Chesapeake Bay Trust

Conservation Land-Use Policy Toolkit

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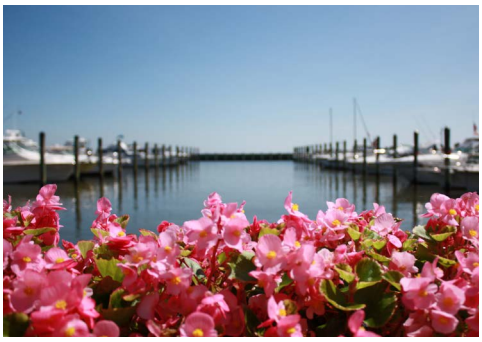



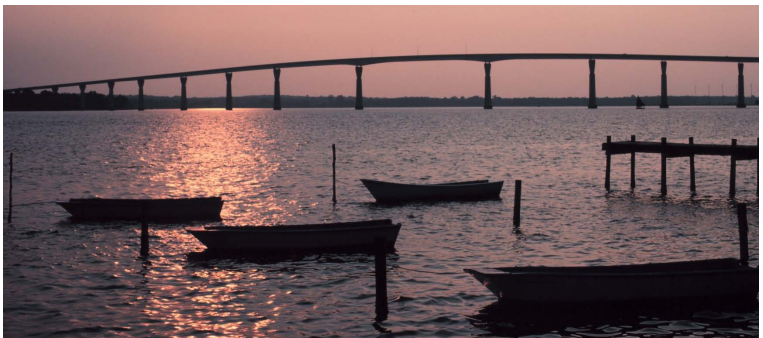


About This Report

This report provides local governments in the Chesapeake Bay Watershed with information about land use policy tools they can use to slow the conversion of farmland, forestland, and wetlands. The National Center for Smart Growth Research and Education (NCSG, the Center) at the University of Maryland is solely responsible for its content. NCSG is a non-partisan center for research and leadership training on growth and related land use and development issues in Maryland, in metropolitan regions around the nation, and in Asia and Europe.

It was founded in 2000 as a cooperative venture of the College of Agriculture and Natural Resources and three University of Maryland schools: Architecture, Planning and Preservation; Public Policy; and Engineering.

The mission of the Center is to bring the diverse resources of the University of Maryland and a network of national experts to bear on issues related to land use and the environment, transportation and public health, housing and community development, and international urban development. The Center accomplishes this through independent, objective, interdisciplinary research, and outreach and education. For more information about NCSG, visit: www.smartgrowth.umd.edu

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Executive Summary

The Chesapeake Bay Watershed is the largest estuary in the United States. It spans more than 64,000 square miles across the District of Columbia and six states: Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia. Nearly 1,800 local governments (counties, cities, towns, townships) are in the Bay Watershed. Collectively, they are home to 18 million people. The conservation of natural resources is critical to the health of the region.

Although all levels of government have a role to play in conservation, local governments are on the front lines. They design and enact most of the land use regulations that dictate how a region can grow and develop. And, they have the power to provide incentives to property owners to facilitate both conservation and growth.

Local governments across the Chesapeake Bay region have done great work to slow the conversion of farmland, forestland, and wetlands. But, there is more to do. The development of sensitive lands threatens the conservation of rural lands and vitality of the farming and forestry industries. Local governments have numerous policy tools available to slow this conversion, but need information about how to choose and implement the best tools for their jurisdictions.

This Conservation Land Use Policy Toolkit provides local governments in the Chesapeake Bay Watershed with information about land use policy tools to slow the conversion of farmland, forestland, and wetlands. Seven land use policy tools are highlighted in this report including: comprehensive planning, zoning, subdivision ordinances, impact fees, urban service boundaries, purchase of development rights/conservation easements, and transfer of development rights.

The Chesapeake Bay Trust, with funding from the Chesapeake Bay Program Goal Implementation Teams, engaged the National Center for Smart Growth Research and Education (NCSG) to develop this Toolkit. NCSG collected information about the purpose, implementation, opportunities, and limitations of each tool through several sources: academic literature, white papers from national organizations, and stakeholder interviews with state and local government staff. NCSG completed local case studies of 19 jurisdictions and state profiles of the six states in the Chesapeake Bay Watershed. Based on the information obtained from each of these sources, NCSG offered the following recommendations to state and local governments.

Lessons for Local Governments

- Conduct a baseline conditions assessment to set the stage for tool selection.
- Invest the necessary resources in program design.
- Solicit assistance from state and local governments, universities, and non-profit organizations in tool development and evaluation.
- Get broad support for policy tools during the design and evaluation process.
- Allocate sufficient resources for implementation.
- Diversify funding streams.
- Monitor Progress

Lessons for State Governments

- Incentivize local planning.
- Provide training and technical assistance.
- Fund conservation programs

I. Introduction

This **Conservation Land-Use Policy Toolkit** provides local governments in the Chesapeake Bay Watershed with information about land-use policy tools they can use to slow the conversion of farmland, forestland, and wetlands.

Background

The Chesapeake Bay Watershed is the largest estuary in the United States. It spans more than 64,000 square miles across the District of Columbia and six states: Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia. Nearly 1,800 local governments (counties, cities, towns, townships) are in the Bay Watershed. Collectively, they are home to 18 million people.

The conservation of natural resources is critical to the health of the region. For example, these resources support:

- Safe drinking water for 75% of watershed residents, according to the Chesapeake Bay Program
- A robust fisheries and seafood industry that, according to a 2014 report by the National Oceanic and Atmospheric Administration, contributes 45,000 annual jobs to the local economy
- Habitat diversity from more than 3,600 species of plants and animals
- The rural character of many jurisdictions, which contributes to a high quality of life for residents

The nation has long recognized the value of these resources. The Chesapeake Bay Watershed was the first estuary federally targeted for protection and restoration by Congress. Both public and private land preservation efforts have led to the permanent protection of almost 22% of the watershed area (13,750 square miles, equal to 8.8 million acres) from development.

Although all levels of government have a role to play in conservation, local governments are on the front lines. They design and enact most of the land-use regulations that dictate how a region can grow and develop. And, they have the power to provide incentives to property owners to facilitate both conservation and growth.

As this Toolkit illustrates, local governments across the Chesapeake Bay region have done great work to slow the conversion of farmland, forestland, and wetlands. But, there is more to do. The conversion of sensitive lands to residential and commercial development threatens the conservation of rural lands and vitality of the farming and forestry industries. Local governments have numerous policy tools available to help slow this conversion, but need information about how to choose and implement the best policy tools for their jurisdictions. This Toolkit aims to provide helpful information.

About this Toolkit

The **Chesapeake Bay Trust**, with funding from the Chesapeake Bay Program Goal Implementation Teams, sponsored the development of this Toolkit.

The mission of the Trust is to:

Promote public awareness and participation in the restoration and protection of the water quality and aquatic and land resources of the Chesapeake Bay region and other aquatic and land resources of the State. The Trust will engage residents of the region in programs that lead to actions that measurably improve local communities and increase resource stewardship.

The Trust engaged the **National Center for Smart Growth Research and Education (NCSG)** to develop this Toolkit. Its mission is to:

Bring the diverse resources of the University of Maryland and a network of national experts to bear on issues related to land-use and the environment, transportation and public health, housing and community development, and international urban development.

The Toolkit provides information about both regulatory and voluntary tools:

Regulatory

- Comprehensive Plan
- Zoning Ordinance
- Subdivision Ordinance
- Impact Fees
- Urban Service Boundaries

Voluntary

- Conservation Easement and Purchase of Development Rights
- Transfer of Development Rights

NCSG collected information about the purpose, implementation, opportunities, and limitations of each tool through several sources. NCSG reviewed academic literature and white papers from national organizations like American Farmland Trust. NCSG also conducted stakeholder interviews with state and local government staff.

The Toolkit includes the following sections:

Questions Answered in Each Section

Section 2: Policy Tools

- What is the legal context that informs which policy tools jurisdictions can use?
- How do jurisdictions choose and implement tools? What did NCSG learn about each tool?

Section 3: Lessons Learned

What lessons did NCSG learn about the selection, implementation, administration, and efficacy of policy tools?

Section 4: Appendices

State and Local Profiles

- What did NCSG learn about land-use policy law and implementation in Chesapeake Bay states?
- What did NCSG learn about land-use policy and implementation in specific local jurisdictions in the Chesapeake Bay Watershed?

Annotated Bibliography

What additional resources did NCSG use in its research?

II. Policy Tools

This chapter provides information on the policy tools available to local governments to slow the conversion of farmland, forestland, and wetlands. Local governments have both regulatory tools and voluntary, incentive-based tools. The former governs how a jurisdiction will grow and develop. The latter incentivizes property owners to develop or conserve properties accordingly. The Toolkit provides information on seven tools:

Regulatory

- Comprehensive Plan
- Zoning Ordinance
- Subdivision Ordinance
- Impact Fees
- Urban Service Boundaries

Voluntary

- Conservation Easement and Purchase of Development Rights
- Transfer of Development Rights

This chapter begins with an overview of how local jurisdictions choose policy tools. It also includes a fact sheet to describe each policy tool.

How Jurisdictions Choose Policy Tools

Not all local governments can or should use all seven tools. Federal and state governments regulate what tools local governments in their jurisdictions can use. So, the law is the most important determinant of what tools local governments choose. See *The Legal Context for Policy Tool Selection* section on the following page for more detail. Other determinants include:

- **The existing regulatory landscape**: Almost all jurisdictions will have some existing land-use regulations. Those regulations may constrain what additional conservation tools a jurisdiction can use, or to what extent it can use them successfully. The regulations of neighboring jurisdictions can also have an impact on tool selection and efficacy. For example, if a township participates in a regional comprehensive plan that allocates a certain amount of growth to that township, then the township can only allow so many conservation easements.
- **The complementarity of tools**: Typically, jurisdictions implement both regulations and incentives. For example, a jurisdiction may implement a zoning ordinance amendment to downzone a region, and then implement a transfer or purchase of development rights program to mitigate the negative impact of downzoning on the equity of property owners.
- **The political landscape**: Jurisdictions can change regulations that impede conservation, but elected officials must have the political will to do so.
- **Administrative capacity**: Both regulatory and incentive tools require resources to research, design, and implement. A jurisdiction should be careful to ensure it selects tools for which it has adequate support resources.

The Legal Context for Policy Tool Selection

Both federal and state governments regulate local government land-use policy. The federal government places few restrictions on the regulation of land use by state and local governments. It has one constitutional amendment that protects the rights of private property owners: the 5th Amendment stipulates that governments cannot take private land for public use without just compensation. The 10th Amendment delegates all powers not expressly given to the federal government to state governments.

State authority over local government land-use regulation varies among states. There are two broad categories, those that follow Dillon's Rule and those that follow Home Rule. Under Dillon's Rule, local jurisdictions can only enact land-use regulations expressly permitted by the state government. Under Home Rule, local jurisdictions can enact any land-use regulations that do not conflict with state or federal regulation.

The following table summarizes the enabling legislation that exists within each state in the Chesapeake Bay Watershed. Refer to Appendix A for a detailed description of each state's policy context and the state-level programs that provide technical and financial assistance for local governments.

Exhibit 1: State Enabling Legislation for Policy Tools

	Delaware	Maryland	New York	Pennsylvania	Virginia	West Virginia
Comprehensive Plans (Required)	✓	✓		✓	✓	
Comprehensive Plans (Enabled)			✓			✓
Zoning Ordinance (Required)						
Zoning Ordinance (Enabled)	✓	✓	✓	✓	✓	✓
Impact Fees	✓	✓	case law limits	✓	proffers	✓
Easements	✓	✓	✓	✓	✓	✓
Transfer of Development Rights	✓	✓	✓	✓	✓	✓

Policy Tool: Comprehensive Plan

What is it?

A comprehensive plan articulates a strategy to guide the future development of a county, city or township. It is a policy document that provides a vision for the future, long-run goals to make progress on that vision, and policies to guide public decision-making. As its name implies, a comprehensive plan considers the future of the entire jurisdiction, its major subareas, and its major public facilities and services.

A comprehensive plan is a high-level policy document. It guides decision-making on implementation documents, notably the zoning ordinance and subdivision ordinance. Since a comprehensive plan is a policy document, local governments should involve the public in its development. Good public involvement helps ensure that the vision in the plan has broad community support, which makes the adoption of the plan and subsequent implementation documents easier.

How does a comprehensive plan slow the conversion of farmland, forestland, and wetlands?

Jurisdictions can include vision and goal statements that support the preservation of farmland, forestland, and wetlands. These statements guide the development of zoning and subdivision ordinances that can preserve open space.

Where do jurisdictions get the legal authority to adopt a comprehensive plan?

The federal government does not mandate that jurisdictions adopt comprehensive plans. Some states require comprehensive plans; the others enable them. Those that require comprehensive plans specify what types of jurisdictions (i.e., county, municipality) must have comprehensive plans, what those plans must include, the process by which jurisdictions must create their plans, and the timeline for doing so. Some states require either cities or counties to have comprehensive plans; others require both. Some require jurisdictions to update those plans periodically (e.g., every ten years in Maryland), while others do not.

What jurisdictions use this tool, and how do they differ in their implementation?

Seventeen jurisdictions out of 19 case studies use a comprehensive plan. The plans NCSG reviewed are generally similar in purpose and scope. Key differences include:

- For jurisdictions that use their comprehensive plans as intended—to support decision-making—the inclusion of **agriculture or woodlands as preferred uses** in the comprehensive plan ensures that decision-makers consider the impact of all potential policy decisions on farmland and forestland.

  The Comprehensive Plan for Kent County, Maryland states that agriculture is a preferred use in the county. Consequently, the zoning ordinance protects designated prime agricultural land and permits agriculture in all zones.

- Some jurisdictions include a **comprehensive zoning map process** in their comprehensive plans. A zoning map process aims to ensure: (1) the initial development of and proposed amendments to the zoning ordinance comply with the comprehensive plan, and (2) the public has a voice in zoning ordinance changes.

  The Comprehensive Plan for Baltimore County, Maryland stipulates that the County must go through a Comprehensive Zoning Map Process to respond to any petition to change a zoning classification. The County Planning Board administers the review process and must hold public hearings in each Council District prior to making a recommendation on whether to adopt the amendment to the County Council.

- Jurisdictions use **different techniques to project and plan for growth and development**. Some jurisdictions base their projected growth on population forecasts, then develop plans that accommodate projected growth. Other jurisdictions determine the maximum amount of development they can accommodate given natural resource availability and use preferences, then develop plans that constrain growth accordingly.

  In 1997, Calvert County, Maryland conducted a robust analysis of potential population growth and available resources to support that growth. This analysis determined that the County did not have sufficient resources (infrastructure, services, natural resources) to support projected growth. To align population forecasts and capacity, the County developed a comprehensive plan with tighter growth restrictions.

- Jurisdictions that cannot do not have the legal authority to adopt and enforce a comprehensive plan can use **incentives for desired development**.

  In Pennsylvania, counties do not have the legal authority to adopt and enforce comprehensive plans that stipulate municipal land use. So, Chester County adopted a non-binding comprehensive plan in 2009 in conjunction with a grant program for municipalities to update plan documents so they align with the county comprehensive plan.

Pros:

- A comprehensive plan establishes a reference point for *all* physical development decisions in a jurisdiction. A single reference point facilitates consistent decision-making.
- As a high-level policy document, a comprehensive plan allows some flexibility in implementation (e.g., specific zone boundaries and use regulations).

Cons:

- The startup and update costs for a comprehensive plan are high. Developing and adopting such a plan requires significant analytical work and public involvement, both of which require significant staff or consultant time.
- It is easy to let a comprehensive plan sit on a shelf. For a plan to successfully shape the vision for a jurisdiction and its realization of that vision, staff and elected officials must understand and value it. Getting this buy-in requires robust engagement and training during the development and updates of the plan.

Policy Tool: Zoning Ordinance

What is it?

A zoning ordinance is a regulatory tool that local governments use to control the physical development of property within their borders. Whereas the comprehensive plan (see page 7) provides long-term guidance on future development within a jurisdiction, the zoning ordinance regulates current development in that jurisdiction.

A typical zoning ordinance defines:

- The purpose of the ordinance
- The use classifications (zones) for parcels
- Restrictions for each use, such as density, characteristics of structures, etc.
- Procedures for evaluating and implementing changes
- Penalties for violations

Typical use classifications include residential, commercial, light and heavy industrial, and agriculture. Use restrictions provide details on allowable development density, the types and characteristics of structures, protection of natural resources, and other physical development characteristics. Both use classifications and development restrictions differ among jurisdictions.

How does a zoning ordinance slow the conversion of farmland, forestland, and wetlands?

Jurisdictions can use a zoning ordinance to restrict development on farmland, forestland, and wetland. They have two mechanisms for doing so: use zoning and density zoning. Under use zoning, a jurisdiction assigns farmland, forestland, and wetlands to a zone that restricts what uses may occur (e.g., residential or commercial development). Under density zoning, a jurisdiction assigns sensitive lands to zones with restrictions on the number of units per acre (e.g., one housing unit per 25 acres).

Where do jurisdictions get the legal authority to adopt a zoning ordinance?

The federal government does not mandate that jurisdictions adopt zoning ordinances. State regulations vary. No states require such ordinances, although all states in the Chesapeake Bay region enable them. Some states explicitly prohibit counties from adopting zoning ordinances that include municipal land.

What jurisdictions use this tool, and how do they differ in their implementation?

Eleven jurisdictions out of 19 case studies have a zoning ordinance. The extent and complexity of these ordinances varies depending on state regulation and community demographics. Key differences include:

- **Zone definitions** vary among jurisdictions. Some define zones geographically, while others do so characteristically.

  The Tahoe Regional Planning Agency in California zones parcels individually based on what resources a parcel has and what uses it can accommodate. This zoning system, the Land Capability System, categorizes parcels using a numeric scale of 1 -7, with 1 being the most sensitive and 7 the least sensitive.

- Jurisdictions may use **urban-rural demarcation lines (URDLs)** or **urban growth boundaries** to clearly demarcate urban areas—land served by urban infrastructure and services—from rural areas. Jurisdictions may have multiple urban zones and rural zones, but the boundary provides a clear distinction between the two categories.
- A zoning ordinance may choose to allow some type of development in all zones, and use **density zoning** to promote or limit growth. Density restrictions typically specify the minimum or maximum number of units per acre. This type of zoning can both protect land and promote agricultural or other rural land uses.

- **Sliding-scale zoning** is a variation on density zoning. This system allocates development rights based on property acreage, so the number of allowed units does not scale in proportion to lot size. Sliding-scale zoning can apply to multiple uses and areas.

Pros:

- A zoning ordinance is compatible with other land-use tools. If a zone allows, a jurisdiction can purchase a conservation easement, permit the transfer of development rights, or assess an impact fee on a parcel-by-parcel basis.
- Once established, a zoning ordinance does not require significant staff time to manage and enforce. It is, therefore, a relatively inexpensive land-use tool.
- Every jurisdiction has a formal, public process by which it can change its zoning ordinance. That process ensures that the jurisdiction approaches potential changes with intention and adequate evaluation.

Cons:

- The startup costs for a zoning ordinance are high. Developing and adopting such an ordinance requires significant analytical work and public involvement.
- Two instances can cause a spike in the cost of administering a zoning ordinance. First, a zoning amendment requires more analysis and public engagement, both of which require staff time. Second, a period of high development requires a temporary increase in staff time. Although it may be tempting to simply slow response times, long or unpredictable permit review periods can stymie development, which has a negative fiscal impact on government.
- Major changes to zone definitions or amendment processes are difficult to implement, as they require substantial public involvement. Therefore, jurisdictions should spend the time to get it right (or as close as possible) the first time.

Policy Tool: Subdivision Ordinance

What is it?

A subdivision ordinance regulates the division, consolidation, boundary change, or development of parcels. While a zoning ordinance governs land-use type (e.g. residential, commercial, industrial) and density, a subdivision ordinance provides details about the division of land and the design of improvements on a given parcel. A typical subdivision ordinance will specify if, how, and when a landowner can pursue one or more of these activities based on specific parcel characteristics: zone classification, parcel size, and number of existing dwelling units are among the most common.

How does a subdivision ordinance slow the conversion of farmland, forestland, and wetlands?

A subdivision ordinance allows a jurisdiction to permit residential and agricultural development on rural lands, but prevent that development from achieving urban densities.

Where do jurisdictions get the legal authority to adopt a subdivision ordinance?

Neither federal nor state governments explicitly regulate subdivision ordinances. All local governments have the legal authority to adopt a subdivision ordinance, as long as that ordinance conform to the state statutory framework for land-use.

What jurisdictions use this tool, and how do they differ in their implementation?

Ten jurisdictions out of 19 case studies have a subdivision ordinance. Jurisdictions that have subdivision ordinances typically have large plats of land available for subdivision. These ordinances tend to regulate the same activities (division and improvement of land), but offer different specific parameters.

Pros:

- A subdivision ordinance allows policymakers to provide additional regulation for parcels within a zone.
- A subdivision ordinance can be an effective tool for regulating development in a jurisdiction that does not have a zoning ordinance.

Cons

- The development and amendment of a subdivision ordinance requires significant staff time.

Policy Tool: Impact Fees

What is it?

Local governments charge impact fees to new development projects to provide new or expanded public capital facilities to serve those developments. They can only require developers to pay for their fair share of facilities from which they benefit. But, governments can locate those facilities offsite to serve multiple developments. Local governments determine the cost of the fees and usually require cash payments in advance of the completion of the development.

How do impact fees slow the conversion of farmland, forestland, and wetlands?

Conservation is supported in two ways. First, impact fees allow developers in a service area to share the cost of expensive infrastructure systems. Cost sharing incentivizes cluster and infill development in urban areas with good infrastructure and services, thereby protecting rural areas. Second, some jurisdictions assess impact fees to support the acquisition of parks, recreation facilities and open space protection.

Where do jurisdictions get the legal authority to use impact fees?

Local jurisdictions developed the concept of impact fees and initially adopted them without any federal or state regulation. Federal and state governments have reacted positively. The federal government has yet to adopt any regulation limiting the use of impact fees. To date, 29 states have adopted impact fee enabling legislation that explicitly allow local governments to impose impact fees. No states have adopted prohibiting legislation.

What jurisdictions use this tool, and how do they differ in their implementation?

Four jurisdictions out of 19 case studies use impact fees for conservation purposes. This Toolkit did not include impact fees in case studies, if neither the interviewee for that Study nor the literature identified impact fees as a key conservation tool. One key difference among impact fee programs is:

- T**he types of public facilities funded by impact fees** differ among jurisdictions. Jurisdictions assess impact fees primarily for transportation, public schools, and water and sewer facilities. Some jurisdictions adopt impact fees for less common public facilities, such as open space acquisition and libraries. Seaford, DE uses stormwater impact fees to ensure new development pays its fair share of the cost of mitigating stormwater drainage.

Pros:

- Impact fees shift the costs of public facility development from the general taxpayer to the primary beneficiaries of the facilities (e.g., developers, future residents).
- There is substantial case law on impact fees across the country. Thus, jurisdictions can implement impact fees with the reasonable certainty that they will not need to defend the imposition of those fees.
- When used in conjunction with a comprehensive plan and zoning ordinance, impact fees can encourage development in desired locations (e.g., infill on vacant urban land).

Cons:

- Impact fees increase the cost for developers. Some developers may choose to locate projects in neighboring jurisdictions where impact fees are lower or not charged.
- Once in place, an impact fee is not necessarily guaranteed in perpetuity. Jurisdictions often reduce impact fees to compete with their neighbors or incentivize development during economic downturns. In such cases, jurisdictions sometimes need to rely on other funding sources for the construction of necessary public facilities.
- The administration of these programs is expensive, requiring significant staff time to calculate fees. These calculations must be rigorous to ensure that each developer pays only her fair share and the fees stand up to legal scrutiny.

Policy Tool: Urban Service Boundaries

What is it?

Local governments use urban service boundaries to limit the extension of public services, like water and sewer infrastructure. Like an urban growth boundary, an urban service boundary is a regulatory tool to demarcate urban and rural areas. Development inside the service boundary can access municipal services. Development outside cannot access such infrastructure and, therefore, must rely on individual private systems. Such systems are cost prohibitive for large, dense developments. Therefore, urban service boundaries serve to dis-incentivize development outside the provision area.

How do urban service boundaries slow the conversion of farmland, forestland, and wetlands?

Jurisdictions can use an urban service boundary to limit the amount, type and density of development into defined spatial areas. By spatially designating an urban service boundary and prohibiting municipal service development outside that boundary, a jurisdiction can help prevent fragmentation and dense development in rural areas.

Where do jurisdictions get the legal authority for urban service boundaries?

The federal government does not regulate the use the urban service boundaries. Some states require local governments to implement similar boundaries (i.e., USBs or priority funding areas (PFAs)), but no states require local governments to adopt urban service area boundaries.

PFAs have a unique legal framework from urban service boundaries. State law restricts state spending for infrastructure outside designated PFAs, but does not prohibit local governments from using their own funds to invest in such infrastructure.

What jurisdictions use this tool, and how do they differ in their implementation?

Two jurisdictions out of 19 case studies has an urban service boundary, but all counties in Maryland have designated Priority Funding Areas as required by the Smart Growth Areas Act (1997). Refer to the Maryland profile in Appendix A for more detail.

Pros:

- Limiting urban services is a low-cost way to slow the conversion of farmland, forestland, and wetlands.
- Urban service boundaries are compatible with other land-use tools, and complement comprehensive plans and zoning ordinances.
- Once established, urban service boundaries do not require significant staff time to manage and enforce.

Cons:

- Urban service boundaries require coordination between local planning agencies and municipal service providers in the private or public sector. Those providers in the private sector may be less willing to cooperate, as doing so would limit their potential customer base.
- Urban service boundaries require periodic updates, which can require significant staff time and impact equity.
- Low density development (served by private septic systems and wells) may still occur outside service boundaries, fragmenting farmland and forestland. To avoid this, jurisdictions need zoning, subdivision, or other regulations to limit large-lot residential development.

Policy Tool: Conservation Easement and Purchase of Development Rights

What is it?

A conservation easement is a voluntary agreement between a landowner and a second party to protect specific resources on that landowner's property. The easement restricts uses or development that would damage those resources. Some easements are donated, in which the landowner receives a tax benefit in lieu of a cash payment for selling her development rights. In a purchase of development rights (PDR) program, the landowner voluntarily sells the development rights from her land to a public agency, rather than donating the easement. An appraiser determines the value of the development rights by calculating the market value of the property without an easement less the market value with a conservation easement.

Both the easement time period and payment schedule may vary. Some easements protect the property in perpetuity, while others do so for a limited time. The development restriction in the easement is part of the chain of title of the land for the duration of the easement term. Some purchasers make a one-time payment, while others make periodic payments over the life of the easement.

Both the seller and purchaser benefit from a conservation easement. The seller (i.e., landowner) can receive one of two benefits: (1) she can receive payment for a portion of the market value of those use or development rights without assuming the inherent risks of development, or (2) she can receive federal and state tax deductions. Additionally, she continues to own and operate the existing agricultural or forestry uses on the property, which can help keep the property in the family and maintain the community character and landscape. The purchaser, normally a public agency or nonprofit land trust, benefits because it can protect sensitive and scarce natural resources and maintain the economic vitality of the local agricultural and forestry industries.

How do conservation easement and PDR programs slow the conversion of farmland, forestland, and wetlands?

A conservation easement or PDR program guarantees the protection of valuable farmland, forestland, and wetlands by placing restrictions on the development of sensitive lands.

Where do jurisdictions get the legal authority to use conservation easement or PDR programs?

The federal government does not itself purchase conservation easements, although it does provide fiscal incentives (tax incentives and federal grants) to promote their use. States must enact enabling legislation to authorize local governments to create conservation easement or PDR programs. Once the enabling legislation is in place, local jurisdictions can adopt a local ordinance to establish a program.

What jurisdictions use this tool, and how do they differ in their implementation?

Out of 19 case studies, 10 jurisdictions have conservation easement or PDR programs. Key differences include:

- **Funding sources** vary among jurisdictions. The federal government is a vital funding source for many easement programs. Federal programs that fund easements include: the Farm Bill, the Land and Water Conservation Fund, the North American Wetlands Conservation Act, the Forest Legacy program, and Endangered Species Grants. State and local governments often supplement federal funds with local tax revenues (for example, real estate transfer taxes) or public service fees.

  Montgomery County, Maryland uses agricultural transfer tax proceeds to fund its Agricultural Easement Program. Since its establishment in 1987, the Program has preserved over 20,000 acres of prime agricultural lands.

Established in 1979, Maryland's Program Open Space has used real estate transfer tax receipts to purchase development rights. The Program has protected more than 380,000 acres, including 46,000 acres of local park land.

- Many local governments **partner with other government agencies** and land trusts to leverage resources and strategize at a regional level.
- The **intended purpose** of PDR programs differs among jurisdictions. Some jurisdictions use PDR programs to preserve large tracts of land from development, while others use them to preserve scattered parcels with high natural resource or open space value.

Pros

- Conservation easements are legally binding, thus highly effective at preserving natural resources.
- PDR programs can alleviate landowner concerns regarding downzoning, making it easier to pass zoning ordinance amendments.
- Conservation easements are voluntary (rather than mandatory), which makes them relatively palatable to the general public and rural landowners.
- State and local governments can access federal and nonprofit funds to purchase conservation easements.

Cons

- The easement holder must have the resources to enforce the easement. This obligation means that state and local governments that operate conservation easement programs must allocate resources to monitor and enforce easement contract agreements.
- Funding for easement programs can fluctuate in response to change in government priorities or economic conditions. This instability can make it difficult to enforce existing easements and fund the purchase of new easements.
- Many conservation easements encumber land in perpetuity. This can be a negative characteristic of easement programs when public perceptions about what should be preserved and for how much change.
- Programs that allow scattered easements may not effectively prevent residential or commercial development on adjacent lands, which can negate some of the benefits of conservation. A zoning ordinance that designates protection areas can obviate this potential program.

Policy Tool: Transfer of Development Rights

What is it?

A transfer of development rights (TDR) program allows a landowner to sell the development rights from her land to a buyer for use on her land. In a TDR sale, the seller retains the ownership of her property and can continue to maintain the existing agricultural or forestry uses, but she can no longer use the rights that are sold to develop her property. All TDR programs are voluntary, meaning that both the seller and buyer must choose to participate.

A TDR program specifies who can sell development rights and who can purchase them, typically based on the zoning classification and existing allowable density of a parcel. The sending area, the area from which landowners can sell development rights, is normally a targeted preservation area. The receiving area, the area in which buyers can apply those rights to increase development density, is normally an area designated for dense development.

For a TDR program to be effective, the purchaser must need the TDR program to build at a density that maximizes her profit. That means that the local zoning ordinance must enforce a baseline density in the receiving area that is lower than the density that maximizes developer profit. Practically speaking, a jurisdiction should implement a zoning ordinance before a TDR program. Downzoning the receiving area in advance of TDR implementation can create the market demand to purchase development rights.

How does a TDR program slow the conversion of farmland, forestland, and wetlands?

A TDR program incentivizes owners of sensitive lands to sell their development rights, thus preserving these lands from development.

Where do jurisdictions get the legal authority to establish a TDR program?

The federal government does not expressly authorize or TDR programs. States must enact enabling legislation to authorize local governments to create TDR programs. Once the enabling legislation is in place, local jurisdictions can adopt a local ordinance to establish a TDR program.

What jurisdictions use this tool, and how do they differ in their implementation?

Five jurisdictions out of 19 case studies have a TDR program. Key differences include:

- Some jurisdictions offer **incentives to protect preferred land uses**.

  Montgomery County, Maryland established a Building Lot Termination Program that provides an additional monetary incentive to protect prime agricultural lands. When a landowner sells the development rights on qualifying parcels, she can also receive an additional monetary incentive from the County. In exchange for this incentive, she must place a conservation easement on her parcel.

- The **intended purpose** of TDR programs differs among jurisdictions. Some jurisdictions use TDR programs to redirect growth to specific zones. Other jurisdictions, like Calvert County and the Lake Tahoe region, use TDR programs to smooth the adoption and implementation of downzoning amendments to the zoning ordinance.

- Some jurisdictions use **technology to facilitate TDR transactions**. The Tahoe Regional Planning Agency created an online marketplace where landowners in sending areas can post development rights for sale and landowners in receiving areas can view sales and contact potential sellers.

Pros:

- Jurisdictions can use TDR programs to accomplish multiple goals at once: redirect growth and preserve prime farmland and forestland.

- TDR programs can mitigate the impacts of downzoning on landowners, making it easier to pass zoning ordinance amendments.

- TDR programs are inexpensive to develop and operate. Unlike purchase of development rights programs or many conservation easement programs, private developers who purchase development rights in one region effectively pay to protect lands from development in another region.

Cons

- TDR programs can pose legal challenges. If a local jurisdiction participates in a regional comprehensive plan and implements a local TDR program, it can risk the "over-protection" of land. For example, the Caernarvon Township, Pennsylvania TDR program permitted development on land that the Township had agreed to hold in reserve in the regional comprehensive plan. Consequently, the other townships in the comprehensive plan sued Caernarvon.
- The efficacy of TDR programs depends on market conditions. If the real estate market declines, it is less likely that a developer will need to build above baseline density to maximize profit. This will eliminate the market for a TDR program, rendering it ineffective.

III. Lessons Learned

This chapter synthesizes lessons learned from research and interviews with local and state jurisdictions. The lessons learned are organized by jurisdiction type: the first section is for local governments, and the second is for state governments. Information on tool selection is available on page 5.

Lessons for Local Governments

Tool Selection, Design, and Initial Implementation

Conduct a baseline conditions assessment to set the stage for tool selection. A jurisdiction should begin its tool selection process with an evaluation of relevant baseline land use and economic conditions in the jurisdiction. The evaluation should consider:

- The amount and location of farmland, forestland, and wetlands
- The amount, location, and rate of land conversion for residential and commercial uses
- Causes of land conversion
- The size of and key trends in the local agricultural industry
- Projected growth (population and development) in the jurisdiction

By aggregating this information, a jurisdiction can understand what resources might warrant conservation, and how their conservation might align with economic, demographic, and development trends. This evaluation sets the jurisdiction up for an effective evaluation of potential policy tools.

Invest the necessary resources in program design. Conceptually, the policy tools discussed in this Toolkit are relatively straightforward. In practice, they are complex to design and adopt. Each community requires a different type and level of conservation, which means different tool specifics. A jurisdiction should evaluate different tool parameters (e.g., subdivision lot size restrictions, TDR sending and receiving area boundaries, zoning densities), to see how tool variations would impact property values, growth and development, and other community values. Such an evaluation requires time, but helps minimize "unintended consequences."

Solicit assistance from state and local governments, universities, and non-profit organizations in tool development and evaluation. It is easy to say, "spend more time on tool development." But, such a process may require more resources (time, money, knowledge) than a local government has to spend. Some state governments and many universities and conservation-oriented nonprofits will partner with local jurisdictions in tool design and development. A jurisdiction should seek out in-kind assistance from its local institutions in the design and evaluation of policies. It is also wise for a jurisdiction to turn to other jurisdictions that have confronted similar opportunities and challenges for advice.

Get broad support for policy tools during the design and evaluation process. Most tools require the official approval of elected officials. For elected officials to approve them, tools normally need broad community support. So, a well-designed engagement process can make the difference between tool adoption and failure.

A jurisdiction should begin community and elected official engagement early in the tool design process. A typical engagement process has several broad steps:

- First, a jurisdiction should seek to identify and build consensus around the problem. Do not assume that everyone agrees on the problem.
- Then, the jurisdiction should provide a draft proposal (it could be a single option or a package of options) for discussion. For a contentious proposal, some jurisdictions interviewed for this

Toolkit recommended first getting the support of well-known champions (e.g., a local community group or non-profit) before bringing the proposal to the community at large.

- Once residents and elected officials have weighed in on the tool, the jurisdiction should move forward with final program design.

A process that engages community members at each step in the design of a tool is more likely to result in a tool that gets adopted and successfully implemented. Good engagement options include: open houses, online resources, in-person training sessions for property-owners who might be impacted, and utility bill mailers.

Allocate sufficient resources for implementation. Implementation of a new tool will require staff time for two reasons. First, property owners and other members of the community will have questions as they adapt to the new program. Second, many tools increase the volume of property owner applications. Jurisdictions should allocate sufficient time to respond quickly to those questions and applications, so as to maintain a positive relationship with local businesses and property owners.

Ongoing Management and Monitoring

Diversify funding streams. Although federal and state governments often provide funding for land use policy tools, local governments should create and sustain their own local funding sources. Federal and state funds vary over time, which can undermine local conservation goals. Local governments have a variety of revenue sources at their disposal. Popular sources include: real-estate transfer taxes and service fees.

Fund monitoring. Local government work on tool implementation does not stop with adoption. A local jurisdiction should provide the resources to monitor program outcomes, so to ensure success. It should monitor tool use, impact on conservation objectives, and impact on other community values and objectives.

Inter-Government Coordination is Key to Success

Local governments should not select policy tools without consulting neighboring jurisdictions. Doing so can result in negative impacts, such as: conflicting land use policies, an imbalance in regional conservation and development, and inter-jurisdictional conflict.

Key lessons learned include:

- Regional coordination among local jurisdictions can lead to benefits not easily realized on a small scale, such as: the maintenance of a robust agricultural industry, large-scale habitat preservation, and improved water quality. the regional agricultural or forestry industries, or other aspects that are regional in nature such as water quality.
- Collaboration is always advantageous. Almost every county or municipal interviewee for this Toolkit emphasized the value of working with other municipalities, or at least consulting them for best practices.

An Example of Failed Monitoring

The interviewee from the Tahoe Regional Planning Agency provided an example of what happens when a jurisdiction fails to effectively monitor tool implementation. It did not monitor the implementation of its 1987 Regional Plan, resulting in two unintended consequences. First, the Plan grandfathered in existing developments that did not meet building requirements. But, it did not allow property owners to update those buildings and their failing infrastructure systems without major updates to comply with building design requirements. Consequently, property owners did not make necessary infrastructure updates, leading to a major increase in water pollution. Second, the Plan a mandated small building footprints, which produced “mushroom developments” with buildings constructed larger on top than on the bottom.

A jurisdiction can monitor development and conservation through GIS mapping. Such monitoring will allow the jurisdiction to make more informed decisions about land conservation.

Respond to problems. When a tool is not working, a jurisdiction should course correct. Sometimes the problems surface quickly and can be fixed during rollout. Sometimes they appear later, often the result of changes in growth and development.

An Example of Effective Policy Response

Calvert County, Maryland had successfully used a TDR program to manage growth for 14 years. But, at that point, an increase in demand for land for new development made it more profitable for rural landowners to convert their land, than to sell development rights. This led to increased land conversion for relatively low-density developments. To combat sprawl, the County implemented a mandatory clustering program.

Lessons for State Governments

Since this Toolkit focuses on tool use by local governments, it provides lessons for state government on how to best support local government work.

Incentivize local planning. Many local governments struggle to fund planning and policy activities that are not required by law, even if they know they would benefit their jurisdictions. State governments can facilitate more robust planning and policy development at the local level by offering monetary and in-kind support to local governments for these activities.

Provide training and technical assistance. Small local jurisdictions may only have the resources to dedicate a handful of people to land use planning and policy development. Even if each member of the team is highly-skilled and efficient, it is likely the case that the team will have gaps in knowledge and not enough time to fill them. This can result in subpar policy evaluation and implementation. State governments can improve land use policy outcomes by providing training and technical assistance to local jurisdictions that are resource constrained.

Fund conservation programs. Almost all policy tools require ongoing operational funding. Less expensive tools, such as an urban services boundary, require only some staff time for monitoring. More expensive tools, such as a PDR program, also require capital resources to fund easement purchases and enforcement. State governments can help ensure tool success by providing ongoing operational support. But, they should do so with caution: if a local jurisdiction is dependent on those funds, then changes in state priorities and program funding can have detrimental impacts to land conservation goals.

Allow and promote compatible uses on preserved lands. Preventing the conversion of farmland, forestland, and wetland depends, in part, on the economic viability of compatible uses on those lands. Not all land uses are incompatible with conservation, and some can even facilitate it. Agritourism, for example, brings tourist dollars to a region and can improve the profitably of agricultural operations. Broadly, states can support the economic viability of preservation by promoting and supporting compatible uses. More specifically, this can include: state-sponsored marketing campaigns, programs to mentor new farmers, the expansion of permitted uses (e.g., train easements, low-impact events, wineries) on lands preserved with state funds.

Appendix A: State and Local Profiles

This Appendix presents details on the state and local jurisdictions profiled for this Toolkit. NCSG focused on obtaining a cross-section of jurisdictions from the Chesapeake Bay that represent different states and socioeconomic conditions. It chose to include one jurisdiction outside of the Bay, the Lake Tahoe region, due to its unique selection of tools.

Each case study begins with an overview of the policies used to prevent to the conversion of farmland, forestland, and wetlands. It concludes with a summary of lessons about policy implementation, as reported by the case study interviewee. NCSG did not itself produce a rigorous evaluation of tool effectiveness in each case study.

NCSG relied on both secondary and primary research to construct these case studies. It conducted a thorough review of land use documentation available online and at least one staff interview for each case study.

This Appendix organizes the case studies in alphabetical order by state. Each state section begins with an overview of the state context, and follows with the County and municipal studies.

Delaware

State Profile

Delaware has a land area of 2,489 square miles, 29% of which is in the Chesapeake Bay Watershed. The State has just over 952,000 residents, 17% of whom live in rural areas and 11% of whom live in the Watershed.

Overview

Delaware takes an active role in both planning at the state level and encouraging planning at the local level. Delaware has a comprehensive Smart Growth strategy that guides both state and local government actions. It also has a package of land use incentive tools— local government planning assistance, the marketing of agriculture as a viable industry, transfer of development rights, impact fees—that it administers to support planning policies that align with its growth strategy.

Delaware requires local jurisdictions to complete comprehensive plans and get them certified by the Office of State Planning. This requirement makes the provision of technical assistance from the State almost a necessity. The State government provides several forms of technical assistance: (1) general guidelines for local comprehensive plans, (2) guidance on goals and actions for the agricultural components of comprehensive plans, and (3) and more case-specific input on large projects in the Preliminary Land Use Service PLUS process.

State Regulatory Profile

Delaware is a Home Rule state, meaning that counties, cities and towns have the legal authority to govern themselves and pass their own laws through amendments to the state constitution. Although local governments have broad legal authority, Delaware has passed several laws to constrain activities:

- Quality of Life Act, mandates local comprehensive planning (Delaware Code, 1988)

- Land Use Planning Act, requires local governments to coordinate land use decisions that affect any persons outside a single jurisdictional boundary.

The State passed regulations to establish two entities to assist with these activities. The Delaware Office of State Planning Coordination oversees the coordination and completion of state, county, and municipal land use decisions. The Cabinet Committee on State Planning Issues advises the Governor on issues of growth and land use planning.

State Zoning and Planning Status

Delaware requires every city and town to produce a comprehensive plan. It allows, but does not require, the establishment of a planning commission to facilitate plan development. Cities and towns have the authority to adopt zoning regulations to help implement the comprehensive plan, but Delaware does not require them to do so (Municipal Zoning Regulations, 1953a).

Smart Growth Policies and Framework

Delaware's *Strategies for State Policies and Spending* (2015) sets forth the State's Smart Growth strategy. The document divides the geography of the State into four "investment levels," each of which correlates to desired type and amount of

development. At one end of the spectrum, level 1 refers to prime development areas. At the other end of the spectrum, level 4 refers to conservation areas for agriculture, natural resource amenities, and open space.

The strategy provides unique policy directions for each area. It recommends policies to encourage growth and development in levels 1-3. For levels 1 and 2, it recommends policies that support higher densities and more mixed-use developments. For level 4, it recommends policies that support agribusiness, natural resources protection, and restoration.

In addition to providing this general policy framework, Delaware also reviews individual land use actions that could have a significant impact on growth and development. The State uses the PLUS process to consider major projects, including residential subdivisions over 50 units, non-residential buildings over 50,000 square feet, rezoning and site plan reviews in environmentally sensitive areas, and annexations inconsistent with the comprehensive plan. The State's PLUS process allows staff to comment on proposed land use conversion from agriculture to residential. These comments are not binding, as the local government has ultimate authority.

State Development Tools

Transfer of Development Rights. The legislative body of a municipality has the authority to develop and adopt regulations governing the transfer of development rights from identified districts, zones or parcels (Municipal Zoning Regulations, 1953b).

Real Estate Transfer Taxes. Delaware enforces a mandatory real estate transfer tax. Every person dealing in deed or sale of property is subject to pay a tax of 2% of the value of the property, "unless the municipality or county where the property is located has enacted the full 1 1/2% realty transfer tax authorized by § 1601 of Title 22 or § 8102 of Title 9." (Delaware Code, no date a).

Impact Fees. As a means of financing public facilities for development, counties have the authority to use impact fees at their discretion (141st General Assembly, 2001).

Incentives for Local Governments

Department of Natural Resources and Environmental Control: Parks, Greenways, and Trails Grants. Delaware Land and Water Conservation Trust Fund provides matching grants to county and municipal governments and park districts for the acquisition of parkland, open space, or greenways.

Conservation Programs

Agricultural Conservation Easements. Delaware established a conservation easement program in 1991, and funded it with Real Estate Transfer Tax proceeds in 1996. This program enables permanent easements for individuals (Delaware Code, 2005). It prioritizes land conservation efforts located near or adjacent to growth zones (within one-half mile). The program has protected 120,000 acres of farmland (about one-fourth of all farmland in the state).

Department of Agriculture: Agricultural Lands Preservation Districts. This program enables any landowner of at least 200 contiguous acres of farmland to establish an Agricultural Preservation District. The landowner must not develop any other uses in her district aside from agriculture for a minimum of ten years. In return, she is eligible for tax benefits, right-to-farm protection, and the sale of her development rights. If a landowner chooses to sell her development rights, she receives compensation through the state Agricultural Lands Preservation Program. Counties have the authority to form advisory boards to provide additional Agricultural Preservation District recommendations

Department of Agriculture: Forestland Preservation Program. This program uses conservation easements to protect both working and non-working forestlands that are a minimum 10 acres (Delaware Code, no date b). Landowners must follow a forest management plan, which in some cases allows timber harvests and forest management activities. In return, they receive financial benefits like state tax deductions.

Infill Programs

Brownfields Development Program. Signed into law in 2004, this program incentivizes developers to find and repurpose brownfield sites. It offers a wide variety of grants and loans to developers willing to purchase, remediate, and develop brownfield sites. The purchase of the site is a necessary qualifying condition; those who own brownfields can participate in Delaware's Voluntary Cleanup Program. The Department of Natural Resources and Environmental Control's (DNREC) Site Investigation and Restoration Section (SIRS) manages this program. SIRS also maintains a database of available properties in the state for redevelopment. It collaborates with developers and other parties via a Brownfield Development Agreement to investigate hazards and develop remediation plans.

Delaware Voluntary Cleanup Program. This program streamlines voluntary brownfield cleanup processes for existing property owners so they can settle their liabilities within DNREC and avoid federal liabilities.

Downtown Development Districts. Governor Markell created this initiative to attract investment and redevelopment to Delaware's towns. It offers successful applicants—developers, businesses, nonprofits, and homeowners—grants for 20% of the cost of a qualified capital cost investment. A successful application must demonstrate three things: (1) need and potential impact (50% of application), a viable plan for the designated district (30%), and access to local government incentives (20%).

Resources

141st General Assembly, 2001, Delaware Code, HB 235, Chapter 91, Title 29, § 9106.

Delaware Code, 1988, Zoning, Chapter 69, Title 9, § 6951.

Delaware Code, 2005 Title 7, §§ 6901-6905.

Delaware Code, no date a, Commodity Taxes, Chapter 54, Title 30, § 5402.

Delaware Code, no date b, Agriculture, Title 3, §933.

Delaware Department of Agriculture: County Comprehensive Land Plan Guidelines
http://dda.delaware.gov/aglands/landplan.shtml

Delaware Department of Agriculture: Agricultural Preservation Districts and Conservation Easements
http://dda.delaware.gov/aglands/lndpres_prog.shtml

Delaware Strategies for State Policies and Spending
http://stateplanning.delaware.gov/strategies/

Delaware Preliminary Land Use Service
http://stateplanning.delaware.gov/plus/

Delaware Brownfields Development Program
http://www.dnrec.delaware.gov/dwhs/sirb/pages/brownfields.aspx

Delaware Voluntary Clean Up Program
http://www.dnrec.delaware.gov/dwhs/SIRB/Pages/Voluntary_Cleanup_Program.aspx

Delaware Downtown Development Districts
http://stateplanning.delaware.gov/ddd/

Municipal Zoning Regulations, 1953a, Delaware Code, Chapter 3, Title 22, § 321.

Municipal Zoning Regulations, 1953b, Delaware Code, Chapter 3, Title 22, § 310.

Town of Laurel, DE

Tools by Date Established

- Comprehensive Plan (2004)
- Zoning Ordinance (2004)
- Subdivision Ordinance (2008)
- Impact Fees

Sources

Town Manager, 19 years of experience

Town of Laurel, 2004, Zoning Ordinance of the Town of Laurel, available at: http://www.townoflaurel.net/pdfs/Zoning_Ordinance_Text.pdf

A Local History of Land Use Policies

The Town of Laurel only recently adopted comprehensive land use policies. The Town adopted its first **comprehensive plan** and **zoning ordinance** in 2004 (Town of Laurel, 2004).

Protection of the Town's "deep roots in agriculture" led the vision set forth in the Comprehensive Plan. To accomplish this vision, the Town established a surrounding greenbelt and zoning regulations that promoted clustering within master-planned subdivision areas (Town of Laurel, 2004). The Town later adopted a **subdivision ordinance** (2008) to further protect open space. The expert interviewed for this Case Study stated that the zoning ordinance had the greatest impact on land conservation.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

Population	
Population	3,708
Population Density (per sqmi)	1,285
% Population in Urban Areas	95%
% Population in Rural Areas	5%
Population Growth Rate 1990-2000	316%
Population Growth Rate 2000-2010	-7%
Housing	
Vacancy Rate	14%
% Owner	49%
% Renter	51%
Income, Employment, and Geography	
Median Household Income	$32,936
Poverty Rate	15%
% Farm Employment	N/A
% of geography unit in Bay Watershed	100%

- **Engage the state early in the process.** The State of Delaware must approve all local comprehensive plans. Therefore, the interviewee recommends that other Delaware jurisdictions engage the State early in the planning process to ensure it approves of the final products.

  The interviewee for this case study said that the Town of Laurel has a good relationship with the State government. The State has a representative assigned to each county to provide guidance and support on land use planning issues. The interviewee said this state representative has been very helpful.

- **Be fair to property owners in the development and implementation of policy.** A vision that promotes conservation can lead to policies that disenfranchise property owners. Assess potential impacts on property owners and develop mitigation strategies.

Seaford, DE

Tools by Date Established

- Comprehensive Plan (1968)
- Zoning Ordinance (1969)
- Impact Fees

Sources

Assistant City Manager, 25 years of experience

City of Seaford, 2008, Comprehensive Plan, available at: http://www.seafordde.com/pdfs/Comprehensive_Plan_2008_-_STATE_APPROVED.pdf

A Local History of Land Use Policies

A 1995 guide to the best small towns in America ranked Seaford, Delaware 28th on its list. This award is, in part, attributable to Seaford's natural amenities. Seaford is located along the Nanticoke River and has developed park and recreation opportunities along the riverfront. Maintaining its natural amenities is important to quality of life in Seaford.

Seaford has a **comprehensive plan**, first established in 1968 and updated most recently in 2008. The 2008 update includes one conservation-oriented strategy: "To protect sensitive environmental areas and the water quality of the Nanticoke River" (City of Seaford, 2008).

A focus on water quality is central to the City's land use regulations. The City has a **zoning ordinance**, which the interviewee for this case study said is the County's most useful land use policy tool. The ordinance has stormwater treatment requirements that overlay some zones. The City also has a stormwater **impact fee**.

The interviewee for this case study said that the City experienced some difficulty with policy implementation. The implementation of the zoning ordinance caused some disagreement between the County and City. The County lands adjacent to the City are rural, so the County requested that the City adopt a buffering ordinance along some portion of its city limits. The City decided against this idea, and the County rescinded its request.

Both the initial and ongoing implementation of the impact fee have been a challenge due to varying levels of public support. The public initially supported the impact fee program, as residents wanted to shift costs of public facilities to the developers who would benefit from their development. However, the City did not release sufficient detail on the impact fee structure and enforcement, which caused confusion and anxiety among developers and the public at large during rollout. Public support has waxed and waned since the initial rollout; impact fees are politically unpopular during economic downturns when residents and businesses want more jobs and development.

Population	
Population	6,928
Population Density (per sqmi)	1,331
% Population in Urban Areas	98%
% Population in Rural Areas	2%
Population Growth Rate 1990-2000	301%
Population Growth Rate 2000-2010	-14%
Housing	
Vacancy Rate	10%
% Owner	44%
% Renter	56%
Income, Employment, and Geography	
Median Household Income	$36,250
Poverty Rate	25%
% Farm Employment	N/A
% of geography unit in Bay Watershed	100%

Despite these implementation challenges, the interviewee for this Case Study deemed the zoning ordinance and impact fee program overall successes.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Be rigorous in the development of impact fee programs.** The calculation of an impact fee must be based on valid data and cost-sharing assumptions to ensure the final fee assessment stands up in court.
- **Leave time between policy adoption and implementation to allow the public to adapt to the new policy environment.** Seaford had a two-year grace period between the adoption of the impact fee program and its complete implementation. The City used this time to educate the public and developers on the impact fee program and its impacts.
- **Be patient.** It will take time, sometimes years, for the value of land use policies to materialize. Be prepared to wait.
- **Plan adequate staff resources to support implementation.** The administration of zoning ordinances and impact fee programs requires ongoing staff time. Plan for this.
- **Coordinate with neighboring jurisdictions**. Seaford has a positive relationship with the State government and said that this relationship has been integral to its success. It recommends that local jurisdictions partner with their state governments to leverage their staff and monetary resources. Seaford also recommends partnering with other local jurisdictions, in order to coordinate land use policies.

Maryland

State Profile

Maryland has a land area of 12,406 square miles, 74% of which is in the Chesapeake Bay Watershed. The State has just over 6 million residents, 13% of whom live in rural areas and 85% of whom live in the Watershed.

Overview

The State of Maryland has the most robust Smart Growth program of the states profiled for this Toolkit. It has a statewide strategy with five specific programs to tackle different aspects of growth management. And it administers a number of programs to assist jurisdictions in the development and implementation of their land use plans. The State has a truly comprehensive approach to facilitate the realization of the statewide Smart Growth strategy.

Maryland provides a suite of incentives to promote Smart Growth in local jurisdictions. The State requires local jurisdictions to adopt comprehensive plans, and provides small jurisdictions with planning services to do so. Those plans must be reviewed by the state, but are not obligated to receive state approval. To incentivize local plan alignment with the statewide strategy, the State government limits infrastructure investment to targeted growth areas (i.e., Priority Funding Areas).

The State also offers specific programs and incentives for rural land preservation. It enables and funds local planning, conservation easements, and purchase of development rights programs. These initiatives have had significant impacts. The Program for the Certification of County Agricultural Land Preservation Programs has certified 15 out of Maryland's 23 counties for having robust conservation programs. The Maryland Agricultural Land Preservation Foundation conservation easement program has preserved over 300,000 acres of farmland.

State Regulatory Profile

Maryland has both Home Rule and Dillon's rule jurisdictions. All municipalities abide by Dillon's Rule: they can only exercise authorities expressly granted to municipalities by the State. The counties are a mix. Six counties have Home Rule governments, which means they have more autonomy: Allegany, Caroline, Charles, Kent, Queen Anne's, and Worcester. Eleven counties have charter governments, which means they too have relatively autonomous governments. The remaining counties have commission governments, which require General Assembly authorization for actions outside of those granted in the Express Powers Act.

Maryland is one of a few states that has a statute-based growth policy, as articulated in the Maryland Economic Growth, Resource Protection, and Planning Act of 1992. This Act requires counties and cities to adopt comprehensive plans with specific elements (e.g., comprehensive growth and water management plans, and goals and policies to guide growth), and to update these plans every ten years.

The Act requires the Maryland Department of Planning (MDP) to review all local comprehensive plans. Local governments do not have to follow the advice of the MDP. However, the Act prohibits the State from funding public works, transportation, or major capital improvements projects that are not consistent with the State growth policy, which provides an incentive for local jurisdictions to gain approval. Most hold public hearings during plan development, and distribute copies of the document to neighboring jurisdictions and jurisdictions that have some financial obligation (e.g., funding an infrastructure project) under the plan.

The State has two additional acts that govern growth and development more specifically. The Smart Growth and Neighborhood Conservation Act of 1997 created Priority Funding Areas (PFAs), designated growth areas where local governments

want state investment, and Rural Legacy Areas (RLAs), areas with cultural or natural resources that require protection. The Act requires local jurisdictions to designate PFAs) and enables them to designate RLAs.

The Sustainable Growth and Agricultural Preservation Act of 2012 establishes land use categories, and requires local governments (with the assistance of the MDP) to map their jurisdictions using these categories. There are four categories: Tier 1, growth areas currently served by sewer; Tier 2, future growth areas planned for sewer; Tier 3, large lot developments and rural villages on septic; and Tier 4, preservation and conservation areas. The Act constrains growth by limiting development in tier 3 and 4 areas.

State Zoning and Planning Status

The State of Maryland delegates planning authority to all non-charter counties and all incorporated municipalities. The State makes an exception for Montgomery and Prince George's counties, as they have a bi-county planning agency.

The State enables zoning. Local governments can regulate: the height, number of stories, and size of buildings; the percentage of a lot that may be developed; the size of open spaces; population density; and the location and use of buildings, signs, structures, and land (Maryland Code, no date).

Smart Growth Policies and Framework

The Smart Growth and Neighborhood Conservation Act of 1997 establishes five smart growth programs for the State: (1) Smart Growth Areas Act, (2) Rural Legacy Program, (3) Brownfields Cleanup Program, (4) Job Creation Tax Credit, and (5) Live Near Your Work Program. The first two establish the PFAs and RLAs described in the State Regulatory Profile section. The first incentivizes development in the PFAs by prohibiting state infrastructure investment outside of PFAs. Local governments may still invest outside of PFAs, which supports their land use planning autonomy. The second protects the RLAs by using tax and bond revenues to fund conservation easements, purchases of development rights, and fee estates on qualifying properties.

State Development Tools

Transfer of Development Rights. The local legislative body of a local government has the authority to develop and adopt regulations governing the transfer of development rights (Maryland Code, 2005).

Real Estate Transfer Taxes. Maryland provides property tax benefits to qualifying agricultural properties. The State government assesses qualifying parcels based on their agricultural or forestry use values, as opposed to their market values. This lowers the assessed value of qualifying properties and, in turn, the property taxes owed by their owners. The State also authorizes county governments to impose recordation taxes.

Impact Fees. Maryland does not have a general enabling act for impact fees, but many counties do use them to incentivize clustered and infill development. The six Home Rule counties have the legal authority to implement these fees without explicit approval from the State. Other jurisdictions must obtain authority from the General Assembly, and some have done so. Several counties impose building excise taxes in lieu of impact fees, as Maryland case law stipulates fewer restrictions on excise taxes.

Incentives for Local Governments

Program Open Space. This program provides counties with an allotment for open space protection. The State funds the program using revenues from the real estate transfer tax, a 0.5% tax on the purchase price of a home or land. The allotments differ among counties, depending on their relative populations and real estate transfer tax revenues.

Rural Legacy Program. The mission of this program is to strategically preserve contiguous blocks of farmland and open space across the State. Local governments and private land trusts designate RLAs and apply for competitive funds to protect them.

Program for the Certification of County Agricultural Land Preservation Programs. The Certification Program, created by the General Assembly in 1990, provides counties monetary incentives to create and implement effective land preservation programs. Maryland Agricultural Land Preservation Foundation (MALPF) and MDP jointly administer this program using funds from the Agriculture Transfer Tax. Counties with effective preservation programs can apply for certification and, if granted, receive 75% of the Agriculture Transfer Tax revenue attributable to their jurisdictions (compared to 33% for uncertified counties). Certified counties must re-invest these revenues into their conservation programs. As of 2010, 15 of Maryland's 23 counties were either fully or conditionally certified.

Conservation Programs

MALPF Conservation Easement Program. MALPF administered one of the first conservation programs in the State. Its purposes are to curb urban sprawl, protect open space, and preserve farming. MALPF aims to achieve these goals by placing permanent agricultural preservation easements on productive farmland and woodland. The State funds the program using revenues from the Transfer Tax and Agricultural Land Transfer Tax. As of June 2016, MALPF had conserved more than 300,000 acres of farmland in the State.

Maryland Environmental Trust (MET) Conservation Tax Credits. MET seeks to conserve and improve the natural and cultural aspects of Maryland's environment. It promotes open space conservation through its Conservation Easements Program, which provides landowners who donate their development rights with property and income tax deductions. The value of the Income Tax Credit for Preservation and Conservation Easements equals the difference between the fair market value of the property without the easement and the value with the easement. Annual credits are between $5,000 and $800,000.

Infill Programs

Brownfield Revitalization Incentive Program. This program, established in 1997 and administered by the Maryland Department of the Environment (MDE) and Maryland Department of Commerce, provides property tax credits to inculpable owners of brownfield sites for site remediation. For five years after site cleanup, a site can qualify for a real property tax credit between 50-70% of the increased value of the site. Sites in an Enterprise Zone can access the credit for up to ten years.

Voluntary Cleanup Program. This program, also established in 1997 and administered by MDE, streamlines voluntary brownfield cleanup processes for culpable owners of brownfield properties.

Resources

Brownfields Revitalization Incentive Program
http://commerce.maryland.gov/fund/programs-for-businesses/brownsfields-tax-credit

Impact Fees and Development Excise Taxes
http://mgaleg.maryland.gov/Pubs/BudgetFiscal/2013-Impact-Fees-excise-taxes.pdf

Maryland Code, 2005, Article 66B, § 11.01.

Maryland Code, no date, Land Use, Title 4, § 4-101.

MALPF
http://mda.maryland.gov/malpf/pages/default.aspx

Reinvest Maryland
http://www.mdp.state.md.us/OurWork/reinvestmd/index.shtml

Sustainable Growth and Agricultural Preservation Act of 2012
http://planning.maryland.gov/OurWork/plan-legislation.shtml#2012

Voluntary Cleanup Program
http://mde.maryland.gov/programs/Land/MarylandBrownfieldVCP/Pages/vcp_info.aspx

Baltimore County, MD

Tools by Date Established

- Zoning Ordinance (1945)
- Urban-Rural Demarcation Line (1967)
- Comprehensive Plan (1975)
- Conservation Easements (variable)
- Purchase of Development Rights (variable)

Sources

Former Planning Director, Baltimore County

Baltimore County, 2015, "Appendix B: Major Zoning Milestones," in *A Citizen's Guide to Zoning*, available at: http://resources.baltimorecountymd.gov/Documents/Planning/citizensguidetozoning/8_Appendix_A_B.pdf

The Conservation Fund, 2010, *A Sustainable Chesapeake: Better Models for Conservation*, edited by David Burke and Joel Dunn, available at: http://www.conservationfund.org/images/resources/sustainable_chesapeake/Sustainable-Chesapeake-Chapter-5-Valleys-Planning-Council.pdf

Department of Planning, 2017, "Land Preservation," available at: http://www.baltimorecountymd.gov/Agencies/planning/landpreservation/index.html

Department of Planning, 2016, "Master Planning History," available at: http://www.baltimorecountymd.gov/Agencies/planning/masterplanning/historyofmasterplanning.html

A Local History of Land Use Policies

Baltimore County is a national leader in land preservation. The Conservation Fund (2010) used the County as a case study in its book, *A Sustainable Chesapeake: Better Models for Conservation*. The County attributes its success to a strong growth management program and successful collaboration with the farm and land preservation communities (Department of Planning, 2017).

Population	
Population	805,029
Population Density (per sqmi)	1,346
% Population in Urban Areas	93%
% Population in Rural Areas	7%
Population Growth Rate 1990-2000	9%
Population Growth Rate 2000-2010	7%
Housing	
Vacancy Rate	6%
% Owner	67%
% Renter	33%
Income, Employment, and Geography	
Median Household Income	$63,959
Poverty Rate	8%
% Farm Employment	0%
% of geography unit in Bay Watershed	100%

Conservation has been a guiding value for the County since it started managing growth in the 1960s. Unlike other jurisdictions profiled in this Toolkit, the first land use plan for the region was developed by a proactive group of residents. Those residents created the Valleys Planning Council—which is still active today—and raised $100,000 for a land use study and growth plan. The Council published the resulting study, *Plan for the Valleys*, in 1964 (The Conservation Fund, 2010). That Plan advocated for growth patterns that concentrate growth, contain sprawl, and protect valuable natural resources.

The County Planning Board took action shortly following the publishing of *Plan for the Valleys*. In 1967, it adopted the **Urban-Rural Demarcation Line** (URDL) (i.e., urban growth boundary), which creates a clear distinction between land management for rural and urban areas. The

URDL allows higher density development served by municipal sewer and water systems within the URDL boundary, but only lower density development served by individual septic systems and wells outside the boundary (The Conservation Fund, 2010).

In 1970, the County significantly revised its **zoning regulation** to manage growth. The County first adopted a zoning regulation in 1945, but it did not do so with the intent to channel growth or preserve land. The 1970 amendment recognized the URDL with the creation of two rural zones and created urban residential density zones (Baltimore County, 2015).

In 1975, the Planning Board adopted the first **Baltimore County Comprehensive Plan** (Department of Planning, 2016). This plan impacts development in the County more than many countywide comprehensive plans, as it *mandates* all land use laws and policies align with the Comprehensive Plan. The County does not contain any incorporated municipalities, which enables it to maintain these strict regulations across the entire county. Since 1975, the plan has been updated several times. The most recent version of the plan, called Master Plan 2020, was adopted in 2010.

The County also uses incentive programs for conservation, which have resulted in the protection of over 64,000 acres of farmland, forestland, and other natural resources. It participates in and contributes funds to several state **conservation easement programs**. These programs are all **purchase of development rights** (PDR) programs funded by the State and local governments. The Maryland Agricultural Land Preservation Foundation (MALPF) is the main easement program in the County. The County also established its own PDR conservation easement program, the Agricultural Land Preservation Program.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Develop advisory councils to provide a check on government policy-making.** Baltimore County developed the People's Counsel in 1974 to ensure community input in the land use policy process. The Counsel is authorized to appear before the Zoning Commissioner, the County Board of Appeals, the Planning Board, and the Maryland Courts of Appeal to defend the Master Plan, comprehensive zoning maps, and zoning re-classification or variance proceedings.
- **Ensure economic policies align with land use policies.** The interviewee for this case study noted that land use policies have preserved and encouraged agriculture, but economic policies have not. Therefore, there is a risk that the County will protect significant tracts of agricultural land to the detriment of the long-term health and stability of the economy.

Calvert County, MD

Tools by Date Established

- Comprehensive Plan (1966)
- Zoning Ordinance
- Transfer of Development Rights (1978)

Sources

County Planner, 32 years of experience

Calvert County, 2010 Calvert County Comprehensive Plan, available at: http://www.co.cal.md.us/DocumentCenter/Home/View/254

Calvert County, no date, Preserving Farm and Forestland in Calvert County, available at: http://www.co.cal.md.us/documentcenter/view/163

Population	
Population	88,737
Population Density (per sqmi)	416
% Population in Urban Areas	61%
% Population in Rural Areas	39%
Population Growth Rate 1990-2000	45%
Population Growth Rate 2000-2010	19%
Housing	
Vacancy Rate	9%
% Owner	84%
% Renter	16%
Income, Employment, and Geography	
Median Household Income	$90,838
Poverty Rate	4%
% Farm Employment	1%
% of geography unit in Bay Watershed	100%

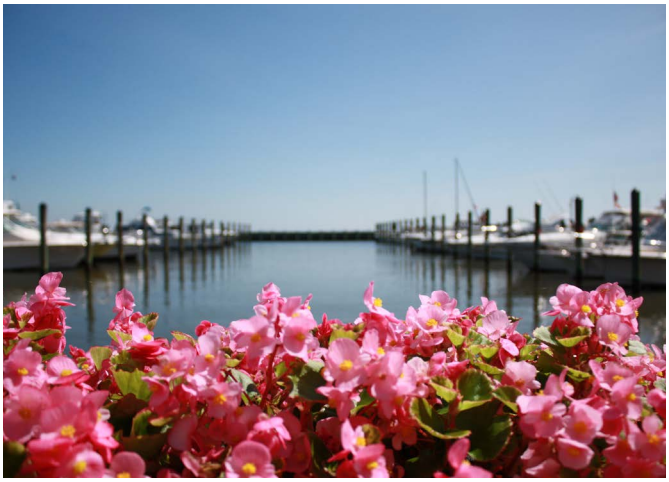
A Local History of Land Use Policies

Like many rural counties, Calvert County's proximity to a major metropolitan area was a driving force behind its conservation-oriented land use policies. In the 1960s, County residents began to worry that sprawl from D.C. would cause the conversion of forestland and farmland, the over-exploit groundwater from local aquifers, and the degradation of the County's rural character. To ensure the protection of its assets, the County adopted its first **comprehensive plan** in 1966 (Calvert County, 2010).

Although the County identified land preservation as a goal in 1966, it did not have the policy tools to make progress on this goal until the 1970s. In 1978, Calvert County became the first county in Maryland to implement a **transfer of development** rights (TDR) program. The sending areas were farmland and forestland parcels zoned as Farm Community Districts, Resource Preservation Districts, or Rural Communities. These zones had a density limit of 5 acres per unit. The receiving areas were rural residential and some farmland zoned as Rural Communities. These zones had a baseline density of 5 acres per unit, and allowed the addition of 2 units per acre using purchased development rights. Through the 1980s, the County used its comprehensive plan and TDR program to effectively reduce development on farmland and rural residential areas.

By 1992, the County's voluntary incentive programs could no longer sufficiently control development. The County was leading the State in the amount of rural land being converted to residential use. Consequently, the County adopted a mandatory clustering program that requires developers to cluster residential lots onto 50% of a Rural Community parcel or 20% of a Farm Community or Resource Preservation District parcel.

Since the adoption of the mandatory clustering program, the County has used its **comprehensive plan** and **zoning ordinance** as its primary conservation tools. For the development of the 1997 Plan, the County evaluated the residential buildout capacity under 1995 zoning. A Maryland Geological Study review of local aquifers indicated



that the County did not have sufficient groundwater to serve the 50,000 households projected to live in the County at buildout. Consequently, the County updated its Comprehensive Plan and zoning ordinance to reduce buildout capacity.

Calvert County has used its land use policy tools to ensure sustainable development and effectively preserve 24,700 acres of farm and forestland. The interviewee for this case study reported that the buildout amendment to the Comprehensive Plan was the most effective tool. However, it was also the most difficult to implement, due to challenging public hearings on downzoning.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Coordinate activities among government agencies.** Amending land use policy is a complex undertaking that often impacts multiple government agencies. All agencies should have the opportunity to participate in the policymaking process, and should have these opportunities early and often.

  Agency coordination between local and state governments is particularly important in Dillon Rule jurisdictions. In such jurisdictions, counties need state approval for major legislative changes. Obtaining state support for such changes early in the process is critical to a successful campaign.

- **Get the public involved.** Develop citizen committees to provide input and help shape decisions.

- **Ask questions.** Staff should always lead with questions when interacting with other agencies or the general public. They should seek to understand the perspectives and needs of others before pushing their own messages. A helpful question to begin with is: What concerns you about the quality of our community?

Kent County, MD

Tools by Date Established

- Comprehensive Plan (1968)
- Zoning Ordinance (1969)
- Subdivision Ordinance (1969)
- Conservation Easement Programs

Sources

Two planners, 3 years of collective experience

Carla Gerber, Community Planner, Kent County Department of Planning, Housing, and Zoning, 2010, "Planning for Results: Kent County, Maryland's Approach to Preserving Working Landscapes," available at: https://www.salisbury.edu/geography/smartgrowth/docs/Gerber_PlanningForResults.pdf

Francis King Carey School of Law, University of Maryland, no date, "Kent County," available at: https://www.law.umaryland.edu/marshall/llam/county/kent2.htm

Maryland Sustainable Growth Commission, 2016, "Impact of Siting Energy Generation Facilities," available at: https://planning.maryland.gov/PDF/YourPart/773/20161114/2016-1114-Impact-of-Siting-Renewal-Energy-Facilities.pdf

Population	
Population	20,197
Population Density (per sqmi)	73
% Population in Urban Areas	27%
% Population in Rural Areas	73%
Population Growth Rate 1990-2000	8%
Population Growth Rate 2000-2010	5%
Housing	
Vacancy Rate	23%
% Owner	71%
% Renter	29%
Income, Employment, and Geography	
Median Household Income	$50,141
Poverty Rate	12%
% Farm Employment	5%
% of geography unit in Bay Watershed	100%

A Local History of Land Use Policies

Kent County has a rich agricultural tradition that has informed its land use policies. The County adopted its first **comprehensive plan** in 1968, and has completed five updates of that plan since. Throughout those updates, the preservation and enhancement of the County's natural assets has remained a top priority (Gerber, 2010).

In 1969, the County passed its first **zoning ordinance** and **subdivision ordinance** (Francis King Carey School of Law, no date). The zoning ordinance included a Rural District, which protected agricultural land and natural resources. A 1989 amendment to the zoning ordinance created an Agricultural Zoning District to add specific protections for prime agricultural land (Maryland Sustainable Growth Commission, 2016). That amendment, in conjunction with an amendment to the subdivision ordinance, increased the minimum lot size for dwelling units in the agricultural zone to one unit per 30 acres.

The County also uses incentives to protect agricultural land. It participates in two **conservation easement** programs: (1) the Maryland Agricultural Land Preservation Foundation, and (2) the Rural Legacy Program. The first is a locally-administered program funded equally by the State and County. The County sources its funds from the Agricultural Transfer Tax. The second is a regionally-administered program that includes several counties and receives state funding.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Form a commission with citizen involvement to generate ongoing support and momentum.** In 1980, the County created an Agricultural Advisory Commission to inform decision-makers on agricultural issues in the County. That Commission has been an important champion of regulatory amendments and program development.
- **The State can be an important partner.** The interviewee for this Case Study reported having a generally positive relationship with the State. This relationship eased the passing of ordinance amendments and administration of easement programs.
- **Be cautious about depending on State funding.** The interviewee for this Case Study said that easement funding has been less consistent in recent years, making it difficult to administer and fund the program.

Montgomery County, MD

Tools by Date Established

- Comprehensive Plan (1964)
- Zoning Ordinance (1972)
- Transfer of Development Rights (1980)
- Conservation Easement Program (1987)
- Purchase of Development Rights (2008)

Sources

County staff member, 29 years of experience with farmland preservation

Montgomery County Planning Department, no date, "General Plans," available at: http://www.montgomeryplanning.org/community/general_plans/general_plans.shtm

Montgomery County Planning Department, 2017, "Agricultural Reserve," available at: http://montgomeryplanning.org/planning/agricultural-reserve/

The Office of Agriculture, 2017, "Agricultural Preservation," available at: https://www.montgomerycountymd.gov/agservices/agpreservation.html

A Local History of Land Use Policies

Montgomery County has a unique land use policy history compared to other counties profiled for this Toolkit. It started land use planning in conjunction with neighboring Prince George's County, and continues to do so today. In 1927, the State of Maryland empowered Montgomery and Prince George's counties to establish a bi-county land use planning agency, the Maryland-National Capital Park and Planning Commission (M-NCPPC). The agency has two directives: "to acquire, develop, maintain, and administer a regional system of parks within Montgomery and Prince George's counties, and to provide land use planning for the physical development of Prince George's and Montgomery counties" (M-NCPPC, 2017).

Population	
Population	971,777
Population Density (per sqmi)	1,978
% Population in Urban Areas	98%
% Population in Rural Areas	2%
Population Growth Rate 1990-2000	15%
Population Growth Rate 2000-2010	11%
Housing	
Vacancy Rate	5%
% Owner	68%
% Renter	32%
Income, Employment, and Geography	
Median Household Income	$93,373
Poverty Rate	6%
% Farm Employment	0%
% of geography unit in Bay Watershed	100%

The M-NCPPC produces a **comprehensive plan** for the two-county region titled, the General Plan. It passed the first iteration of this Plan, On Wedges and Corridors, in 1964. That Plan "channels growth into development corridors [and preserves] wedges of open space, farmland, and lower density residential" (Montgomery County Planning Department, no date). Updates to the Plan have maintained this growth pattern.

The M-NCPPC operates through two planning boards, one in each county, which for all intents and purposes are entirely independent of one another. The Montgomery County Planning Department is responsible for the implementation of the General Plan vision across the County. It uses both regulatory and incentive tools to protect open space.

Following the adoption of the General Plan, the County Planning Department enacted several regulations and an incentive program to protect open space and farmland. The County adopted its first land use regulation, a **zoning ordinance**, in 1972. Eight years later, the County determined that

it needed to do more to protect agriculture. In 1980, the County established the Agricultural Reserve, a 93,000-acre rural area (almost one-third of the County's land), and created a Master Plan to shape development in that area.

The goal of the Master Plan is to "minimize inappropriate development, avoid the fragmentation of farmland by subdivision, strengthen agriculture and channel growth to down-county growth areas" (Montgomery County Planning Department, 2017). The original Plan established several regulatory and incentive tools to achieve its vision.

The primary regulatory tool is zoning. The Plan established three districts. The first is the Agricultural Reserve zoning district, wihich designates agriculture and related activities as preferred uses and limits development to one dwelling unit per 25 acres. The second and third are Rural Zone and Rural Custer Zone districts, which have a mix of farmland, open space, and low density housing, and allow one dwelling unit per five acres (Montgomery County Planning Department, 2017).

The primary incentive-based tool is a **transfer of development rights** (TDR) program. That program provides "equity compensation" to landowners in the Agricultural Reserve (Montgomery County Planning Department, 2017).

The County has since adopted two additional incentive programs to protect agricultural land. In 1987, the County established the Agricultural Easement Program. That **conservation easement** program allows the County to use agricultural transfer tax proceeds to purchase easements. In 2008, the County added the Building Lot Termination (BLT) Program. The BLT Program provides enhanced compensation to a landowner who can demonstrate her land has residential development potential and agrees to permanently forgo residential development and retire an approved on-site waste disposal system. The intent is to eliminate septic systems from these areas.

The BLT Program has two phases. The first phase is a **Purchase of Development Rights** program in which the County purchases conservation easements. The second is a TDR program in which private developers purchase BLT easements and transfer the development rights from those Agricultural Reserve properties to growth area properties (The Office of Agriculture, 2017). In other words, the County acts as an intermediary to purchase development rights from rural landowners in sending areas and then sells the development rights to land developers in receiving areas. This contrasts with other TDR programs where rural landowners (sellers) and developers (buyers) engage in direct transactions with one another.

The interviewee for this case study deemed these programs largely a success, although there have been some challenges. Once it established these programs, the County found it relatively easy to maintain support for them. Collectively, these programs have preserved about 70,000 acres of land. Challenges include: establishing the Agricultural Reserve program and balancing the supply of and demand for development rights.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Carefully consider TDR supply and demand before establishing a program.** Maintaining a balance of sending and receiving areas is challenging. The interviewee for this Case Study said that, ideally, demand for development rights should be twice as high as supply.
- **Develop a long-term strategy for funding conservation easements.** It is important to maintain program continuity. Tax revenues and grants can be temporary or volatile. So, it is helpful to diversify funding sources.
- **Dedicate staff capacity to program administration.** The County assigned two dedicated staff to the administration of its agricultural preservation programs.

New York

State Profile

New York is 54,555 square miles, approximately 11% of which is in the Chesapeake Bay Watershed. The State has almost 19.4 million residents, 14% of whom live in rural areas and 4% of whom live in the Watershed.

Overview

New York has a less stringent planning framework than other states profiled in this Toolkit. The State does not have a statewide Smart Growth program, but does enable tools that incentivize Smart-Growth-like development (e.g., conservation planning incentives, real estate transfer taxes, conservation easements). As a Home Rule state, New York has limited authority over local land use planning and the implementation of land use policy tools. Evidence suggests that the State does not take an active role in assisting with policy development, outside of a grant program administered by the Department of Agriculture (more on this program is below under Incentives for Local Governments).

State Regulatory Profile

New York is a Home Rule state, and this power applies to counties, cities, and towns. As such, the State enables, but does not require, local governments to do land use planning or zoning. If a jurisdiction would like to pass a zoning regulation, it must first adopt a comprehensive plan and then ensure that the zoning regulation aligns with the plan (Town Law §272-a; Village Law §7-722; General City Law §28-a).

State Zoning and Planning Status

The State of New York enables local jurisdictions to do both land-use planning and zoning. Local jurisdictions can prepare comprehensive plans in accordance with New York State's enabling statutes or with common law rules for plan preparation.

Once a jurisdiction has a comprehensive plan, it can pass zoning regulations. State law empowers every city to divide its jurisdiction into districts and regulate and limit the height, density and location of buildings (General City Law §20; Town Law §263; Village Law §7-704).

Smart Growth Policies and Framework

New York does not have a statewide Smart Growth program. As part of a Home Rule state, local governments in New York are accustomed to having autonomy over their land use decisions. That would make it difficult for the State government to assert more authority.

There are two incentive programs that promote Smart Growth principles in specific geographies:

1. Governor Cuomo started a Downtown Revitalization Initiative to invest $100 million in the transformation of 10 struggling downtown communities into vibrant downtown cores.

2. The Department of Environmental Conservation provides Smart Growth Implementation Grants to fund capital projects and community development initiatives in Adirondack Park and Catskills Park.

State Development Tools

Transfer of Development Rights. The legislative body of any city has the authority to provide for transfer of development rights (Town Law § 261-a; Village Law § 7-701; and General City Law § 20-f).

Real Estate Transfer Taxes. New York State imposes a real estate transfer tax on title transfers that exceed $500. The State authorizes local governments to levy an additional tax to fund conservation. The only jurisdictions that have done so are Putnam and Westchester counties. They enacted the Hudson River Community Preservation Act, which allows cities and towns in the counties to impose voter-approved real estate transfer taxes for conservation.

Impact Fees. The State does not have enabling legislation for impact fees, but it does have case law in favor of limiting impact fees (see: Climato Bros. Inc. v. Town of Pendleton).

Incentives for Local Governments

New York Environmental Protection Fund. This fund distributes revenues from the transfer tax and bottle bill to the Office of Parks, Recreation and Historic Preservation as well as local governments and non-profits for the purchase of land for conservation and recreation.

New York Environmental Protection Fund: Farmland Protection Program. The Agricultural and Farmland Protection Program, established in 1994, includes three grant programs for farmland protection:

1. Planning grants cover up to 50% of the cost for local governments to develop agriculture and farmland protection plans
2. Farmland Protection Implementation Grants (FPIG) cover up to 75% of the cost for local governments to purchase development rights
3. The Land Trust Grants Program to fund land trust work with local governments on farmland protection.

The Department of Agriculture manages the Fund. It uses revenues from the real estate transfer tax and bottle deposit.

The program has had good results. Over 40 counties and 70 towns have received awards to develop plans. The FPIG has dispersed over $145 million to protect 61,000 acres on 240 farms.

Conservation Programs

Agricultural District Program and Agricultural Assessment Program. The Agricultural District Program allows local jurisdictions to apply for the creation of Agricultural Districts. Landowners in these Districts receive several benefits, including tax incentives, government funds for acquisition or construction projects, and protection against private nuisance lawsuits related to agricultural use. As of 2016, there were 210 Agricultural Districts statewide. These Districts encompassed over 25,000 farms and over 8.8 million acres.

Landowners in Agricultural Districts can receive property tax benefits through the Agricultural Assessment Program. The State enacted this program in 1971 to protect and promote the availability of land for farming purposes. Under this program, the State government assesses qualifying parcels based on their agricultural or forestry use values, as opposed to their market values. This lowers the assessed value of qualifying properties and, in turn, the property taxes owed by their owners.

Qualifying parcels can be in or out of Agricultural Districts. Parcels inside of Agricultural Districts must maintain agriculture as the primary use for five years, or pay a conversion penalty. This timeframe extends to eight years for parcels outside of Agricultural Districts.

Infill Programs

Brownfield Cleanup Program (BCP): Like most states, New York operates a Voluntary Cleanup Program. In 2015, the state made substantial reforms to its program to include:

- *Brownfield Cleanup Program EZ (BCP-EZ).* This program provides applicants with lightly contaminated sites a path to a liability release in exchange for site cleanup. Participants must waive their eligibility for tax credits.

- *Waiving Volunteer Oversight Costs*. Volunteers accepted into the BCP after July 1, 2015 will no longer have to pay state oversight fees.

Brownfield Opportunity Areas Program. This program provides municipalities and community-based organizations with assistance—up to 90% of the eligible project costs—to complete revitalization plans and implementation strategies for areas or communities affected by the presence of brownfield sites. This program is administered by the State Office of Planning and Development.

Resources

Agricultural and Farmland Protection Program
https://www.agriculture.ny.gov/AP/agservices/farmprotect.html

Department of Environmental Conservation Smart Growth Implementation Grants
http://www.dec.ny.gov/lands/103864.html

Brownfield Cleanup Program
http://www.dec.ny.gov/chemical/8450.html

Brownfield Opportunity Areas Program
https://www.dos.ny.gov/opd/programs/brownFieldOpp/index.html.

Steuben and Tioga Counties, NY

Sources

Steuben
Planning Director, 20+ years of experience

County of Steuben, 2001, Right to Farm Law of Steuben County, available at: https://www.steubencony.org/files/documents/planning/righttofarmlaw.pdf

Tioga County, 2015, Tioga County Agricultural and Farmland Protection Plan, available at: https://www.tiogacountyny.com/media/1940/tioga-county-afpp-final_all-adopted-5_12_2015.pdf

Tioga
County Planning Director, 21 years of experience

Tioga County, 2015, Tioga County Agricultural and Farmland Protection Plan, available at: https://www.tiogacountyny.com/media/1940/tioga-county-afpp-final_all-adopted-5_12_2015.pdf

Tioga County, 2016, Tioga County 2020 Strategic Plan, available at: https://tiogacountyny.com/media/3119/tioga-2020-strategic-plan-adopted-7-12-2016.pdf

A Local History of Land Use Policies

Steuben and Tioga counties are like one another: they have similar economic and demographic conditions and use similar land use tools. They differ from other jurisdictions surveyed in this Toolkit in that they do not use typical land use policy tools to slow the conversion of farmland, forestland, and wetlands. They cannot do so, as New York state law delegates most land-use regulation authority to municipalities.

Both counties have a County Agricultural and Farm Protection Board that oversees the protection of agricultural resources. Their primary responsibility is the local administration of the Agricultural District Program (used by both counties), a state-level program that "provides farmers with legal support and protection against unreasonably restrictive local regulations and nuisance complaints, as well as access to funding streams that are made available to properties within the Program" (Tioga County, 2015). The Tioga interviewee deemed the Agricultural District Program a success: it supports high quality farmland, steady crop and animal production, and community support for the industry.

The core of both Agricultural District Programs is a use-value tax system for farms. This system allows qualifying landowners to lower their property taxes by assessing land values based on existing use values, rather than full market values. Use-value tax assessments are available for farm properties both in and outside of Agricultural Districts. However,

	Tioga	Steuben
Population		
Population	51,125	98,990
Population Density (per sqmi)	99	71
% Population in Urban Areas	34%	40%
% Population in Rural Areas	66%	60%
Population Growth Rate 1990-2000	-1%	0%
Population Growth Rate 2000-2010	-1%	0%
Housing		
Vacancy Rate	8%	17%
% Owner	78%	72%
% Renter	22%	28%
Income, Employment, and Geography		
Median Household Income	$51,948	$43,867
Poverty Rate	10%	14%
% Farm Employment	3%	4%
% of geography unit in Bay Watershed	100%	87%

properties outside of agricultural districts must remain in agricultural use for a period of eight years, or pay a penalty for early conversion. In 2012, Tioga County had 754 properties taxed based on the agricultural use-value assessment.

Both Boards adopted comprehensive plans that focused on agricultural protection. The Tioga Board implemented its Agriculture and Farmland Protection Plan first in 1998. This Plan was a joint effort between the Board and the County Department of Economic Development and Planning, the Soil and Water Conservation District, the Real Property Tax Service, and two non-county entities. They received funding from the New York State Department of Agriculture and Markets and the Appalachian Regional Commission to prepare the Plan.

The 1998 Plan recommended strategies and actions in three areas: community awareness, economic development, and land use planning and taxation. The final category set in motion the implementation of the County's use-value tax for farms. The Board last updated the Plan in 2015.

Although the use-value tax system that came out of this Plan has been a success, other elements of the Plan have not. The Tioga interviewee said that the County does not have a staff member dedicated to implementation of the Plan, so it has not made progress on many strategies.

The Steuben Board adopted its Agricultural Expansion and Development Plan in 2002. The purpose of this first plan was to protect agricultural resources. Steuben County updated the Plan in 2015, with an emphasis on economic development.

The Board engaged the public in the development of the plan using public meetings, emails, and local media outlets. The interviewee for this case study said this process was difficult, but resulted in sustained public support for the adoption and implementation of the Plan.

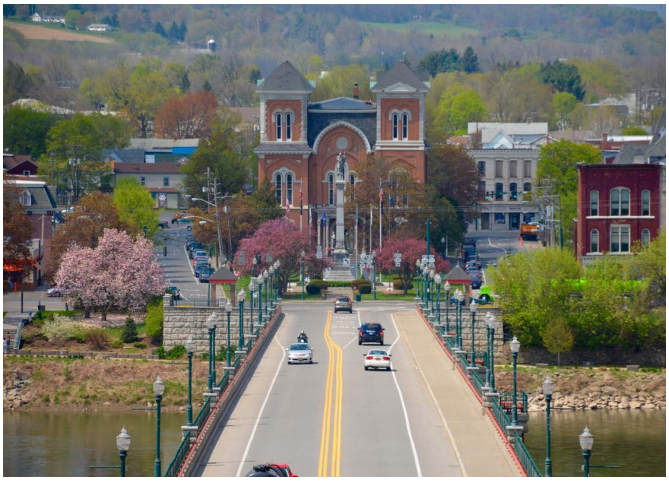
The Steuben Plan serves as a framework for municipal comprehensive plans and land use regulations. It has a Smart Growth Initiative that guides municipalities on how to develop and implement Smart Growth land use policies. In doing so, the Plan recommends the protection of premium farmlands, as determined using the Land Evaluation and Site Assessment system and catalogued in the sensitive lands inventory.

The Steuben County Board has also developed and implemented a unique legal protection for agricultural businesses. The Right-to-Farm Law, enacted by the Steuben County Legislature in 2001, aims to "maintain and preserve the rural tradition and character of Steuben County, to permit the continuation of agricultural practices and the business of farming and initiation, and expansion of farms, and agricultural businesses" (County of Steuben, 2001). In short, the law permits the continuation and expansion of agricultural practices without interference or restrictions.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. These experts provided the following tips for local and state governments:

- **Build coalitions.** A single jurisdiction, particularly one that is rural and has a small tax base, can accomplish only so much. It can do more through partnerships, particularly with industry leaders, land trusts, and neighboring governments.
- **Consider allocating resources to plan implementation.** Steuben County did not allocate staff resources specifically to the implementation of its Agricultural Expansion and Development Plan. Although this reduced the cost of plan implementation, it also slowed it.
- **Encourage state governments to support "unfunded mandates."** The State Legislature enacted the New York Agricultural Districts law (Article 25-AA of the Agriculture & Markets Law) in 1971 to protect and promote the availability of land for farming purposes. The County manages local agricultural districts, as mandated by law, but receives no funding for doing so.



- **Institute voluntary programs**. The interviewee for this Case Study said that Tioga County farmers are independent. They are generally more receptive to voluntary programs, as opposed to government regulations.
- **Be clear and simple with program marketing.** Some residents have confused the Agricultural District Program with the Agricultural Assessment Program. The two programs have different benefits and qualification requirements, creating confusion among residents.
- **Consider designating agriculture as a preferred use in floodplains.** Much of New York's prime farmland is located along rivers and streambeds, which are typically in floodplains. Since other uses are not appropriate in these areas, the State now designates agriculture as the preferred land use in floodplains.

Pennsylvania

State Profile

The Commonwealth of Pennsylvania is 46,054 square miles, 49% of which is in the Watershed. The Commonwealth has just over 12.8 million residents, 21% of whom live in rural areas and 30% of whom live in the Watershed.

Overview

Although Pennsylvania is a Dillon's Rule commonwealth, it is also conservative. That means land use planning is relatively decentralized. The commonwealth has neither an overarching plan for growth and development nor a mandate that municipal of township jurisdictions create their own comprehensive plans. It does enable local jurisdictions to enact land use regulations and incentive tools, which means local policies vary among jurisdictions. Pennsylvania requires counties to adopt comprehensive plans under the Municipalities Planning Act.

Pennsylvania provides support to local jurisdictions for land use planning and conservation. To support planning activities, the Department of Community and Economic Development offers technical assistance and the Municipal Assistance Program offers funding. The Commonwealth sponsors several grant programs for local governments to purchase conservation easements.

State Regulatory Profile

Pennsylvania is a Dillon's Rule commonwealth, which means local jurisdictions can only enact land use regulations expressly permitted by the Commonwealth. Although it is a Dillon's Rule jurisdiction, Pennsylvania is not heavy-handed in the development of commonwealth-wide or local land use policy. Pennsylvania does not have a commonwealth-wide plan for growth and development.

The Governor's Center for Local Government Services is responsible for land use assistance and monitoring. The State Planning Board serves the Governor by studying demographic, economic, and development trends, and preparing strategic plans to foster social and economic stability.

State Zoning and Planning Status

The Pennsylvania Municipalities Planning Code (MPC) enables, but does not require, municipalities and townships to pass land use regulations. The MPC enables local jurisdictions to pass zoning, planning, and subdivision ordinances and establish transfer of development rights programs. It also permits jurisdictions to create planning commissions, planning committees, and zoning hearing boards to facilitate planning activities.

Smart Growth Policies and Framework

Although Pennsylvania does not have a formal growth management framework for the Commonwealth as a whole, it does promote some Smart Growth principles. It articulated this commitment in a 2000 revision to the Municipalities Planning Code. This revision had several objectives:

- Promote consistent land use practices across the Commonwealth
- Encourage growth that aligns with existing infrastructure
- Allow local jurisdictions to designate growth and conservation areas
- Protect municipalities against legal challenges to their local land use plans
- Promote greater consistency among municipal, county, and regional comprehensive plans

Pennsylvania followed this Code revision with two additional pieces of legislation to promote planning and conservation. First, the Commonwealth passed a bill that authorized municipalities to develop and implement multi-municipal comprehensive plans. Municipalities participating in these cooperative agreements can share tax revenue, impact fees, and adopt transfer of development rights programs (Pennsylvania Code, 2000). Second, Pennsylvania established an Agricultural Conservation Easement Purchase Program.

State Development Tools

Transfer of Development Rights. The state enables municipal governments to adopt TDR ordinances (Pennsylvania Statutes, no date a).

Real Estate Transfer Taxes. Pennsylvania enables municipalities to adopt a real estate transfer tax.

Impact Fees. The Commonwealth has its own impact fee for gas, which is administered by the Public Utilities Commission (Pennsylvania Statutes, no date b). Pennsylvania enables local governments to assess impact fees for transportation (Pennsylvania Statutes, no date c).

Incentives for Local Governments

State Incentives for Local Land Conservation. Pennsylvania offers two local conservation incentive programs, both administered by the Department of Conservation and Natural Resources (DCNR) and funded with real estate transfer tax revenues. The first is the Community Conservation Partnership Program. It provides grant funds to municipalities for the acquisition of parks and open space. Grants cannot exceed 50% of eligible costs. The second is the Rivers Conservation Grant Program. It offers municipalities and other authorized organizations grants to acquire land to support river conservation.

General Obligation Bonds. Local governments in Pennsylvania have the authority to issue general obligation bonds for land conservation. There are no statutory debt limits on the amount of voter-approved debt. Individuals are subject to pay a Commonwealth tax at the rate of 1% of the value of the real estate conveyed, transferred, or released by the grantor (Pennsylvania Statute, no date d).

Conservation Programs

Pennsylvania Department of Agriculture Conservation Easement Program. The Department of Agriculture administers an easement purchase program. That program uses cigarette tax revenues and landfill tipping fees (via a general obligation bond) to fund the purchase of conservation easements or development rights from owners of valuable farmland by either the Commonwealth or local governments. To qualify for protection, the typical parcel must be at least 50 acres (35 acres if proposed by a county government, or 10 acres if adjacent to existing preserved parcels) and in an Agricultural Security Area (ASA). The Legislature approved the program in 1988. Since then, it has resulted in the protection of over 4,700 farms covering 500,000 acres.

Enrolled landowners must agree to several conditions. First, they must agree to have their farms inspected every two years. Second, they must agree to maintain an Erosion and Sedimentation Plan or Manure Management Plan.

The Community Conservation Partnerships Program (C2P2). The Pennsylvania Department of Conservation and Natural Resources administers this easement program. It provides a number of grants to support: community recreation and conservation planning; land acquisition for park and recreation areas, open space, greenways, or critical habitat; and specific recreation and conservation projects.

Infill Policies

Redevelopment Assistance Capital Program. The Office of the Budget administers this program. Its purpose is to fund the acquisition and construction of regional economic, cultural, civic, recreational, and historical improvement projects. Qualifying projects must increase economic activity across multiple jurisdictions, and not qualify for primary funding under other Commonwealth programs.

PA Blight Library. This is a clearinghouse of Commonwealth programs that address blight in communities of 10,000 people or more.

Industrial Sites Reuse Program. This program provides grants and low-interest loans to perform environmental site assessment and remediation work at former industrial sites. Grants and loans cannot exceed $200,000 for environmental assessments and $1 million for remediation. This funding is only available to entities that did not cause or contribute to site contamination.

Resources

Pennsylvania Department of Community and Economic Development Municipal Planning Code https://www.psls.org/resources/Documents/Conference/2016%20Handouts/605%20Municipal%20Planning%20Code.pdf

Industrial Sites Reuse Program http://www.newpa.com/programs/industrial-sites-reuse-program-isrp/

Pennsylvania Blight Library http://www.pablightlibrary.com/

Pennsylvania Code, 2000, Chapter 4, § 7.612, §.7.771.541, and § 7.614.

Pennsylvania Redevelopment Assistance Capital Program http://www.budget.pa.gov/Programs/RACP/Pages/Main%20Page.aspx

Pennsylvania Statutes, no date a, Chapter 53, § 10619.1.

Pennsylvania Statutes, no date b, Chapter 58, §§601.101-601.605.

Pennsylvania Statutes, no date c, Title 53, Chapter 30, §§501A-506A.

Pennsylvania Statute, no date d, Chapter 72, § 3283-3292.

Community Conservation Partnerships Program (C2P2) Grant Program http://www.dcnr.state.pa.us/brc/grants/c2p2programguidance/index.htm

Pennsylvania Farmland Preservation http://www.agriculture.pa.gov/encourage/farmland/pages/default.aspx

Chester County, PA

Tools by Date Established

- Comprehensive Plan (1982)
- Conservation Easement Program (1989)

Sources

Senior Planner, 23 years of experience

Chester County Planning Commission, 2002, *Linking Landscapes: A Plan for the Protected Open Space Network in Chester County, PA*, available at: http://www.chesco.org/DocumentCenter/View/18659

A Local History of Land Use Policies

The preservation of open space has and continues to be the driving force behind land use policy in the County. The **comprehensive plan** is the primary tool used by the County to preserve open space. The County Planning Commission established its first comprehensive plan, the Chester County Open Space & Recreation Study, in 1982. Although it was the first countywide land use plan, it focused entirely on the development and protection of open space and natural resources. It was not until 1996, when rapid growth and sprawl threatened these assets, that the County established a truly comprehensive land use plan for the County entitled, Linking Landscapes: A Plan for the Protected Open Space Network in Chester County, PA (Chester County Planning Commission, 2002).

In 1989, County residents voted to establish and fund the Department of Open Space Preservation to administer additional conservation programs. These programs include grants to improve nature preserves, natural areas, and farms, and **conservation easements** for agricultural lands.

Population	
Population	498,886
Population Density (per sqmi)	665
% Population in Urban Areas	87%
% Population in Rural Areas	13%
Population Growth Rate 1990-2000	15%
Population Growth Rate 2000-2010	15%
Housing	
Vacancy Rate	5%
% Owner	76%
% Renter	24%
Income, Employment, and Geography	
Median Household Income	$84,741
Poverty Rate	6%
% Farm Employment	2%
% of geography unit in Bay Watershed	19%

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Start at the regional level.** Chester County developed a countywide vision and plan, and then provided support to cities and townships in the County to develop complementary visions and plans. The County reported that working from broad to narrow helped build and maintain consensus.
- **Provide concrete support for local planning.** Resource constraints impede the ability of many local governments to make and implement good land use planning policies. Counties can and should provide staff and monetary support when possible. This support may have the dual benefit of encouraging local jurisdictions to develop

Lancaster County, PA

Tools by Date Established

- Purchase of Development Rights (1988)
- Comprehensive Plan (Growth Management Element) (1993)

Sources

County staff member, 3 years of experience

Christopher Swope, 2002, "The Politics of Preservation," *Governing Magazine*, available at: http://www.preservationalliance.com/resources_PoliticsOf.php

Lancaster County Planning Commission, no date, "Multi-Municipal (Regional) Comprehensive Planning," available at: http://www.lancastercountyplanning.org/142/Multi-Municipal-Regional-Comprehensive-P

Pennsylvania Department of Agriculture, 2016, *Bureau of Farmland Preservation 2015 Annual Report*.

Pennsylvania Land Trust Association, no date, "Urban Growth Boundary," available at: http://conservationtools.org/guides/48-urban-growth-boundary

Rachel Jaffe, 2005, "Stopping Sprawl in Lancaster County, Pennsylvania: Making the Case for Mandatory Urban Growth Boundaries," *Temple Journal of Science, Technology & Environmental Law* 24(1), available at: http://www.temple.edu/law/tjstel/2005/spring/v24no1-Jaffe.pdf

A Local History of Land Use Policies

The Lancaster County case study illustrates the importance of both a regulatory and incentive-based approach to conservation. This dual-approach enabled the County to take control of rapid development on rural lands.

The State of Pennsylvania first attempted to slow the conversion of farmland in 1974 with the Pennsylvania Farmland and Forest Land Assessment Act. The Act created a **use-value tax system** that assessed land used solely for agricultural or reserve use based on its use value as opposed to its market value. Although this program was deemed a success, it did not do enough to preserve vital resources in Lancaster County (Jaffe, 2005).

Population	
Population	519,445
Population Density (per sqmi)	550
% Population in Urban Areas	79%
% Population in Rural Areas	21%
Population Growth Rate 1990-2000	11%
Population Growth Rate 2000-2010	10%
Housing	
Vacancy Rate	5%
% Owner	69%
% Renter	31%
Income, Employment, and Geography	
Median Household Income	$54,765
Poverty Rate	10%
% Farm Employment	2%
% of geography unit in Bay Watershed	100%

In 1988, the National Trust for Historic Preservation named Lancaster County a "most endangered place" in America (Swope, 2002). At the time, the County had lost 72,000 acres of farmland to residential and urban sprawl since 1960. The Trust was concerned that continued development would eliminate the remaining natural and historical resources in the County (Jaffe, 2005).

That designation enabled the County to justify the adoption of local land use policies that would promote conservation. The County has two government entities that support conservation efforts. The Lancaster County Planning Commission (LCPC) creates a countywide comprehensive plan and works with municipalities to develop regional and local plans. The LCPC provides technical support for local planning. The Agricultural Preserve Board oversees the administration of the voluntary incentive programs.

The LCPC established its first conservation-oriented land use policy in 1993. It added a Growth Management Element titled, Balance, to its **comprehensive plan**. The purpose was to channel growth to select areas to conserve other areas (Pennsylvania Land Trust Association, no date).

The LCPC has updated the Growth Management Element twice. A 1997 amendment established a network of **Urban and Village Growth Areas** (UGA, VGA) to concentrate development in specific locations. The expectation was that these areas could support land use needs for 25 years without converting substantial rural lands. These areas were moderately successful at concentrating growth, but did little to support quality of life in rural areas. A 2006 amendment established **Rural Areas** to support agriculture and other rural uses (e.g., tourism, outdoor recreation) to improve the local economy and, in turn, quality of life (Pennsylvania Land Trust Association, no date).

The LCPC has limited power to enforce these development recommendations. Pennsylvania State law delegates zoning power to municipal governments; county governments can only enforce development ordinances on land not governed by municipal or township ordinance.

The County also has two incentive programs. The first is the statewide **purchase of development rights program**, the Pennsylvania Agricultural Conservation Easement Purchase Program, locally administered by the Agricultural Preserve Board. The second is a program that offers municipalities education, coordination, and resource support for land use planning (Jaffe, 2005).

The results of these efforts are mixed. The achievements include:

- The purchase of development rights program protected a total of 67,971 acres in the County (Pennsylvania Department of Agriculture, 2016)
- 48 municipalities have cooperated to adopt 12 Urban Growth Boundaries
- 44 municipalities have formed multi-municipal comprehensive plans.

However, the comprehensive plan set development targets that, according to the interviewee for this case study, the County has not met:

Metric	Target	Actual
Percent of total new dwelling units in UGAs	85%	78%
Average dwellings/acre	7.5	4.4
Percent of total new dwelling units in VGAs	15%	22%
Average dwellings/acre	2.5	2.1

The LCPC is undergoing a revision to the Comprehensive Plan, which it hopes will improve development outcomes. That revision requires a three-year process with substantial community engagement.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Be an educator.** The LCPC said that educating the public is critical to effective community engagement. Before it did any education, the LCPC said the public often misunderstood and reacted negatively to proposed land use policies. It improved the quality of the dialogue when it implemented a Master Planner's Course, a program for anyone interested in learning about effective growth and development patterns and policy.
- **Counties should work with municipalities to develop policies.** Cooperation throughout the planning process results in policies with broad public support and local government buy-in. All counties benefit by building stronger relationships and more cohesive communities. Counties that do not have legal authority to regulate municipal land use policy improve the odds that municipalities develop complementary land use policy.
- **Focus regional plans on big, catalytic goals.** Previous versions of the Lancaster County Comprehensive Plan were thick reports with hundreds of action items. The LCPC said that the number of actions and level of detail made it daunting and difficult to implement. So, it is taking a different approach with this plan revision. It is developing a more concise plan with a smaller set of "catalytic goals."

Lehigh Valley Region, PA

Tools by Date Established

Comprehensive Plan (1964)

Sources

Executive Director of the Lehigh Valley Planning Commission

Lehigh Valley Planning Commission (LVPC), 2017, "Lehigh Valley Planning Commission," available at: http://www.lvpc.org/index.html

LVPC, 2005, *Comprehensive Plan: The Lehigh Valley . . . 2030*, available at: http://www.lvpc.org/pdf/lv2030/compPlan01.pdf

A Local History of Land Use Policies

The Lehigh Valley Planning Commission (LVPC) oversees planning and development for Lehigh Valley, which encompasses 62 municipalities in Lehigh and Northampton counties. The two counties established the LVPC in 1961 to "create a comprehensive plan to guide orderly growth." Today, the LVPC has expanded its services to include regional facility planning as well as municipal technical assistance and oversight (LVPC, 2017).

Although the LVPC provides a range of services, its most important is the **comprehensive plan**. In accordance with the Pennsylvania Municipalities Planning Code (MPC), the LVPC established the region's first comprehensive plan in 1964. According to the interviewee for this Case Study, a primary goal for this first plan was to preserve critical environmental features through controlled growth. Environmental preservation, namely of agricultural resources, continues to be a focus of the LVPC Comprehensive Plan to this day.

This regional comprehensive plan provides a framework for municipal comprehensive plans and land use ordinances. The MPC grants municipalities the legal authority to adopt comprehensive plans,zoning ordinances, subdivision regulations, and other land use policies that are generally consistent with the regional comprehensive plan. The LVPC provides technical assistance for municipalities to develop these plans, and reviews the final products for consistency with the regional plan (LVPC, 2005).

Neither the LVPC nor its member counties have countywide zoning ordinances or subdivision regulations. The MPC does not expressly prohibit counties from adopting such regulations. However, it does mandate that such municipal regulations supersede those of the county (LVPC, 2005).

The interviewee for this Case Study reported that the LVPC Comprehensive Plan was moderately successful at managing growth and development. It has broad community support due to a successful community engagement program. However, the MPC does not require municipal plans or actions to exactly conform to the regional comprehensive plan, which means some municipalities waive development requirements on an ad hoc basis. The interviewee thought that other regional plans with more legal authority, such as the federally required stormwater management plan, have been more effective at protecting natural resources.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Work with neighboring jurisdictions to ensure each other's goals are compatible.** It can be difficult to implement plans that have goals or actions that run counter to the plans of other jurisdictions.
- **Allocate sufficient resources to comprehensive plan development and implementation.** On the development side, community engagement is the largest necessary expense. On the implementation side, adequate staff resources to review local plans and regulations is the largest necessary expense. The interviewee estimated that the LVPC reviews 400 to 500 land use actions each year. It charges a fee to municipalities to do so.

- **Develop a policy evaluation system to track implementation outcomes.** A good system should have performance measures specific to the action and desired outcome.
- **Work to establish reliable funding streams.** The LVPC said many funding streams it once depended on for policy development are no longer available. That has restricted the ability for both the state and county governments to provide adequate support to local jurisdictions. Consequently, coordination among local governments has decreased. A more robust and dependable funding system would improve coordination and outcomes. expert provided the following tips for local and state governments:
- **Work with neighboring jurisdictions to ensure each other's goals are compatible.** It can be difficult to implement plans that have goals or actions that run counter to the plans of other jurisdictions.

Caernarvon Township, Lancaster County, PA

Tools by Date Established

- Subdivision Ordinance (1980s)
- Zoning Ordinance (1991)
- Comprehensive Plan (2008)
- Conservation Easement Program

Sources

Township Supervisor, 12 years of experience

Caernarvon Township, 2015, *Subdivision and Land Development Ordinance*, available at: http://www.caernarvonlancaster.org/uploads/-108_-_CAERNARVON_TWP_FINAL_SALDO__-_December_21__2015.pdf

Caernarvon Township Municipal Office, 2006, *Caernarvon Township Zoning Ordinance 1991*, available at: http://www.caernarvonlancaster.org/uploads/Caernarvon_Township_Zoning_Ordinance.pdf

Wallace Roberts & Todd, LLC, 2008, *ELANCO Region Comprehensive Plan*, available at: http://www.lancastercountyplanning.org/DocumentCenter/View/210

A Local History of Land Use Policies

Caernarvon Township is a small township in eastern Lancaster County. Its experience with land use policy is relatively new compared to other jurisdictions profiled for this Toolkit. It started with the adoption of township policies. It later partnered with neighboring jurisdictions for a regional plan.

The County adopted a **zoning ordinance** in 1991 that created an Agricultural District. That District spanned 9,000 acres, including the Agricultural Security Area (ASA). The ordinance regulated the development and use of that land. It eliminated uses not compatible with agriculture and required that any future inhabitants in this zone accept the impacts associated with agricultural businesses (Caernarvon Township Municipal Office, 2006).

Population	
Population (2010)	4,748
Land area (in sq mi.)	22.96
Population Density (per sq mi.)	207
% Population in Urban Areas	3%
% Population in Rural Areas	87%
Population Growth Rate 1990-2000	8.40%
Population Growth Rate 2000-2010	11%
Housing	
Vacancy Rate	4%
% Owner	77%
% Renter	23%
Income, Employment, and Geography	
Median Household Income	$59,907
Poverty Rate	10%
% Farm Employment	N/A
% of geography unit in Bay Watershed	99%

In 2008, the Township partnered with four neighboring jurisdictions to establish a multi-regional **comprehensive plan**. The Eastern Lancaster County (ELANCO) Comprehensive Plan identified agricultural, woodlands, and watershed resources in the Township for protection. The implementation component of the Comprehensive Plan recommended that the Township amend its zoning ordinance to include: (1) a conservation development ordinance to allow development on smaller lots and maintain large tracts of open space, (2) a comprehensive Natural Resource Protection Ordinance as a township-wide overlay district to protect these resources, and (3) a historic district. It also recommended the development of a regional transfer of development rights (TDR) program (Wallace Roberts & Todd, LLC, 2008).

The Township updated its land use regulations in accordance with the ELANCO Comprehensive Plan. It adopted a **subdivision ordinance** in the early 1980's, which allows one unit per 25 acres. It updated the ordinance to be consistent with the conservation development ordinance. It promotes the preservation of agricultural, natural, and historical resources; provides design requirements for appropriate transportation infrastructure; and promotes the development of recreational facilities in the Township (Caernarvon Township, 2015).

The Township did not establish a regional TDR program with ELANCO jurisdictions, but does support the State **conservation easement** program administered by the Lancaster County Agriculture Preservation Board LCAPB. The Township provides $1,000 per acre (up to 50 acres) toward the purchase of conservation easements on prime agricultural lands. It uses one-third of the tipping fee revenues from the local landfill to fund this program.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Include the right community representatives on advisory boards.** In Caernarvon Township, farmers own 90% of the land. That means that farmers should be involved in the policymaking process to ensure that the proposed policies have broad community support for adoption. Communities should consider the composition of their economy and populate advisory boards accordingly.
- **Evaluate programs regularly.** An effective land use policy or incentive program requires staff time and monetary resources to create, maintain, and promote. Jurisdictions should regularly evaluate the effectiveness of their programs to ensure that these funds are well spent so, if they are not, they can be deployed elsewhere.
- **Engage in regional planning.** The Township found that the conservation easement program ran counter to regional Comprehensive Plan objectives. The Township approved too many easements and could not accommodate its share of growth, as dictated in the Comprehensive Plan. The Township recommends working on policies at a regional level to ensure complementarity.

East Earl Township, Lancaster County, PA

Tools by Date Established

- Zoning Ordinance (2000)
- Subdivision Ordinance (2000)
- Comprehensive Plan (2008)

Sources

Community Planner, 27 years of experience

Wallace Roberts & Todd, LLC, 2008, *ELANCO Region Comprehensive Plan*, available at: http://www.lancastercountyplanning.org/DocumentCenter/View/210

A Local History of Land Use Policies

East Earl Township is a small jurisdiction in northeastern Lancaster County, Pennsylvania. It has a population of 6,800 and a land area of 24.5 square miles. The Township is predominantly rural, with one Urban Growth Area and one Village Growth Area.

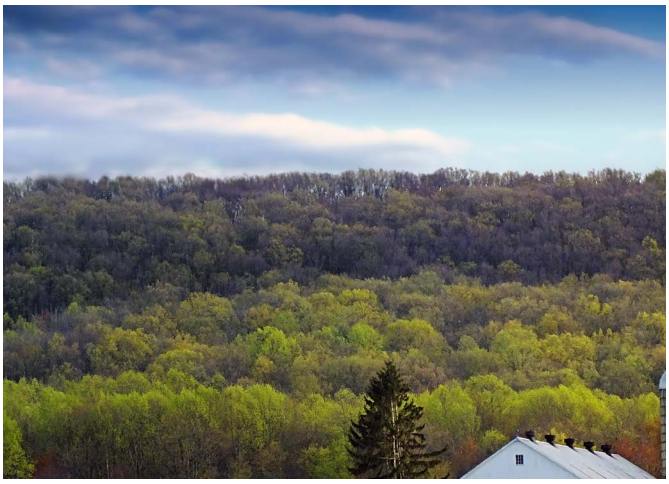
The Township started regulating growth and development relatively late compared to other jurisdictions profiled for this Toolkit. It adopted its first land use policies, a **zoning ordinance** and **subdivision ordinance**, in 2000. The zoning ordinance allowed agricultural uses, but did not provide significant protection against the conversion of natural and cultural resources.

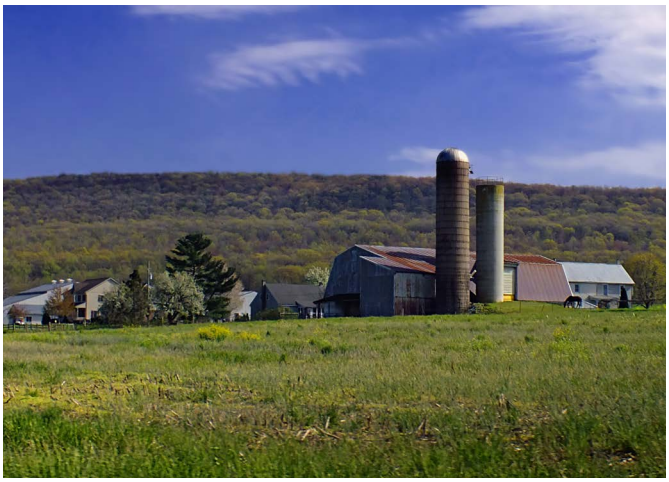
In 2008, the Township partnered with four neighboring jurisdictions to establish a multi-regional **comprehensive plan**. The Eastern Lancaster County (ELANCO) Comprehensive Plan identified agricultural, woodlands, and watershed resources in the Township that should be protected. The implementation component of the Comprehensive Plan recommended that the Township amend its zoning ordinance to include: (1) a comprehensive Natural Resource Protection Ordinance as a township-wide overlay district to protect these resources, and (2) a historic district. It also recommended the development of a regional transfer of development rights (TDR) program (Wallace Roberts & Todd, LLC, 2008).

Population	
Population (2010)	6,507
Land area (in sq mi.)	24.55
Population Density (per sq mi.)	265
% Population in Urban Areas	44%
% Population in Rural Areas	56%
Population Growth Rate 1990-2000	4.20%
Population Growth Rate 2000-2010	13.70%
Housing	
Vacancy Rate	4%
% Owner	76%
% Renter	24%
Income, Employment, and Geography	
Median Household Income	$60,227
Poverty Rate	4%
% Farm Employment	N/A
% of geography unit in Bay Watershed	100%

The Township amended its zoning ordinance in accordance with those recommendations. The Agricultural District is the largest zone in the County. Areas zoned for agriculture can have compatible uses, such as residential. However, the ordinance limits both subdivision and density, with one lot per 5 to 99.99 acres. The ordinance also designates a Conservation/Open Space District and the Welsh Mountain Watershed Conservation District, both of which permit fewer uses than the Agricultural District.

The Township started the process of creating a TDR program, but has not completed it. The zoning ordinance designates Urban Growth Areas as receiving areas. However, it does not establish sending areas. The interviewee for this Case Study said that there is neither the community demand nor political will to implement the TDR program.





Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Review ordinances and policies every 5-10 years.** Without review, a jurisdiction cannot determine which policies are effective and which are not, and amend accordingly. A jurisdiction should begin with a review of its comprehensive plan, as this document provides the overarching vision for land use ordinances. It should follow with a review of zoning and subdivision ordinances and other land use regulations.
- **Determine which resources should be protected and ensure the regulations provide appropriate development limits.** Without provisions in place to limit development outcomes, people will find ways to develop almost anywhere.
- **Improve planning collaboration across jurisdictions.** The Pennsylvania Municipalities Planning Code (Act of 1968, P.L.805, No.247) empowers counties and municipalities, individually or jointly, to plan development and govern by the same zoning, subdivision, and land development ordinances. However, the State does not provide financial or technical support for municipalities to collaborate. East Earl recommended re-instating the state planning board to support better collaboration.

Virginia

State Profile

Virginia is 42,774 square miles, 51% of which are in the Chesapeake Bay Watershed. The Commonwealth has nearly 8.4 million residents, 25% of whom live in rural areas and 88% of whom live in the Watershed.

Overview

While local governments are enabled to plan and zone in Virginia, the State does not provide support or require local governments to plan. Land use authority is generally left to the local level. Since Virginia is a strong Dillon's rule state, local government must await legislative action to pursue innovative policy options. This has posed an issue in some counties that seek stronger policies to slow or shape development, as the legislature can get involved and make it difficult for these innovative local governments.

While there is no state plan, the Office of the Secretary of Natural Resources oversees several departments which may indirectly be involved in land use policy. These state-level departments include the Chesapeake Bay Local Assistance Department, the Department of Conservation and Development, and the Department of Environmental Quality. Regional planning of sorts is assisted by planning district commissions (PDCs), which mostly provide technical tools, data and assistance to localities. Virginia also enables tools such as TDRs and a cash proffer system in the place of impact fees. Virginia also boasts a significant set of conservation programs, most notably "Tidewater Virginia."

The State provides incentives for land conservation but does not impose requirements on local governments to participate in land conservation programs, unlike other states. Any parcel in the state is eligible for conservation easements, regardless of local planning and policies. While the tax credit

program has strong bipartisan support, the land conservation grants are occasionally under attack in the legislature and funding is erratic as a result.

State law also enables matching grants through the Virginia Land Conservation Fund to be obtained by local governments and non-profit organizations that want to purchase land for ecological, recreational or historical purposes (Virginia Code. § 15.2-2223).

The state does not provide consistent technical support outside of stormwater issues and farmland conservation programs. Interviewees noted that the State could encourage local governments to pursue purchase of developments and transfer of development rights programs.

State Level Regulatory Profile

Virginia is a Dillon's Rule commonwealth, which means local jurisdictions can only enact land use regulations expressly permitted by the Commonwealth. Virginia requires local governments to adopt comprehensive plans and enables them to adopt zoning regulations. If a jurisdiction passes a zoning ordinance, it is not legally required to ensure the ordinance aligns with the comprehensive plan.

Virginia is hands-off in its oversight of local land use policy. The Commonwealth does not have a department dedicated to land use policy. So, it does not provide support for the development of local land use policies or review draft policies. Several departments in the Office of the Secretary of Natural Resources may provide guidance or regulations for specific elements of local land use policies.

State Zoning and Planning Status

Virginia requires local governments to adopt comprehensive plans. They must include specific elements: land use, transportation, historical areas and urban renewal, and natural resources. Local governments must include measures to protect water quality in one of these elements. Although it requires local governments to complete these plans, the Commonwealth does not provide technical assistance to assist them with development or implementation.

The Commonwealth enables local governments to adopt zoning ordinances. It does not regulate the creation or content of those ordinances.

Smart Growth Policies and Framework

Virginia does not have a commonwealth-wide Smart Growth plan. But, it does provide some policy regulations and incentive tools to support Smart Growth principles. On the regulatory side, in 2006, the Commonwealth required cities over a certain size to incorporate cluster development into their comprehensive plans and zoning maps. On the incentive tool side, the Commonwealth enables the use of urban development area designations, transfer of development rights (TDR) programs, and purchase of development rights (PDR) programs.

State Development Tools

Transfer of Development Rights. Local governments have the legal authority to establish TDR programs (Virginia Code, no date a).

Agricultural and Forestry Districts. Local governments have the legal authority to establish districts to protect working farm and forestland. These districts represent voluntary agreements between local governments and landowners to keep lands in their current uses for four to ten years. In exchange, landowners qualify for use-value tax assessment.

Use Value Assessment. Local governments have the authority to assess agricultural, horticultural, forestry, and open space land at its current use-value rather than full market value. This reduces the assessed value of and property taxes due for qualifying properties.

Real Estate Transfer Taxes. Municipalities can adopt a real estate transfer tax at a rate of $0.25 for every $100 in real estate value transacted (Virginia Code, no date b).

Incentives for Local Governments

Virginia Land Conservation Foundation. Established in 1999, the Foundation provides matching-grants to state agencies, local governments, and nonprofits to purchase permanent conservation easements on open space, parkland, farmland, and forestland parcels. To date, the Foundation has funded 200 projects.

Virginia Clean Water Revolving Loan Fund—Land Conservation Loan Program. This program aims to protect and improve water quality. It does so by providing low-interest loans to local governments for the acquisition of property rights on lands whose protection would help achieve the program purpose.

Purchase of Development Rights. The Department of Agriculture and Consumer Services provides technical and financial support for local PDR programs. The financial support is in the form of matching grants, which mean that qualifying programs must have other funding sources. Since its creation in 2007, the Department has provided $10 million in matching funds to purchase 80 easements that permanently protect 11,401 acres.

Conservation Programs

Virginia Outdoors Foundation—Open Space Lands Preservation Trust Fund. The Foundation assists landowners with the costs of obtaining open-space easements.

Land Preservation Tax Credits. Virginia offers one of the most generous land preservation tax credit programs in the country. This tax credit program provides individual landowners income tax credits to put their lands under easement or in fee-simple ownership. The tax credits equal 40% the value of the easement or land value. Landowners can transfer unused credits to other taxpayers in Virginia up to 11 years after the issue date for a fee of two percent the credit value. The Virginia Land Conservation Foundation must evaluate and approve transactions that would generate credits of $1 million or more. As of 2015, the program had protected 741,785 acres through 3,401 donations.

The Chesapeake Bay Preservation Act. The Act seeks to improve the water quality of the Chesapeake Bay by addressing nonpoint source pollution and the relationship between local land use planning and water quality. The Act requires local governments in Tidewater Virginia, a 28-county region in or adjacent to the Bay, to (1) identify and map Chesapeake Bay Preservation Areas (CBPAs), and (2) add water quality protection measures to local land use plans. CBPAs are lands that, without proper management, could degrade water quality. Chesapeake Bay Local Assistance Boards oversee local jurisdiction compliance.

Infill Programs

Industrial Revitalization Fund (IRF). The IRF Provides matching grants to local governments or economic development authorities for the redevelopment of vacant and deteriorated commercial and industrial properties. Eligible properties can be brownfield or greyfield sites.

Community Development Block Grant (CDBG). The CDBG provides funding to local governments to improve blighted structures that are no longer economically viable. CDBG-funded improvements should be part of a broader improvement that stimulates private investment, creates jobs, and builds a vibrant community.

Brownfield Remediation Loan Program. The Virginia General Assembly established this program in 2002 to offer low-interest loan financing to local governments or public-private partnerships for the remediation of brownfield sites. Virginia's Clean Water Revolving Loan Program funds these grants, and requires that all eligible projects "serve a public purpose by protecting or restoring a ground water supply or eliminating surface water degradation."

Resources

Virginia Brownfield Remediation Loan Program
http://www.deq.virginia.gov/Programs/Water/CleanWaterFinancingAssistance/Brownfield.aspx

Virginia Code, no date a, Transfer of Development Rights, Article 7.1, § 15.2-2316.1.

Virginia Code, no date b, Taxation, § 58.1-801.

Virginia Community Development Block Grant Program: Blighted Structures
http://www.dhcd.virginia.gov/index.php/community-partnerships-dhcd/115-community-development-block-grant-cdbg-blighted-structures.html

Virginia Department of Agricultural and Consumer Services Annual Report
http://leg2.state.va.us/dls/h&sdocs.nsf/By+Year/RD5252016/$file/RD525.pdf

Virginia Farmland Conservation Programs
http://www.vdacs.virginia.gov/conservation-and-environmental-farmland-preservation-tools.shtml

Virginia Industrial Revitalization Program
http://www.dhcd.virginia.gov/index.php/business-va-assistance/blighted-structures/industrial-revitalization-fund-irf.html

Virginia Land Conservation Foundation
http://www.dcr.virginia.gov/virginia-land-conservation-foundation/

Virginia Land Preservation Tax Credit Program

http://www.dcr.virginia.gov/land-conservation/lpc

Albemarle County, VA

Tools by Date Established

- Subdivision Ordinance (1949, 1974)
- Zoning Ordinance (1969)
- Comprehensive Plan (1971)
- Purchase of Development Rights and Conservation Easement Program (2000)

Sources

County staffer, 9 years of experience

Albemarle County, 2015, *Albemarle County Comprehensive Plan*: Background, available at: http://www.albemarle.org/upload/images/Forms_Center/Departments/Community_Development/Forms/Comp_Plan_Round_4/Chapter_1-Background_6-10-15.pdf

Community Development Department, Albemarle County, 2014, "Acquisition of Conservation Easements," available at:

http://www.albemarle.org/department.asp?department=cdd&relpage=4227

Greg Kamptner, 2016, "Chapter 26: Open-Space and Conservation Easements, Land-use Valuation, and Other Laws Related to the Use of Land," in *The Albemarle County Land-use Law Handbook*, available at:

https://www.albemarle.org/upload/images/Forms_Center/Departments/County_Attorney/Forms/LUchapter26-relatedlanduselaws.pdf

A Local History of Land Use Policies

Albemarle County has a rich history of land use planning, dating back to the establishment of the first Planning Commission in 1944. The County started to regulate land use under the Planning Commission with the adoption of the first subdivision regulation in 1949.

Population	
Population	98,970
Population Density (per sqmi)	137
% Population in Urban Areas	55%
% Population in Rural Areas	45%
Population Growth Rate 1990-2000	16%
Population Growth Rate 2000-2010	25%
Housing	
Vacancy Rate	9%
% Owner	66%
% Renter	34%
Income, Employment, and Geography	
Median Household Income	$64,847
Poverty Rate	8%
% Farm Employment	0%
% of geography unit in Bay Watershed	100%

The County made further progress on planning for growth and development in the late 1960s. In 1967, the County established the Department of Planning and Community Development. With the support of that Department, the County adopted the first **zoning ordinance** in 1969 and **comprehensive plan** in 1971 (Albemarle County, 2015).

The ordinance and plan supported conservation by designating Development Areas and Rural Areas, and restricting growth in Rural Areas. The County later made several amendments to both the ordinance and plan to support rural preservation and natural resource conservation:

- Added a Rural Preservation Development element to the Rural Areas zoning district (1990)
- Adopted a Water Protection Ordinance (1998), amended to protect all stream buffers in the Rural Areas (2009) and improve stormwater and pollution management (2014)

- Added a Natural Resources chapter to the comprehensive plan (1999)
- Added a Rural Area Chapter to the comprehensive plan (2005) (Albemarle County, 2015).

The County has implemented several other tools to incentivize rural land conservation. In 1973, the County implemented a use-value tax assessment program to reduce the property taxes for landowners in agriculture, horticulture, forestry, and open space uses. Under this program, the County assesses taxes based on the current use value of the land instead of the fair market value.

In 2000, the County started the Acquisition of Conservation Easements program, a voluntary **purchase of development rights** (PDR) program. This program allows landowners to sell conservation easements to public agencies to be held in trust for perpetuity. Public agencies pay landowners the value of the development rights, equal to the difference between the fair market value without the easement and the current use value assessment with the easement. Low-income landowners can qualify for higher payments (Community Development Department, Albemarle County, 2014).

The interviewee for this case study mentioned the desire to protect the local agricultural community and working farms as the impetus for the adoption of many tools. This desire enabled the adoption of tools that are uncommon in western Virginia like the Water Protection Ordinance.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Focus on incentive-based tools.** The public prefers incentives (the carrot) to regulations (the stick), making incentive tools easier to pass.
- **Do not forget the cost of staff time when evaluating potential new programs.** Some programs will require staff resources. That means a jurisdiction will need to reduce staff time elsewhere or hire more capacity. This cost is real and should be considered.
- **Jurisdictions in Virginia may wish to collaborate on generating and sharing information.** The interviewee for this case study reported little State involvement in developing and implementing policies. So, the County has had to do a lot of its own research on potential policies, their impacts, and relative tradeoffs. Jurisdictions could leverage each other's efforts to enable more efficient and effective planning.

Clarke County, VA

Tools by Date Established

- Zoning Ordinance (1960)
- Comprehensive Plan (1974)
- Conservation Easement Program (2002)

Sources

Natural Resource Planner, 25 years of experience

Clarke County, 2014, *2013 Clarke County Comprehensive Plan*, available at: http://clarkecounty.gov/government/county-documents/planning-department/comprehensive-plan/1888-2013-clarke-county-comprehensive-plan-adopted/file.html

Clarke County, 2017, *Agricultural Land Plan: Clarke County Comprehensive Plan Implementing Component Plan*, available at: http://clarkecounty.gov/government/county-documents/planning-department/comprehensive-plan/3003-2016-agricultural-land-plan-adopted-2-21-2017/file.html

Clarke County Virginia Conservation Easement Authority, 2017, "What is the CEA?," available at: http://www.clarkelandconservation.org/what-is-the-cccea/

Planning and Zoning, Clarke County, no date, "Planning and Zoning," available at: http://clarkecounty.gov/planning-and-zoning.html

Virginia Tech, 2017, "Participating Counties/Cities," available at: http://aaec.vt.edu/extension/use-value/map.html

Population	
Population	14,034
Population Density (per sqmi)	80
% Population in Urban Areas	30%
% Population in Rural Areas	70%
Population Growth Rate 1990-2000	5%
Population Growth Rate 2000-2010	11%
Housing	
Vacancy Rate	12%
% Owner	75%
% Renter	25%
Income, Employment, and Geography	
Median Household Income	$73,244
Poverty Rate	7%
% Farm Employment	9%
% of geography unit in Bay Watershed	100%

A Local History of Land Use Policies

Conservation has been a priority for Clarke County since it started regulating land use in 1960. That year, the County adopted a **zoning ordinance** that identified and segmented rural areas. An amendment in 1980 limited the number of dwelling units on each rural area parcel (Planning and Zoning, Clarke County, no date). The limits vary based on parcel size, with larger plots requiring more acres per dwelling unit.

The County relied on zoning as its primary land use policy tool until 1974 when it adopted its first **comprehensive plan**. The protection of agricultural land and environmental resources was and continues to be a driving force behind this plan (Clarke County, 2014). The plan calls for concentrated development in townships to support the preservation of rural farmland. The County reinforced this commitment with the adoption of an Agricultural Land Plan, an implementing component of the Comprehensive Plan, in 1987 (Clarke County, 2017).

The County has two incentive programs that complement these regulations. First, the County participates in Virginia's use-value tax assessment program (Virginia Tech, 2017). Second, the County created a **Conservation Easement Authority** in 2002 to protect and preserve land with significant

agricultural, natural, scenic, and historic resources. The County provides $150,000 per year in funding. Local jurisdictions supplement these funds with government and grant funds (Clarke County Virginia Conservation Easement Authority, 2017).

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Get the public involved early in the process.** Public support for the implementation of zoning ordinance changes or other land use policy tools is critical. Without this support, policymakers may not have the political will to adopt and implement important policies. The public is likely to be against change at first, because land use policy changes can impact property values and financial security. So, a jurisdiction should start a public information campaign early in the process to inform the public about potential policy changes, get their input, and respond accordingly.
- **Get State support early in the process.** In Dillon's Rule states, such as Virginia, the state can vote to eliminate land use regulations that do not comply with or go beyond those of the state. For example, Clarke County adopted an ordinance to increase the setback near natural features on farms that use biosolids. The State General Assembly voted to restrict the County's ability to regulate biosolids use at a local level. Jurisdictions may reach out to their state government to get buy-in on a policy early in the process so that it moves forward.

Charlottesville, VA

Tools by Date Established

- Zoning Ordinance (1945)
- Comprehensive Plan (1975)
- Conservation Easement Programs (variable)
- Purchase of Development Rights (variable)

Sources

Assistant Director of Planning, 18 years of experience

City of Charlottesville, 2017, "Overview," available at: http://www.charlottesville.org/departments-and-services/departments-h-z/neighborhood-development-services/comprehensive-plan/comprehensive-plan-2001/overview

City of Charlottesville, 2007, "Chapter 8," in *Charlottesville Comprehensive Plan*, available at: http://www.charlottesville.org/home/showdocument?id=8180

A Local History of Land Use Policies

The City of Charlottesville is unique from other jurisdictions profiled in this Toolkit, as it is an urban jurisdiction. Thus, it does not share the same agriculture and open space protection concerns as more rural jurisdictions.

Charlottesville regulates land use with a **zoning ordinance**, adopted in 1949, and a **comprehensive plan**, adopted in 2001. The impetus for that plan was concern about growth disparity across the City: some areas prospered while others suffered from underinvestment and blight (City of Charlottesville, 2017).

Neither the ordinance nor the plan focus on conservation, but both provide some protection for natural resources, namely water quality. The 2007 Comprehensive Plan notes several accomplishments in this area:

Population	
Population	43,475
Population Density (per sqmi)	4,246
% Population in Urban Areas	100%
% Population in Rural Areas	0%
Population Growth Rate 1990-2000	12%
Population Growth Rate 2000-2010	-3%
Housing	
Vacancy Rate	7%
% Owner	41%
% Renter	59%
Income, Employment, and Geography	
Median Household Income	$42,240
Poverty Rate	27%
% Farm Employment	0%
% of geography unit in Bay Watershed	100%

- Environmental Sustainability Policy (2003), a commitment to the development and implementation of an Environmental Management System
- Water Protection Ordinance (2004), the establishment of the local stormwater management program and stream buffer protections
- Citizen Committee for Environmental Sustainability (2006) (City of Charlottesville, 2007).

The interviewee for this case study said community engagement was a major factor in both the successes and challenges associated with these programs. The City Planning Commission facilitated a year-long process in 2003 to discuss the proposed Water Protection Ordinance. That process involved the establishment of a City Task Force, which helped the City to understand the implications of the proposed policy. The City did not do substantial

public outreach during this process to educate residents on these impacts, which resulted in implementation challenges.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Study policies and examine implementation case studies before adoption and implementation.** The interviewee for this case study thought stormwater policy implementation in Charlottesville was relatively smooth compared to other jurisdictions due to substantial preparation. First, the University of Virginia evaluated policy choices and drafted recommended ordinances in advance of their adoption at the state level. Second, the City engaged developers and other community members to determine how to apply those policies locally. Finally, the City tested policies before implementing them.
- **Hire diverse staff.** The interviewee for this Case Study said it is important to hire diverse staff with a mix of people and technical skills. This is particularly true for small departments.

Stafford County, VA

Tools by Date Established

- Zoning Ordinance
- Subdivision Ordinance
- Comprehensive Plan (1975)
- Purchase of Development Rights (2007)
- Transfer of Development Rights (2013)

Sources

County staffer, 29 years of experience

Stafford County, 2016, *Comprehensive Plan 2016-2036*, available at: http://www.co.stafford.va.us/1712/Comprehensive-Plan-2016---2036

A Local History of Land Use Policies

Stafford County, like many jurisdictions, started land use planning in the 1960s. At that time, the County focused on regulating growth and development using **subdivision and zoning ordinances**. The County passed its first **comprehensive plan** in 1975, when the Commonwealth passed a law requiring all local governments to develop comprehensive plans by 1980.

It was with the 1988 amendment to the Land Use Plan element that the County started directing growth to suitable areas, and preserving others. That element was the basis for additional revisions to comprehensive plan elements to protect sensitive environmental resources. The most recent update of the Comprehensive Plan in 2016 reflected the County's ongoing commitment to channeling development to growth areas (designated as urban service areas), and preserving farmland and other sensitive lands.

Stafford County has two incentive tools to facilitate desired growth and development patterns. The first is a **purchase of development rights** (PDR) program, established in 2007. The PDR program establishes criteria to rank property applicants. The owners of properties selected for participation must have conservation plans for their properties. These plans must include several best management practices that protect water quality.

Population	
Population (2010)	128,961
Land area (in sq mi.)	269
Population Density (per sq mi.)	480
% Population in Urban Areas	80%
% Population in Rural Areas	20%
Population Growth Rate 1990-2000	51%
Population Growth Rate 2000-2010	39%
Housing	
Vacancy Rate	5%
% Owner	77%
% Renter	23%
Income, Employment, and Geography	
Median Household Income	$93,065
Poverty Rate	4%
% Farm Employment	0.39%
% of geography unit in Bay Watershed	100%B17

Under the PDR program, the County has purchased 115 development rights on 450 acres. It has effectively reduced the need to extend services outside of the designated urban growth areas, making the PDR program one of the County's success stories.

The second is a **transfer of development rights** (TDR) program, established in 2013. The County identified sending and receiving areas for the entire County, but has only enabled the program in a pilot area. Therefore, it has not had major results.

Both the PDR and TDR programs were politically popular, as they managed growth without harming the rights or equity of landowners. In advance of the PDR program, many landowners could not profitably maintain family farms and faced pressure to sell their properties to developers. The PDR and TDR programs solved this problem.

Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Form partnerships with local agencies to ensure successful program implementation.** Stafford has invested in ongoing relationships with a local land conservation trust and legislative groups, so to build community and political capital for land use programs. These investments enabled the County to maintain its PDR program during its early years, when it had not yet returned financial benefits.
- **Diversify revenue streams.** Funding for the PDR program has been less stable than desired. The County is looking for additional sources of funding to shore up the program.
- **Engage partner agencies in ongoing program monitoring.** PDR program managers from across Virginia meet quarterly to discuss program implementation. These facilitated meetings provide good opportunities to work through challenges and learn from other jurisdictions.
- **Synchronize timelines.** Commonwealth agencies are on different timelines. This makes it difficult for local jurisdictions to synchronize grant applications and other program implementation steps that require other agency participation. Coordinated agency timelines would smooth local program implementation, particularly with respect to funding, as many local jurisdictions require multiple funding sources for a single program.

West Virginia

State Profile

West Virginia is 24,230 square miles, 15% of which is in the Chesapeake Bay Watershed. The State has 1.8 million residents, 51% of whom live in rural areas and 17% of whom live in the Watershed.

Overview

West Virginia has the least developed planning model of the states profiled in this Toolkit. It does not have a statewide growth management plan. And, it does not require local governments to enact land use plans or zoning regulations. The State has eleven Regional Planning and Development Councils to oversee local land use regulation. These Councils adopt regional comprehensive plans and oversee local land use planning activities. The Governor then develops statewide planning goals that reflect the work of Regional Councils.

West Virginia's approach to land use planning reflects its current priorities. The State is focused on growing the population and economy. It does not share the same concerns about managing growth and development of other jurisdictions profiled in this Toolkit.

State Zoning and Planning Status

West Virginia enables local jurisdictions to enact comprehensive plans and zoning regulations. The State does not oversee these activities, but it does recognize the value of oversight. But, unlike other jurisdictions, it places oversight in the hands of registered voters. A 2008 law allows registered voters to trigger a referendum on zoning within 90 days of the adoption of a new zoning ordinance.

State Level Regulatory Profile

West Virginia is a Home Rule state, meaning that local jurisdictions have the legal authority to govern themselves. Regional Planning and Development Councils hold most of the land-use planning

authority in the State. These Councils encourage, but do not require, local governments to create their own comprehensive plans.

Smart Growth Policies and Framework

West Virginia does not have a statewide Smart Growth policy. As a whole, the State is focused on spurring development, not curbing growth. However, regions of the State may focus more on planning for growth in the future. The rising cost of living in the Washington, D.C. has pushed those who work in the D.C. area further north into Maryland, and further west into West Virginia. If this trend continues, the easternmost part of West Virginia may see increased sprawl.

State Development Tools

Transfer of Development Rights. Counties have the legal authority to enact transfer of development rights programs (West Virginia Code, 2004).

Real Estate Transfer Taxes. Municipalities have the legal authority to adopt a real estate transfer tax at a rate of $1.10 for each $500 of real estate value sold (West Virginia Code, no date a).

Impact Fees. Counties have the legal authority to enact impact fees (West Virginia Code, no date b).

Conservation Programs

Voluntary Farmland Protection Act. The West Virginia Legislature unanimously passed into law

the Voluntary Farmland Protection Act in 2000 (West Virginia Code, no date c). This Act allows each county with a Farmland Protection Program to fund its program through a recordation fee for real estate transactions. The maximum tax rate allowable is $1.10 per $500 of real estate value sold. Counties must use all revenues to fund farmland preservation. Today, 18 counties have Farmland Protection Programs and supporting real estate transfer taxes. Collectively, these programs have protected 22,342 acres in 171 farms.

General Obligation Bonds. West Virginia counties and cities with populations of at least 50,000 residents have the legal authority to issue general obligation bonds to fund land conservation.

Infill Policies

West Virginia Brownfields Assistance Center. The Center is an umbrella organization based at West Virginia University that hosts several statewide redevelopment initiatives, including:

- West Virginia Redevelopment connects local communities to redevelopment experts who can help them navigate the liability and financing challenges of redevelopment projects
- Brownfield Abandoned Dilapidated (BAD) Building Program provides local governments with technical assistance and site analysis tools to assist with redevelopment projects.

West Virginia Voluntary Cleanup Program. This program streamlines voluntary brownfield cleanup processes for property owners.

Resources

West Virginia Brownfield, Abandoned, Dilapidated Program
http://wvbadbuildings.org/bad-building-model/

West Virginia Code, 2004, § 7-1-3mm.

West Virginia Code, no date a, §11-22-1.

West Virginia Code, no date b, §7-20-4.

West Virginia Code, no date c, § 8-24-72 § 8-24-84.

West Virginia Voluntary Cleanup Program
http://www.dep.wv.gov/dlr/oer/voluntarymain/Pages/default.aspx

West Virginia Redevelopment Collaborative
http://wvredevelopment.org/

West Virginia Agricultural Land Protection Authority
http://wvfp.org/state-authority/#.WQ4mzuXys54

Hardy County, WV

Tools by Date Established

- Zoning Ordinance (1973)
- Comprehensive Plan (1999)
- Subdivision Ordinance (2009)

Sources

Planner, 4 years of experience

Hardy County Planning Office, 2011, Hardy County Comprehensive Plan Update, available at: http://www.hardycounty.com/files/documents/ComPlan2011Oct28.pdf

Population	
Population	14,025
Population Density (per sqmi)	24
% Population in Urban Areas	19%
% Population in Rural Areas	81%
Population Growth Rate 1990-2000	15%
Population Growth Rate 2000-2010	11%
Housing	
Vacancy Rate	28%
% Owner	77%
% Renter	23%
Income, Employment, and Geography	
Median Household Income	$31,347
Poverty Rate	15%
% Farm Employment	8%
% of geography unit in Bay Watershed	100%

A Local History of Land Use Policies

Hardy County has had a tumultuous land use planning history. The County has regulated land use intermittently, and has done so with varying degrees of stringency.

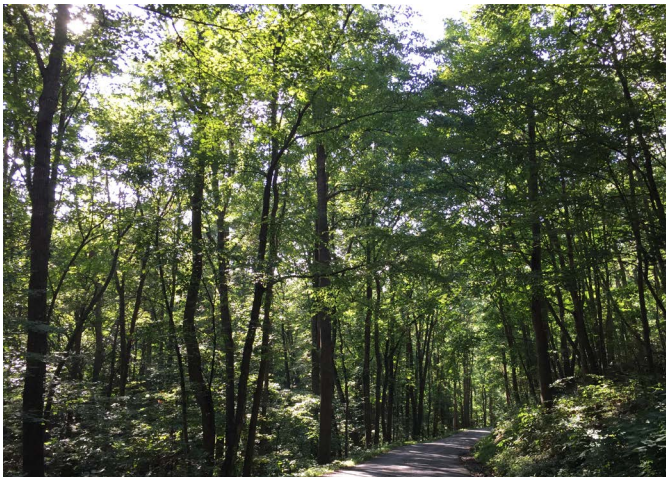
The Planning Commission adopted the County's first **zoning ordinance** in 1973. The County relied on its zoning ordinance as its primary land use planning tool until 1991. That year, the court nullified the ordinance because the County did not comply with state rules and regulations that required the adoption of a comprehensive land use plan and map to guide the zoning ordinance (Hardy County Planning Office, 2011).

The County had no strict countywide land use regulations for most of the 1990s and early 2000s, as the court banned the County from regulating zoning for ten years in its 1991 ruling. The County finally adopted a **comprehensive plan** in 1999 (Hardy County Planning Office, 2011). This Plan guided municipal development, but did not require strict state regulation and oversight.

The County once again took a more active role in land use regulation starting in 2005. That year, it adopted a new zoning ordinance to respond to community concerns regarding the potential impacts of a planned four-lane highway connecting I-81 to I-79. The County added a **subdivision ordinance** in 2009 to regulate land use at the parcel level.

Although the tools by which the County regulates land have changed over time, its commitment to conservation has not. Conservation, specifically the preservation of open space, was a driving factor in the development of each tool discussed in this case study.

The focus on conservation has largely been a reaction to proposed development or negative unintended consequences of new development. The subdivision ordinance, for example, was a response to the over-development of subdivisions by developers in the early- to mid-2000s. Demand was insufficient to warrant this development, and today many of these development lots sit vacant.



Tips from the Experts

NCSG asked each case study interviewee to provide land use policy tips for other jurisdictions. This expert provided the following tips for local and state governments:

- **Provide adequate staff capacity to do policy development and implementation.** The interviewee for this case study attributed the 1991 nullification of the zoning ordinance to low staff bandwidth for planning and development policy administration. The County did not have sufficient staff to stay on top of state regulatory requirements, such as the requirement for a comprehensive plan, and consequently, did not know they were in violation of the law. This is one of several examples of low staff capacity provided by the interviewee.
- **For low-resource jurisdictions, build and leverage partnerships.** The County has relied on West Virginia University to support its policy efforts. It has been able to get more assistance from these partner institutions than from the State.
- **Involve residents early and regularly during the policy review and implementation process.** The County has faced community and political pushback on some of its policies due to the spread of misinformation about the scope and impacts of proposed policies. Investing resources in a public information campaign can smooth the policy development and implementation process.

Multi-State: Lake Tahoe Region, NV, CA

Tools by date established

- Zoning (1970s)
- Comprehensive Plan (1987)
- Transfer of Development Rights (1987)

Sources

Stormwater Program Manager, 10 years of experience.

Tahoe Regional Planning Agency, 2017a, "About TRPA," available at: http://www.trpa.org/about-trpa/

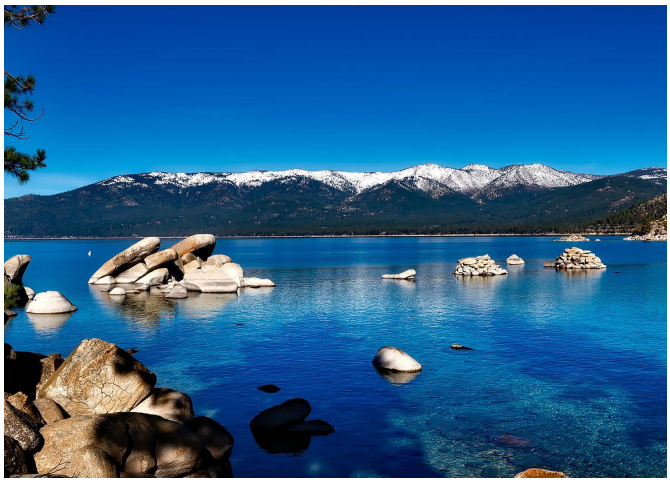
Tahoe Regional Planning Agency, 2017b, "Land Coverage," available at: http://www.trpa.org/permitting/land-coverage/

Tahoe Regional Planning Agency, 2012, "Chapter 1: Introduction," in *TRPA Regional Plan*, available at: http://www.trpa.org/wp-content/uploads/Adopted-Regional-Plan_20160614_Clean.pdf

A Local History of Land Use Policies

The Tahoe Regional Planning Agency (TRPA) is a bi-state regional planning agency whose mission is to "preserve, restore, and enhance the unique natural and human environment of the Lake Tahoe Region, while improving local communities, and people's interactions with our irreplaceable environment" (TRPA, 2017a). TRPA's jurisdiction is the Lake Tahoe Watershed. It includes five counties in California and Nevada.

The TRPA was born out of concern about the impacts of rapid development in the region in the mid-twentieth century. Although conservationists had lobbied for federal protection of the Lake Tahoe



Region, they could not gain traction with lawmakers in Washington, D.C. Plans to create a site the size of San Francisco with freeways circling the lake sparked public action, which caught the attention of local lawmakers. The governors and lawmakers of California and Nevada developed and approved the bi-state compact to create the TRPA, and the U.S. Congress ratified the agreement in 1969 (TRPA, 2017a).

As a government planning agency, the TRPA has the legal authority to regulate growth and develop in its jurisdiction. The TRPA's first land use policy action was the establishment of a unique **zoning program** in which the TRPA classified individual parcels (as opposed to large tracts of land) based on their natural resource value. The TRPA started classifying parcels in the 1970s using the Bailey land capability system. That system assigned each

soil type to a land capability class ranging from 1 to 7, with 1 being the most environmentally sensitive. Environmentally fragile soil systems are those that are more susceptible to erosion, or constitute crucial habitat for native species. The TRPA prohibited new development on all parcels categorized as 1 through 3, and restricted development (as measured by land coverage) on parcels categorized as 4 through 7. In 1987, the TRPA started using a new classification system, the Individual Parcel Evaluation System, which takes into consideration more factors (TRPA, 2017b).

In 1987, the TRPA adopted its second land use policy, its Regional Plan (i.e., **Comprehensive Plan**). That plan established a "carrying capacity" for development, which was substantially lower than previous plans. It also created regulations and incentive programs to constrain growth and achieve this capacity target (TRPA, 2012).

On the incentive side, the TRPA established an aggressive **Transfer of Development Rights** program to compensate property owners who "lost" their development rights under the zoning system, and to incentivize future development in target growth areas. Between 1987 and 2011, when the TRPA adopted its subsequent Regional Plan update, state and federal land management agencies acquired more than 8,500 private parcels and retired their development rights (TRPA, 2017b).

Tips from the Experts

- **Evaluate potential policy impacts *before* implementation.** The 1987 Regional Plan placed major constraints on residential development, without evaluating the impacts of those policies on existing and new development. The lack of oversight caused two negative consequences.
    - The Plan allowed existing developments to be grandfathered into the system, but did not allow significant updates to those developments under pre-1987 regulation. Therefore, there are many old developments grandfathered into the system that are outdated and not environmentally friendly.
    - The Plan restricted building footprint, causing the development of many mushroom-shaped buildings.
- **Keep regulations as simple and consistent as possible.** Overly complex or frequently changing regulations can cause developers to build elsewhere.
- **Develop a policy proposal before going to the public.** The interviewee for this case study said that going to the public with an open-ended policy question caused too much debate, and made it difficult to build consensus around the final proposed policy. The interviewee recommended bringing a draft policy to the public and asking for comment about that specific policy.

Appendix B: Annotated Bibliography

This annotated bibliography summarizes articles on preservation and infill development inside the Chesapeake Bay Watershed, and from some similar multi-state watersheds including Puget Sound, Great Lakes, and Lake Tahoe. The bibliography is segmented by topic (preservation, infill development), and then by region within each topic area.

Preservation

Inside the Chesapeake Bay Watershed

"A Conjoint Analysis of Public Preferences for Agricultural Land Preservation." Joshua M. Duke and Thomas W. Ilvento. Agricultural and Resource Economics Review. Vol 33, Issue 2, 2004.
State focus: Delaware
Subject area focus: Development rights, conservation easements

This study uses conjoint analysis to measure and compare public preferences for the ecosystem services of preserved agricultural land. A survey of 199 Delawareans suggests environmental and nonmarket-agricultural services are the most important qualities. Preserved parcels with agricultural and environmental attributes provide net benefits, which can exceed $1,000,000 for a 1,000-acre parcel. Preserved forestland can provide benefits per acre that are equivalent to cropland, though forestland preservation may be less expensive.

"A Residential Subdivision Designed for People and Wildlife: Incorporating Wetlands Creation and Forest Protection on Cook's Hope on Llandaff, Near Easton, Maryland." Lydia Eisenberg, David G. Burke, and Joel E. Dunn. The Conservation Fund. 2010.
State focus: Maryland
Subject area focus: Planned community, preservation

Cooke's Hope at Landlaff, a 284-acre development located on Maryland's Eastern Shore, is a 26-lot subdivision of estate-style housing. It serves as a case study for environmental design components that protect forestland. The Llandaff development has a unique nature-based lot design, retention of forest buffers, and creation of wildlife refuges throughout the community. Trippes Creek LLC designed the lots to blend with the natural landscape. They also protected or enhanced wildlife on over one-third of the development. Llandaff creates the opportunity to live in a wildlife refuge with direct water quality benefits to Peach Blossom Creek.

"Agricultural Land Fragmentation: The Spatial Effects of Three Land Protection Strategies in The Eastern United States." Elizabeth Brabec, Chip Smith. Landscape and Urban Planning. Vol 58, Issue 2-4, 2002.
State focus: Maryland, New York
Subject area focus: Farmland preservation, agriculture, purchase of development rights, transfer of development rights, clustering

Fragmentation of agricultural land by urban sprawl affects both the production capacity of farmland and its rural scenic quality. This study analyzes the spatial form of three of the most common agricultural land protection strategies: purchase of development rights (PDR) program, clustering program, and transfer of development rights program. By assessing total acreage protected, parcel sizes, and contiguity, the study compares the effectiveness of programs in terms of how they impacted fragmentation. Results show that, while the number of acres protected is an important factor for success, the amount of protected, actively-farmed land is influenced by several other factors: development rights that may remain on the land, the use of tools to reduce parcel isolation, and the contiguity of protected parcels.

"Agricultural Preservation Techniques in Virginia." Jacqueline Waymack. 2010. Retrieved from: http://scholarship.law.wm.edu/cgi/viewcontent.cgi?filename=3&article=1029&context=wmcl&type=additional
State focus: Virginia
Subject area focus: Farmland preservation, tax incentives, zoning
Most states have implemented farmland preservation programs to protect important farms from development. These programs include a variety of statutes aimed at making farm areas less attractive to developers, easing the burdens of development for farmers, and preventing farmland conversion. This article examines the agricultural preservation efforts in Virginia through five pieces of legislation: differential tax assessment, agricultural districting, the right-to-farm act, preservation of prime agricultural land act, and agricultural zoning. It discusses effectiveness and recommended changes to improve outcomes.

"An Empirical Examination of the Timing of Land Conversions in the Presence of Farmland Preservation Programs." Charles A. Towe, Cynthia J. Nickerson, and Nancy Bockstael. American Agricultural Economics Association. Vol 90, Issue 30, 2008.
State focus: Maryland
Subject area focus: Farmland preservation

Using parcel-level data, this study constructs a hazard model to investigate the link between the availability of farmland preservation programs and the rate of farmland conversion. It finds strong evidence that the availability of preservation options delays farmland conversion by about six years, a reduction in median conversion time of 12-43% depending on parcel size. Delays allow local governments to improve infrastructure or implement stricter growth control measures. They may also have other long-term benefits.

"Applying Optimization and the Analytic Hierarchy Process to Enhance Agricultural Preservation Strategies in the State of Delaware." Kent D. Messer and William L. Allen III. Agricultural and Resource Economics Review. Vol 39, Issue 3, 2010.
State focus: Delaware
Subject area focus: Farmland preservation

This study evaluates the historical success of Delaware's agricultural protection fund using a hierarchy process conducted by 23 conservation experts from across Delaware. Results suggest that some preservation techniques are better than others: the State's sealed-bid-offer auction is superior to benefit-targeting approaches frequently used by conservation organizations, but is inferior to the optimization technique of binary linear programming.

"Cost-Effective Conservation Planning: Lessons from Economics." Joshua M. Duke, Steven J. Dundas, Kent D. Messer. Journal of Environmental Management. Vol 125, 2013.
State focus: N/A
Subject area focus: Conservation planning
"Cost-effective conservation" is a process that uses monetized benefits and costs to allocate conservation dollars to those projects likely to achieve the largest social benefit. Cost-effective conservation is controversial and rarely used by planners. Researchers seek to overcome resistance to cost-effective conservation by analyzing case studies from the largest publicly-financed conservation programs in the United States. The study identifies challenges associated with some program practices, such as: using non-monetary benefit measures or incomplete cost measures, ignoring development risk, and placing political constraints on selection. It also identifies incentive problems that arise from adverse selection, additionality, and slippage. The study concludes with fifteen practical lessons.

"Development at the Urban Fringe and Beyond: Impacts on Agriculture and Rural Land." Ralph E. Heimlich and William D. Anderson. U.S. Department of Agriculture. 2001. Retrieved from: http://pdic.tamu.edu/pdicdata2/FarmBill/pdfs/aer803.pdf.
State focus: Nationwide
Subject area focus: Growth management, farmland preservation, agriculture
Urban expansion is a threat to agriculture and rural land: between 1960 and 1990, urban areas expanded at an average rate of 1 million acres per year. Managing this growth is generally the responsibility of state and local governments, but the Federal government can help. This study analyzes how the Federal government can control growth through building capacity, providing financial incentives to channel in desirable directions, or coordinating multi-jurisdictional efforts.

"Do Agricultural Land Preservation Programs Reduce Farmland Loss? Evidence from a Propensity Score Matching Estimator." Xiangping Liu, and Lori Lynch. Land Economics. Vol 87, Issue 2, 2011.
State focus: Six mid-Atlantic states
Subject area focus: Farmland preservation, purchase of development rights
More than 80 governmental entities concerned about sprawl, open space, and farmland have implemented PDR programs. This research evaluates the effectiveness of these programs in slowing the volume and rate of farmland conversion using score matching methods and a 50-year, 269-county data set for six Mid-Atlantic states. The study finds empirical evidence that PDR programs have had a statistically significant effect on preventing farmland loss. A county PDR program can decrease its rate of farmland loss by 40% to 55%, or 375 to 550 acres per year.

"Do Zoning Regulations Rob Rural Landowners' Equity?" Xiangping Liu and Lori Lynch. American Journal of Agricultural Economics. Vol 93, Issue 1, 2011.
State focus: Maryland
Subject area focus: Zoning
Planners can use zoning regulations as a conservation tool. Specific zoning regulations can conserve resource land and limit negative externalities from high-density development. Regulations that limit density, although beneficial, can be difficult to pass. Landowners often challenge these regulations by claiming that they will decrease their land values and equity. This study investigates whether low-density zoning impacts rural land value using arm's-length sales in Maryland's nine Eastern Shore counties. Using both a propensity score matching method and an instrumental variable approach, the study finds that low-density zoning has differentiated impacts. Resource parcels' land values are unaffected, and non-resource parcels' values decrease by 20–50%.

"Easement Revitalization: A Problem-Solving Guidebook for Land Trusts." Open Space Institute and Solid Ground Consulting. 2014. Retrieved from: http://conservationtools.org/library_items/1267-Easement-Revitalization-A-Problem-Solving-Guidebook-for-Land-Trusts.
State focus: N/A
Subject area focus: Conservation easements

This compendium of case studies on easements serves as a guidebook for land trusts. Based on the case studies, the report provides information on legal and policy constraints facing land trusts and tips on how to manage problem easements.

"Ecosystem Payments at Work: Conserving Land in Virginia's Great Dismal Swamp." Shannon Meyer. Conservation Fund. 2010. Retrieved from: http://www.conservationfund.org/images/resources/sustainable_chesapeake/Sustainable-Chesapeake-Chapter-4-Ecosystem-Payments.pdf.
State focus: Virginia
Subject area focus: Conservation credits
Ecosystem Investment Partners' Great Dismal Swamp project shows how conservation-minded investors can use Payments for Ecosystem Services (PES) markets to conserve landscapes. The sale of ecosystem service credits can fund the purchase and restoration of properties.

"Effective Forest Banking: Forest Conservation in Carroll County, Maryland." James Slater, Glenn Edwards. Conservation Fund. 2010. Retrieved from: http://www.conservationfund.org/images/resources/sustainable_chesapeake/Sustainable-Chesapeake-Chapter4-Forest-Banking-Carroll-County.pdf.
State focus: Maryland
Subject area focus: Conservation credits, forest banking
Carroll County's Forest Conservation Code established the use of a forest banking program. Forest banking is a conservation tool in which a landowner waives her development rights on a newly planted forest in exchange for mitigation credits she can sell. Developers are the primary purchasers of mitigation credits. They purchase them to offset the clearing of forests in other locations. The forest banking program has restored hundreds of acres of forest in Carroll County and created economic opportunities for landowners.

"Farmland Preservation Programs." Dale Colyer. Symposium on Society and Resource Management. 1998. Retrieved from: http://ageconsearch.umn.edu/bitstream/19102/1/co98co01.pdf.
State focus: Maryland
Subject area focus: Farmland preservation, use-value assessment, purchase of development rights
The preservation of farmland is an important issue in most areas of the U.S., and all states have enacted legislation to promote this activity. This article reviews the effectiveness of different farmland preservation policy tools. Use-value assessment to reduce property taxes is the most common tool, but is not effective in places where land demand is high (i.e., market value sufficiently exceeds property tax savings). PDR programs are a more effective tool in jurisdictions with high demand for new development.

"Farmland Preservation Programs in West Virginia: A Preliminary Inquiry into The Merits of Purchase Development Rights." Odd J. Stalebrink & Samuel E. Wilkinson. West Virginia Regional Research Institute. 2007. Retrieved from: http://rri.wvu.edu/wp-content/uploads/2012/11/stalebrinkwp2007-7.pdf.
State focus: West Virginia
Subject area focus: Farmland preservation
West Virginia passed the Voluntary Farmland Protection Act (VFPA) in 2000 to prevent the loss of farmland. This act gives the State and county governments the authority to develop and fund local farmland protection programs. Those programs typically involve the sale of development rights. This study assesses the effectiveness of this program in preserving open space. Results show there are significant inroads for further critical examination of the VFPA.

"Formulating and Evaluating Agricultural Zoning Programs." Robert E. Coughlin. Journal of the American Planning Association. Vol 57, Issue 2, 1991.
State focus: N/A
Subject area focus: Agricultural zoning

Agricultural zoning is the most common method used to prevent the conversion of agricultural land. This study evaluates zoning programs to determine how to formulate effective, politically acceptable, and legally sound agricultural zoning programs. For this zone to be effective, the study finds that a jurisdiction must demonstrate the protection of agricultural is in the public interest. And, the ordinance must be strong enough to facilitate agriculture, but flexible enough to permit some development.

"From Land marks to Landscapes: A Review of Current Practices in the Transfer of Development Rights." Robert A. Johnston & Mary E. Madison. Journal of the American Planning Association. Vol 63, Issue 3, 2007.
State focus: N/A
Subject area focus: Transfer of Development Rights
This article reviews the history of TDR programs. It closely examines four successful, current, rural programs and the structural and political differences among them. The study analyzes the use of dual versus single areas for sending and receiving credits, and zoning-based versus permit-based transfers. It concludes with a discussion of how jurisdictions can develop their own TDR programs.

"From Quiet Revolution to Smart Growth: State Growth Management Programs, 1960 to 1999." Jerry Weitz. Journal of Planning Literature. Vol 14, Issue 2, 1999.
State focus: N/A
Subject area focus: Smart Growth
State sponsorship of regional and statewide growth management programs is four decades old. The researchers argue that, in looking ahead forward to new state programs designed to curb sprawl and promote sustainability, it is helpful to look back at the history of statewide growth management programs. This bibliography provides a thorough, but not exhaustive, review of the literature on state growth management programs. Its primary purpose is to identify the states that are considered, or should be considered, growth management states.

"The Future of Sustainable Farming and Forestry in Maryland." Gregory Bowen, Joseph Tassone, James Baird. 2016. Retrieved from: http://www.farmlandinfo.org/future-sustainable-farming-and-forestry-maryland.
State focus: Maryland
Subject area focus: Smart Growth, farmland preservation, agriculture
This report assesses the likely effects of Chesapeake Bay Restoration and smart growth policies on the sustainability of agriculture and forestry in Maryland. It considers a range of policies, including zoning, nutrient management requirements for pollution control, and other land management tools. It finds that factors such as technology, business models, and U.S. trade policy had major effects on sustainability. It further finds that residential subdivision and development is among the greatest threats to farming and forestry. Ultimately, the study concludes that public policies that manage growth and private sector investments in farming and forestry will determine the outcome of these industries.

"Incorporating stakeholder preferences for land conservation: Weights and measures in spatial MCA." Michael P. Strager, Randall S. Rosenberger. Ecological Economics. Vol 57, Issue 4, 2006.
State focus: N/A
Subject area focus: Conservation planning
This research integrates stakeholder preferences with GIS data in a spatial, multi-criteria framework to identify high priority areas for land conservation. It weighs individual participants' preference using an Analytical Hierarchy Process, then aggregates participants into outside expert and local stakeholder groups. The study

finds that aggregate preferences differ across groups, illustrating asymmetry between the local knowledge of stakeholders and the universal issues noted by outside experts. However, the study also finds that participant weights do not impact mapping of priority areas for conservation.

"Integrated Working Landscape Protection: The Case of Lancaster County, Pennsylvania." Tom Daniels. Society and Natural Resources. Vol 13, Issue 3, 2010.
State focus: Pennsylvania
Subject area focus: Farmland preservation
The protection of a working landscape requires a different approach than the protection of open space. In Lancaster County, Pennsylvania, both the County and individual township governments have protected the agricultural industry with an integrated set of growth management programs. This research analyzes the effectiveness of these programs according to their general goals and specific objectives. The research also discusses the potential to apply the Lancaster County growth management approach to other working landscapes in the northeastern United States.

"Maryland's Forest Conservation Act and the Impact on Residential Development and Forest Cover Change." David Newburn, Jeffrey Ferris. Retrieved from: http://smartgrowth.umd.edu/assets/documents/research/FerrisNewburnFCAct.pdf.
State focus: Maryland
Subject area focus: Forestland preservation

This research analyzes the effects of a unique forest conservation regulation on residential development and amount of forest cover. It combines panel data on forest cover change from satellite imagery and parcel level modeling on residential development occurring before and after regulation adoption. After introducing the regulation, there was a 22% increase in forest cover within subdivisions. The heterogeneous effects of this regulation suggest that forest cover increases on average for parcels with lower levels of existing forest cover. However, parcels with the highest levels of forest cover continue to have significant decreases in forest cover, despite the regulation, thereby resulting in fragmentation in regions with the most intact forest cover.

"New Farmland Preservation Programs in New York." William R. Bryant & Howard E. Conklin. Journal of the American Institute of Planners. Vol 41, Issue 6, 2007.
State focus: New York
Subject area focus: Farmland preservation
This study explores farmland preservation programs in New York. New York State and Suffolk County introduced agricultural districting and PDR programs to preserve farmland. The jurisdictions developed and applied districting at the state level, and enabled PDR for landowners in those districts. Individual landowner participation is voluntary.

"Patuxent Greenway Reforestation Bank: Making Up for Lost Forestland in Anne Arundel County, Maryland." Milton McCarthy, Joel E. Dunn. 2010. Retrieved from: http://www.conservationfund.org/images/resources/sustainable_chesapeake/Sustainable-Chesapeake-Chapter-4-Patuxent-Greenway-Reforestation-Bank.pdf.
State focus: Maryland
Subject area focus: Forest banking, conservation credits
This study discusses the Patuxent Greenway Reforestation Bank, a 70-acre forest located in Anne Arundel County. The Reforestation Bank purchased the property in 2000, placed an easement on it, and planted 100 trees per acre. It then sold forest credits to developers to make the bank a profitable endeavor. The forest bank

has maintained forest cover in the county along the Patuxent River Greenway, provided habitat for endangered species, and provided developers with a means of meeting the requirements of Maryland's Forest Conservation Act and Chesapeake Bay Critical Areas Act.

"Pioneer on the Frontier of Smart Growth." Donald Outen. 2007. Smart Growth @ 10 Conference Paper.
State focus: Maryland

Subject area focus: Smart Growth

This paper highlights Baltimore County's experience with Smart Growth, a successful example of an integrated urban-rural approach that covers a large population over a large area and long period of time. This retrospective identifies the key elements of "first-stage" Smart Growth, focusing on the County's accomplishments for growth management embodied in Maryland's "Seven Visions" from the 1992 Planning Act. Baltimore County's experience demonstrates that Smart Growth results begin from within, from a sustained effort to develop and use the tools of local government to implement a vision for the County that is developed through public dialogue.

"Public Support for Land Preservation: Measuring Relative Preferences in Delaware." Joshua Duke. 2002. Retrieved from: http://purl.umn.edu/15815.
State focus: Delaware
Subject area focus: Land preservation
This study measures public preferences for nonmarket services of preserved land in Delaware using two survey techniques. The first survey technique is a conjoint experiment involving 199 Delawareans. The survey suggests residents place the greatest value on the environmental and agricultural attributes of preserved land. The second survey technique is an analytic hierarchy to assess the survey results of 129 Delawareans. The results of the analytic hierarchy process mostly reinforce the results of the conjoint experiment. Overall, results show Delawareans seem to be most concerned with keeping farming as a way of life, having access to locally grown agricultural commodities, protecting water quality, and preserving rural character.

"The Effect of Downzoning for Managing Residential Development and Density." Jeffrey Ferris, David Newburn. Land Economics. Vol 92, Number 2, 2016.
State focus: Maryland
Subject area focus: Zoning
This study analyzes the effect of a downzoning policy on both the probability and the density of residential development using a difference-in-differences (DID) approach. This approach uses spatially explicit panel data on subdivisions to estimate average treatment effects for downzoned areas. Results indicate that, although downzoning does not significantly alter the probability of development, it does strongly affect the density of development. The DID model results suggest that the lower probability of development in agricultural zoning relative to the urban residential control area is not attributable to downzoning, but rather to baseline differences that exist prior to policy adoption.

"The Effects of Moratoria on Residential Development: Evidence from A Matching Approach." Antonio Bento, Charles Towe, and Jacqueline Geoghegan. American Journal of Agricultural Economics. Vol. 85, Issue 5, 2007
State focus: Maryland
Subject area focus: Smart Growth

One of the most popular Smart Growth policies is the Adequate Public Facility Ordinance (APFO), which has been used in some counties of Maryland since the 1970s. Under this law, new subdivisions are ostensibly permitted only where there is sufficient capacity in public facilities, such as schools, roads, and public utilities capacity. Local regulators set a quantifiable minimum standard for the level of service of a public facility that must exist for new development to be approved. The study evaluates the effects of this policy on new residential development in the four years following its enactment using a matching methods approach. Results suggests that the policy indeed slowed new development in the two years after it was enacted. The total reduction in new development during this two-year period corresponded to approximately 355 new housing units, 8% of the projected county growth for those two years.

"The Future of Preserved Farmland: Ownership Succession in Three Mid-Atlantic States." Brian J. Schilling, J. Dixon Esseks, Joshua M. Duke, Paul D. Gottlieb, Lori Lynch. Journal of Agriculture, Food Systems, and Community Development. Vol. 5, No. 2, 2015.
State focus: Delaware, Maryland, New Jersey
Subject area focus: Conservation easements, farmland preservation
This research examines the use of farmland preserved under state-sponsored purchase of agricultural conservation easements (PACE) programs in Delaware, Maryland, and New Jersey. The analysis uses a survey of 507 owners of preserved agricultural land. Most landowners had purchased or inherited preserved-farmland properties under already existing conservation easements. Some were "first-generation" owners who sold or donated their land's development rights. Descriptive and regression analysis compares the land management strategies of these two generations of owners. Results suggest that deed-restricted farmland is not diverted from agricultural use through succession in ownership.

"Time is money: An empirical examination of the effects of regulatory delay on residential subdivision development." Douglas H. Wrenn, Elena G. Irwin. Regional Science and Urban Economics. Vol. 5, 2015.
State focus: Maryland
Subject area focus: Residential development

Variation in regulatory costs over time and across different types of investment projects creates risk for developers who hold land. These implicit costs arise due to regulatory delay in the land development process, and are hypothesized to be large. Using a micro-level data set on parcel-level subdivision development, this research tests the effects of implicit costs of increased subdivision approval times on the timing and pattern of residential subdivision development. Results suggests regulation-induced implicit costs reduce the probability of subdivision development on any given parcel.

"Transfer of Development Rights in U.S. Counties." Margaret Walls, Virginia McConnell. 2007. Retrieved from: http://www.rff.org/files/sharepoint/WorkImages/Download/Walls_McConnell_Sep_07_TDR_Report.pdf.
State focus: Maryland, Florida, California, Washington, New Jersey
Subject area focus: Transfer of development rights

This report provides case studies of 10 TDR programs: five in Maryland; two in Florida; and the rest in Malibu, California; King County, Washington; and Chesterfield Township, New Jersey. These programs focus on a range of land use goals, including farmland preservation, prevention of development on environmentally sensitive lands, and curtailing of sprawl. Some have been effective and have preserved or protected land as intended, but others have not lived up to expectations. Each program's genesis, features, and outcomes are described, and are evaluated for their program design.

"U.S. Experience with Transferable Development Rights." Margaret Walls, Virginia McConnell. Review of Environmental Economics and Policy, Vol 3, Issue 2, 2009.
State focus: Maryland
Subject area focus: Transfer of development rights
This article described the motivation for TDR programs, how they operate, and how they interact with other policies that alter land use. The article details specific features and performance of a number of existing TDR programs in the United States and explores lessons to be learned from their experience.

"Using markets for land preservation: Results of a TDR program." Virginia McConnell; Elizabeth Kopits; Margaret Walls. Journal of Environmental Planning and Management. Vol. 49, Issue 5, 2006.
State focus: Maryland
Subject area focus: Transfer of development rights

This paper reviews different approaches to using TDRs to preserve rural lands in the face of development pressure. One TDR program examined in detail, Calvert County, Maryland, has had an active TDR market since the mid-1980s. The paper examines both the early difficulties in developing participation in the program, and the events that lead to an active TDR market. It assesses the workings of the market, such as the movement of prices over time, and the location of the locations of sending and receiving areas. One interesting finding is that many purchasers have used their development rights on rural lands with low baseline densities. The study finds that the program has been an overall success thus far.

"Virginia's State Tax Credit for Land Conservation: Protecting Virginia's Landscapes with Tax Credit Incentives." Philip M. Hocker, Joseph H. Maroon. 2010. Retrieved from: http://www.conservationfund.org/images/resources/sustainable_chesapeake/Sustainable-Cheseapeake-Chapter-4-VA-State-Tax-Credit.pdf.
State focus: Virginia
Subject area focus: Tax incentives
This paper discusses the "Virginia Land Conservation Incentives Act." The Virginia General Assembly passed the Act in 1999 to allow property owners who donate their land for conservation to take a state income tax credit. The paper finds that the transferable state income tax credit is a flexible, politically feasible, and effective tool to leverage private investment in conservation. It provides both the wealthy landowner and the land-rich, cash-poor landowner with conservation options.

"Willingness to Pay for Agricultural Land Preservation and Policy Process Attributes: Does the Method Matter?" Robert J. Johnston, Joshua M. Duke. American Journal of Agricultural Economics. Vol. 89, Issue 4, 2006.
State focus: N/A
Subject area focus: Willingness to pay

This article examines the relationship between willingness to pay for land preservation and policy process attributes. Results indicate policy process attributes may influence the utility of land preservation, even after controlling for the influence of land use outcomes. Results further imply that, in some cases, even comprehensive specification of land use outcomes by stated preference instruments may be insufficient to prevent systematic shifts in willingness to pay related to unspecified, yet assumed, policy process attributes.

"Smart Growth: State by State" Ed Bolen, Kara Brown, David Kiernan, Kate Konschnik. Retrieved from: http://gov.uchastings.edu/public-law/docs/smartgrowth.pdf.
State focus: N/A
Subject area focus: Smart growth

This resource summarizes the Smart Growth framework and principles for each state.

Outside the Chesapeake Bay Watershed

"How Riparian Ecosystems are Protected at Lake Tahoe." John Cobourn. Journal of the American Water Resources Association. Vol 42, Issue 1,2006.
Geographic focus: Lake Tahoe Basin
Subject area focus: Water quality

This study evaluates how planning policies have impacted riparian ecosystems and water quality in the Lake Tahoe Basin. In its Regional Plan for the Lake Tahoe Basin 1987, the Tahoe Regional Planning Agency (TRPA) required protection of Stream Environment Zones (SEZs). SEZs are identified by key indicators including surface water flow, riparian vegetation, and near-surface groundwater. Aggressive enforcement has led to innovative models to restore riparian areas every year and protect Lake Tahoe. Despite these actions, algal productivity and fine sediment continues to increase in Lake Tahoe. More research on evaluating effectiveness of restoration techniques in SEZs would be beneficial to understanding how to slow the decline of water quality.

"Public Land Sales as Innovative Environmentalism?" Richard Ganzel. Policy Studies Journal, Vol, 14 Issue 2, 1985.
Geographic Focus: Lake Tahoe Basin
Subject area focus: Public land sales

In the 1970s, land costs were a critical barrier to the effective protection of Lake Tahoe. Congress passed Public Law 95-586 to allow the government to use funds from public land sales near Las Vegas, Nevada for the protection of environmentally sensitive lands in the Lake Tahoe Basin. This article reviews the coalition among local interest groups and Congress that made this model possible. It also suggests some "fine tuning" to help scale this model nationally.

"The potential impacts of development on wildlands in El Dorado County, California" Shawn Saving and Gregory B. Greenwood. Proceedings of the Fifth Symposium on Oak Woodlands: Oaks in California's Challenging Landscape. Gen. Tech. Rep. PSW-GTR-184, Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Department of Agriculture: 443-461. 2002. Retrieved from: http://frap.fire.ca.gov/publications/paper_eldo_buildout.pdf.
Geographic Focus: Lake Tahoe Basin
Subject area focus: Conservation planning

The U.S. Forest Service modeled potential future development patterns in El Dorado County, California using raster land cover data and county parcel data. It placed development constraints on the 1996 County General Plan and parcel data to examine how they would impact variables including slope, stream buffers, oak canopy retention, existing development, public ownership, regional clustering, and acquisition programs. The analysis finds that:

- Policy alternatives ranging from existing prescriptions to very restrictive regulations had marginal impacts on habitat loss and fragmentation

- Countywide ordinances were somewhat more effective in preserving habitat and connectivity
- Custom, parcel based acquisition scenarios minimized habitat loss and maximized connectivity.

"From Landmarks to Landscape: a review of current practices in transfer of development rights." Robert A. Johnston and Mary E. Madison. Journal of the American Planning Association, Vol 63, Issue 3, 1997.
Geographic Focus: California, Maryland, New Jersey
Subject area focus: Transfer of development rights
This study does a comparative analysis of four different TDR programs: the Montgomery County, Maryland program; New Jersey Pinelands Program; Lake Tahoe Basin Project; and California Coastal Commission. It provides a detailed analysis of the origins and mechanics of each.

"Local Farmland Conservation Programmes in the US: A Study of California Counties." Owen J. Furuseth. Applied Geography, Vol 5, Issue 3, 1985.
Geographic Focus: Lake Tahoe Basin
Subject area focus: Farmland preservation
This study examines the distribution and use of six California farmland conservation programs. Adoption rates of the six programs varied greatly among California counties. Counties with the highest adoption rates were agriculturally-oriented and had liberal political traditions. Evidence did not suggest higher rates of adoption in affluent suburban areas.

"Physical and financial barriers to implementing a nature reserve network in the Sierra Nevada, California, USA." Fraser Shilling and Evan Girvetz. Landscape and Urban Planning, Vol. 80, Issue 1-2, 2007.
Geographic Focus: Lake Tahoe Basin
Subject area focus: Conservation planning
This study investigates land protection strategies in a proposed Sierra Nevada reserve network. It considers two barriers to effective preservation: (1) land cost, and (2) highways. The study uses assessor data to estimate the land acquisition costs of parcels within a proposed Sierra Nevada reserve network. In Nevada County, CA, alone, the costs would $2.5 billion. Acquiring only large plots reduced costs exponentially, and only reduced the volume of acquired land linearly. This did not, however, result in adequate representation of diverse habitats, as the larger parcels consisted primarily of one type of habitat.

Highways also pose a threat to connectivity. The study proposes that (1) wildlife conflicts with highway traffic could be mitigated using wildlife overcrossings at the identified locations and (2) constraints on development rather than land acquisition are necessary to protect biodiversity, and (3) a combination of highway crossings and restrictions on land use may be the cheapest way to protect biodiversity in the Sierra Nevada.

"Effects of Urban Growth Boundaries on Residential Development in Pierce County, Washington." Tom Carlson and Yonn Dierwechter. Professional Geographer, Vol 59, Issue 2, 2007.
Geographic Focus: Washington
Subject area focus: Urban growth boundaries
This paper uses a policy-oriented evaluation methodology to measure the impact of Pierce County, Washington's urban growth boundary on urban development. The results indicate that, since the urban growth boundaries of 1995, there has been a substantial increase in the clustering of residential permits inside those boundaries.

"Twenty-Five Years of Sprawl in the Seattle Region: Growth Management Responses and Implications for Conservation." Lin Robinson. Landscape and Urban Planning. Vol 71, Issue 1, 2005.
Geographic Focus: Washington
Subject area focus: Urban growth boundary
This study documents and quantifies transformations in land cover and land use from 1974 to 1998 for a 474 km2 study area east of Seattle. The study aims to examine the effects of growth management on the urban fringe. The study finds that growth management caused suburban and exurban development increased dramatically. Settled land became more contiguous while rural and wildland became more fragmented. Interior forest habitat decreased by 41%. Land inside urban growth boundaries did increase housing density. However, 72% of land that developed between 1974 and 1998 was low-density housing in rural and wildland areas.

"Urban Growth Patterns and Growth Management Boundaries in the Central Puget Sound, Washington, 1986–2007." Jeffrey Hepinstall-Cymerman, Stephan Coe, and Lucy R. Hutyra. Urban Ecosystems, Vol 16, Issue 1, 2013.
Geographic Focus: Washington
Subject area focus: Urban growth boundary

This study documents the change in land cover in six counties in Washington from 1986 to 2007 to understand the impact of the urban growth boundaries implemented in the late 1990's as part of the state's Growth Management Act. Urban land cover increased from 8 to 19% of the study area between 1986 and 2007, while lowland deciduous and mixed forests decreased from 21 to 13% and grass and agriculture decreased from 11 to 8%. Land in urban classes outside of the urban growth boundaries increased more rapidly (by area and percentage of new urban land cover) than land within the urban growth boundaries, suggesting that the intended effect of the Growth Management Act to direct growth to within the urban growth boundaries may not have been accomplished by 2007.

"Incorporating Ecosystem-Based Management into Urban Environmental Policy: A Case Study from Western Washington."Vivek Shandas, Jessica K. Graybill, and Clare M. Ryan. Journal of Environmental Planning & Management, Vol 51, Issue 5, 2008.
Geographic Focus: Washington
Subject area focus: Conservation planning
The authors conducted interviews with 42 environmental planners working for cities in western Washington to ask what elements of ecosystem-based modeling (EBM) they consider as they review scientific information. The results suggest that planners consider elements related to monitoring, inter-agency co-operation, ecological boundaries, values and to a limited extent, adaptive management. However, urban and regional planners struggle with, or do not explicitly consider, the elements of scale, ecological integrity, and organizational change when developing local environmental policy. The paper offers suggestions for improving urban environmental policy development through the application of EBM principles.

"Evaluating Water Demands under Climate Change and Transitions in the Urban Environment." Austin S. Polebitski. Journal of Water Resources Planning & Management, Vol 137, Issue 3, 2011.
Geographic Focus: Washington
Subject area focus: Conservation planning
This study examines how population growth, land use, pricing policy, and climate change affect residential water demands in the Puget Sound region. The study couples a spatially disaggregate water demand model

with an advanced urban simulation model (UrbanSim) to generate demands at a detailed spatial resolution over a 30-year planning horizon. The study compares a baseline scenario with output from UrbanSim for three different planning scenarios.

"Impact of Urban Growth Boundary on Housing and Land Prices: Evidence from King County, Washington." Shishir Mathur. Housing Studies, Vol 29, Issue 1, 2014.
Geographic Focus: Washington
Subject area focus: Urban growth boundary

This study examines the impact of King County's UGB on land and housing prices by analyzing sales transactions of vacant lots and single family homes within two miles of the border. The study finds that the UGB increased land prices by 230% and decreased housing prices by 1.3%. The study recommends local jurisdictions adopt policies to mitigate the inflationary land price effect, including minimum density requirements, zoning for multifamily housing, and ordinances enabling the construction of accessory dwelling units.

"Valuation of Ecosystem Services from Rural Landscapes Using Agricultural Land Prices." Shan Ma and Scott M. Swinton. Ecological Economics, Vol 70, Issue 9, 2011.
Geographic Focus: Michigan
Subject area focus: Ecosystem services valuation

This study uses a hedonic analysis of agricultural land prices to estimate the private values of land-based ecosystem services (ES). The model uses data from southwestern Michigan. Results suggest that lakes, rivers, wetlands, forests, and conservation lands in rural landscapes often have positive ES values. Landowners are more likely to perceive and capitalize on those ES that support direct use values, such as recreational and aesthetic services. They may also capitalize some regulating ES that provide indirect use values. They are unlikely to capitalize other ES from the land parcel and its surroundings due to lack of awareness, perceived value, or private incentives. The findings of this study highlight opportunities to design cost-effective public policies that factor in the value of private benefits from agricultural lands.

"Generating Policies for Sustainable Water Use in Complex Scenarios: An Integrated Land Use and Water-Use Model of Monroe County, Michigan." Moira L. Zellner. Environment & Planning B: Planning & Design, Vol 34, Issue 4, 2007
Geographic Focus: Michigan
Subject area focus: Groundwater

This paper uses the Water Use and Land Use Model to understand how land use impacts groundwater replenishment. It uses Monroe County, Michigan as a case study, as groundwater levels in the County have rapidly declined since the early 1990s. The land use component of the model includes the main groundwater extractors in the county. The groundwater component includes the glacial deposits and the underlying bedrock aquifer. Initial explorations with the model show that land use patterns contributed significantly to groundwater declines. Both low-density and high-density zoning restrictions improved aquifer conditions more than medium-density development, suggesting a nonlinear relationship between the intensity of residential use and groundwater levels.

"Open Space Neighborhoods: Residents' Views on New Forms of Development." Christin A. Vogt and Robert W. Marans. Journal of Park & Recreation Administration, Vol. 21, Issue 4, 2003.
Geographic Focus: Michigan
Subject area focus: Planned communities

The authors of this study conducted research across the Detroit Metro area to understand how residents of relatively new residential open-space designed subdivisions perceive land use and conservation issues. The study reports that residents acknowledged the need for natural resource management and stewardship in general, but were most concerned about local conditions. Two specific findings: (1) residents were more concerned about the preservation of quality of life and nearby nature, than the preservation of natural areas in a larger setting; and (3) they were more concerned about high-density housing developments, than low-density housing developments.

"Motivations Influencing the Adoption of Conservation Easements." James R. Farmer and Doug Knapp. Conservation Biology, Vol 25, Issue 4, 2011.
Geographic Focus: Michigan, Ohio, Wisconsin, Illinois, Iowa
Subject area focus: Conservation easements

This study surveyed and interviewed private property owners with easements on their properties in Michigan, Ohio, Wisconsin, Illinois, and Iowa to understand why they decided to allow these easements. The study reports that place attachment was the greatest motivation for implementing an easement. Other motivations included: contributing to the public good and personal finances. The latter often ranked lowest for interviewees.

"Land Conversion at the Protected Area's Edge." Daniel B. Kramer and Patrick J. Doran. Conservation Letters, Vol 3, Issue 5, 2010.
Geographic Focus: Michigan
Subject area focus: Buffer zones

This study analyzes development patterns within two kilometers of protected lands in Michigan. The study looks for parcel characteristics on protected lands that correlate to higher rates of land conversion on adjacent lands. The most parsimonious models indicate that parcels with more developed, forested, and protected land in their vicinity, with well-drained soils, at lower elevations, nearer roads and urban areas, in areas of greater population, and originally in agriculture are more likely to be developed. There is weak support for correlation between the likelihood of conversion and parcels size, access, ownership, and protection mechanism.

"Changes in Wisconsin's Large Private Forests, 1999–2015: Land Ownership, Conservation, and Recreational Access." Andrew W. L'Roe and Adena R. Rissman. Society & Natural Resources, Vol 30, Issue 1, 2017.
Geographic Focus: Wisconsin
Subject area focus: Forestland preservation

Forestland divestment among vertically integrated forest products companies (VIFPCs) has spurred significant forest ownership change. This study examines changes in land sales, conservation, and access in Wisconsin from 1999 to 2015. Key findings include:

- VIFPCs sold nearly all their land to investors, public agencies, or smaller corporate and private owners.
- Private owners retained 70% of large parcels in the forest tax program
- Public and nonprofit owners acquired 16% of these large parcels.

- Owners placed more than one-quarter of divested forestland in conservation easements.
- The amount of large private forestland open to public recreation declined by almost one-third.

"Strategically Placing Green Infrastructure: Cost-Effective Land Conservation in the Floodplain." Carolyn Kousky, Sheila M. Olmstead, Margaret A. Walls, and Molly Macauley. Environmental Science & Technology, Vol. 47, Issue 8, 2013.
Geographic Focus: Wisconsin
Subject area focus: Floodplain preservation

This study estimates and compares the cost of preventing development on floodplain parcels in the East River Watershed of Wisconsin's Lower Fox River Basin to the value of avoided flood damages. It finds that, for the entire floodplain, projected costs would substantially exceed mitigation benefits. For parcels at a high-risk of high-value development, the cost of preventing that development would likely exceed the value of avoided damages.

"Unexpected co-benefits: Forest connectivity and property tax incentives." Christina M. Locke and Adena R. Rissman. Landscape & Urban Planning, Vol. 104, Issues 3-4, 2012.
Geographic Focus: Wisconsin
Subject area focus: Forestland preservation

This study explores the potential connection between enrollment in forest tax incentive programs and connectivity to public lands. It examines this connection through the lens of one of the largest forest tax incentive programs in the United States, Wisconsin's Managed Forest Law and Forest Crop Law, in which private landowners have enrolled 1.1 million hectares of forestland. The study finds that enrollments were more likely to cluster near public lands than be randomly distributed across a forested landscape. This trend does not appear to be the product of policies, which this study finds do not preferentially enroll private forestlands connected to public lands.

"The Greening of Urban Post-Industrial Landscapes: Past Practices and Emerging Trends." Christopher De Sousa. Local Environment, Vol 19, Issue 10, 2014.
Geographic Focus: Wisconsin
Subject area focus: Brownfield remediation

This paper describes three case studies of greening post-industrial landscapes, one of which is Menomonee Valley in Milwaukee, WI. The case studies describe the planning processes that led to remediation and development and key lessons from those processes for other cities.

"Public Support for Remedial Action Planning: Willingness to Pay in Brown County, Wisconsin." Gerrit Knaap, Larry Smith, and Per Johnson. Journal of Planning Education & Research, Vol. 16, Issue 4, 1997.
Geographic Focus: Wisconsin
Subject area focus: Willingness to pay

This article examines public support for the Remedial Action Plan (RAP) for the Upper Fox River and Lower Green Bay watershed of Lake Michigan by analyzing the results of a telephone survey. The survey found support for a remedial action plan was significantly greater among those familiar with the plan. The survey also found willingness to pay for the plan greater among the young and better educated, a strong preference for industry fees and user charges over taxation as a method of payment, and little support for the creation of a new agency to implement the plan. These results suggest that the key to public support, and perhaps for successful RAP implementation, lies less in fostering recreational use of the watershed and more in continuing efforts to provide education and information to the young, the dedication of user fees for RAP implementation, and continued leadership by state government.

"Determinants of Residential Land Use Conversion and Sprawl at the Rural-Urban Fringe." Carmen Carrión-Flores and Elena G. Irwin. American Journal of Agricultural Economics, Vol. 86, Issue 4, 2004.
Geographic Focus: Ohio
Subject area focus: Residential development
This study examines factors that could influence land conversion at the parcel-level in Medina County, OH, a rural-urban county. The results indicate that location of new residential development is guided by preferences toward lower density areas near existing urban development.

"A Hedonic Price Analysis of Farmland Option Premiums under Urban Influences." Tamer Isgin and Lynn D. Forster. Canadian Journal of Agricultural Economics, Vol. 54, Issue 3, 2006.
Geographic Focus: Ohio
Subject area focus: Real option pricing

This study explores real option pricing theory in the context of urban fringe farmland. It maintains that the value of this farmland may include the potential value that would arise from development of that farmland, as measured by the value of nearby urban development. The study uses hedonic models to represent farmland option premiums across a random sample of Ohio farmland parcels. Results suggest that owners of farmland have successfully capitalized the value of potential land development.

"A Fixed Effects Logit Model of Rural Land Conversion and Zoning." Carmen Carrión-Flores and Elena Irwin. Annals of Regional Science, Vol 58, Issue 1, 2017.
Geographic Focus: Ohio
Subject area focus: Residential development, zoning

This study examines the impact of minimum-lot-size zoning on the conversion of rural land to residential subdivisions in fast-growing exurban areas. This natural experiment takes place in Medina County, Ohio. The results show that minimum-lot-size zoning likely has a small negative impact on the conversion probability of undeveloped rural land parcels.

"Optimizing Patterns of Land Use to Reduce Peak Runoff Flow and Nonpoint Source Pollution with an Integrated Hydrological and Land Use Model." Yeo In-Young, Steven I. Gordon, and Jean-Michel Guldmann. Earth Interactions, Vol. 8, 2004.
Geographic Focus: Ohio
Subject area focus: Nonpoint source runoff

This study examines methods for delineating optimal land use patterns that minimize peak runoff flow at watershed outlets by coupling a hydrological model and a land use model. Under the assumption supported in prior research that nonpoint source (NPS) pollution positively correlates with surface runoff volume, the model yields land use patterns that minimize nonpoint source pollution. The study applies this approach to the Old Woman Creek watershed in Ohio. The results show that optimal land use patterns would reduce the peak runoff rate by 15-20% under 1-, 2-, 5-, and 10-year storms, compared to the current land use pattern. The model results provide site-specific land use guidelines and identify critical areas for conservation.

"Restoration of Wetland and Prairie on Farmland in the Former Great Black Swamp of Ohio, U.S.A." Christian F. Lenhart and Peter C. Lenhart. Ecological Restoration, Vol. 32, Issue 4, 2014.
Geographic Focus: Ohio
Subject area focus: Nonpoint source runoff

This study examines the impact of a major wetland restoration project on ecosystem restoration and nutrient outflows in Lake Erie. The project encompassed 16.2 hectares in Defiance County, OH, starting in 2004. The wetland had zero nutrient outflow in 2012 and 0.4% of total rainfall in 2013, suggesting a large reduction in nutrient flow into Lake Erie. This project provides information on restoration alternatives and challenges for farmland within a glacial lake plain setting. Lessons learned will help improve future restoration projects in similar settings.

"Green Residential Demolitions: Case Study of Vacant Land Reuse in Storm Water Management in Cleveland." W.D. Shuster, C.E. Burkman, J. Grosshans, S. Dadio, and R. Losco. Journal of Construction Engineering & Management. Vol 141, Issue 3, 2015.
Geographic Focus: Ohio
Subject area focus: Stormwater management
This study investigates the potential impact of an enhanced green demolition process on storm water management. It observes the process at five sites in Cleveland, OH, in 2012, 2013, and 2014. The study evaluated the impact of the process in terms of physical and hydrologic characteristics of soil pre-demolition, post-demolition, and one year later once backfill and topsoil had settled. The results suggest that the process guidelines were partially successful in improving stormwater management on vacant lots. Specific practice findings include:

- Specification for complete debris removal was most effective in reducing runoff potential
- Placement of fine replacement soils rather than loamy soil often increased runoff potential
- Construction contractors need better guidance on soil selection and placement to yield optimal results.

"Urban Agriculture and Other Green Uses: Remaking the Shrinking City." Catherine J. LaCroix. Urban Lawyer, Vol 42, Issue 2, 2010.
Geographic Focus: Ohio
Subject area focus: Urban greenspaces
The article reflects on efforts to re-green Cleveland through urban agriculture and other green uses.

"Selling Tax-Reverted Land: Lessons from Cleveland and Detroit: New This Spring Westchester." Margaret Dewar. Journal of the American Planning Association. Vol. 72, Issue 2, 2006.
Geographic Focus: Michigan and Ohio
Subject area focus: Redevelopment
This study compares the approaches of Cleveland and Detroit with respect to selling tax-reverted land for reuse. Cleveland's land bank had more success than Detroit in selling land. The study attributes Cleveland's success to the integration of land bank objectives into the Mayor's agenda for housing development. The study also notes that the Cleveland land bank follows a number of best practices: it conveys land with clear titles; has an accurate property inventory; "banks" property; and sells properties for predictable, low prices.

"Improved water quality in Ohio tributaries to Lake Erie: A consequence of conservation practices. R.P. Richards, D.B. Baker, and J.P. Crumrine. Journal of Soil & Water Conservation. Vol 64, Issue 3, 2009.
Geographic Focus: Ohio
Subject area focus: Agricultural practices

This study identifies and interprets longitudinal trends (1975-2004) in suspended sediment and particulate phosphorous concentrations and loads in two tributaries to Lake Erie, the Sandusky and Maumee Rivers. Both show a continual decrease in concentration and loads in the 30-year period. The greatest decreases are

observed in summer and fall and under low flow conditions. The smallest decreases are observed in the spring and under high flow conditions. Analysis of concentration-flow relationships indicates that these changes are not due to weather but reflect the successful use of agricultural practices to reduce erosion and prevent sediment loss. Opportunities for further reductions in suspended sediment and particulate phosphorus loads and concentrations lie in better management of sediment losses during winter and spring.

"Evaluating the Impact of Legacy and Agricultural Conservation Practices on Nutrient Loads from the Maumee River Watershed." Rebecca L. Muenich, Margaret Kalcic, and Donald Scavia. Environmental Science & Technology, Vol 50, Issue 15, 2016.
Geographic Focus: Ohio
Subject area focus: Agricultural practices
This study tests the impacts of alternative agricultural land use and land management scenarios on phosphorous loads to Lake Erie. It focuses on the Maumee River Watershed, which contributes roughly half of the phosphorous load of Lake Erie's Western Basin. Results indicate that, even if fertilizer application ceased, it may take years to see desired decreases in phosphorus loads, especially if the Watershed experiences greater spring precipitation or snowmelt. Scenarios also indicate that widespread conversions to perennial crops that may be used for biofuel production are capable of substantially reducing phosphorus loads.

In-Fill

Inside the Chesapeake Bay Watershed

"Redevelopment with A Wiggle." Jane Vincent. Journal of Housing & Community Development, Vol. 66, Issue 3, 2009.
State focus: Delaware
Subject area focus: Redevelopment

This article offers information on Delaware's Blueprint Communities Initiative, a redevelopment planning program in urban and rural areas of the state that offers communities a blueprint of tools and expertise for the design of a redevelopment plan.

"Maryland's Revitalization Efforts." Parris N. Glendening. Journal of Housing & Community Development, Vol 53, Issue 4, 1996.
State focus: Maryland
Subject area focus: Community revitalization

This article discusses various efforts launched in Maryland to revitalize older communities and minimize problems associated with urban sprawl. These efforts include the Neighborhood Business Development Program, strategies to increase home ownership, and approvals for a Community Revitalization Plan.

"The Impact of Contamination on the Canton/ Southeast Baltimore Land Market." Marie Howland. Journal of the American Planning Association, Vol 66, Issue 4, 2000.
State focus: Maryland
Subject area focus: Brownfields

This paper examines the supply of and demand for industrial land in one industrial district of Baltimore, Maryland. The study finds that land contamination was not a deterrent to land purchase, but that brownfield sites sold for an average of 55% less than non-contaminated sites. The study finds little evidence to suggest

private sector land hoarding. The City of Baltimore appears to be more reluctant to redevelop contaminated parcels than the private sector. This study was conducted prior to the passage of Maryland's 1997 Voluntary Cleanup Act.

"Environmental Contamination, Brownfields Policy, and Economic Redevelopment in an Industrial Area of Baltimore, Maryland." Mirian Schoenbaum. Land Economics, Vol 78, Issue 1, 2002.

State focus: Maryland
Subject area focus: Brownfields
This study examines the assumption that site contamination is a significant factor in land use and development patterns, an assumption that led to legislation in many states to limit the liability of innocent property redevelopers. Data from 1963 to 1999 in an industrial area of Baltimore did not show a systematic relationship between pollution and land use variables, suggesting other factors may cause vacancy and underuse.

"The Landscape of Urban Preservation: A Spatial Analysis of Federal Rehabilitation Tax Credits in Richmond, Virginia." Stephanie Ryberg-Webster. Journal of Urban Affairs, Vol 37, Issue 4, 2015.
State focus: Virginia
Subject area focus: Tax incentives, community revitalization

This study analyzes federal historic rehabilitation tax credit (RTC) investments in Richmond, Virginia between 1997 and 2010 to examine their impact on revitalization. The study finds that RTC investments contributed to revitalizing industrial sites in Richmond, and built resiliency in the real estate market. The study provides a detailed discussion of the urban geography and spatial effects of ETCs, and outlines policies that could help capture more private-sector investments.

"How PlaNYC Will Facilitate Brownfield Redevelopment." Mark McIntyre. New York Law School Law Review, Vol 54, 2009.
State focus: New York
Subject area focus: Brownfield remediation
This article focuses on how to conduct brownfield cleanups under PlaNYC.

"New York State's Brownfield Cleanup Tax Credit Program." Kevin Hurley. Economic Development Journal. Winter 2006.
State focus: New York
Subject area focus: Brownfield remediation

This article explores the implementation of New York State's Brownfield Cleanup program, run by the Department of Environmental Conservation. The program incentivizes cleanup of the State's contaminated lands to spur further investment in brownfield redevelopment.

Outside the Chesapeake Bay Watershed

"Saving Alabama's Urban Neighborhoods: Revisions to Alabama's Property Tax Sale Laws." Andrew S. Olds. Cumberland Law Review, Vol. 44, 2014.
State focus: Alabama
Subject area focus: Community revitalization
This article recommends changes to Alabama's property tax sale system to promote urban revitalization and reduce urban blight and tax-delinquency. It discusses potential incentives for the redevelopment of tax delinquent properties, including nuisance actions, receivership, and land banks.

"Comparing Contaminated Property Redevelopment for Mandatory and Voluntary Cleanup Programs in California." Peter M. Schwartz, Craig a. Depken, Alex Hanning, et. al. Journal of Environmental Management, Vol. 90, Issue 12, 2009.
State focus: California
Subject area focus: Brownfield redevelopment

This study compares the redevelopment of contaminated properties subject to mandatory cleanup (CalSites, subject to CERCLA liability) to those in the Voluntary Cleanup Program (VCP, subject to a risk-based approach (RBA)). The results show that, while contaminated properties overall trended toward redevelopment as residential properties, VCP properties were less likely to be repurposed as residential and more likely to become industrial sites.

"Reclaiming the Authentic Future: The Role of Redevelopment in Unincorporated California." Tony LoPresti. Urban Lawyer, Vol 135, 2012.
State focus: California
Subject area focus: Redevelopment

This article explores policies in California to redevelop unincorporated land. It discusses the deprivation of infrastructure improvements in communities, the California Community Redevelopment Law, and the tax revenue of redevelopment agencies within the state.

"The Death of California Redevelopment Areas: Did the State Get It Right?" Charles Swenson. Economic Development Quarterly, Vol 29, Issue 3, 2015.
State focus: California
Subject area focus: Tax increment financing

California ended Redevelopment Areas (RDAs), the State's primary program for tax increment financing, in 2012. The State asserted that it had insufficient evidence of the program's effectiveness to justify continued funding. This study finds that the RDAs established in the 1990s had minimal positive economic impact to RDA areas, indicating the state might be correct.

"The Transformation of Blight: Fixing the CERCLA Lessee Problem to Develop Renewable Energy." Carolyn Miller. George Washington Law Review, Vol. 82, Issue 4, 2014.
State focus: California
Subject area focus: Renewable energy, redevelopment

This article identifies contaminated sites on which renewable energy projects could help resolve two major environmental planning issues facing cities today. The article notes that neither CERCLA nor the Brownfields Amendments define lessee liability on contaminated sites. This is a major deterrent for renewable energy developers, as most rent rather than purchase land. The author argues that the U.S. Congress needs to pass an amendment to CERCLA that creates a lessee defense that is modeled after California's lessee defense. Providing defense against preexisting contamination would promote more renewable energy development on brownfield sites.

"Determinants and Effects on Property Values of Participation in Voluntary Cleanup Programs: The Case of Colorado." Anna Alberini. Contemporary Economic Policy, Vol. 25, Issue 3, 2007.
State focus: Colorado
Subject area focus: Voluntary cleanup programs
This study examines voluntary cleanup program (VCP) properties in Colorado to understand which properties are good candidates for VCP, if there are interactions between VCP and enterprise/brownfield zone incentives, and if VCP impacts property values. The data suggest that:

- Parcel size and surrounding land use are the primary determinants of participation
- Other incentives have little impact on participation
- Properties with confirmed contamination sell at about 50% discount
- VCP participation tends to raise property values

"Transportation Concurrency in Dense Urban Land Use Areas after Passage of the Community Renewal Act of 2009." Cari Roth. Florida Bar Journal. October 2009.
State focus: Florida
Subject area focus: Transportation concurrency
This article discusses the changes made by Florida's Community Renewal Act of 2009 to transportation concurrency in dense urban areas. Florida's transportation concurrency requirements had been described as a deterrent to redeveloping dense-urban areas prior to the Community Renewal Act of 2009.

"The Evolution of Transportation Concurrency and Urban Development Pattern in Miami-Dade County, Florida." Jeongseob Kim, Ruth Steiner, and Yizhao Yang. Urban Affairs Review, Vol. 50, Issue 5, 2014.
State focus: Florida
Subject area focus: Transportation concurrency

Florida's transportation concurrency was developed initially to coordinate transportation infrastructure with development in a rapidly growing state. Lack of roadway investment and capacity in existing urban areas may have resulted in increased sprawl. Transportation Concurrency Exception Areas were created to address this concern and This was partially effective in Miami-Dade County to increase infill and reduce sprawl. Its effectiveness, however, may have been undermined by locally discretionary implementation of transportation concurrency and inadequate traffic mitigation efforts.

"Solid Theory and Soft Implementation in Policy Design: Florida Compact Development Policies." Efraim Ben-Zadok. International Planning Studies. Vol. 11, Issue 1, 2006.
State focus: Florida
Subject area focus: Growth management, transportation concurrency, redevelopment
This study compares three amendments to Florida's 1985 Growth Management Act and their impacts on local communities: 1993 Transportation Concurrency, 1996 Sustainable Communities Demonstration Project, and the 1999 Urban Infill and Redevelopment. The study concludes all three are sound policies and serve as unique interventions to encourage infill and combat sprawl. However, it finds that the Implementation tools and processes are inadequate. Discretionary tools are too flexible and lack prescriptions for implementation, resulting in strong policies with weak results in combatting sprawl.

"Tax Increment Financing." Don Davis. Public Budgeting & Finance, Vol. 9, Issue 1, 1989.
State focus: Illinois
Subject area focus: Tax increment financing

Tax Increment Financing uses increased tax revenue resulting from redevelopment to help subsidize the costs of redevelopment. This paper examines methods of using real property tax increments under Illinois law, specifically "aggregate" and "parcel."

"The Effect of Voluntary Brownfields Programs on nearby Property Values: Evidence from Illinois." Joshua Linn. Journal of Urban Economics, Vol. 78, 2013.
State focus: Illinois
Subject area focus: Brownfields

This paper estimates the effect of brownfields certification through Illinois' Site Remediation Program on nearby property values. The study finds that a certified brownfield raised the value of property within 0.25 miles by about 1%.

"Tracking Remediation and Redevelopment Trends of Brownfield Clean-up Programmes: the Cook County Experience." Kimberly Winson-Geideman, Robert Simons, and John Pendergrass. Journal of Environmental Planning & Management, Vol. 47, Issue 3, 2004.
State focus: Illinois
Subject area focus: Brownfields

This study examines the clean-up and development of properties in Cook County that participated in Illinois' brownfield clean-up programmes since 1989. Results show that over half of the participation sites received a closure letter, and that a quarter used a residential standard when remediating property. One-third used caps or other engineering controls, and about 20% have received financing since obtaining the closure letter.

"Indiana's Brownfields Initiatives: A Vehicle for Pursuing Environmental Justice or Just Blowing Smoke?" Oni Harton. Indiana Law Review, Vol. 41, Issue 1. 2008.
State focus: Indiana
Subject area focus: Brownfields
This article highlights federal and state legislative measures that impact brownfields, and debates the merits of integrating substantive requirements for public participation to adequately address environmental justice concerns.

"Environmental Law Developments: A Focus on Brownfields—Overcoming Historical Environmental Problems." George Plews and Jeffrey Featherstun. Indiana Law Review. Vol. 38, Issue 4, 2005.
State focus: Indiana
Subject area focus: Environmental law, brownfields
This article focuses on developments in environmental law in Indiana from October 2003 to September 2004. A variety of legislation was passed to address problems stemming from Indiana's long industrial history. This study explores those various laws.

"Bending Priorities: A Study in Policy Framing. State of Michigan's Brownfield Initiative." Richard Hula, Rebecca Bromley-Trujillo, and Roger Hamlin. Transylvanian Review of Administrative Sciences. 2009.
State focus: Michigan
Subject area focus: Brownfields
This paper examines the political process that informed the creation and implementation of Michigan's brownfield initiative. It gives special attention to the widespread dissatisfaction of a variety of stakeholders with long dominant federal programs for environmental cleanups. It then outlines the legislative and administrative changes to Michigan's environmental policy over the past decade. It follows with an overview of the innovative aspects of the policy. It closes with an exploration of how public opinion was incorporated into the brownfield initiative.

"Cleaning Up the Mess: Redevelopment of Urban Brownfields." Richard Hula, Rebecca Bromley-Trujillo. Economic Development Quarterly, Vol. 24, Issue 3, 2010.
State focus: Michigan
Subject area focus: Brownfields

This article explores the impact of a brownfield redevelopment initiative in Michigan. These programs are generally viewed in a positive light, yet there is little data to support these views. This study finds that, on average, Michigan's brownfields have declined in quality over time; only several sites had significantly improved with time.

"Who Would Pay for Rural Open Space Preservation and Inner-city Redevelopment? Identifying Support for Policies that Can Contribute to Regional Land Use Governance." Rayman Mohamed. Urban Studies, Vol. 45, Issue 13, 2008.
State focus: Michigan
Subject area focus: Willingness to pay

Many studies have made the case for preserving rural open space and redeveloping inner cities. It remains unclear, however, whether citizens are willing to pay for both open space preservation and redevelopment policies. An analysis of a survey of Michigan citizens shows that 37% of people would pay for both preserving rural open space and redeveloping inner cities. This supporting group tended to be younger, liberal, white, and generally satisfied with their neighborhoods but concerned about sprawl. The paper suggests policy makers can broaden support for these policies by taking measures to ensure benefits of these policies are widely spread among citizens.

"Groundwater Vulnerability, Brownfield Redevelopment and Land Use Planning." Kent S. Murray and Daniel T. Rogers. Journal of Environmental Planning & Management, Vol 42, Issue 6, 1999.
Geographic Focus: Michigan
Subject area focus: Rural greenfield development
This study evaluates the impacts of industrial development in undeveloped areas on solute transport in soil, which impacts ground and surface water. This model was used to create a map of groundwater vulnerability within the Rouge River watershed of southeastern Michigan. The map has been used to find several rural and undeveloped areas where development threatens groundwater. It also identifies brownfields in Detroit that have a much lower vulnerability to groundwater contamination and may, therefore, be far less costly to redevelop.

"Michigan's Approach to Urban Redevelopment Involving Contaminated Properties." Robert D. Swartz. Economic Development Quarterly, Vol. 8, Issue 4, 1994.
State focus: Michigan
Subject area focus: Brownfields
This paper reviews Michigan's legislation, covenant not to sue, to mitigate the cleanup liability of parties not responsible for contaminating land, which enhances brownfield redevelopment prospects. The article also explores the State's site reclamation program, which provides grants or loans to government entities to clean up contaminated sites if there are investors to support future economic activity on those sites.

"Tax Increment Financing as a Tool for Redevelopment: Attracting Private Investment to Serve a Public Purpose—The Example of Michigan." Laura Bassett. Urban Lawyer, Vol. 41, Issue 4, 2009.
State focus: Michigan
Subject area focus: Tax increment financing
This article analyzes the use of tax increment financing in Michigan to promote economic growth in depressed urban areas.

"The Main Street program in Mississippi." Steve Kelly. Economic Development Review. Vol. 14, Issue 3, 1996.
State focus: Mississippi
Subject area focus: Main Street, redevelopment

This paper assesses the impact of Mississippi's Main Street Program. It considers the following measures: public and private funding infused into downtown revitalization projects, job growth, and economic development outcomes.

"Specificity, Blight and Two Tiers of TIF: A Proposal for Reform of Tax Increment Financing Law." Gil Williams. St. Louis University Public Law Review, Vol. 33, 2013.
State focus: Missouri
Subject area focus: Tax increment financing

This article examines tax increment financing in Missouri through an analysis of a redevelopment project in north Saint Louis by developer Paul McKee and NorthSide Regeneration LLC. Based on that case study, this article proposes modifications to enhance the laws.

"Defending the Historic Preservation Tax Credit." Lauren Shores. Missouri Law Review. Vol. 77, 2012.
State focus: Missouri
Subject area focus: Historic preservation tax credit
This article evaluates the effectiveness of Missouri's historic preservation tax credit in redeveloping historic buildings. It discusses the merits and demerits of the tax credit structure. The article offers amendments that would provide a net benefit to the State.

"New Jersey adopts Brownfields redevelopment law." Environmental Manager. March 1998.

State focus: New Jersey
Subject area focus: Brownfields
This article discusses several provisions of New Jersey's Brownfields Redevelopment Law, which encourages redevelopment of older commercial and industrial brownfield sites in the state.

"Brownfields at 20: A Critical Reevaluation." Joel Eisen. Fordham Urban Law Journal, Vol. 34, 2007.
State focus: New Jersey
Subject area focus: Brownfields
This article examines the impact of New Jersey's Memorandum of Agreement's Voluntary Cleanup Program (MOAVCP) on the liability of new owners of properties subject to the rules of CERCLA. The MOAVCP aims to reduce the liability of new property owners and offer longer periods of time for cleanups.

"The Use of Constituent Focus Groups for More Effective Program Planning and Management: A Case Study of The Clean Ohio Revitalization Fund." Wendy Kellogg, Kevin O'Brien, and Kristin Toth. Public Performance & Management Review, Vol. 30, Issue 1, 2006.
State focus: Ohio
Subject area focus: Stakeholder engagement
This paper describes the planning process and outcomes of the Clean Ohio Revitalization Fund, a State program focused on revitalizing abandoned contaminated properties. Stakeholders across the program were interviewed to understand how to improve the overall effectiveness of the fund.

"The Amazing Shrinking City: Can Smart Decline Improve Urban Life?" Christopher Weber. Taproot Journal. Volume 22, 2011/2012.
Geographic Focus: Ohio
Subject area focus: Urban revitalization

This article describes Reimagining Cleveland, a collaborative effort in Cleveland to reclaim vacant lots and properties to revitalize neighborhoods. This effort envisions the reclamation of thousands of acres of land to create natural areas in the city and attract nature lovers to the area.

"The Brownfield Dual Land Use Policy Challenge: Reducing Barriers to Private Redevelopment While Connecting Reuse to Broader Community Goals." Linda McCarthy. Land Use Policy, Vol. 19, Issue 4, 2002.
Geographic Focus: Ohio
Subject area focus: Brownfields

This paper examines the progress to address the dual land use policy challenge—reduce private sector liability and enhance public environmental protection—at the federal, state, and local levels in Toledo, OH.

"A Modest Proposal: Eliminating Blight, Abolishing But-For, and Putting New Purpose in Wisconsin's Tax Increment Financing Law." David Farewell. Marquette Law Review, Vol. 89, Issue 2, 2005.
State focus: Wisconsin
Subject area focus: Tax increment financing

This article examines the tax increment financing law of Wisconsin, and how it has evolved to do more than just eliminate blight.

"Sharing The Green: Reformatting Wisconsin's Forgotten Green Space Grant with A Public-Private Partnership Design." Scott Brunner. Marquette Law Review, Vol. 95, Issue 1, 2011.
State focus: Wisconsin
Subject area focus: Brownfields, community revitalization
This paper describes the brownfield-to-greenspace conversion program in Wisconsin that provides grants to municipalities for brownfield conversion to greenspace. In the past, municipalities have successfully used

these grants to invest in small-scale brownfield-to-greenspace conversions. This paper explores how these conversions can facilitate redevelopment, job creation, and economic development in the neighborhood surrounding the reclaimed parcel. It concludes with recommendations on how to adapt the grant program to engage additional public and private investors.

"Innocent Landowner Programs and Their Effects on Environmental Risk and Property Value Impacts" Thomas Jackson and Jennifer Pitts. Appraisal Journal. Spring 2006.

State focus: Texas

Subject area focus: Innocent landowner programs

This article presents information on innocent landowner programs across the U.S. and their effects on environmental risk and property values. The paper specifically examines a program run by the State of Texas that encourages the purchase and development of contaminated sites through mitigating the liability of innocent third parties.

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