family Dwellings	8,433.51	3,421.08	5,973.46	6,489.47	24,317.51	16.02%
Wetlands	1,974.75	2,629.40	6,720.40	9,344.43	20,668.98	13.62%
Mixed Forest	1,321.71	2,297.83	5,637.60	7,233.65	16,490.79	10.87%
Mobile home Parks/Courts	273.03	151.43	3,202.84	656.09	4,283.39	2.82%
Retail Sales/Wholesale/Professional Services	2,671.04	511.60	317.74	453.06	3,953.44	2.60%
Mixed Urban or Built-up Land	1,539.04	427.08	81.15	409.32	2,456.59	1.62%
Transitional (incl. cleared, filled, and graded)	568.73	287.86	802.33	393.01	2,051.92	1.35%
Evergreen Forest	164.25	186.75	488.24	1,139.59	1,978.82	1.30%
Confined Feeding Operations/Feedlots/Holding	149.89	262.48	404.07	929.14	1,745.58	1.15%
Deciduous Forest	147.16	239.85	539.67	701.71	1,628.39	1.07%
Recreational	615.23	140.36	716.54	99.64	1,571.77	1.04%
Farmsteads and Farm Related Buildings	176.05	226.94	254.02	802.70	1,459.72	0.96%
Industrial	663.06	223.66	3.63	259.78	1,150.13	0.76%
Bays and Coves	435.68	59.39	216.53	348.85	1,060.45	0.70%
Highways/Roads/Access roads/Freeways/Interstate	338.84	264.24	67.24	273.92	944.24	0.62%
Institutional/Governmental	667.13	38.63	42.46	113.19	861.41	0.57%
Clear-cut	39.86	141.17	230.93	444.87	856.83	0.56%
Multi Family Dwellings	481.01	18.22	331.94	0.97	832.14	0.55%
Waterways/Streams/Canals	205.97	306.20	0.00	311.91	824.09	0.54%
Shrub/Brush Rangeland	18.90	112.20	178.69	420.36	730.14	0.48%
Other Urban or Built-up Land	348.55	46.00	179.98	90.25	664.78	0.44%
Man-made Reservoirs and Impoundments	101.79	161.27	13.01	338.69	614.75	0.41%
Airports	492.43	65.32	0.00	43.18	600.93	0.40%
Idle Fields	109.64	127.12	141.41	73.60	451.77	0.30%
Pasture	32.45	110.64	99.51	130.96	373.57	0.25%
Mixed Rangeland	160.67	49.40	65.32	96.03	371.43	0.24%
Extraction	33.17	30.53	183.30	121.70	368.69	0.24%
Utilities	68.82	88.34	58.84	87.09	303.09	0.20%
Orchards/Nurseries/Horticulture	0.00	37.29	0.00	229.44	266.73	0.18%
Junk/Salvage Yards	21.76	8.00	0.00	129.34	159.10	0.10%
Beaches and River Banks	85.00	3.98	64.07	0.00	153.06	0.10%
Herbaceous Rangeland	58.43	5.25	56.93	8.70	129.31	0.09%
Natural Lakes and Ponds	45.59	43.97	0.75	25.25	115.56	0.08%
Inland Natural Sandy Areas	40.88	2.17	13.48	0.00	56.54	0.04%
Other Agriculture	15.59	0.00	0.00	35.77	51.35	0.03%
Truck Crops	0.00	0.00	0.00	24.12	24.12	0.02%
Vehicle Related Activities	0.85	11.84	0.00	4.70	17.38	0.01%
Marinas/Port Facilities/Docks	9.33	0.00	6.56	0.00	15.89	0.01%
Other Commercial	4.62	0.00	9.39	0.00	14.01	0.01%
Parking Lots	9.34	0.00	0.00	0.00	9.34	0.01%
Warehouses and Temporary Storage	0.00		0.00	8.89	8.89	0.01%
Total	28,350.54	23,076.88	36,254.83	64,096.30	151,778.55	100.00%

Appendix 7 – Gross Land Uses Changes in Delaware, 1992 to 1997

Gross Land Use Changes In Delaware

1992 to 1997

Prepared by
the Delaware Office of State Planning Coordination
August, 1999

Introduction

In 1984, 1992 and 1997, the State of Delaware was photographed from the air -- projects spearheaded by the Delaware Department of Transportation. These photographs, known as digital orthophotos, are used by DelDOT to facilitate roadway planning and maintenance. Other state agencies use the photos in support of a wide variety of projects as well.

The 1992 and 1997 digital orthophotography was also used to derive land use and land cover data for the state¹. In the case of the 1997 photos, this was a collaborative effort funded by a consortium of state agencies. This data provides an opportunity to take a snapshot of the land use and land cover of the state in those years. More importantly, this data can be used to study changes in land use in Delaware over time.

John Mackenzie and Kevin McCullough of the University of Delaware's Spatial Analysis Lab analyzed the 1984 to 1992 land use change in a paper entitled *Delaware Land Use/Land Cover Transitions, 1984 – 1992*. Their findings indicated a continuation of the trend towards urbanization in all three Delaware counties. The 1984 and 1992 data, however, were developed using different methodologies and based on photography with different resolutions². The discussion that follows will refer to the findings of the earlier report, though no attempt at a direct comparison will be made. This due, in part, to the fact that the earlier paper looked at trends over an eight year period and this effort looks at only a five-year period.

Summary

Delaware lost agricultural land and forests in the five years between 1992 and 1997, continuing a trend seen by Mackenzie between 1984 and 1992. The state gained in "developed" uses (residential, urban, commercial, industrial, transportation, government and utility) over the same period. Developed uses grew by almost 14 percent over the period, while the amount of agricultural and forested land was down by nearly four percent. (See Table 1)

The largest change, by percentage, was in the "other" category, which includes brushland, rangeland, barren land and other uses. The largest portion of this gain was seen in Sussex County (See Table 5). This change may reflect an interpretation of forested lands that had been harvested for timber prior to 1992, and were growing back through a "scrub" or "brush" phase in 1997.

Table 1
Gross Land Use Changes, State of Delaware, 1992 - 1997

	1992	1997	Change	
			Acres	Percent
Developed	188,272.43	214,547.89	26,275.46	13.96%
Agricultural/Forest	776,719.27	746,424.30	-30,294.97	-3.90%
Water	45,898.36	47,380.69	1,482.34	3.23%
Wetlands	245,038.79	242,684.63	-2,354.16	-0.96%
Other	27,886.93	32,729.11	4,842.18	17.36%

The 1992 and 1997 data also show a growth in water areas of over three percent. This may indicate a change in interpretation or may be due to differences in the relative wetness of the years in which the aerial photography was

¹ These data sets are available on-line. The 1992 data can be found at <http://bluehen.agr.udel.edu/spatlab/lulc>. The 1997 data is posted at <http://www.state.de.us/planning/info/lulcdata/lulc.htm>.

² A detailed discussion of the data inconsistencies is available as part of the on-line version of the Mackenzie/McCullough paper, which can be found at <http://bluehen.agr.udel.edu/spatlab/lulc/>. This site also includes a link to an earlier Mackenzie paper, AES Bulletin 483, *Land Use Transitions in Delaware, 1974 – 1984*.

Table 2
Distribution of Land Uses,
State of Delaware, 1992 - 1997

	1992	1997
Developed	14.67%	16.71%
Agricultural/Forest	60.50%	58.14%
Water	3.58%	3.69%
Wetlands	19.09%	18.90%
Other	2.17%	2.55%

taken. There is, however, also a slight decrease in wetland areas. This may reinforce the theory that the water difference is due to interpretation.

Agriculture and forest cover retained the largest combined share of land use in the state though this category dropped from almost 61 percent in 1992 to just over 58 percent of land use in Delaware in 1997. Wetland areas remained the second largest share of land use, changing only slightly over the period. Developed land uses grew from almost 15 percent of the state in 1992 to almost 17 percent in 1997. (See Table 2)

Other categories remained essentially the same, in terms of their share of land use, over the period.

Detailed County Changes

Kent County

Acreage devoted to residential/urban uses grew by over 21 percent between 1992 and 1997 in Kent County. This category grew from just under seven and a half percent of land use in the county in 1992 to over nine percent of land use in Kent County in 1997. Mackenzie had noted a growth of 50 percent in residential uses in Kent County in the eight years between 1984 and 1992.

Commercial/industrial uses grew by almost nine percent between 1992 and 1997, while the combined category of transportation, governmental, and utility uses grew by over six percent. Both of these categories remained a relatively small share of the land use. (See Table 3)

Table 3
Kent County Land Use Change, 1992 - 1997

	1992		1997		Change	
	Acres	%Distr.	Acres	%Distr.	Acres	Percent
Residential/Urban	28,642.82	7.48%	34,710.69	9.06%	6,067.87	21.18%
Commercial/Industrial	4,278.67	1.12%	4,662.01	1.22%	383.34	8.96%
Transportation/Government/Utility	5,295.70	1.38%	5,637.59	1.47%	341.89	6.46%
Agricultural	193,518.56	50.54%	187,152.46	48.87%	-6,366.10	-3.29%
Forest (Incl. Clear Cut)	39,625.08	10.35%	39,385.98	10.29%	-239.10	-0.60%
Water	8,534.86	2.23%	9,250.56	2.42%	715.70	8.39%
Wetlands	98,348.91	25.68%	97,602.82	25.49%	-746.09	-0.76%
Other	4,684.06	1.22%	4,533.89	1.18%	-150.18	-3.21%

Acreage devoted to agricultural uses in Kent County fell by over three percent, though agriculture remained the dominant land use in the county. Agricultural land use fell from nearly a 51 percent share to just under a 49 percent share of land use in Kent County between 1992 and 1997. In the earlier study, Mackenzie noted only a slight loss in farmland between 1984 and 1992. There was, however, a much greater loss of forest in that period.

New Castle County

The largest percent gain in land use in New Castle County between 1992 and 1997 was in the transportation/government/utility category, which grew by over 10 percent. Commercial/industrial land uses grew by almost eight percent. (See Table 4) These categories combined to make up about nine percent of land uses in New Castle County in 1997. This is the largest share of land uses held by these categories among the three counties and reflects New Castle's traditional status as the urban/manufacturing core of the state.

Residential/urban uses, meanwhile, grew by only a little more than eight percent between 1992 and 1997. This was enough, however, when combined with the over six percent drop in agricultural land use, to bring these two categories almost even in terms of their share of land use. The residential/urban category rose from approaching 26 percent to nearly 28 percent of land use, while agricultural uses fell from nearly 31 percent to under 29 percent of land use. Forest areas also saw a decline, dropping by almost six percent.

Table 4
New Castle County Land Use Change, 1992 - 1997

	1992		1997		Change	
	Acres	%Distr.	Acres	%Distr.	Acres	Percent
Residential/Urban	70,484.53	25.51%	76,377.96	27.64%	5,893.43	8.36%
Commercial/Industrial	13,632.84	4.93%	14,680.37	5.31%	1,047.53	7.68%
Transportation/Government/Utility	10,079.88	3.65%	11,108.47	4.02%	1,028.59	10.20%
Agricultural	84,904.25	30.72%	79,642.89	28.82%	-5,261.36	-6.20%
Forest (Incl. Clear Cut)	46,572.81	16.85%	43,888.72	15.88%	-2,684.09	-5.76%
Water	7,124.08	2.58%	7,394.51	2.68%	270.43	3.80%
Wetlands	32,035.82	11.59%	31,908.13	11.55%	-127.69	-0.40%
Other	11,515.33	4.17%	11,352.66	4.11%	-162.68	-1.41%

Between 1984 and 1992, Mackenzie found that the commercial/industrial category grew by 60 percent and residential by 33 percent.

Sussex County

In Sussex County, aside from an increase in “other” (discussed previously), residential/urban land uses showed the strongest growth, increasing by almost 23 percent between 1992 and 1997. These uses still account for only a small share of land uses in Sussex County, however; they increased from over seven percent of Sussex land use in 1992 to just over nine percent in 1997. (See Table 5)

Table 5
Sussex County Land Use Change, 1992 - 1997

	1992		1997		Change	
	Acres	%Distr.	Acres	%Distr.	Acres	Percent
Residential/Urban	46,253.59	7.41%	56,661.09	9.07%	10,407.50	22.50%
Commercial/Industrial	5,555.13	0.89%	6,074.07	0.97%	518.95	9.34%
Transportation/Government/Utility	4,049.28	0.65%	4,635.64	0.74%	586.36	14.48%
Agricultural	278,664.48	44.62%	272,008.87	43.56%	-6,655.61	-2.39%
Forest (Incl. Clear Cut)	133,434.08	21.37%	124,345.37	19.91%	-9,088.71	-6.81%
Water	30,239.41	4.84%	30,735.63	4.92%	496.21	1.64%
Wetlands	114,654.07	18.36%	113,173.68	18.12%	-1,480.39	-1.29%
Other	11,687.53	1.87%	16,842.57	2.70%	5,155.04	44.11%

This may seem counter-intuitive, given the rapid development of portions of the county. It is important to remember, however, just how large Sussex County actually is. It may also be the case that much of the development is concentrated along major transportation corridors, sparing large tracts of land that may be just out of sight.

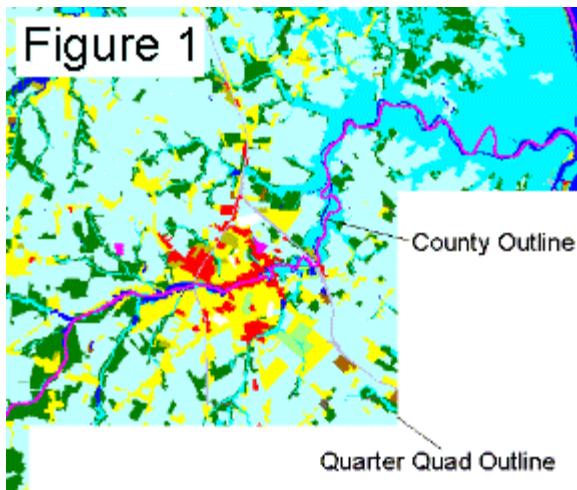
The transportation/government/utility and commercial/industrial categories also showed sharp growth in Sussex County between 1992 and 1997. They grew by over 14 percent and more than 9 percent, respectively. This growth is likely a reflection of the strong residential growth in the County; these uses would have to grow in order to serve the transportation needs and economic needs of an expanding Sussex County population.

Mackenzie had seen the start of that trend in his study, which found 80 percent growth in residential uses and over 100 percent growth in commercial/industrial uses in Sussex County between 1984 and 1992.

Methodology

Land Use/Land Cover data for 1992 and 1997 were derived from aerial photography flown in those years for the Delaware Department of Transportation. The land use/land cover categories follow the *Anderson et al Land Classification System*³.

³ See <http://www.state.de.us/planning/info/lulcdata/lulccode.txt>



outlines of the counties in the legal sense, using the 1992 data to develop outlines ensures that the comparison between the two data sets is as accurate as possible.

Once the data sets were "evened up," ArcView's "ReturnArea" command was used to calculate the area of every polygon in each data set. The resulting data set was summarized by land use code to create a detailed data table presenting the total area of each county by each classification in the *Anderson* scheme. This is the data that was used to calculate changes.

Further Assessment

While gross land use changes are interesting, a detailed, polygon-by-polygon examination of changes will be much more useful. That analysis will be undertaken during the summer of 1999 by a professor at the University of Delaware.

Finally, it is important to continue this type of analysis. The changes in land uses between 1992 and 1997 are instructive, but do not present a complete picture of long term land use change in Delaware. It will be important to continue to take snapshots of land use in the state, over a regular series of time intervals, to develop a clear picture of how Delaware is changing. It is important, therefore, to repeat the process of taking aerial photos, and having them interpreted, every five years.

Because the 1997 data set was delineated by updating the 1992 data set, the two align very closely to one another. It was necessary to "clip" the 1997 data, however, to prepare it for direct comparison to the 1992 data. The 1997 data included the full expanse of each of the USGS cartographic quarter quads on which the data sets are based. As a result, there was some "bleed over" from one county to another and into other states. (See Figure 1) An outline of each county was created using the 1992 land use/land cover data set. This polygon was used to clip the 1997 data in the ArcView GIS program to "trim" those areas outside of the counties.

As a result, it was possible to make a direct comparison between the two data sets. While it is possible that the outlines derived from the 1992 data set are not exact

Appendix 8 – Population growth in Delaware

Delaware has grown steadily in recent decades, and will continue to grow, if at a slightly reduced pace. Over the last four decades, the First State has shifted from a place with strong vibrant cities and towns supported by a thriving rural sector to a large sprawling suburban place whose overall quality of life and rural economy are in danger. That trend is likely to continue, unless steps are taken now to better manage the state's inevitable population growth.

Delaware's population grew by almost half – over 49 percent – between 1960 and 1990, according to the US Census Bureau. Kent County grew by more than 69 percent in those 30 years, New Castle County by almost 44 percent and Sussex County by nearly 55 percent. (See Table 1)

Table 1
Population Growth in Delaware, 1960 through 2020

	1960	1990	2020	Change, 1970 - 1990		Change, 1990 - 2020	
				Number	Percent	Number	Percent
Delaware	446,292	666,168	856,229	219,876	49.27%	190,061	28.53%
Kent Co.	65,651	110,993	146,017	45,342	69.07%	35,024	31.56%
New Castle Co.	307,446	441,946	533,468	134,500	43.75%	91,522	20.71%
Sussex Co.	73,195	113,229	176,744	40,034	54.69%	63,515	56.09%

Sources: 1960 - 1990 Population, US Census Bureau. 2020 Population, Delaware Population Consortium.

In the next 30 years, that growth trend will slow, somewhat, except in Sussex County. According to the Delaware Population Consortium's *1999 Population Projections Series*, Delaware will have grown by another almost 29 percent between 1990 and 2020. Kent County will have grown by nearly 32 percent, New Castle County by almost 21 percent, and Sussex County – the fastest-growing county – by just over 56 percent.

Where we're growing

Increasingly, the trend in Delaware has been toward growth outside of towns. In 1960, Delaware's population was fairly evenly distributed between incorporated places (cities and towns) and unincorporated, rural areas. According to the 1960 Census, over 39 percent of Delawareans lived in town and cities and almost 61 percent lived outside of towns. By 1998, according to the latest population estimates from the U.S. Census Bureau, the population in incorporated places had fallen to less than 28 percent of Delawareans. More than 72 percent now live outside town and city limits. (See Table 2)

While the state's population grew by about 67 percent between 1960 and 1998, population in incorporated places grew by only a little under 17 percent. The population in Delaware's unincorporated areas essentially doubled, growing by over 99 percent over the same period.

This trend held true in New Castle and Sussex Counties, but not in Kent County, where several cities, notably Dover and Milford have widely expanded their borders to include suburban areas.

In Kent County, which grew by 89 percent between 1960 and 1998, the population in cities and towns more than doubled, growing by over 118 percent. Where in-town population made up just under 35 percent of Kent County in 1960, town-dwellers are now almost 40 percent of the county's population. Meanwhile, population in unincorporated areas grew by "only" a bit less than 74 percent and now stands at just over 60 percent of the county, largely due to municipal annexations.

Table 2
**Change in Share of Population in Incorporated vs. Unincorporated Areas in Delaware,
 1960 – 1998**

	1960 Census		1998 Estimate		Change, 1960 - 98	
	Number	% Share	Number	% Share	Number	Percent
Delaware	446,292		743,603		297,311	66.62%
Incorporated Places	176,018	39.44%	205,515	27.64%	29,497	16.76%
Unincorporated	270,274	60.56%	538,088	72.36%	267,814	99.09%
Kent Co.	65,651		124,089		58,438	89.01%
Incorporated Places	22,670	34.53%	49,437	39.84%	26,767	118.07%
Unincorporated	42,981	65.47%	74,652	60.16%	31,671	73.69%
New Castle Co.	307,446		482,807		175,361	57.04%
Incorporated Places	126,603	41.18%	120,818	25.02%	-5,785	-4.57%
Unincorporated	180,843	58.82%	361,989	74.98%	181,146	100.17%
Sussex Co.	73,195		136,707		63,512	86.77%
Incorporated Places	26,745	36.54%	35,260	25.79%	8,515	31.84%
Unincorporated	46,450	63.46%	101,447	74.21%	54,997	118.40%

Source: US Census Bureau

In New Castle County, meanwhile, cities and towns actually lost a bit more than 5 percent of their population between 1960 and 1998 while unincorporated areas doubled their population, growing by just over 100 percent -- in spite of significant annexations by Middletown and Newark in this decade. Where cities and towns held over 41 percent of New Castle County's population in 1960, they now have only 25 percent. This reflects a rapid suburbanization of the county and a modest period of flight from cities. That flight may have ceased, however, given recent redevelopment efforts, notably in Wilmington.

In Sussex County, where total population grew by almost 87 percent between 1960 and 1998, the population in unincorporated areas more than doubled, growing by over 118 percent from a bit more than 63 percent of the county in 1960 to over 74 percent in 1998. Incorporated areas, meanwhile, grew by almost 32 percent, but fell from almost 36 percent of the county's population in 1960 to less than 26 percent in 1998.