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THE CHESAPEAKE BAY PRESERVATION ACT: A STATUS REPORT

I. Introduction

The Chesapeake Bay (the Bay) is a huge estuary that spreads over 64,000 miles from New York to Virginia.¹ It is bounded by Maryland and Virginia, with Pennsylvania and the District of Columbia situated on the Susquehanna and Potomac Rivers respectively, both tributaries feeding into the Bay. The Chesapeake Bay is a great attraction because of its abundant wildlife. The Bay, like all estuaries, is important because it is the interface of salt and fresh water bodies.² That category of water contains nature's most productive habitat, providing a home or nursery for many important species of fish and shellfish and a seasonal stopover for a multitude of fish and waterfowl.³

People as well as wildlife enjoy the beauty and recreational opportunities provided by the Bay. Seventy-five per cent of the nation's population lives within fifty miles of the coasts or Great Lakes and that percentage is expected to increase.⁴ Total population in the Chesapeake Bay area increased by 50% between 1950 and 1980, and the Bay area's 15.8 million population as reported in 1988 is expected to rise by 11% between 1985 and the year 2000.⁵

Because of the many species of animals and humans affected by the Chesapeake Bay and who rely on its stability, a growing concern for the Bay's health has resulted in recent years. A concerted federal, state, and private campaign has been under way for ten years to stop the "precipitous decline of marine life" in the Bay and to generate an overall cleanup of its surrounding areas.⁶ At the turn of the century, 8 million bushels of oysters a year were being harvested and the Bay provided spawning grounds for 99% of the Striped Bass caught along the Atlantic Coast.⁷ But by the late 1970's, pollution and the filling in of marshes by farmers and developers caused the underwater grasses that provide essential food and shelter for spawning fish to disappear in many areas of the Bay.⁸ In addition, construction of power plant dams across rivers had denied access to the favorite spawning places of various anadromous

1. Rochelle L. Stanfield, *Saving the Chesapeake*, NAT'L J., May 21, 1988, at 68.

2. *Id.*

3. *Id.* at 69.

4. *Id.* at 70.

5. *Id.*

6. Stanfield, *supra* note 1, at 68.

7. Stanfield, *supra* note 1, at 68.

8. Stanfield, *supra* note 1, at 68.

fish.⁹ As a result of the increased pollution, production of many types of fish and shellfish has greatly decreased. The annual commercial shad hatch declined from 2 million pounds before 1973 to just 110,000 pounds in 1976.¹⁰

A major problem facing the Bay, discovered by scientists and environmentalists, was the increase in algae growth caused by various pollutants. The algae harm the marine life of the Bay in two significant ways. First, the algae use up oxygen in the water, suffocating the other marine life.¹¹ Second, the increased algae block the sunlight and kill bottom grasses which provide food for waterfowl and a habitat for spawning fish and shellfish.¹² The major cause of this increase in algae growth is "nonpoint" source pollution which emit nutrients that feed the algae. "Nonpoint" source pollution does not directly enter a waterbody from a pipe or other identifiable point, but comes from pollutants that accumulate on farms, lawns, parking lots, sewage treatment plants, and other land areas from which water drains.¹³ According to a 1989 Virginia Department of Conservation and Recreation Study, more than half the pollution in the Bay comes from "nonpoint" sources.¹⁴ It soon became evident that cleaning up the Chesapeake Bay was vital to the region's health and livelihood, and that a decrease in "nonpoint" source pollution was a necessary step in that cleanup.

II. History and Content of the Act

As a result of the growing pollution problem which has been slowly destroying the Bay, Maryland, Virginia, Pennsylvania, the District of Columbia, and the United States Environmental Protection Agency entered into the 1987 Chesapeake Bay Agreement.¹⁵ In April of 1988, as part of its obligation under the 1987 Agreement,¹⁶ the Virginia General Assembly enacted the Chesapeake Bay Preservation Act (the Act or the Bay Act).¹⁷ The Act established a cooperative state and local government program to protect water quality in the Chesapeake Bay and its tributaries through improved land use management, and a decrease in "nonpoint"

9. Stanfield, *supra* note 1, at 68. (Anadromous fish live in the ocean but return to the rivers to lay eggs).

10. Stanfield, *supra* note 1, at 71. (Shad hatch refers to the harvest of shad, which is a type of fish found in the North Atlantic waters).

11. Stanfield, *supra* note 1, at 68.

12. Susan Motley, *Chesapeake Bay Cleanup*, TECH. REV., Feb. 1988, at 25.

13. *Id.*

14. Jennifer Spacenek, *Polluting the Chesapeake*, WASH. POST, Apr. 2, 1991, at E7.

15. Paul D. Barker, Note, *The Chesapeake Bay Preservation Act: The Problem With State Land Regulation of Interstate Resources*, 31 WM. & MARY L. REV. 735 (1990).

16. The 1987 Chesapeake Bay Agreement entered into by Maryland, Virginia, Pennsylvania, the District of Columbia, and the United States Environmental Protection Agency provided for the parties to the agreement to make efforts to pass measures for the improvement of the water quality and wildlife habitats of the Chesapeake Bay.

17. VA. CODE ANN. §§ 10.1-2100 to -2115 (Michie 1988).

source pollution.¹⁸ The land use management system created by the Act covers all of Tidewater Virginia, which consists of 89 localities.¹⁹ The Act provides for state and local governments to cooperate to ensure protection of the Chesapeake Bay, but puts most of the responsibility for implementation on the local governments bound by the Act.²⁰

The Chesapeake Bay Preservation Act established the Chesapeake Bay Local Assistance Board, which consists of nine Tidewater Virginia residents appointed by the Governor, and is responsible for overseeing the Act.²¹ The Board is required to develop regulations for the designation of Chesapeake Bay Preservation Areas and for the management of land use in those areas.²² It is charged with providing financial and technical assistance to local governments ensuring that the local governments comply with the Act.²³ The Board is not responsible for site-specific land use decisionmaking, which remains the responsibility of the local governments. The ultimate goal of the Board is to help local governments "protect the Bay and its tributaries from nonpoint source pollution associated with the use and development

18. *Id.* § 10.1-2100. This section requires that:

(i) the counties, cities, and towns of Tidewater Virginia incorporate general water quality protection measures into their comprehensive plans, zoning ordinances, and subdivision ordinances; (ii) the counties, cities and towns of Tidewater Virginia establish programs in accordance with criteria established by the Commonwealth, that define and protect certain lands, hereinafter called Chesapeake Bay Preservation Areas, which if improperly developed may result in substantial change to the water quality of the Chesapeake Bay and tributaries.

The section further requires assistance by the Commonwealth and its agencies to local governing bodies. *Id.*

19. Tidewater Virginia is defined by the Act as the following jurisdictions:

The Counties of Accomack, Arlington, Caroline, Charles City, Chesterfield, Essex, Fairfax, Gloucester, Hanover, Henrico Isle of Wight, James City, King George, King and Queen, King William, Lancaster Mathews, Middlesex, New Kent, Northampton, Northumberland, Prince George, Prince William, Richmond, Spotsylvania, Stafford, Surry, Westmoreland, and York and the Cities of Alexandria, Chesapeake, Colonial Heights, Fairfax, Falls Church, Fredricksburg, Hampton, Hopewell, Newport News, Norfolk, Petersburg, Poquoson, Portsmouth, Richmond, Suffolk, Virginia Beach and Williamsburg.

Id. § 10.1-2101.

20. *Id.* § 10.1-2100(B). This section reads:

Local governments have the initiative for planning and for implementing the provisions of this chapter, and the Commonwealth shall act primarily in a supportive role by providing oversight for local government programs, by establishing criteria as required by this chapter, and by providing those resources necessary to carry out and enforce the provisions of this chapter.

21. VA. CODE ANN. § 10.1-2102 (Michie 1988).

22. *Id.* § 10.1-2107.

23. *Id.* § 10.1-2103. (This section stipulates twelve actions which the Board is authorized to take for carrying out the purposes and provisions of the Act).

of land."²⁴

To assist the Board, the new statute also created the Chesapeake Bay Local Assistance Department in the Office of the Secretary of Natural Resources.²⁵ The Department is a state agency created to provide staff to the Chesapeake Bay Local Assistance Board in carrying out the requirements of the Act. The Department is also responsible for providing regular technical advice and assistance to local governments.²⁶

III. Board Regulations

In September 1989 the Board adopted Regulations for the Designation and Management of Chesapeake Bay Preservation Areas.²⁷ The Regulations were temporarily set aside because of a legal technicality and in November of 1990 the Board readopted the Regulations and adopted Emergency Regulations to maintain the program (the Regulations).²⁸ The Regulations consist of six parts and establish criteria for use by local governments to determine the ecological and geographic extent of Chesapeake Bay Preservations Areas.²⁹

In accordance with the Regulations, the local governments are to use the criteria to determine the extent of the Chesapeake Bay Preservation Areas within their jurisdictions.³⁰ Chesapeake Bay Preservation Areas are lands "which, if improperly developed, may result in substantial damage to water quality of the Chesapeake Bay and its tributaries."³¹ The Areas include two components: Resource Protection Areas and Resource Management Areas.

Resource Protection Areas (RPAs) are lands at or near shorelines which have important value to water quality. These lands may help to protect water quality and may be easily

24. R. KEITH BULL, *Virginia's Chesapeake Bay Preservation Act Program*, CHESAPEAKE BAY LOCAL ASSISTANCE DEPARTMENT REPORT 1 (1992).

25. VA. CODE ANN. § 10.1-2105 (Michie 1988).

26. *Id.*

27. Chesapeake Bay Preservation Area Designation and Management Regulations, Final Regulations, Va. Regs. Reg. 173-02-01 (1989).

28. BULL, *supra* note 24, at 1.

29. The Regulations consist of: (1) Introduction; (2) Local Government Programs; (3) Chesapeake Bay Preservation Area Designation Criteria; (4) Land Use and Development Performance Criteria; (5) Implementation, Assistance, and Determination Of Consistency; and (6) Enforcement. Va. Regs. Reg. 173-02-01 (1989).

30. Va. Regs. Reg. 173-02-01 § 3.1.

31. Southeastern Virginia Planning District Commission, *A Guide To Virginia's Chesapeake Bay Preservation Act*, ENVTL. NEWS (1990). The Southeastern Virginia Planning District Commission (SVPDC) is a voluntary association of eight local governments established by charter agreement in 1969. Its membership includes the Cities of Chesapeake, Franklin, Norfolk, Portsmouth, Suffolk and Virginia Beach and Counties of Isle of Wight and Southampton. SVDPC's primary function is to promote the orderly and efficient physical, social, and economic development of the region. *Id.*

damaged by the impacts of development.³² RPA land types include tidal wetlands, nontidal wetlands connected to tidal wetlands or tributary streams, and tidal shores.³³ A RPA must also include a buffer area, which is 100 feet wide, inland of these natural features.³⁴

Resource Management Areas (RMAs) are areas inland of the RPAs which are designated to protect the value of the RPAs.³⁵ RMA land types include floodplains, highly erodible soils (including steep slopes), highly permeable soils, and nontidal wetlands not included in the RPA.³⁶ Improper use or development of RMA land types increases "nonpoint" source pollution. The Regulations call for RMAs to be "large enough to provide significant water quality protection through the employment of the criteria."³⁷

The Regulations establish performance standards for local government use in both components of Chesapeake Bay Preservation Areas. The Regulations require land use practices which help to implement the following objectives: present a net decrease in "nonpoint" source pollution from new development; achieve a 10% reduction in "nonpoint" source pollution from redevelopment; and achieve a 40% reduction in "nonpoint" source pollution from agricultural and silvicultural uses.³⁸ To achieve these goals, the Regulations state specific performance standards to "minimize erosion and sedimentation potential, reduce land application of nutrients and toxics, maximize rainwater infiltration, and ensure the long-term performance of the measures employed."³⁹

Section 4.2 of the Regulations specifically states the general performance criteria required of the local governments when implementing their plans.⁴⁰ The criteria require practices that

32. Va. Regs. Reg. 173-02-01 § 3.2(A). This section specifically describes Resource Protection Areas as:

sensitive lands at or near the shoreline that have an intrinsic water quality value due to the ecological and biological processes they perform or are sensitive to impacts which may cause significant degradation to the quality of state waters. In their natural condition, these lands provide for the removal, reduction, or assimilation of sediments, nutrients, and potentially harmful or toxic substances in runoff entering the Bay and its tributaries, and minimize the adverse effects of human activities on state waters and resources.

Id.

33. *Id.* § 3.2(B)(1-3).

34. *Id.* § 3.2(B)(5).

35. *Id.* § 3.3(A). This section specifically describes Resource Management Areas as "land types that, if improperly used or developed, have a potential for causing significant water quality degradation or for diminishing the functional value of the Resource Protection Area." Va. Regs. Reg. 173-02-01 § 3.3(A).

36. *Id.* § 3.3(B).

37. *Id.* § 3.3(C).

38. *Id.* § 4.1.

39. *Id.* § 3.3(A).

40. Va. Regs. Reg. 173-02-01 § 3.3(A).

preserve existing vegetation and minimize both land disturbance and impervious cover.⁴¹ They also lower the threshold and eliminate certain exemptions for compliance with state erosion and sediment control laws.⁴² Stormwater management is required which encourages better water quality by allowing no net increase in pollutant loads from runoff and a 10% improvement for redevelopment.⁴³ In addition, the Regulations tighten state controls on septic systems by requiring 100% reserve drainfield sites for all new construction and pump-out every five years for both new and existing systems.⁴⁴ Lastly, the Regulations require "nonpoint" source pollution control by agricultural and forestry operations.⁴⁵ Overall, the Regulations establish criteria for the use and development of land to reduce pollution in stormwater runoff entering the Bay.

IV. Adoption by the Localities

As stated earlier, the Chesapeake Bay Preservation Act is a cooperative state and local government program designed to improve the health of the Bay by improved land use management. The Act requires that the local governments designate their areas as RPAs or RMAs and utilize the land use and development criteria in the Regulations to create a comprehensive land use program.⁴⁶ The Board is required to assist the local governing body in shaping its comprehensive land use program, using that locality's zoning laws, subdivision ordinances, and comprehensive plan to protect the quality of state waters in the preservation areas.⁴⁷ The Preservation Act program consisting of the Act and the Regulations, has begun protecting the Bay and its tributaries against "nonpoint" source pollution.⁴⁸ Implementation of the Act is well under way as the Tidewater localities continue to adopt the various elements of the Regulations.

The Bay Act Regulations identify seven elements that each local jurisdiction must include in its Preservation Act program. The elements are: (1) a map delineating Chesapeake Bay Preservation Areas; (2) performance criteria for land use and development in Preservation

41. *Id.* "Impervious cover" is defined by the statute as "a surface composed of any material that significantly impedes or prevents natural infiltration of water into the soil. Impervious surfaces include, but are not limited to, roofs, buildings, streets, parking areas, and any concrete, asphalt or compacted gravel surface." *Id.*

42. *Id.* § 4.2.

43. *Id.*

44. Va. Regs. Reg. 173-02-01 § 4.2. (The Local Assistance Department has developed and distributed computer software to help local governments keep track of the pump-out, and has worked with the Health Department on many aspects of the sewage disposal issue).

45. *Id.* Under a memorandum of understanding, the Department of Forestry is keeping the Local Assistance Board and Department informed of the progress of its voluntary runoff control program.

46. VA. CODE ANN. § 10.1-2109 (Michie 1988).

47. *Id.* § 10.1-2103.

48. BULL, *supra* note 24, at 1.

Areas; (3) a comprehensive plan incorporating protection of Preservation Areas and water quality; (4) a zoning ordinance that includes measures to protect water quality; (5) a subdivision ordinance that includes measures to protect water quality; (6) an erosion and sediment control ordinance consistent with provisions in the Regulations; and (7) a plan of development review process that protects water quality.⁴⁹ Each element must be adopted by the Tidewater local governments and reviewed by the Local Assistance Board. The Local Assistance Department has organized the elements into a three-phase program.⁵⁰ Phase One involves the first two elements, delineating Chesapeake Bay Preservation Areas and adopting performance criteria for lands within Preservation Areas.⁵¹ As of September 10, 1992, all Tidewater cities and every county except Fairfax had adopted Phase One programs. Several towns with small or no full time staff are still working on Phase One, with the Department's continued assistance.⁵² However, at this point, Phase One is nearly complete as the Board has reviewed most of the Phase One programs for consistency with the Act and the Regulations.

Phase Two involves incorporating water quality protection into local comprehensive plans. The local government is required to incorporate measures that will protect both the local Chesapeake Bay Preservation Areas and the quality of state waters.⁵³ The government body may accomplish this by preparing a new comprehensive plan or by revising an existing one. A number of local governments are working with the Department on new or revised comprehensive plans, and the Board is scheduled to begin Phase Two consistency reviews early in 1993.⁵⁴

Phase Three, which involves local governments completing their Preservation programs by the incorporation of more specific water quality protection measures, has only begun in a few localities.⁵⁵ The protection measures are to be incorporated into the local governments' zoning and subdivision ordinances.⁵⁶ In addition, the governments are required to adopt or revise erosion and sediment control ordinances to meet the standards of the Bay Act Regulations, and to hold plan-of-development reviews for water quality protection.⁵⁷ Revising

49. Va. Regs. Reg. 173-02-01 § 5. *See also* BULL, *supra* note 24, at 3.

50. BULL, *supra* note 24, at 3.

51. BULL, *supra* note 24, at 3.

52. Adoption numbers are as follows: 17 of 17 Cities or 100%; 28 of 29 Counties or 97%; 19 of 38 Towns or 50%. BULL, *supra* note 24, at Figure 6.

53. BULL, *supra* note 24, at 4.

54. BULL, *supra* note 24, at 4. (After a local government designs a plan for land use management in its jurisdiction, it must submit the plan to the Board for review and the Board determines the consistency of the plan with the overall Act and the Regulations).

55. BULL, *supra* note 24, at 4.

56. BULL, *supra* note 24, at 4.

57. BULL, *supra* note 24, at 4.

local development standards to reflect water quality concerns will "ensure the compatibility of the Bay Act provisions with other land use management regulations."⁵⁸

V. State Assistance For Local Programs

The Bay Act, along with requiring a cooperative effort between state and local government, requires the Local Assistance Board to "provide financial and technical assistance and advice to local governments."⁵⁹ General Assembly appropriations to the Department for financial and technical assistance are represented in three general categories. First, the Department has established a competitive grants program to provide direct financial assistance to local governments and planning districts implementing the Act.⁶⁰ Second, the Department allocated funds to hire and maintain eleven water quality specialists at local soil and water conservation districts to assist Tidewater localities with the implementation of the agricultural provisions of the Regulations.⁶¹ Lastly, to complement the direct financial assistance to localities and planning districts, the Department uses technical assistance funds to produce a variety of support materials for use by local governments in the development and enforcement of their Bay Act programs.⁶²

The competitive grants to localities and planning districts represent the largest expenditure by the Department in assisting the local governments. Allocation for 1991 in this category of assistance was \$1,314,750 and allocation for 1992 and 1993 will total \$474,000 and \$750,000 respectively.⁶³ In the three years of the competitive grants program, the Department has funded planning, engineering, and enforcement positions at the local and regional levels.⁶⁴ Almost half of the staff positions established in 1991 were those which provide planning and engineering expertise to local government administrative operations.⁶⁵ Similarly, many of the computer systems funded over the three year period have provided the first automation to rural localities' land use management.⁶⁶

The type of assistance which accounted for the next highest amount of allocation was the agricultural program grants to soil and water conservation districts. Unlike the competitive

58. BULL, *supra* note 24, at 4.

59. VA. CODE ANN. § 10.1-2103(3) (Michie 1988).

60. BULL, *supra* note 24, at 4.

61. BULL, *supra* note 24, at 4.

62. BULL, *supra* note 24, at 4.

63. BULL, *supra* note 24, at Figure 7.

64. BULL, *supra* note 24, at 5.

65. BULL, *supra* note 24, at 5.

66. BULL, *supra* note 24, at 5.

grants, these grants were for an equal amount of \$375,000 for the years 1991-1993.⁶⁷

Funding for technical assistance projects has represented the lowest amount of allocation by the Department. For the years 1991 and 1992, the funding was \$125,000 while the amount for 1993 dropped to \$100,000.⁶⁸ The money from this category has been used in an attempt to obtain the greatest water quality benefit possible out of each state dollar. One way this is achieved is through the Department's effort in working with planning districts to develop regional solutions to common problems. Many of these solutions can be developed through the use of the following eight activities which make up the Department's technical assistance: (1) Local Government Liaison Network;⁶⁹ (2) Local Assistance Manual;⁷⁰ (3) Technical Assistance for Town Governments;⁷¹ (4) Customized Stormwater Management Procedures;⁷² (5) Computer Software;⁷³ (6) Training Workshops;⁷⁴ (7) Advisory Plan Review;⁷⁵ and (8)

67. BULL, *supra* note 24, at 5.

68. BULL, *supra* note 24, at 5.

69. BULL, *supra* note 24, at 5. The Department staff are assigned to localities within Tidewater Virginia to guide and facilitate program development and adoption. Liaison network arrangement enables a small staff to program needs of numerous localities and permits each locality to receive consistent assistance from one individual. BULL, *supra* note 24, at Figure 9.

70. BULL, *supra* note 24, at 5. Three additional chapters are planned to complete the Local Assistance Manual: creative site design for water quality protection; guidance on zoning and subdivision ordinance revisions consistent with the Act and Regulations; and watershed planning for comprehensive stormwater management. BULL, *supra* note 24, at 5.

71. BULL, *supra* note 24, at 5. Special technical assistance under the grants program has supported a regional planner position at the Accomack-Northampton Planning District Commission. The Department will be hiring a part time professional planner to assist other town governments with similar program needs. BULL, *supra* note 24, at 5.

72. BULL, *supra* note 24, at 5. The Department will continue to develop stormwater management calculation procedures customized to suit a locality's natural environment and existing administrative procedures. The Department will assist localities in preparing requests for proposals for stormwater management and stream corridor studies. This assistance significantly reduces local government costs and overcomes local staffing deficiencies. BULL, *supra* note 24, at 5.

73. BULL, *supra* note 24, at 5. The Department has provided menu-driven, user friendly software to local governments to administer septic system pump-out requirements and review the design and sizing of stormwater management best management practices. Other opportunities for developing software for local tracking of development activity will be explored. BULL, *supra* note 24, at 5.

74. BULL, *supra* note 24, at 5. The Department has conducted a range of local government training programs in the following areas: initial program development; stormwater management calculation procedure; wetlands delineation; and computer software for program administration. BULL, *supra* note 24, at 5.

75. BULL, *supra* note 24, at 5. The Department provides advisory review of local site plans, subdivision plats, and water quality impact assessments as requested by Tidewater local governments. BULL, *supra* note 24, at 5.

Comprehensive Plan Assistance.⁷⁶ The Department's emphasis on regionalizing technical assistance efforts has resulted in greatly increased coordination among neighboring jurisdictions.

VI. Costs of Complying with the Act

Because the Chesapeake Bay Preservation Act is just four years old and the Regulations just three, it is still too early to tell how much improvement in the water quality and reduction in pollution has resulted from the overall program. Local governments are only beginning implementation of the Act and evidence of any benefits of the Act should come about in the near future. Although there is a lack of proof that the Act is resulting in the improved health of the Bay, other repercussions of the Act are evident all across the Commonwealth of Virginia.

A major factor that plays an important role in any legislation is the ultimate cost associated with the legislation. As discussed earlier, the General Assembly has made direct appropriations to the Department for its assistance to local governments in devising their local programs. Another cost of implementing the Act is the cost of complying with the Regulations as adopted by the Chesapeake Bay Preservation Board.⁷⁷ Studies have been completed to evaluate the costs of complying with the Regulations, the most recent being in February of 1992.⁷⁸ The 1992 study consists of two parts, the agricultural aspect and the urban aspect.⁷⁹

The agricultural portion focuses on the impact that the Regulations may have on farmers in Tidewater Virginia. The Regulations require farmers to implement vegetative buffer strips along the edges of farm fields adjacent to and as part of RPAs.⁸⁰ The width of the buffer is established by the Regulations at 100 feet, but may be reduced to 50 or further to 25 feet when certain agricultural conservation practices are implemented.⁸¹

The study estimates the amount of income that could be lost when land is removed from production to install a buffer strip.⁸² Net annual incomes were calculated for five common crop rotations and eleven different field situations typical of Tidewater Virginia.⁸³ Income losses

76. BULL, *supra* note 24, at 5. The Department will provide assistance to local governments in preparing revisions to their comprehensive plans. Technical studies will establish a foundation for the development of appropriate local water quality protection policies and strategies. BULL, *supra* note 24, at 5.

77. Chesapeake Bay Preservation Area Designation and Management Regulations, Final Regulations, Va. Regs. Reg. 173-02-01 (1989).

78. CHESAPEAKE BAY LOCAL ASSISTANCE DEPARTMENT, STUDY OF THE COSTS OF COMPLYING WITH THE CHESAPEAKE BAY PRESERVATION ACT REGULATIONS 1 (Feb. 1992) [hereinafter STUDY].

79. *Id.*

80. Va. Regs. Reg. 173-02-01 § 4.3(B).

81. STUDY, *supra* note 78, at 3.

82. STUDY, *supra* note 78, at 3.

83. STUDY, *supra* note 78, at 3.

were then determined for each rotation and each field situation based on the different buffer area requirements.⁸⁴ Two different field productivity scenarios were evaluated. The first scenario assumes 100% production across the entire field, throughout the area that would be removed from production to install the buffer, and represents the maximum income lost, or "worst case".⁸⁵ The "average case" scenario assumes that the land in the buffer area would be only 65% productive and would have an average of 10 feet existing vegetation in place between other RPA features and the existing field.⁸⁶

The results of the study show that the amount of income lost on a per field basis varies with the size and shape of the field, the amount of field edge in the buffer, the productivity of the land in the buffer, and whether or not any natural vegetation already exists in the buffer. Many different findings resulted from the study because of the variations. The first calculation involved corn, wheat, and soybeans that would be grown during a two year rotation. The net annual income lost in the "worst case" scenario for the three crops on a two year rotation was \$96.33 per acre of buffer.⁸⁷ The net annual income lost under the "average case scenario" was calculated as \$31.47 per acre of buffer.⁸⁸ The second segment, involving corn and soybeans during a two year rotation, resulted in a "worst case" net annual income loss of \$83.37 and an "average case" net annual income loss of \$10.03.⁸⁹ The third segment's net annual income losses were \$91.64 for the "worst case" and \$40.70 for the "average case" per buffer acre, where the crops were wheat and soybeans and the rotation was one year.⁹⁰ The fourth segment involved a continuous corn crop and resulted in net annual income losses per acre of buffer of \$90.22 for the "worst case" and \$11.47 for the "average case".⁹¹ Lastly, Irish potatoes were used as the typical vegetable crop, and resulted in a \$500.00 net annual income loss under the

84. STUDY, *supra* note 78, at 3.

85. STUDY, *supra* note 78, at 3.

86. STUDY, *supra* note 78, at 7. Typically the area to be removed from production is also the least productive area of the field due to several factors, such as: (1) shading and competition for water and nutrients from trees; (2) less productive soils; (3) damage from equipment during planting; and (4) damage from wildlife. STUDY, *supra* note 78, at 7.

The "average case" scenario represents the situation where crop yields in the area removed from production are less than those for the rest of the field, and where existing areas of natural vegetation are present along the RPA feature. This scenario assumes that the field area removed from production would be 65 percent productive when in use and that an average 10 foot wide strip of natural vegetation would exist along the RPA feature. The 65% figure represents the best professional judgment of local farmers and various agricultural agency personnel. STUDY, *supra* note 78, at 7.

87. STUDY, *supra* note 78, at 9.

88. STUDY, *supra* note 78, at 9.

89. STUDY, *supra* note 78, at 10.

90. STUDY, *supra* note 78, at 11.

91. STUDY, *supra* note 78, at 12.

"worst case" scenario and \$53.75 under the "average case" scenario.⁹²

The urban portion of the study is intended to evaluate the costs of new requirements imposed on development projects by the Regulations. All projects in Chesapeake Bay Preservation Areas must comply with very general criteria in the Regulations.⁹³ Development is expected to minimize land disturbance and impervious cover while preserving vegetation to the degree possible, consistent with the approved project plans. This part of the study focuses on regulatory requirements most often accomplished through physical structures such

92. STUDY, *supra* note 78, at 13. Potatoes were selected as the typical vegetable crop for this study because they are a characteristic vegetable crop of the growing region. STUDY, *supra* note 78, at 13.

93. Chesapeake Bay Preservation Area Designation and Management Regulations, Final Regulations, Va. Regs. Reg. 173-02-01. Section 4.2 of the General Performance Criteria requires the following:

It must be demonstrated to the satisfaction of local governments that any use, development, or redevelopment of land in Chesapeake Bay Preservation Areas meets the following performance criteria:

1. No more land shall be disturbed than is necessary for the desired use or development;
2. Indigenous vegetation shall be preserved to the maximum extent possible consistent with the use and development allowed; . . .
3. Where the best management practices utilized require regular or periodic maintenance in order to continue their functions, such maintenance shall be ensured by the local government through a maintenance agreement with the owner or developer or some other mechanism that achieves an equivalent objective;
4. All development exceeding 2,500 square feet of land disturbance shall be accomplished through a plan of development process consistent with sec. 15.1-491(h) of the Code of Virginia;
5. Land development shall minimize impervious cover consistent with the use or development allowed;
6. Any land disturbance activity that exceeds an area of 2,500 square feet (including construction of all single family houses, septic tanks and drainfields, but otherwise as defined in sec. 10.1-560 of the Code of Virginia) shall comply with the requirements of the local erosion and sediment control ordinance;
7. On-site sewage treatment systems not requiring a Virginia Pollutant Discharge Elimination System (VPDES) permit shall:
 - a. Have pump-out accomplished for all such systems at least once every five years.
 - b. For new construction, provide a reserve sewage disposal site with a capacity at least equal to that of the primary sewage disposal site. This reserve sewage disposal site requirement shall not apply to any lot or parcel recorded prior to October 1, 1989 if the lot or parcel is not sufficient in capacity to accommodate a reserve sewage disposal site, as determined by the local health department.
8. Stormwater management criteria which accomplish the goals and objectives of these regulations shall apply. For development, the post-development nonpoint source pollution runoff load shall not exceed the pre-development load based upon average land cover conditions. Redevelopment of any site not currently served by water quality best management practices shall achieve at least a 10% reduction of nonpoint source pollution in runoff compared to the existing runoff load from the site.

Id.

as stormwater management and erosion control facilities.⁹⁴

The urban component of the study consists of six sections: (1) Small Subdivision with Resource Protection Area; (2) Single-family home site; (3) Large Subdivision with no Resource Protection Area on the site; (4) Large Commercial Subdivision; (5) Small Commercial site; and (6) Shopping Center. Under the small subdivision, three possible Chesapeake Bay Preservation Areas making up the 44 lot subdivision were examined and the individual occupied lots had average property values of \$61,000.⁹⁵ The additional cost estimates for the small subdivision, which included a water quality stormwater management plan, installation of one of 3 trench designs depending on the Preservation Area, and review fees, totalled from \$21,000 to \$40,000.⁹⁶ These additional costs resulted in the compliance cost estimates ranging from \$20,000 to \$40,000 which represents a percentage of total value of the subdivision ranging between .8% and 1.5%.⁹⁷ These costs reflect what a developer would have to pay to put in new equipment and develop new land usages and also what would be paid to continue compliance with the Regulations for a typical small subdivision in Tidewater Virginia.⁹⁸

In contrast with the small subdivision is the large subdivision with no Resource Area. The large subdivision studied had 91 lots with an average property value of \$90,000 per lot.⁹⁹ The additional cost estimates, which include a water quality stormwater management plan and review fees, were calculated to be \$7,000 with basin modification and riser and without culvert change, and \$50,000 with culvert change.¹⁰⁰ The compliance cost estimates ranged from \$6,000

94. STUDY, *supra* note 78, at 24. The study sites were selected from four different counties within Tidewater Virginia. All examples had existing site plans in various states of local government approval. Some projects were already built before local adoption of Chesapeake Bay Preservation Act programs. No major realignment of lot lines or structures was undertaken. STUDY, *supra* note 78, at 24.

95. STUDY, *supra* note 78, at 24. The small subdivision with RPA estimates were calculated using three examples of Chesapeake Bay Preservation Areas. The first area consisted of a 100-foot buffer with a 500-foot wide Resource Management Area. The second had an RPA which included the floodplain plus a 100-foot buffer and a 500-foot wide RMA. The third was identical to the second but the RMA included the remainder of the site. STUDY, *supra* note 78, at 25.

96. STUDY, *supra* note 78, at 27.

97. STUDY, *supra* note 78, at 27. (The estimates concerning the same subdivision located in Northern Virginia accounted for the upper end of the compliance cost estimates).

98. STUDY, *supra* note 78, at 27. Because the site is located in a Chesapeake Bay Preservation Area, the developer would have encountered several requirements beyond those for sites outside Preservation Areas. Additional requirements would include: (1) preparation of a water-quality stormwater management plan; (2) installation of on-site controls to achieve the stormwater management criteria; and (3) minimization of land disturbance, natural vegetation removal, and impervious cover. STUDY, *supra* note 78, at 27.

99. STUDY, *supra* note 78, at 31. This subdivision has no wetlands on the site. No new site plan approval or erosion and sediment control requirements are imposed on this development as a result of the Regulations. STUDY, *supra* note 78, at 31.

100. STUDY, *supra* note 78, at 32.

to \$9,000 without culvert change and from \$42,000 to \$56,000 with culvert change.¹⁰¹

Residential areas are not the only urban areas that will be affected by the Act. It is also important to examine the costs to commercial sites of complying with the Act. The 1992 study compared the compliance cost estimates that would be incurred by a large commercial site and a small commercial site. The large commercial site studied was a 108-acre mixed-use subdivision zoned for general business and retail.¹⁰² The additional cost estimates, consisting of additional stormwater management engineering and review fees, totalled \$1,300 with the range of compliance cost estimates being \$600 to \$1,400.¹⁰³ The small commercial site studied was a 0.74 acre outparcel of a large, strip-type shopping center.¹⁰⁴ The additional cost estimates include a water quality stormwater management plan, installation of infiltration trench and associated trench drains, and review fees. This resulted in a range of compliance cost estimates of \$13,400 to \$16,000.¹⁰⁵ The impact of the Act can potentially be greater for a smaller commercial site than a larger site, but the costs, for any commercial or residential site, of complying with the Act can influence developers substantially.

VII. Opposition to the Act

As with any environmental legislation, conflicts between environmentalists in favor of the Chesapeake Bay Preservation Act, and the business and individual communities opposing much of the Act have arisen recently. Developers, farmers, and individual land owners fear that the Act will greatly restrict the various uses of their land.

One example of opposition to the Act has occurred in Fairfax County, Virginia. In May 1991, Fairfax approved their new land use rules under the Act which bar most new development near shorelines and wetlands and require developers to minimize the environmental impact of building projects elsewhere in the county.¹⁰⁶ The Fairfax rules are stricter than required by the Virginia law and were immediately opposed by various members of the County. The Supervisor of Fairfax County, Elain McConnell, contended that the "net effect of this ordinance will be to force homeowners to pay more without improving water

101. STUDY, *supra* note 78, at 32.

102. STUDY, *supra* note 78, at 34. (This specific site was designed to include such businesses as a hotel, bank, car dealership, and general office space).

103. STUDY, *supra* note 78, at 34. The existing stormwater management criteria of the Virginia Erosion and Sediment Control Law apply to this site since the adjacent watercourse does not drain an area at least 100 times the size of this subdivision. Therefore, stormwater quantity controls are required by existing regulations. In addition, water quality control measures are necessary to comply with the Preservation Act Regulations. STUDY, *supra* note 78, at 34.

104. STUDY, *supra* note 78, at 34. For the purpose of this study, the site was treated separately from the adjacent development and was located on a major arterial road and was designed for a six fuel pump convenience store. STUDY, *supra* note 78, at 34.

105. STUDY, *supra* note 78, at 36.

106. Jennifer Spacenek, *Fairfax Implements the Chesapeake Bay Preservation Act*, WASH. TIMES, May 21, 1991, at E9.

quality at all."¹⁰⁷ In addition, Thomas Hyland, lobbyist for the Apartment and Office Building Association of Washington, said that the local board used the Chesapeake Bay Act as an "excuse to do more downzoning."¹⁰⁸

These examples of opposition to the local plan and the Chesapeake Bay Preservation Act in general raise questions of how far a local government should go in its attempt to preserve the Bay. Fairfax's plan states that all wetlands, floodplains, steep slopes, and land within 100 feet of a shoreline will be designated as a RPA.¹⁰⁹ This designation goes beyond the Act's requirements in that the state doesn't require floodplains or steep slopes to be included in the most restrictive category of RPA. Homeowners living in RPAs in Fairfax could add no more than 100 square feet of impervious surfaces to their existing homes.¹¹⁰ In addition, almost no new development in these RPAs would be allowed except for roads, public utilities, and water-dependent uses like docks and marinas.¹¹¹

This particular plan has pitted environmentalists and developers against one another in heated debates over the Act. The environmentalists say the county's plan is good and nothing can be too restrictive.¹¹² Homeowners and real estate developers say the plan would strip property owners of their rights unnecessarily, in some cases costing them thousands of dollars in land value and in other cases restricting some homeowners from making improvements such as tennis courts or pools.¹¹³ Despite this clash, the plan is still in effect in Fairfax and only time will tell whether the local governing body went too far in its implementation of the Act.

VIII. Effectiveness of Implementation and Recommendations

The Chesapeake Bay Preservation Act is a major step towards improving water quality and protecting the Bay. Although much thought and work has gone into drafting the Act as well as implementing it at the local level, problems with the overall Act exist. The identification pitfalls in the Act, and new ideas of improvement for it are necessary to ensure that the maximum benefits of the Act are realized.

A major problem with the Act has been the slow implementation process that has occurred at the local level. One aspect of this implementation process is the designation of preservation areas and the adoption of performance criteria by the local governing bodies: Phase I of the three phase program required by the Regulations. Although most of the local jurisdictions have adopted Phase I, some areas are still working on the adoption and the Board continues to review them. One possible practice that may speed up the process is to have jurisdiction-wide

107. *Id.*

108. *Id.*

109. Deneen L. Brown, *Fairfax Plan to Save Bay Makes Waves*, WASH. POST, Apr. 12, 1991, at B3.

110. *Id.*

111. *Id.*

112. *Id.*

113. *Id.*

RMAs. This type of designation has been recommended by a program study group to achieve watershed based water quality planning and management.¹¹⁴ Another improvement may be to identify land features which must or may be included in local RPAs and RMAs, and are therefore subject to the Chesapeake Bay Act's performance criteria. Clear definitions of the relevant land features is essential to avoid confusion and legal challenges to the identification process.

The General Performance Criteria under the Regulations have been seen by some to be too broad and vague.¹¹⁵ The program study group suggested that the Board should clarify the intent and limit of these criteria and that local governments should provide more specific interpretations of the general criteria in their ordinances.¹¹⁶ Overall, the group stated that there is a need to clarify the meaning of certain terms in the Regulations to make the interpretation and application of the Regulations at the local level more consistent with the intent of the Act.¹¹⁷

In the early stages of the Bay Act implementation process, most of the attention has been focused on designation of preservation areas and adoption of performance criteria. Another central component of the Act is the requirement that local governments adopt full management programs. Section 5.6 of the Regulations states: "local governments must adopt the full management program, including any revisions to comprehensive plans, zoning ordinances, and other local authorities necessary to implement the Act."¹¹⁸ State level review of local management programs is just beginning and the successful integration of Bay Act requirements into local plans and ordinances is crucial to effective program implementation at the local level. One possibility for better integration is to have the Board provide a vision of desired development patterns in the Bay region and guidance on how local plans and ordinances can be used to achieve that vision in ways that are compatible with local differences and conditions. This and other possible recommendations are very important to the viability of the Act because local comprehensive plans and zoning and subdivision ordinances, and the preservation area designations and adoption of performance criteria, will guide future land use and development patterns in the Bay region over the coming decades.

114. CHESAPEAKE BAY PRESERVATION ACT PROGRAM STUDY GROUP, FINAL REPORT 3 (Charlottesville, Va. July, 1992) [hereinafter FINAL REPORT]. The Chesapeake Bay Preservation Act Program Study Group consisted of seventeen people from various Tidewater jurisdictions who represent groups concerned about the Chesapeake Bay Preservation Act Program: local governments, civic and environmental groups, economic and land development interests, regional governmental organizations, and farming, forestry and fisheries interests. These seventeen individuals were joined by three members of the Chesapeake Bay Local Assistance Board, who served as a liaison between the Study Group and the Board. The Group's findings are in the FINAL REPORT OF THE CHESAPEAKE BAY PRESERVATION ACT PROGRAM STUDY GROUP published in July 1992.

115. FINAL REPORT, *supra* note 114, at 21.

116. FINAL REPORT, *supra* note 114, at 21.

117. FINAL REPORT, *supra* note 114, at 21.

118. Chesapeake Bay Preservation Area Designation and Management Regulations, Final Regulations, Va. Regs. Reg. 173-02-01 (1989).

IX. Conclusion

The Chesapeake Bay Preservation Act is an aggressive and serious step towards the much needed cleanup of the Chesapeake Bay and surrounding areas. Although only four years old, this piece of legislation is already beginning to have effects on the Chesapeake Bay environment by requiring developers, homeowners, and farmers within certain areas to follow specific regulations regarding land use and management. The Act has also required a moderate amount of funding from the state and the costs of implementation are potentially large.¹¹⁹

But because the Act, which began at the regional and state level, requires and encourages local involvement in the preservation of the Bay, these costs can be spread in an even manner throughout Tidewater Virginia, and the benefits of the Act will arguably outweigh the costs. The Chesapeake Bay Preservation Act, although a positive step towards dealing with a serious environmental problem, is by no means a perfect piece of legislation. The Act needs to ensure better communication between the state and localities and less vague criteria for certain designations, and until these changes are made and implemented the true potential of the Act will not be realized.

Marshall Groom

119. See *supra* section V (discussing state assistance to localities and the costs of implementation).

