Accounting for Sprawl's Costs

How Development Impact Fees Can Discourage Low-Density Development

Elizabeth Ridlington
Brad Heavner

MaryPIRG Foundation
September 2003

Acknowledgments

The MaryPIRG Foundation would like to thank Adam Gordon of the Baltimore Regional Partnership, Dave Kovac of the Virginia Chapter of the American Planning Association, and George Maurer of the Chesapeake Bay Foundation for providing peer review. Tony Dutzik provided editorial assistance. Thanks to Harriet Eckstein for layout design.

The MaryPIRG Foundation gratefully acknowledges the Surdna Foundation and the Clayton Baker Trust for their financial support.

The authors alone bear respnsibility for any factual errors. The recommendations are those of the MaryPIRG Foundation. The views expressed in this report are those of the authors and do not necessarily reflect the views of our funders.

The MaryPIRG Foundation is a 501(c)(3) organization dedicated to protecting the environment, the rights of consumers, and good government in Maryland. The Foundation's companion organization, the Maryland Public Interest Research Group, founded in 1973, has 5,000 members throughout the state and a student chapter at the University of Maryland's College Park campus.

For additional copies of this report, send $10 (including shipping) to:

MaryPIRG Foundation
3121 Saint Paul Street, Suite 26
Baltimore, MD 21218

For more information about MaryPIRG and the MaryPIRG Foundation, call (410) 467-0439 or visit our website at www.marypirg.org.

Table of Contents

Executive Summary

Development impact fees and excise taxes—charges levied on new development to make it pay more of its fair share of public infrastructure costs—can buttress the state's existing efforts at directing growth to targeted areas and at protecting open space.

The cost of different development options is an important factor in determining which projects will be built where. By applying a fee or tax to sprawling growth, counties can weight developers' decisions toward more compact subdivisions or infill projects.

Impact fees can be charged on any public infrastructure cost imposed by a new development. Because sprawling development is so much more costly for governments than is compact or infill development—up to 40 percent more for water and sewer lines, 33 percent more for roads, and 50 percent more for fire protection—location-sensitive fees should be higher for low-density development. Particularly desirable projects—transit-oriented neighborhoods, urban revitalization, and affordable housing—will pay lower fees because they impose fewer public costs or they can be exempted altogether.

All Maryland counties and municipalities with development impact fees or excise taxes use them to raise revenue. Many counties have begun to recognize how such charges can discourage sprawling development by making it more expensive relative to compact growth.

- Fire protection impact fees in Queen Anne's County are tied to the location of development: nonresidential projects in priority areas pay rates approximately half those of projects outside priority growth areas.

- Montgomery County funds transportation projects in part through fees that vary depending on a building's traffic impact and where the building is located. Homes near Metro stations, for example, pay less than homes inaccessible to transit.

- Anne Arundel County includes nonresidential development in relevant impact fees such as roads and police protection, and has structured the charges so that bigger buildings are charged more.

- Seven other counties—Calvert, Carroll, Charles, Frederick, Howard, Prince George's, and Saint Mary's—have limited impact fees or excise taxes. Maryland's remaining counties do not have such policies at all, though several are considering them.

Principles for Effective Ordinances

By drawing on aspects of the strongest policies already in place in various Maryland jurisdictions and including more costs in their fees, counties can tailor their impact fee or excise tax ordinances to have a greater impact on private development decisions and to align them with long-term growth plans.

- Fees charged to new sprawling development should cover the full cost of providing all types of infrastructure to serve that development.
- All growth-related expenses should be captured in an impact fee or excise tax so that taxpayers do not subsidize sprawling growth pursued by private developers. Incorporating all costs will provide more ways in which the cost difference between sprawling and compact development will be felt.
- Because the form of commercial development is no less important than residential development for the success of planned growth polices, it too should be subject to development fees.
- Particularly desirable forms of growth—urban redevelopment, transit-oriented neighborhoods, and affordable housing projects—generally have lower public infrastructure costs. Fees for such projects will therefore be lower or can be waived altogether.
- Widespread adoption of impact fees and excise taxes—especially in rural areas and in every county—will encourage compact development rather than prompting developers simply to build in a different county.

Impact fees and excise taxes are a powerful tool for directing growth. Maryland counties should use them to complement and strengthen existing growth-management policies to better protect open space and focus growth in key areas.

Introduction

State and local governments in Maryland rely on a host of zoning and planning policies to guide growth to create livable, vibrant communities. The effectiveness of many of these policies, however, can be undercut by the bottom line economic motivator—money. If, after all zoning and planning laws are considered, private developers can earn greater profits by building large, sprawling, single family residences on open space than by building in the interior areas of a city or town, then open space is where development will occur.

Maryland's development industry records millions in profits each year by building sprawling residential and commercial developments without paying for required public infrastructure. One effective way to get the development community to think critically about land use and favor efficient compact growth is to end public subsidies for sprawling development.

A developer poised to build a large subdivision will likely think harder about where to build if he or she is required to pay the costs to construct roads, water lines, schools, and police stations. Projects in the interior of the city will look more appealing when the lower infrastructure costs of building there are considered.

In 1997, Maryland took steps to end state subsidies for sprawling development. The state asked counties to identify priority funding areas (PFAs) that were zoned at a density of at least 3.5 residential units per acre and where growth seemed appropriate.[1] Though this is not particularly dense, it is more compact than growth in other areas.

The policy's strength lies not with the establishment of density requirements but rather with its funding provisions. Growth in PFAs qualifies for state money for transportation, housing, economic development, and environmental projects. Projects outside PFAs receive state funding only if infrastructure needs within PFAs have been met. This means that developers who want the state to subsidize the infrastructure to support a new development have to build within a PFA.

However, public financial support for sprawling development has not ended. PFA regulations do not apply to county spending. Counties continue to support sprawling development by paying for more expensive roads, sewers, and other infrastructure that serves low-density or leapfrog development—developments located away from the current urban fringe. And this support is immense: counties, not the state, pay for the biggest portion of public growth-related costs. Of the $12 billion necessary for growth-related projects statewide from 2000 to 2021, counties are responsible for $7 billion.[2]

Impact fees and excise taxes are one way that counties can bring their development policies in line with the state's and end subsidies for sprawling development. Through the use of these development charges, counties can require sprawling developments to pay the higher infrastructure costs that they incur. Private developers will factor these increased costs into their decisions about where and what to build, and may decide that sprawling development is a less attractive option.

The High Cost of Sprawling Development

Why Sprawl Costs More

All new development requires investments in infrastructure—the publicly owned and maintained land, hardware, or structures that enable delivery of public services.[3] For a variety of reasons, sprawling development tends to require more costly investments in infrastructure than more compact development.

- Sprawling and leapfrog developments are more dispersed across the land, requiring longer public roads and water and sewer lines to provide service. In addition, such developments often impose costs on police and fire departments and on schools.
- Automobile-dependent sprawl also requires increased expansion of existing roads and leads to private investments—such as large paved parking areas—that can impose greater public-sector costs for stormwater management and water pollution abatement.
- Compact development patterns and infill development can substantially reduce local infrastructure needs as compared to low-density sprawl by taking advantage of existing infrastructure, or by reducing the need for extensions of road, water, and sewer networks.

Infrastructure construction costs are not the only impact of sprawling development. Once new infrastructure is built, it has to be operated and maintained. A 1992 study of development in New Jersey found that modest smart growth measures could save two percent annually on school operating costs. Given that operating costs represent 95 percent of total education expenditures, even a two percent savings is substantial.[4]

Road Construction

All new subdivisions require roads, but those with larger lot sizes and more convoluted layouts require more paving. Additionally, many new developments have roads that are significantly wider than the streets in traditional neighborhoods. This difference translates into huge costs for taxpayers. In general, the cost of building local roads is estimated to be 25 percent lower in compactly developed areas than in sprawling areas.[5] Clustering units can create a 50 percent to 75 percent reduction in road length and thus cost.[6]

One of the best studies comparing the cost of new projects near existing development versus in outlying areas, performed by the Southeast Michigan Council of Governments, found that roads cost two to ten times as much for outlying developments.[7]

Water and Sewer Lines

Depending on the municipality and the development, the cost of constructing water and sewer lines is assumed by the public, the developer, or a combination of the two. In some cases, the developer pays for and installs new lines, and presumably passes the costs on to new homebuyers. In other cases, the water district pays for everything and charges all residents in the district a share of the cost of installing water and sewer lines to service new development.

At a cost in Maryland of $200,000 per mile of sewer line, water and sewer services comprise a large portion of the capital costs of new communities.[8] Sprawl can inflate the cost of this infrastructure by 20 to 40 percent.[9]

Emergency Services and Public Safety

Communities also need ambulance service and police and fire protection. Response time—the time from when an emergency call is made to when help arrives—is key.[10] In sprawling developments, fewer houses are within the acceptable response time of four to six minutes of a fire station than would be the case in a more compactly developed area. As a result, sprawling communities often require more fire and police stations per capita than those in more compactly developed areas.

Communities establish service standards that determine the placement of fire stations according to response time. For instance, a community may decide a single station cannot serve more than seven square miles and maintain the desired five-and-a-half minute response time. However, a station needs to receive at least 400 calls per year to justify keeping the station open. This requires a service-area population of at least 6,600 people, or one house for every 1.6 acres. Theoretically, one station could serve 30,000 people, but a more feasible service-area population would be 12,000 people.[11] The cost of a new station with one engine and the necessary equipment is $1.5 million.[12]

Thus, a town of 50,000 developed at a density of one home per 1.6 acres would need eight fire stations, for a total infrastructure cost of $12 million. Living in a town developed more compactly, that same total population could be served by just four or five stations, for an infrastructure cost of $6 million to $7.5 million. In this scenario, sprawling development is at least 60 percent more costly than compact growth.

Schools

Sprawling development can impact school costs in two ways. First, because many sprawling developments on the urban fringe are built in communities that are sparsely populated and thus have small schools, the developments often require the construction of additional school facilities. Second, the spread-out nature of sprawl imposes significant transportation costs on school districts.

The construction of new schools in outlying areas has often occurred even when existing schools in more densely populated areas have sufficient available capacity. For example, Minneapolis-St. Paul had to build 78 new suburban schools between 1970 and 1990. In the same period, the cities closed 162 urban schools that were in good condition.[13] The state of Maine spent $334 million constructing and expanding schools in fast-growing areas from 1970 to 1995, even though in that same time frame the total number of students dropped by 27,000.[14]

Infill and compact development can reduce these costs. In infill development, children may have the option of attending existing or expanded schools, while more compact forms of development can reduce transportation costs or eliminate the need for busing of some students altogether.

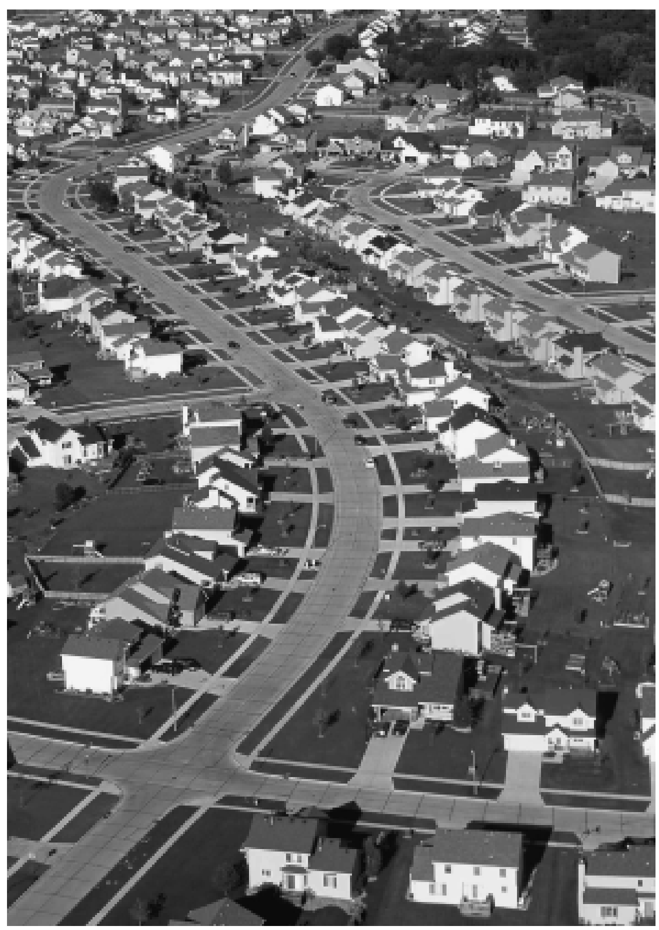
The Cost of Sprawl in Maryland

The following two examples demonstrate the cost in Maryland of sprawling rather than compact development. We estimate that each new home in Carroll County built outside the county's priority growth areas incurs $24,300 in public infrastructure costs, whereas a home inside priority areas requires $19,200 worth of infrastructure. In Prince George's County, a new home outside the Beltway imposes public infrastructure costs of $33,000. That same home constructed inside the Beltway requires only $21,300 in public capital investment.

Currently, developers pay the same amount to the county for infrastructure costs regardless of where the new project is located. This means private developers have no financial incentive to pursue infill projects or build higher-density subdivisions. Carroll and Prince George's counties could remedy this by adjusting their impact fee structures. The counties could charge an impact fee or excise tax to sprawling development as high as the public infrastructure cost imposed by those projects. Compact or infill projects could be charged at a much lower rate. The resultant disparity in development charges would shift private decisions in favor of more compact growth.

Carroll County

We estimate that low-density growth in Carroll County will cost county government $24,300 per home. Because Carroll County's current impact fees are not location-sensitive, the county has not undertaken a detailed survey to determine the variation in public infrastructure expenses for compact versus leapfrog development. As explained below, we use a variety of sources to estimate the cost of different development densities.



Projected residential growth in Carroll County is 960 homes per year from 2000 to 2020, which is slower than the rate of development for the past few years. Most of that growth is projected to occur outside Carroll County's PFAs: 561 homes per year will be constructed in areas that the county has not designated for growth, and only 399 homes will be built in PFAs annually.[15] We assume that homes built inside PFAs will be in more compact developments than new homes outside PFAs.

Figures for projected commercial growth are not readily available. However, extrapolating from the ratio of commercial development to residential development for 1997 to 2002 and assuming future development will follow the same

Table 1a. Total Growth-Related Infrastructure Costs in Carroll County, 2000-2006

Type of Infrastructure	County-wide Cost		Annual Cost
	Budgeted	Unbudgeted	
Schools	$37,275,000	$29,014,000	$11,048,000
Water supply	$22,370,000		$3,728,000
Community colleges	$12,340,000	$710,000	$2,175,000
Roads, bridges, parking, transit	$15,199,000	$165,000	$2,560,000
Parks and recreation	$6,420,000		$1,070,000
Sewer	$2,684,000		$447,000
Library	$1,774,000		$296,000
Health and human services	$888,000		$148,000
Airports	$600,000		$100,000
Total	**$99,550,000**	**$29,889,000**	**$21,572,000**

Table 1b. Infrastructure Costs for Sprawling vs Compact Development in Carroll County, 2000-2006

Type of Infrastructure	Increased Cost of Sprawl	Cost per House		Cost per Non-Residential Unit	
		Inside PFA	Outside PFA	Inside PFA	Outside PFA
Schools	35%	$9,600	$12,900	0	0
Water supply	30%	$3,200	$4,100	$3,200	$4,100
Community colleges	0%	$2,300	$2,300	0	0
Roads, bridges, parking, transit	33%	$2,100	$2,900	$2,100	$2,900
Parks and recreation	0%	$1,100	$1,100	0	0
Sewer	30%	$400	$500	$400	$500
Library	0%	$300	$300	0	0
Health and human services	0%	$150	$150	0	0
Airports	0%	$100	$100	$100	$100
Total		**$19,200**	**$24,300**	**$5,800**	**$7,600**

pattern, an estimated 41 commercial projects will be started each year in Carroll County.[16]

Schools, water supply, and transportation infrastructure are some of the most expensive growth-related costs counties bear. In its list of six-year spending needs, Carroll County included $66 million for schools. Using the assumption that homes outside priority areas impose school costs 35 percent higher than homes inside priority areas and drawing on the growth projections stated above, we calculate that this school cost is the equivalent of $12,900 per home outside PFAs and $9,600 per home within PFAs.[17] Constructing an adequate water supply system costs $4,100 per home outside priority areas, a 30 percent premium over the cost for more compact development.[18] Each new home in an outlying area costs the county $2,900 for roads, bridges, and parking facilities, about 33 percent more than if those same homes were built in a higher density subdivision.[19] We estimate that these and other expenses add up to $24,300 worth of infrastructure costs for a home in a sprawling development, assumed to be outside the PFA, compared to $19,200 for a home in a more compactly designed project.

In total, Carroll County estimates it will need to spend $129 million from 2000 to 2006 just to provide the infrastructure required to support all new growth.[20] (Construction of new facilities to serve existing communities and maintenance costs are separate from this growth-related cost estimate.)

Only the county is burdened with greater costs when someone decides to build a sprawling subdivision; the builder's costs are the same no matter how sprawling the project. Impact fees, in conjunction with other growth management tools, can align public and private costs of development and thus shape private decisions about where to pursue new development projects so that they complement broader land use goals. To best influence private decisions, Carroll County should charge more to each home that imposes high public infrastructure costs and assess a lower fee to development that demands less public support.

Additionally, this higher fee on sprawling development would provide revenue for the county and reduce the financial strain caused by growth.

Prince George's County

The infrastructure cost difference between sprawling and compact growth is even greater in Prince George's County.

Prince George's County projects a residential growth rate of 2,000 new homes per year, slightly lower than its recent growth rate.[21] Of the 2,000 new residential units constructed each year, just 13 percent, or 260, will be built inside the Washington, D.C., Beltway. We assume that homes inside the Beltway will be constructed as infill or more compact developments.

Residential construction will be accompanied by some number of commercial projects. If commercial development occurs at the same rate relative to residential development as in the period from 1996 to 2001, then 48 permits for new commercial development will be issued annually.[22] Only six will be for projects within the Beltway.

The county estimates the cost of providing infrastructure to serve 2,000 new residential units and 48 commercial projects annually will total $1.059 billion from 2000 to 2006.[23] Only $193 million has been included in the county's six-year Capital Improvements Program.[24]

The $863 million worth of expenses that the county did not incorporate in its six-year plan included $850 million for roads, bridges, parking, and public transit, and additional funds for fire facilities, and

Table 2a. Total Growth-Related Infrastructure Costs in Prince George's County, 2000-2006

Type of Infrastructure	County-wide Cost		Annual Cost
	Budgeted	Unbudgeted	
Schools	$49,385,000		$8,231,000
Roads, bridges, parking, transit	$126,183,000	$850,556,000	$38,322,000
Police	$6,540,000		$1,090,000
Parks and recreation	$3,143,000	$650,000	$524,000
Library	$3,000,000		$500,000
Economic development	$2,289,000		$381,000
Solid-waste	$1,875,000		$313,000
Fire	$1,065,000	$12,239,000	$178,000
Total	$193,480,000	$863,445,000	$49,539,000

Table 2b. Infrastructure Costs for Sprawling vs. Compact Development in Prince George's County, 2000-2006

Type of Infrastructure	Increased Cost of Sprawl	Cost per House		Cost per Non-Residential Unit	
		Inside Beltway	Outside Beltway	Inside Beltway	Outside Beltway
Schools	71%	$7,000	$12,000		
Roads, bridges, parking, transit	50%	$13,000	$19,600	$13,000	$19,600
Police	50%	$400	$600	$400	$600
Parks and recreation	0%	$300	$300	$0	$0
Library	0%	$250	$250	$0	$0
Economic development	0%	$200	$200	$200	$200
Solid-waste	0%	$140	$140	$140	$140
Fire	50%	$60	$90	$60	$90
Total		**$21,300**	**$33,000**	**$13,800**	**$20,500**

parks and recreation. Though the county included some road construction in the budgeted plan, it omitted any support for transit. Strong sprawl-control policies require improved access to public transportation and therefore the county would be wise to invest in transit now. Thus our figures below include some of the county's currently unbudgeted transit costs as budgeted costs.

We project that the total need for roads, bridges, parking, and transit is $230 million. Assuming that road and transit costs are 50 percent higher for homes outside the Beltway, presumed to be lower density, this is approximately

$19,600 per home.[25] Police-related infrastructure costs approximately $600 per non-Beltway home versus $400 for more compact developments. According to state figures, the school cost per home outside the Beltway is $12,000, 70 percent higher than the school cost for homes in more urbanized areas.[26]

In total, a home outside the Beltway will cost the county an estimated $33,000 in infrastructure needs. A home inside the Beltway will cost only $21,300.

Our estimate assumes that commercial projects outside the Beltway would be charged at the same higher rate as residential projects for those costs for which location affects the price. Non-residential construction requires less supporting public infrastructure than residential projects, so the overall charge to commercial projects is lower, whether they are inside or outside the Beltway.

This cost variation between less developed areas outside the Beltway and highly urbanized areas inside the Beltway could be captured in an excise tax paid by private developers. To encourage more compact development, the county could exempt projects that support smart growth goals—such as infill projects or transit-oriented development—entirely from the charge. The result would be that building in an already developed area would be cheaper for the individual developer than building on open space.

Development Charges That Can Help Manage Growth

Impact fees and excise taxes can help counties control sprawling development. These policies reduce indirect subsidies for sprawling development and require developers to pay for their fair share of the public infrastructure necessary to support a new project. By assessing a more appropriate portion of public development costs to low-density or outlying private developments, the fees can influence individual decisions about where and how to build new developments.

Impact Fees

Development impact fees are one-time charges applied to new development to cover the cost of new or expanded public services that will serve the development. Impact fees are assessed principally for the provision of additional capital facilities such as roads, schools, libraries, police and fire facilities and equipment, parks, and recreation facilities. The premise behind impact fees is that development should pay the full cost of providing facilities necessary to accommodate that growth. Sprawling development, because it requires more extensive supporting infrastructure, will ultimately cost more.

Some local governments in Maryland collect fees for schools, parks and recreation, libraries, roads, and/or fire protection. No local government collects fees for all of these costs, and even these expenses represent only a portion of the growth-related costs that local governments incur.

Governments face a number of restrictions in how impact fees can be applied, which is the result of their legal history.

Power to Levy Fees

Municipalities have greater legitimacy when levying impact fees if the state has passed legislation specifically authorizing communities to collect impact fees.[28] Maryland does not have statewide enabling legislation for all impact fees. However, impact fees are made possible by several features in the state's laws. Article 23A of the Maryland Code specifically directs cities to help counties collect school impact fees.[29] Calvert, Carroll, Frederick, Garrett, and Washington counties gain their authority from Article 25.[30] Code counties are authorized to

Types of facilities that can be financed through impact fees[27]

- Road transportation: streets, traffic control devices, bridges, street lighting, street landscaping
- Mass transit facilities and equipment
- Parks and recreation facilities
- Public facilities: city hall, civic center, library, municipal buildings
- Public safety: law enforcement and fire protection facilities, equipment
- Solid-waste collection equipment and disposal facilities
- Harbors, ports, and airports
- Public art, museums, and cultural resources
- Water treatment and distribution facilities
- Sewer and storm drainage collection and treatment facilities
- Reclaimed water treatment and distribution facilities

Maryland's 23 counties have differing degrees of autonomy from the state. Commissioner counties have the least power. They cannot pass legislation on local matters without the General Assembly's approval.[32] Charter counties operate under a governmental structure approved by voters. Code counties have the greatest power because voters have granted home-rule power to the commissioners.

Table 3. Categories of Maryland Counties[33]

Commissioner Counties	Charter Counties	Code Counties
Calvert	Anne Arundel	Allegany
Carroll	Baltimore City	Caroline
Cecil	Baltimore County	Charles
Dorchester	Harford	Kent
Frederick	Howard	Queen Anne's
Garrett	Montgomery	Worcester
St. Mary's	Prince George's	
Somerset	Talbot	
Washington	Wicomico	

collect impact fees by Article 25B.[31] Other Maryland counties draw their authority from Article 66B.

Governments also have the power to grant fee exemptions to specific developments. An infill development project, which has lower costs to start with, can be exempted to make compact growth more attractive if the county's enabling legislation permits. Construction of affordable housing or transit-friendly projects can also be encouraged through exemptions.

Purpose and Timing of Expenditure

Local agencies need to maintain detailed records of where fees are collected from and for what purpose to ensure that impact fees are used as intended.[34] For example, school impact fees cannot pay for road improvements, nor can they pay for a new roof on an existing school.[35] They can be spent only on a new facility or an addition to an existing facility.

Additionally, collected funds must be spent within a specified amount of time, generally six years.

In Maryland, local governments track the money collected for each type of improvement separately and can give a precise accounting of the amount spent on schools versus roads versus parks. Most governments that collect impact fees have clear rules for how soon the fees must be spent.

Location of Expenditure

The greatest restriction on how governments spend collected fees pertains to who benefits.

Impact fees need to be spent to the direct benefit of the community that paid them: money collected from a new subdivision on the edge of town cannot be used to pay for a new school that no children from the subdivision will attend.[36]

For Maryland, the need to spend collected fees to the benefit of the development from which they were collected can undermine the state's planned growth policies. For example, if the majority of residential construction in a county occurred outside the county's Priority Funding Areas, any impact fee money collected from that construction could not be spent in PFAs to improve infrastructure there.[37] Instead money has to be spent in areas where the county has not necessarily planned for growth.

Amount of Fee

Impact fees are supposed to cover the marginal costs imposed on the community by the new development, but determining how much it costs to provide library service or recreation facilities or roads for new versus current residents is an imprecise process. The resulting uncertainty about current costs means that local governments must decide on an appropriate per-capita or per-building fee to charge to new development. Fearing challenges if the rate is too high, decision makers generally err on the side of setting the fee too low. This means that the impact fees paid by sprawling development often do not reflect the real costs imposed on the community and that the fees do not capture the cost difference between sprawling and compact projects.[38]

The limit on how high impact fee rates can be, the requirement that they benefit the community from which they were collected, and the need to spend the money within several years of its collection means that government often must spend the fees before having collected enough to cover all the costs of additional school, police, or other capital capacity. For example, a new middle school necessary to relieve overcrowding at existing schools may cost $10 million but the county will have collected only $2 million through impact fees. As the deadline for spending the money approaches, the county must find an additional $8 million

Adequate Public Facilities Ordinances

Adequate Public Facilities Ordinances (APFOs) require that the infrastructure necessary to support new development be in place before that development will receive its building permits. In Maryland, communities that have already experienced significant growth are more likely than less urbanized areas to have adopted APFOs. Extensive growth has strained local services—schools, roads, water supply, police, and other public facilities serve a much bigger population sooner than originally planned—and the availability and hence quality of those services has diminished. Even though the town may have already tapped additional revenue sources, there is not enough money to add the infrastructure demanded by growth. Thus the town adopts an APFO to ensure public infrastructure is in place to maintain the quality of life for current residents.

Less developed areas have not experienced this same stress on their public facilities and so are less likely to have passed an APFO. This difference can drive growth away from urbanized areas and toward less developed areas lacking APFOs.

APFOs usually do not include any mechanism with which to fund additional infrastructure. Adding that capacity, however, may reduce the degree to which APFO-adoption disparities undermine land use plans. Typically, if an area governed by an APFO does not have capacity in its schools for adding students from a new development, the county will not issue any building permits in that school district. If the APFO includes the option for the developer to pay for the construction of additional school space and the developer is willing to do that, then the county could issue the building permits and keep the development within the priority growth area.

Harford County has included such an option within its APFO. The APFO covers water and sewer capacity inside PFAs, and schools and roads countywide.[42] Before preliminary approval will be granted for a subdivision, the developer must undertake a traffic impact analysis at intersections near the proposed development.[43] If those intersections cannot handle the increase in traffic, the developer must either scale back the proposed project or modify the intersection with turn lanes, traffic signals, or other devices.

Within PFAs, sewer and water capacity must be sufficient. If it is not, the developer can add a pumping station, additional sewer or water lines, or a booster pump. If schools fail the adequacy test, a developer could remedy the problem by adding to school capacity, but is unlikely to do so because of the expense involved. Of the roughly four dozen subdivisions proposed each year in Harford County, developers undertake infrastructure expansions for approximately half.[44] Care must be taken, however, to ensure that these improvements for vehicular traffic do not make the intersection inhospitable to walking and bicycling.

to construct the school where it clearly benefits the new development or return the $2 million. If it opts for the latter, the county's schools will remain over-crowded.

Excise Taxes

Excise taxes can be applied with greater flexibility than impact fees. Whereas impact fees are collected to cover specific public costs associated with a private development, an excise tax can be charged on a particular use of property, in this case development.[39] Excise taxes can cover any development-related cost, and their collection can be spread out over several years if necessary.

Collected revenues can be used for any purpose.[40] Local government can collect money from a development anywhere in the county, for example, and then spend it on maintaining existing infrastructure, constructing new infrastructure, or buying open space. In this way, excise taxes can more fully support current smart growth policies.

Excise tax rates do not have to be clearly linked to the costs imposed by a particular development. If a development two miles out of town on farmland has costs twice those of a new project in a PFA, the impact fee charged to the rural development could be only twice as much. With an excise tax, however, the local government could, for example, charge five times as much to the outlying development to cover its costs and to discourage growth in unwanted areas.

Collected excise-tax revenues can be deposited in a city or county's general fund and used for any purpose.[41] This allows a local government in Maryland to collect money from a development anywhere in the county, for example, and then spend it on maintaining existing infrastructure or constructing new infrastructure in the PFA. In this way, excise taxes can support current smart growth policies or open space acquisition.

Furthermore, because there is no time limit on spending excise tax money, local government does not face the use-it-or-lose-it conundrum that can force infrastructure construction—and undermine sprawl-control efforts—even when there is not demand for an entire new facility.

Five Principles for Effective Ordinances

Ten of Maryland's 23 counties use an impact fee or excise tax to help fund public infrastructure construction required by new development. As currently structured, those fees provide modest relief for county budgets but do little to discourage sprawling development. (See the appendix for a full discussion of county policies.)

Scattered through the counties' policies, however, are the components that, if combined into one policy, would give counties another powerful tool for encouraging compact development. Local governments can maximize the sprawl-controlling ability of impact fees and excise taxes by including the following considerations in their policies.

Charge Sprawling Development for Its Full Marginal Costs

Fee rates should be structured to reflect the higher cost of public infrastructure for outlying or sprawling development. Adding miles of road to carry traffic from a new subdivision five miles from the edge of current development costs more than improving roads to serve a development immediately adjacent to existing homes. Providing fire protection to 20 homes built on previously empty lots in the middle of an urban area costs less than extending fire coverage to 20 homes built several miles away from the nearest fire station.

In Maryland, Queen Anne's County has adopted fire protection fees that vary according to the location of the building. Commercial projects outside priority funding areas pay more than their counterparts inside PFAs. Prince George's County recently adjusted its school surcharge to reflect the higher school infrastructure costs for new homes constructed outside the Beltway.

Ideally, impact fees would reflect the precise marginal cost of providing infrastructure to each new construction project. Such accurate measurement, however, would be labor intensive, so counties need to develop systems to measure average costs. The simplest option is to base fees on whether construction occurs inside or outside PFAs, as Queen Anne's County does. Another would be to create zones determined by distance from existing population centers.

This would be a version of the differential fees that vary by geographic areas used by many counties. Whatever the choice, the result of the different fee districts should be to raise the cost of sprawling development relative to compact development.

Include All Costs

Growth is supported by roads, public transportation, schools, sewer and water service, parks and recreation opportunities, libraries, fire and police protection, local government, and other facilities. The cost of each of these should be captured in an impact fee or excise tax so that taxpayers do not subsidize sprawling growth pursued by private developers. Incorporating all costs will provide more ways in which the cost difference between sprawling and compact development will be felt.

The ten counties that collect development charges collectively apply them to seven different categories of expenses. Frederick County collects fees for four types of infrastructure costs. Anne Arundel, Calvert, and Saint Mary's counties each have three fees. The rest of the counties collect fewer, but there is no reason why they could not apply the fees to more types of infrastructure.

Additionally, fees should be adjusted annually, as Charles County does, to ensure that they accurately reflect infrastructure costs years after passage. The simplest adjustment occurs if the fee rates rise annually according to the state inflation index. This requires little work by the county and does not open the fee rates up to perpetual debate.

Include Residential and Non-Residential Construction

Residential development is the most common image of sprawling growth, but non-residential construction is no less important for the success of planned growth policies. Offices and shops located in urban areas contribute to the vibrancy of existing communities and their proximity to housing improves the quality of life for residents. Warehouse-style stores surrounded by large parking lots and office complexes inaccessible except by car consume valuable open space and require greater public services—roads to carry customers and workers, water for large lawns, fire and police coverage of a larger area—than infill or compact development. These sprawling commercial developments have as great an impact as sprawling residential projects and should be subject to the relevant impact fees, such as road, water/sewer, and fire and police protection fees.

Anne Arundel, Calvert, Howard, Montgomery, and Queen Anne's counties all include non-residential projects in their fee schedules. In Anne Arundel County, industrial, warehouse, and retail space is charged for transportation and public safety costs. The amount of the fee depends on the size of the building. Bigger buildings, which likely incur greater public infrastructure costs, are charged more.

Exempt Non-Sprawling Projects

Providing exemptions for infill or transit-oriented development and for affordable housing can increase the price contrast between compact and sprawling growth. To further encourage compact development in priority areas and to promote projects that do not require residents to drive everywhere, desirable developments could be offered impact fee or excise tax exemptions. Excusing affordable housing projects from paying fees will help maintain a mix of housing options and sustain livable communities.

Montgomery and Prince George's

counties both have incorporated exemptions into their fee guidelines. Recognizing that the impact fee is a disincentive to pursue the construction to which it is applied, Montgomery County has exempted not only affordable housing projects but also bioscience facilities from the impact fee because the county is trying to attract that industry. Prince George's County wants to encourage transit-friendly residential projects and so has a reduced fee for housing developments within easy distance of a Metro station.

Coordinate Fees with Neighboring Counties

Perhaps most importantly, impact fees and excise taxes better control sprawl when the policies have been widely adopted. The surcharges influence private development decisions by making some projects more expensive based on location. Ideally, developers decide to pursue projects in populated areas of the county rather than on agricultural land or open space. However, if two neighboring counties have very different impact fees, growth may shift away from the county with fees to the county without fees. The result is a sprawl-control victory for the county with fees, but at the expense of the neighboring county. This problem can be avoided if all counties adopt rigorous impact fee or excise tax policies. Decision makers considering the adoption of new fees should communicate with their counterparts in neighboring counties to encourage them to institute similar policies.

Though impact fees and excise taxes are a powerful tool for managing growth, they alone cannot curb all low-density or leapfrog development in a county. Fees need to be implemented in conjunction with other planning tools—growth plans, strong zoning laws, and policies supporting urban revitalization. Impact fees and excise taxes are more powerful when supported by other growth-management tools, and in turn fees can buttress those non-financial policies.

Collected impact fees should be spent in ways that are most supportive of these larger planning goals. Using fire-protection impact fee funds to build a new fire station where it will serve just buildings outside priority areas does not make sense if the option is available to build that same fire station so that it can provide coverage to both the new rural development and future developments within the priority growth area. Building just roads rather than using transportation excise tax monies to fund some transit options undermines other planned growth efforts.

Appendix: Current Impact Fee and Excise Tax Ordinances in Maryland

Nearly half of Maryland counties use impact fees or excise taxes. However, as shown below, none have developed policies that capture the full potential of these fees to discourage sprawling development and promote compact growth. No county has a policy in place that satisfies all five criteria for effective ordinances—charging full marginal costs, including all costs, applying fees to both residential and non-residential development, exempting the most desirable projects, and having fees in place in neighboring counties. The fees, as currently structured, have a modest impact at best on where new growth occurs in the county.

Table 4. Impact Fee or Excise Tax for Single-Family Home as of July 2003[45]

County	Schools	Roads	Transit	Parks/ Rec	Sewer/ Water	Fire/ Police	Solid Waste	Library	Total
Anne Arundel	$3,161	$804				$104			$4,069
Calvert	$3,000			$600			$350		$3,950
Carroll	$4,197			$547					$4,744
Charles	$9,700								$9,700
Frederick	$6,738	$220			$8,800			$406	$16,164
Howard		$1,600			$1,200				$2,800
Montgomery		$2,753			$3,054				$5,807
Prince George's	$12,000				$3,054				$15,054
Queen Anne's	$4,730					$1,014			$5,744
St. Mary's	$3,375	$450		$675					$4,500

Road fee figures for Frederick County and Howard County assume a 2000 square foot single-family home. Montgomery County road figure is the Clarksburg rate. Sewer/water figures for Montgomery and Prince George's counties assume two toilets per home.

Table 5. Anne Arundel County Impact Fee Schedule[48]

Type of Structure	School Fee	Transportation Fee	Public Safety Fee	Total
Single-Family Detached	$3,161	$804	$104	$4,069
Single-Family Attached	$1,997	$732	$80	$2,809
Two Units (per unit)	$2,806	$641	$99	$3,546
Three or Four Units (per unit)	$1,870	$627	$72	$2,569
Five or More Units (per unit)	$1,433	$575	$60	$2,068
Mobile Home (per unit)	$2,570	$573	$96	$3,239
Hotel (per room)	$0	$997	$34	$1,031
Industrial, Warehouse (per 1,000 sq. feet)	$0	$374	$17	$391
Self-Storage (per 1,000 sq. feet)	$0	$327	$22	$349
Hospital (per bed)	$0	$1,440	$58	$1,498
Nursing Home (per bed)	$0	$273	$40	$313
Office space				
< 100,000 square feet	$0	$1,672	$117	$1,789
100,000-199,999 square feet	$0	$1,351	$98	$1,449
> 200,000 square feet	$0	$1,030	$77	$1,107
Mercantile (per 1,000 square feet)	$0	$2,131	$376	$2,507

Anne Arundel County

Anne Arundel County has collected impact fees since 1987 for road and school infrastructure. The transportation fee is charged to residential and commercial development, but only residential construction pays the school fee.

The county added a police and fire protection impact fee in 2001. Both residential and commercial development is subject to the public safety fee. The other change the county made then was to link the impact fees to the consumer price index so that they increase annually.[46] Money must be spent within six years, though the planning director can grant a three-year extension if a specific project is planned within that time.[47]

Through impact fees, the county collects $8 million annually, which helps the county's budget but does not cover all growth-related costs.[49] The structure of the fees—charging commercial projects based on the size of the building, charging more to free-standing homes than to apartments—encourages conservation of space within a development project.

Nonetheless, the county's fees could be improved to better support good development decisions. Restructuring the fees so that homes in undeveloped areas are charged a higher rate than homes in existing urban areas would increase the fees' influence on private development decisions. The transportation impact fee, which currently cannot be used to support transit infrastructure, could be altered to pay for a larger range of anti-sprawl transportation options.

Calvert County

Seeking greater flexibility for spending collected funds, Calvert County changed its impact fee to an excise tax in 2001.[50] Growth in the county has slowed, so building new infrastructure is becoming less important while maintaining existing facilities has become more of a priority. The switch from impact fee to excise tax changed the name and use of the fees, but not the fee structure. Because neither the fees nor the taxes are anywhere near adequate for covering the costs of growth, the county is considering an increase in the fees and expanding them to include roads.[51] In 2002, the county collected $2,459,000 through its development excise taxes.[52]

Like Anne Arundel County, Calvert County varies its fees according to the size of the home or commercial structure. The county could add to the power of its impact fees to make sprawling development less financially attractive by including a roads and transit fee. This would add to the cost of low-density development but little or none to compact or infill projects.

Carroll County

Carroll County is struggling to control growth. From 1990 to 1999, 38.9 percent of new residential development in Carroll County occurred outside the PFA. Even more growth in the next 20 years is expected to occur outside the county's PFA: 58.4 percent of homes are projected to be built outside the PFA, consuming 28,762 acres.[53]

Since 1989, Carroll County has collected impact fees for schools and parks. Only residential construction is subject to the fees, and there is no variation according to the location of the construction. Fee rates were last increased in 1998.[54]

Table 6. Calvert County Excise Tax Schedule

Type of Structure	School	Solid Waste	Recreation	Total
Detached Single-Family Home	$3,000	$350	$600	$3,950
Townhouse	$2,000	$0	$0	$2,000
Apartment, Trailer	$1,000	$0	$0	$1,000
Commercial (per square foot)	$0	$0.11	$0	

Table 7. Carroll County Impact Fee Schedule[55]

Type of Home	School Impact Fee	Parks Impact Fee	Total
Single Family	$4,197	$547	$4,744
Townhouse	$3,097	$498	$3,595
Multi-family	$1,543	$382	$1,925
Mobile Home	$1,216	$415	$1,631

Table 8. Carroll County Impact Fee Revenues Versus Costs[57]

	FY 2000	FY 2001	FY 2002
Collected school impact fees	$4,726,455	$5,573,069	$6,068,242
Collected parks impact fees	$655,476	$786,924	$876,576
Percentage of school needs funded by impact fees	9%	12%	16%
Percentage of park needs funded by impact fees	46%	24%	35%

In 2002, Carroll County collected $6 million in impact fees. This falls far short of the money the county needs to fund infrastructure work, especially for schools. Consultants who prepared a fiscal analysis recommended that the county recalculate the school impact fee to cover a greater portion of construction costs.[56] This increased fee would help the county's budget. It will enhance growth planning measures only to the extent that sprawling development is required to pay more than compact development.

Charles County

Charles County has collected school impact fees since July 1989, though in July 2003 the county switched to using excise taxes.

Through Article 66B of the Maryland Code, the General Assembly granted Charles County the authority to collect an impact fee. Current impact fee levels vary by the type of residential development, but not by the location of that development. The General Assembly capped school impact fees at $5,000, and Charles County's highest rate was equal to the cap. Developers paid 20 percent of the fee at the time they received clearance to build in a particular school district; they paid the rest when permits were issued.[58]

With prior approval from the General Assembly, the county decided to change the impact fee to an excise tax and to raise rates so that school construction will be adequately funded. For budget reasons, the new rates are calculated based on all school infrastructure costs—not just the school itself, but also land, connecting roads, and sewer and water lines—and are indexed to inflation for construction costs.[60] The excise taxes can be spent in the portion of the county that most needs school funding, not just in the district from which they were collected.

Table 9. Charles County School Impact Fee and Excise Tax Rates[59]

Type of Home	Previous Impact Fee	Current Excise Tax
Single-family	$5,000	$9,700
Townhouse	$5,000	$9,200
Multi-family	$3,908	$7,000

Table 10. Impact Fee Schedule in Frederick County

Type of Home	School Impact Fee	Library Impact Fee	Total
Single Family/Detached	$6,738	$406	$7,144
Townhouse/Duplex	$4,519	$363	$4,882
All Other Residential	$1,261	$269	$1,530

These components of the county's excise tax policy could easily be tailored to meet growth planning goals as well as budget goals. The inclusion of all school-related infrastructure costs means that sprawling development can be charged a higher rate, while infill projects could be exempted. The annual inflation-adjusted increases mean the excise tax will not lose power over time, an important factor to maintaining a large fee disparity between different density developments. Spending flexibility permits the county to use fees from sprawling projects to support infill growth.

Frederick County

Frederick County began using impact fees in July 1993 to fund school construction. The county added an impact fee for libraries in January 2001. The impact fee applies to residential development and is collected before the zoning certificate or building permit is issued.[61] These two fees are not location sensitive, and therefore do nothing to discourage sprawling development.

In February 2002, the county began collecting an excise tax for roads. The fee, based on the square footage of the new building, is structured so that the first 700 square feet of residential development is exempt altogether. Construction of the next 700 square feet—from 700 square feet to 1,400 square feet of a building—pays the tax at a reduced rate. Any square footage above 1,400 is subject to the full residential rate.[62] All square footage in non-residential construction is charged at the same rate; government and farm construction is exempt. In the first five months that the county collected excise taxes for roads, revenues totaled $495,000.[63]

Collected funds can be spent for road, bridge, or intersection improvements and expansions anywhere in the county. The money cannot be used for transit projects. The county must match any of the collected excise tax money spent on roads with money from other funding sources.[64]

The county also collects a water and sewer impact fee of approximately $8,800 per single-family home.[65]

Table 11. Road Excise Tax Schedule in Frederick County[66]

Type of Structure	Tax Rate (per sq. foot)
Residential	
first 700 square feet	$0.00
next 700 square feet	$0.10
additional sq. footage	$0.25
Non-residential	$0.75

Howard County

Howard County's excise taxes finance road expansions and improvements. The tax, collected on residential, office, manufacturing, distribution, and institutional buildings, is broad-based but does not vary by the location of the building within the county.[67] The county does not offer exemptions for transit-friendly developments that place less demand on roads.[68] Tax rates have not been raised since they were first established in 1992.[69]

Table 12. Howard County Road Excise Tax[71]

Type of Structure	Tax Rate (per sq. foot)
Residential	$0.80
Office and retail	$0.80
Distribution and manufacturing	$0.40
Institutional	$0.40

Annually, the county collects approximately $6 million, which is used to pay back bonds that the county has issued to fund road construction.[70] The county decided on an excise tax instead of an impact fee because improvements to state roads, a key component of the county's road network, cannot be funded with impact fees. The substantial state funding the county has received to supplement excise tax income may also have enabled it to undertake more road construction than the county truly needs.

A sewer and water surcharge of $1,200 per new home pays for maintenance and upkeep of the system.[72] The surcharge is the same for a detached home with a large yard as for a small apartment. Graduating the fee so that minor users pay less would enhance the surcharge's ability to influence development decisions. Businesses pay the surcharge also, which varies according to the number of employees they hire. In total, the county collected $2,294,000 in 2002.[73] Homes built within the western region of the water and sewer district pay an additional $500 fee to cover the cost of bonds issued for construction of a sewer main serving that area.[74] Through that fee, the county collected $142,000 in 2002.[75]

Montgomery County

Residential, industrial, and retail buildings, private schools, and places of worship are subject to Montgomery County's impact tax to fund transportation improvements. The tax varies by the location of the building in the county—Germantown, Eastern Montgomery, Clarksburg, or planning areas in the rest of the county—and by how the type of building contributes to traffic.[76]

Table 13. Montgomery County Transportation Excise Tax Schedule[79]

Type of Structure	Clarksburg	Germantown	County District	Eastern Montgomery
Single-Family Detached (per unit)	$2,753.00	$2,492.00	$2,100.00	$1,727.00
Single-Family Attached (per unit)	$2,753.00	$2,492.00	$2,100.00	$1,727.00
Multi-Family (per unit)	$1,981.00	$1,794.00	$1,100.00	$1,243.00
Multi-Family Senior (per unit)	$573.00	$531.00	$325.00	$368.00
Office (per sq. ft.)	$2.00	$2.00	$1.50	$2.00
Industrial (per sq. ft.)	$1.00	$1.00	$1.00	$1.00
Retail (per sq. ft.)	$5.61	$5.08	$1.50	$3.52
Places of Worship (per sq. ft.)	$0.32	$0.29	$0.20	$0.20
Private Schools (per sq. ft.)	$0.53	$0.48	$0.30	$0.33
Other non-residential (per sq. ft.)	$6.20	$5.62	$1.00	$3.89

The county has decided to exempt some buildings from the tax. Affordable housing projects, government-owned buildings, hospitals, and bioscience facilities—which the county has been trying to draw to the region—do not have to pay the tax.[77] Developments near Metro Stations pay only half the tax, part of the county's effort to encourage growth near transit.[78]

The County Council expanded the scope of the impact tax in early 2002, phasing in higher rates and applying it to more parts of the county. When the tax is collected at its full rate beginning in January 2004, the county expects revenues of $6.5 million annually.[80]

Because this is a tax and not a fee with its many spending restrictions, collected money can be spent anywhere in the county that needs transportation improvements.[81] However, no more than 10 percent of the funding can be used for non-road projects.[82]

Prince George's County

Prince George's County collects a school surcharge, a form of excise tax, on all new residential development except senior housing projects. The past fee level was $5,000 per new home built as part of a larger development; single homes built by or subcontracted by the owner, and student housing near the University of Maryland, College Park, were exempt. Beginning in July 2003, the fee rose to $12,000, with two exceptions: homes inside the Beltway or near a Metro station are charged only $7,000. This should help encourage infill and transit-friendly development. The new fee rates are indexed to inflation so that the discrepancy between the charges to sprawling and compact development will persist.[83]

Under the revised laws, the collected funds can be spent for expanding or renovating existing school facilities or constructing new schools. Funds can also be applied to debt service on bonds issued to pay for school facilities.[84]

Water and Sewer in Montgomery and Prince George's Counties

The Washington Suburban Sanitary Commission (WSSC) serves 1.4 million customers in Montgomery and Prince George's counties.[86] Water and sewer costs associated with adding customers are covered through a system development charge (SDC). The SDC is based on the number of toilets within new residential units and on the number of water supply and drainage units in commercial developments.[87] This fee structure discourages projects that consume more water, which tend to be sprawling developments.

These fees generate revenues of $40 million to $50 million per year.[88] The WSSC collected enough money in fiscal year 2001 to cover growth-related costs. Previous years' revenue, however, was in-

Table 14. Prince George's County School Surcharge[85]

Location of single-family home	Previous Rate	Current Rate
County at large	$5,000	$12,000
Inside the Beltway	$5,000	$7,000
Near Metro station	$5,000	$7,000

Table 16. Queen Anne's County Impact Fee Schedule (as of May 22, 2003)[91]

Type of Structure	School Fee	Fire Fee Inside Growth Area	Fire Fee Outside Growth Area
Detached Single-Family Home	$4,730.00	$1,014.00	$1,014.00
Trailers, Condos	$2,569.00	$828.00	$828.00
Commercial (square feet)			
0-50,000		$0.54	$0.81
51,000-100,000		$0.48	$0.71
101,000-200,000		$0.42	$0.63
over 200,001		$0.38	$0.57
Office (square feet)			
0-25,000		$0.77	$1.15
25,001-50,000		$0.72	$1.08
50,001-100,000		$0.68	$1.01
over 100,001		$0.64	$0.95
Business Park		$0.60	$0.90
Light Industrial		$0.44	$0.65
Warehouse		$0.24	$0.36
Institutional		$0.15	$0.23

adequate. The WSSC had to cover the gap by borrowing money.[89]

Queen Anne's County

Queen Anne's County has collected impact fees since 1991 for fire protection and schools. Both fees are imposed on residential development, but commercial development pays only the fire fee.

Table 15. WSSC System Development Charges

Apartment with 1 or 2 toilets	$2,036
House with 1 or 2 toilets	$3,054
House with 3 or 4 toilets	$5,090
House with 5 toilets	$7,126
Non-residential (per water unit)	$203

Collected monies must be spent within six years.[90]

The county's fee structure for commercial projects is tailored to reflect the higher cost of providing fire protection in less developed areas. Thus, county taxpayers do not pay for the higher cost of fire protection for sprawling commercial development. The fee would be more effective overall if the county expanded it to include roads, parks and recreation, and other growth-related costs.

Saint Mary's County

Saint Mary's County charges impact fees to residential development only. As indicated in Table 17, the fees are not location sensitive and therefore do not influence private development decisions

Table 17. Saint Mary's County Impact Fee Schedule[93]

Type of Structure	School Impact Fee	Road Impact Fee	Park Impact Fee	Total
Any residential	$3,375	$450	$675	$4,500

about where to locate projects. In the year ending June 2002, the county collected $2,248,000 for school construction, $428,000 for parks and recreation, and $309,000 for roads.[92]

Other Counties

Talbot County is developing an impact fee and expects it to become effective in 2003.[94] Caroline and Wicomico counties are both considering impact fees. Maryland counties not mentioned above do not have impact fees or excise taxes.

Endnotes

1. James Cohen, "Maryland's Smart Growth: Using Incentives to Combat Sprawl," in G. Squires (ed.), *Urban Sprawl: Causes, Consequences, and Policy Responses*, Urban Institute Press, 2002.

2. Maryland Department of Planning, *Infrastructure Needs Survey Report*, 2001, 9.

3. Southeast Michigan Council of Governments, *Fiscal Impacts of Alternative Land Development Patterns in Michigan: The Costs of Current Development Versus Compact Growth, Final Report*, June 1997.

4. 2 percent on operating costs: Robert Burchell, *Impact Assessment of the New Jersey Interim State Development and Redevelopment Plan, Report II: Research Findings*, New Jersey Office of State Planning, 1992, as cited in Robert Burchell, et al, *Costs of Sprawl–Revisited*, Transit Cooperative Research Program, Federal Transportation Administration, 1997; 95 percent of education expenditures: Robert Burchell, et al, *Costs of Sprawl–Revisited*, Transit Cooperative Research Program, Federal Transportation Administration, 1997, 51.

5. Robert Burchell, et al, *Costs of Sprawl–Revisited*, Transit Cooperative Research Program, Federal Transportation Administration, 1997, 49.

6. Center for Watershed Protection, *Site Planning for Urban Stream Protection*, 1995.

7. See note 3.

8. See note 1.

9. *Building Livable Communities*, Clinton-Gore Administration, 2000; Robert Burchell et al, *Costs of Sprawl—Revisited*, Transit Cooperative Research Program, Federal Transportation Administration, 1997, 49.

10. Kevin Kline, Colorado State Fire Chiefs Association, personal communication, 6 March 2003.

11. Jim Drummond, Community Safety Services Chief, Parker Fire Protection District, personal communication, 10 March 2003; Population Division, U.S. Census Bureau, *Table HU-EST2001-08: Colorado Time Series of Housing Unit Estimates by County, April 1, 2000 to July 1, 2001*, and *Table ST-EST2002-01: State Population Estimates: April 1, 2000 to July 1, 2002*, 20 December 2002.

12. Jim Drummond, Community Safety Services Chief, Parker Fire Protection District, personal communication, 10 March 2003.

13. Sierra Club, *Sprawl Costs Us All: How Your Taxes Fuel Suburban Sprawl*, Spring 2000.

14. Maine State Planning Office, *The Cost of Sprawl*, May 1997, 8.

15. Adam Gordon, Baltimore Regional Partnership, *Planning for Sprawl?: A Look at Projected Residential Growth in the Baltimore Region*, September 2001.

16. Baltimore Metropolitan Council, *Baltimore Metropolitan Council Building Permit Report System: Report 3—Non-Residential Report by Jurisdiction*, 1996-2002.

17. The 35 percent estimate is based on Prince George's County's assessment that school infrastructure costs are 70 percent more expensive outside the Beltway than inside. To be conservative, we estimate the cost difference is less in Carroll County, where the density differences between PFAs and non-PFAs are not as great.

18. 30 percent is the mid-point of the 20 percent to 40 percent estimate provided in Robert Burchell, et al, *Costs of Sprawl–Revisited*, Transit Cooperative Research Program, Federal Transportation Administration, 1997, 49.

19. 33 percent is the corollary to the figure that roads for compact development are 25 percent cheaper than roads in sprawling development, as given in Robert Burchell, et al, *Costs of Sprawl–Revisited*, Transit Cooperative Research Program, Federal Transportation Administration, 1997, 49.

20. Maryland Department of Planning, *2000 Infrastructure Needs Survey*, 2002.

21. Hiram Burch, Department of Legislative Services, *Fiscal and Policy Note, Revised: Prince George's County—Public School Facilities Surcharge*, 2003.

22. Metropolitan Washington Council of Governments, *Commercial Construction in the Washington Region, by Jurisdiction*, 1996-2001.

23. Maryland Department of Planning, *Infrastructure Needs Survey: 2000 Summary of Needs for Jurisdictions and Municipalities by Budget Type and Infrastructure Type*, 2002.

24. Ibid.

25. Providing roads to clustered units is 50 to 75 percent cheaper. We assume homes inside the Beltway are built in highly developed areas and thus have substantially reduced costs. Center for Watershed Protection, *Site Planning for Urban Stream Protection*, 1995.

26. See note 21.

27. Dennis Ross, Scott Ian Thorpe, "Impact Fees: Practical Guide for Calculation and Implementation," *Journal of Urban Planning and Development*, September 1992.

28. John Rappa, Office of Legislative Research, Connecticut General Assembly, *Case Law Regarding Development Impact Fees*, 26 November 2002.

29. Maryland Code, *Article 23A Corporations—Municipal/Assistance to Other Political Subdivisions*.

30. Maryland Code, *Article 25 County Commissioners/General Provisions*.

31. Maryland Code, *Article 25B Home Rule for Code Counties/Powers of Code Counties*.

32. Maryland Association of Counties, *About the Counties: Forms of Local Government in Maryland*, downloaded from www.mdcounties.org, 11 April 2003.

33. Maryland Association of Counties, *About the Counties: Forms of Local Government in Maryland*, downloaded from www.mdcounties.org, 11 April 2003; Charles County information from Steve Andritz, Planner, Charles County, personal communication, 16 April 2003; APFO information from Maryland Office of Planning, "Adequate Public Facilities," *Managing Maryland's Growth: Models and Guidelines*, June 1996.

34. See note 28.

35. David Callies, "Exactions, Impact Fees, and Other Land Development Conditions," *Proceedings of the 1998 National Planning Conference*.

36. John Rappa, Office of Legislative Research, Connecticut General Assembly, *Case Law Regarding Development Impact Fees*, 26 November 2002; Carmen Carrion and Lawrence W. Libby, Ohio State University Extension, *Development Impact Fees: A Primer*, Working Paper: AEDE-WP-0022-01.

37. Housing figures from Planning Data Services, Maryland Department of Planning, *Table 1C. Percent New Residential Construction Activity and Value by Housing Type: Annual 2000*, May 2001.

38. See note 27.

39. Jonathan Coupal and Jack Cohen, Howard Jarvis Taxpayers Association, *Water Rates Under Proposition 218*, downloaded from www.hjta.org/content/ARC000025D_Prop218.htm, 7 April 2003.

40. Stanley Longhofer, Wichita State University, *The Economics of Development Impact Fees: An Analysis of the Derby Excise Tax*, Derby Chamber of Commerce, December 1999.

41. Ibid.

42. Harford County, *Subdivision Review and Approval Process*, downloaded from www.co.ha.md.us/dpw/eng&cont/TransEng/subdivision.html, 14 May 2003.

43. Mo Davenport, Planning and Zoning, Harford County, personal communication, 15 May 2003.

44. Ibid.

45. Road fee figures for Frederick County and Howard County assume a 2000 square foot single-family home. Montgomery County road figure is the Clarksburg rate. Sewer/water figures for Montgomery and Prince George's counties assume two toilets per home.

46. County Council of Anne Arundel County, *Bill 96-01*, approved 17 December 2001.

47. County Council of Anne Arundel County, *Bill 50-87*, approved 5 August 1987.

48. See note 46.

49. Jim Cannelle, Office of Planning and Zoning, personal communication, 16 April 2003.

50. Sherrod Sturrock, Capital Projects Coordinator, Calvert County Commissioner's Office, personal communication, 8 April 2003.

51. Ibid.

52. Melissa Miller, Inspections and Permits Department, Calvert County, personal communication, 8 April 2003.

53. See note 15.

54. Anita Nickoles, Bureau of Permits and Inspections, Carroll County, personal communication, 15 April 2003.

55. Bureau of Permits and Inspections, Carroll County, *Impact Fees, General Information*, downloaded from ccgov.carr.org/perm-ins/impactfe.htm, 8 April 2003; Anita Nickoles, Bureau of Permits and Inspections, Carroll County, personal communication, 15 April 2003.

56. Carroll County, *Carroll County Challenges and Choices: A Master Plan for the Future*, 20 December 2000.

57. Ted Zaleski, Director, Department of Management and Budget, Carroll County, personal communication, 16 April 2003.

58. Steve Andritz, Planner, Charles County, personal communication, 16 April 2003.

59. Charles County, *School Construction Excise Tax Educational Program*, downloaded from www.charlescounty.org/treas/excusetax.pdf, 16 April 2003.

60. Steve Andritz, Planner, Charles County, personal communication, 16 April 2003; Maryland General Assembly, *House Bill 1017: Charles County—New School Capacity Financing Mechanism*, 26 March 2002.

61. Division of Planning, Frederick County, *Impact Fees*, downloaded from www.co.frederick.md.us/planning/impact_fees.htm, 8 April 2003.

62. Board of County Commissioners, Frederick County, *Article III B: Building Excise Tax*, 18 December 2001.

63. John Gibson, Director, Department of Permits and Inspections, Frederick County, personal communication, 22 April 2003.

64. See note 62.

65. *Council Minutes 2-25-03*, downloaded from www.ci.cambridge.md.us/minutes/2003/feb1003.htm.

66. See note 62.

67. Department of Inspections, Licenses, and Permits, Howard County, *Building Excise Tax*, downloaded from co.ho.md.us/dilp/permits/permits_excise_tax.htm, 8 April 2003.

68. Bob Francis, Chief of Plan Review, Howard County, personal conversation, 23 April 2003.

69. Ibid.

70. Raymond Wacks, Director, Howard County Budget Office, personal communication, 24 April 2003.

71. Department of Inspections, Licenses, and Permits, Howard County, *Excise Tax Law*, 18 June 2001.

72. Jean Reed, Planning Support Technician, Howard County, personal communication, 5 May 2003.

73. Sharon Grace, Department of Finance, Howard County, personal communication, 5 May 2003.

74. See note 72.

75. See note 73.

76. Department of Permitting Services, Montgomery County, *Development Impact Tax, Effective July 1, 2002*; Montgomery County, *CIP Fiscal Policy*, downloaded from www.montgomerycountymd.gov/mc/government/omb, 11 April 2003.

77. Department of Permitting Services, Montgomery County, *Development Impact Tax, Effective July 1, 2002.*

78. Montgomery County Council, *Council Unanimously Approves Development Impact Tax to Double County Spending on Roads, Transit*, (press release), 12 March 2003.

79. See note 77.

80. See note 78.

81. Ibid.

82. Ibid.

83. Maryland General Assembly, *House Bill 487: Prince George's County—Public School Facilities Surcharge*, 18 March 2003.

84. Ibid.

85. See note 21.

86. Peg Robinson, Permit Services Unit, Washington Suburban Sanitary Commission, personal communication, 15 April 2003.

87. Washington Suburban Sanitary Commission, *Fees and Charges Effective January 1, 2003.*

88. See note 86.

89. Washington Suburban Sanitary Commission, "System Development Charge," *Pipeline*, January-March 2002.

90. Lisa Eozarth, Department of Zoning, Queen Anne's County, personal communication, 9 April 2003.

91. Ibid.

92 Eleanor Mattingly, Permits Division, Saint Mary's County, personal communication, 9 April 2003.

93. Dave Chapman, Development Coordinator, Saint Mary's County, personal communication, 9 April 2003.

94. Planning and Zoning, Talbot County, personal communication, 12 May 2003.