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New York City's Watershed Agreement: A Lesson in Sharing Responsibility

MICHAEL C. FINNEGAN*

I. Supplying Water for New York City

A. Introduction

Every once in a while something happens to demonstrate the powers of firm political leadership coupled with the good will of ordinary citizens. A case in point is the agreement announced yesterday between New York City and upstate communities to clean up the two thousand square mile watershed that supplies drinking water to seven million city dwellers and one million suburbanites.¹

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Mr. Finnegan graduated from Siena College, where he is currently an adjunct professor, and earned his law degree from Pace University Law School. He was a former partner in the firm Plunkett and Jaffe, P.C. where he concentrated on public finance real estate and environmental law.

During his first year as Counsel to the Governor, Mr. Finnegan successfully brokered the New York City Watershed Agreement by leading negotiations among state, federal and New York City governments, representatives of eight upstate counties and the environmental community to produce a landmark agreement which had eluded the parties for more than a generation.

Mr. Finnegan also conceived and drafted Governor Pataki's Clean Water/Clean Air Bond Act through which will be provided over \$5 billion in project financing for environmental protection across New York State. Mr. Finnegan took a leave of absence to serve as Executive Director and Co-Chairman of the Bond Act Campaign Committee where he managed the campaign to a surprising overwhelming victory. The Clean Water/Clean Air Bond Act and the New York City Watershed Agreement have been hailed as the Governor's finest environmental accomplishments.

Mr. Finnegan is well-versed in Irish politics, history and tradition and lives in Garrison, New York with his wife and their three children.

1. *At Last, a Watershed Agreement*, N.Y. TIMES, Nov. 3, 1995, at A28.

So heralded the *New York Times* in its editorial, November 3, 1995, in describing both the process and the substance of the historic ten-year, \$1.4 billion agreement to protect the water supply of approximately nine million New Yorkers.² The unorthodox process which produced an agreement in principle in seven months and a final Memorandum of Agreement fourteen months thereafter ended more than a century of upstate-downstate hostility over conflicting rights to property and water.³ It represents a model approach to environmental dispute resolution.

The New York City Watershed (Watershed)⁴ encompasses two thousand square miles and is the largest unfiltered surface drinking water supply in the country, perhaps, even the world.⁵ It supplies 1.4 billion gallons of water to nine million people each day. The Watershed region is home to more than 230,000 people, the highest population density of any other large unfiltered watershed in the country. As such, it is also the site of significant economic activity including manufacturing, construction and agriculture.⁶ However, only a small percentage of watershed land is actually owned by New York City; 6.4% in the Catskill, Delaware and Croton systems.⁷ As a result, New York City's Watershed is confronted with many more management problems

2. See *id.* See also Andrew C. Revkin, *Chasing a Deal on Water With a Few Pitchers of Beer*, N.Y. TIMES, Nov. 5, 1995, at §1, 41.; NATURAL RESOURCES DEFENSE COUNCIL, A GUIDE TO NEW YORK CITY'S RESERVOIRS AND THEIR WATERSHEDS iii (1993) [hereinafter NRDC REPORT]. "In July 1993, when the thermometer hit 100°, New York City's reservoirs provided over 2 billion gallons of water on a single day." *Id.*

3. See NRDC REPORT, *supra* note 2, at iii.

4. Watershed can be defined as "the area of land that drains into a particular body of water." *Id.* at ix.

5. See NEW YORK CITY DEP'T ENVTL. PROTECTION, FINAL GENERIC ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED WATERSHED REGULATIONS FOR THE PROTECTION FROM CONTAMINATION, DEGRADATION, AND POLLUTION OF THE NEW YORK CITY WATER SUPPLY AND ITS SOURCES II-1 (Nov. 1993) [hereinafter FGEIS].

6. See generally FGEIS, *supra* note 5, at VII.A.2-5 to 2-32.

7. See Committee on Environmental Law, *Regulation of Surface Drinking Water Supplies: How Will New York City Compare?*, 51 RECORD ASS'N BAR CITY OF NEW YORK, 521, 526 (1996).

than any other large municipal watershed, including San Francisco,⁸ Portland,⁹ Seattle,¹⁰ and Boston.¹¹

Pursuant to a series of unique state legislative enactments, the City has the authority to regulate land use outside

8. San Francisco, which derives 85 percent of its water from the Hetch-Hetchy reservoir and is entirely located in Yosemite National Park, serves 2.3 million customers and has virtually no residential development with which to cope. See San Francisco water Department Application for Hetch-Hetchy Reservoir Filtration Avoidance, June 2, 1993, at 1, 9 (on file with author). The watershed is owned and controlled by the U.S. National Park Service which closely circumscribes use within. See *id.* at 1. Indeed, as the San Francisco Water District stated in 1993, "[t]he watershed is remote, seasonally inaccessible and intensively managed by the Park Service and produces high quality water that is exposed to minimal contamination." *Id.* at 9.

9. Portland's watershed is devoid of permanent settlement and is closed to public entry and domestic grazing. See City of Portland Bureau of Water Works, Source Protection Program for the Bull Run Watershed 1-2 (Dec. 1, 1991)(unpublished manuscript on file with author). Serving over 700,000 residents, the Bull Run watershed's 106 square miles of drainage basin and forty-two square miles of buffer zone, see *id.*, and is dramatically smaller than New York City's 1,900-plus square miles. Approximately 96% of the land is owned and managed by the U.S. Forest Service, and the remaining 4% is owned by the Portland Water Bureau. See *id.* Access to the watershed is permitted for "two general uses: 1) research that is necessary to better understand relationships among land use, natural processes, and water quality in the watershed; and 2) tours designed to inform the public about the watershed management program." *Id.* at 2.

10. Seattle's watershed is 141 square miles and is located about sixteen miles east of Seattle and serves 1.1 million citizens. See RICHARD W. ROBBINS ET AL., EFFECTIVE WATERSHED MANAGEMENT FOR SURFACE WATER SUPPLIES 379 (American Water Works Ass'n Research Foundation 1991). The City of Seattle, which owns 81% of the land in the watershed, is scheduled to own all of its watershed land by 2010 pursuant to the Cedar River Logging Agreement. See *id.* Timber harvesting has been the major secondary-use of city owned land but will be phased out by 2010. See *id.* There is no residential or industrial activity and permission to enter the watershed is granted only for those purposes approved by the city. See *id.* at 383.

11. Boston derives its water from the Quabbin Reservoir, Ware River, and the Wachusett Reservoir. See Committee on Environmental Law, *supra* note 7, at 529. Serving 2.5 million customers, its drainage area is approximately 392 square miles. See *id.* The Metropolitan District Commission (MDC), which administers the watershed, owns 67% of the Quabbin watershed, 30% of the Ware watershed, and 14% of the Wachusett watershed. See *id.* MDC is implementing buffer zone restrictions around reservoirs and tributaries, bans on storage and disposal of harmful materials, septic system installation limitations, and restrictions on construction activities deleterious to water quality. See *id.* at 530.

its jurisdictional boundaries.¹² For more than a century, it has “flooded fields, dug up cemeteries and condemned villages” in the upstate region to make way for its expanding water-supply system.¹³ In a classic conflict with New York State’s local government “Home Rule” tradition,¹⁴ the City’s power to regulate development around the reservoirs was deeply resented by upstaters causing a rift between the two regions for more than a century.¹⁵

The increasing presence of people living and working in the Watershed has produced unique challenges for drinking water protection. As the population increased so did the need for enhanced protections. A crisis was bound to result, and it did.

Within the Watershed region, 128,000 septic tanks can be found, thousands of acres of farmland, hundreds of miles of roadways, and 100 sewage treatment plants.¹⁶ All of them discharge treated wastewater into waterbodies feeding the reservoirs.¹⁷ Many required upgrading or replacement according to the Environmental Protection Agency (EPA) and environmentalists.¹⁸ By the 1980s, as result of “decades of careless development, inadequate pollution controls and virtually non-existent enforcement of regulations,” one third of the water supply was borderline in quality.¹⁹

Although New York City has successfully avoided filtration for 90% of its water supply as a result of the Watershed Agreement which is the subject of this Article,²⁰ it was only after circumstances reached a terrible crisis that a Watershed Protection Plan justifying filtration avoidance could be

12. See *infra* notes 85-87 and accompanying text.

13. Revkin, *Chasing a Deal*, *supra* note 2, § 1, at 41. See also NRDC REPORT, *supra* note 2, at iii.

14. See *infra* notes 84-85 and accompanying text.

15. See Revkin, *Chasing a Deal*, *supra* note 2, § 1, at 41.

16. See Governor Pataki’s *Watershed*, N.Y. TIMES, June 26, 1995, at A14.

17. *Id.*

18. *Id.*

19. DAVID K. GORDON & ROBERT F. KENNEDY, JR., *The Legend of City Water: Recommendations for Rescuing the New York City Water Supply* 1 (1991).

20. See Andrew C. Revkin, *New York City Sued by U.S. On Water Filtration Plant*, N.Y. TIMES, Apr. 25, 1997, at B4.

crafted. In 1989, the EPA ordered the City to protect the Watershed or build a filtration plant estimated at the time to cost between \$4 billion and \$6 billion.²¹ The ensuing attempts by the City from 1990 to 1993 to control land use²² enraged upstate residents, galvanizing their opposition and resulted in a series of lawsuits that effectively blocked efforts to protect the Watershed.²³

Thus the stage was set and the battle joined on many fronts. The City's drinking water had to be protected for the present and the future generations. So did the economic viability of the Watershed communities. The stakes were high. The historic animosities were almost insurmountable. And as discussed at length in Part II of this Article, the existing regulatory and statutory frameworks, combined with recent case law, produced a balance of power that ensured deadlock. So too did the political balance of power in state government where one house of the Legislature was dominated by the City's Democrats and the other by upstate Republicans. The battle that unfolded had many dimensions. That an agreement was yielded amazes even the writer. It also confirmed that "compromise," a bedrock principle for our American democracy, is indeed still possible, even in this day of sound-bite debate and "take no prisoners" negotiations. This Article is an examination of the City's tortured water supply history, why Watershed protections were necessary, to what the parties agreed, how the agreement was developed, and why it is important.

B. A Demographic Overview

The New York City Watershed, with a total storage capacity of approximately 550 billion gallons, is roughly the size of Delaware. It is comprised of three separate reservoir systems, the Croton,²⁴ the Delaware,²⁵ and the Catskill,²⁶ which

21. See *A Watershed Agreement*, N.Y. TIMES, Sept. 11, 1996, at A18.

22. See *infra* notes 72-191 and accompanying text.

23. *At Last, A Watershed Agreement*, *supra* note 1, at A28.

24. The Croton System, located approximately 45 miles north of lower Manhattan, commenced operation in 1842 and consists of thirteen reservoirs and three controlled lakes on the Croton River, its three branches (West Branch,

include nineteen reservoirs and three controlled lakes located north and northwest of the City.²⁷ The 95% gravity fed siphon system²⁸ was based on the ingenious Greek design for the City of Pergamon in Asia Minor which was constructed over two thousand years ago.²⁹ At the time of its construction, the 130 miles of aqueducts and pipes plunging at one

Croton Falls, and Muscoot) and three other tributaries. The Croton normally provides approximately ten percent of the City's daily water supply and can provide substantially more of the daily water supply during drought conditions. The watershed which supplies the Croton System has an area of 375 square miles which is now extensively developed. Due to the density of the population and the impacts related thereto, the quality of the water in the Croton System does not consistently meet turbidity and color standards. In 1992, a stipulation entered into by the City, New York State Department of Health (DOH) and Environmental Protection Agency (EPA) mandated that a full-scale water treatment plant be constructed for the Croton System. See FGEIS, *supra* note 5, at II-3, II-11.

25. The Delaware System, located approximately one hundred twenty-five miles north of lower Manhattan, commenced operation in 1950, and consists of three reservoirs, the Cannonsville Reservoir (formed by the Cannonsville Dam on the West Branch of the Delaware River), the Pepacton Reservoir (formed by the Downsview Dam across the East Branch of the Delaware River), and the Neversink Reservoir (formed by the Neversink Dam across the Neversink River, a tributary of the Delaware River). The Delaware System which provides approximately fifty percent of the City's daily water supply was designed and built with various interconnections which permit water from one system to flow into another to mitigate localized droughts and to take advantage of any excess water in any of the three watersheds. The watershed which supplies the Delaware System is sparsely populated and continues to demonstrate a high degree of reliability after fifty-five years of continuous service. See FGEIS, *supra* note 5, at II-4 to II-6, II-11.

26. The Catskill System, located approximately one hundred miles north of lower Manhattan and thirty five miles west of the Hudson River, commenced operation between 1915 and 1927, consists of three reservoirs, the Schoharie Reservoir (formed by the Gilboa dam across Schoharie Creek), the Ashokan Reservoir (formed by the Ashokan Dam across the Esopus Creek) and the Kensico Reservoir (which serves as a balancing reservoir for the both the Catskill and the Delaware Systems). The Catskill System's two watershed areas, the Esopus and the Schoharie Creek, have an area of two hundred fifty seven and three hundred fourteen square miles respectively, and are sparsely populated. Because of the quality of the System's water and the long retention in the reservoirs, there has been no necessity to filter water from the System to reduce bacterial content and the turbidity. See FGEIS, *supra* note 5, at II-3 to II-4, II-11.

27. See FGEIS, *supra* note 5, at II-1.

28. See *id.* at II-2.

29. See *id.*

point more than 1100 feet under the Hudson River was considered the greatest engineering achievement of its kind in the world.³⁰ The Watershed spans all or parts of eight counties, sixty towns, one city, and eleven incorporated villages on both the east and west sides of the Hudson River.³¹

In addition to its physical size, the Watershed has a higher population density than other large, unfiltered watersheds. Its population has increased 7% during the 1980s and is now home to 459,000 people.³² The so called "east of Hudson" area of the Watershed (largely comprised of the Croton System) lies in parts of Westchester,³³ Putnam,³⁴ and Dutchess³⁵ Counties and supplies about 10% of the City's drinking water.³⁶ Due to a number of factors, the Croton System will be filtered as a result of an agreement reached between the City, state and federal Government.³⁷ The so called "west of

30. See NRDC REPORT, *supra* note 2, at iii.

31. See FGEIS, *supra* note 5, at II-15. In addition, a small portion of western Fairfield, Connecticut, is located within the Watershed, *See id.* at II-1.

32. *See id.* at VII.B.1-2. 121,997 live in the Watershed located west of the Hudson River and 337,443 live in the Watershed located east of the Hudson River. *See id.*

33. Westchester County is located in the southern half of the east of Hudson Watershed. Its total area is 288,000 acres, of which approximately 40% (112,489 acres) is within the New York City Watershed. *See id.* at II-3, II-4. Over half of the east of Hudson population is in Westchester County. *See id.* Although Westchester County is the most developed and the most populated of the eight Watershed counties, the drainage basin is advantageously located in the north, which is the least developed portion of the County. *See id.* at VII.A.1-13. In 1990, the population of the Watershed portion of Westchester County was 224,249. *See id.* at Table VII.B.1-1.

34. Putnam County is located directly to the north of Westchester on the east side of the Hudson. *See id.* at VII.A.1-14. Putnam County's total area is approximately 157,158 acres, of which about 54% (84,384 acres) lies within the Watershed. *See id.* In 1990, Putnam's Watershed population was 74,699. *See id.* at Table VII.B.1-1.

35. North of Putnam County, Dutchess County has a total area of 529,119 acres, with only 3.8% (20,242 acres) lying in the New York City Watershed. *See id.* at VII.A.1-16. In 1990, Dutchess County had a population of 38,495. *See id.* at Table VII.B.1-1.

36. *See FGEIS supra* note 5, at II-3.

37. *See id.* at II-11. At this writing, EPA has commenced an action against New York City to compel agreement to filter by a date certain in a location to be determined by the parties no later than 2007. EPA is also demanding that New York City pay penalties for past violations. *See Andrew C. Revkin, E.P.A. Presses City on Water Filtration Plant*, N.Y. TIMES, Mar. 4, 1997, at B3.

Hudson" area lies wholly or partly within Delaware,³⁸ Greene,³⁹ Schoharie,⁴⁰ Sullivan⁴¹ and Ulster⁴² Counties and is home to the Catskill and Delaware Systems which provide approximately 90% of the City's drinking water.⁴³

The New York City Watershed is a living watershed and a location for significant economic activity. In the 1990 census, 22,086 manufacturing jobs were identified in the five west of Hudson counties.⁴⁴ In addition, 11,089 construction jobs were also identified.⁴⁵ Agriculture, which accounts for a relatively small number of jobs, remains important in the Catskill and Delaware regions.⁴⁶

38. Delaware County, which is home to the Pepacton and Cannonsville Reservoirs, is located in the western section of the west of Hudson watershed. See NRDC REPORT, *supra* note 2, at 12, 19. Delaware County is one of the most significant sources of water in the entire Watershed, *see id.*, with a total area of 1468 square miles (939,520 acres), 55% of which (516,224 acres) lies within the Watershed. See FGEIS, *supra* note 5, at Table VII.B.1-1. In 1990, Delaware County's Watershed population was 41,403. *See id.*

39. Located in the northeast section of the west of Hudson watershed, Greene County's total area is 653 square miles (417,920 acres) of which 45% (186,243 acres) is within the Watershed. See FGEIS, *supra*, note 5, at VII.A.1-6. In 1990, Greene County had a population of 7332. *See id.* at Table VII.B.1-1.

40. Schoharie County is located at the northern end of the west of Hudson watershed and includes a portion of the Schoharie Reservoir. *See id.* at VII.A.1-8. Only 41,704 acres of Schoharie County lie within the Watershed. *See id.* In 1990, Schoharie County had a population of approximately 4000 people. *See id.* at Table VII.B.1-1.

41. Located in the southwestern portion of the west of Hudson watershed, Sullivan County has a total area of 1011 square miles (647,040 acres) of which less than 7% (42,550 acres) are within the Watershed. *See id.* at VII.A.1-9. The Neversink Reservoir and a part of the Rondout Reservoir are located within the County. *See id.* In 1990, Sullivan County had a population of 24,221. *See id.* at Table VII.B.1-1.

42. Home to the Ashokan Reservoir, Ulster County is located in the southern portion of the west of Hudson watershed. *See id.* at VII.A.1-10. Ulster County has a total area of 1142 square miles (730,880 acres) and 29% (215,262 acres) of the County lies within the Watershed. *See id.* In 1990, Ulster County had a population of 45,034. *See id.* Table VII.B.1-1.

43. *See id.* at II-3, II-4.

44. *See FGEIS, supra* note 5, at Table VII.B.2-2.

45. *See id.*

46. *See* NEW YORK STATE WATER RESOURCES INSTITUTE, WHOLE FARM PLANNING: WATERSHED AGRICULTURAL PROGRAM 2 (1996) [hereinafter WHOLE FARM PLANNING]. Agriculture in the Watershed west of the Hudson accounts for 1,860 jobs. *See id.* Also, nearly 500 dairy farms operate in the west of Hudson watershed. *See id.*

Overall, 90,614 manufacturing jobs were identified in 1990 in the east of Hudson counties.⁴⁷ Of these, over 57,000 were located in Westchester.⁴⁸ The census also identified 42,456 construction jobs,⁴⁹ and 7,695 agricultural jobs.⁵⁰

The fact that the New York City Watershed is indeed a "living" watershed presents unique challenges not found in any of the larger unfiltered water supply system in the nation.⁵¹ Microbial contaminants and eutrophication due to sewage and septic system discharges and various types of runoff (from lawns, farms, highways, etc.) constitute the major threats to drinking water.⁵²

The Watershed is more than a hydrologically and economically significant part of the State which collects water to accommodate the daily need of more than half the State's population. It has alternately been a political battleground, a source of great human pain for dislocated families, and has areas of extreme poverty and social/economic isolation. While there are many significant watersheds in a state as vast as New York, "The Watershed" immediately identifies only one, a region in the Catskill Mountains and Hudson Valley which has been at the center of one of the most enduring and important issues in New York history.

The history of the New York City drinking water supply is the history of the struggle between property rights and public health protections, urban sophistication and rural simplicity, water consumers versus watershed residents, and the

47. See FGEIS, *supra* note 5, at Table VII.B.2-2.

48. See *id.*

49. See *id.*

50. See *id.*

51. See NRDC REPORT, *supra* note 2, at v. The more developed, east of Hudson Croton system, where the Diverting and Croton Falls reservoirs have highly developed, heavily populated watersheds, the water is of comparatively low quality, whereas the Delaware system's Neversink Reservoir, with "the least developed and most sparsely populated watershed, boasts the finest raw water quality in the City's entire reservoir system." *Id.* at v.

52. See *id.* *Giardia* and *Cryptosporidium*, which are two microbial agents of increasing concern in water supplies, have not been linked to waterborne disease in New York City. See *id.* Nor does there appear to be a significant problem from toxic chemical contaminants (i.e. pesticides or petroleum products) at this time. See *id.*

now centuries old political struggle between upstate and downstate. The central characters have included such notable figures as Alexander Hamilton, Aaron Burr, Boss Tweed and Teddy Roosevelt.⁵³ The following section examines the historical roots of the ancient animosities that played such a prominent part in precipitating the modern crisis in New York's effort to supply itself with drinking water.

C. Historical Overview

From the moment Peter Minuit "purchased" Manhattan Island for beads and trinkets in 1626, New York City has faced water supply problems.⁵⁴ Surrounded by brackish rivers that were unsuitable for consumption, Manhattan Island provided its early inhabitants fresh water from underground springs and surface ponds.⁵⁵

Water was drawn from either privately owned wells or publicly maintained "draws," typically situated on street corners.⁵⁶ Cisterns for catching rainwater were also popular, but were obviously dependent on the caprice of the weather.⁵⁷ These sources of water were adequate for almost the first century of European settlement of Manhattan Island but grew increasingly untenable as the population continued to expand.⁵⁸ However, as early as 1750, water drawn from the public wells sparked bitter complaints about its odor and appearance.⁵⁹

Another important source of the early Manhattan water supply was the "Collect".⁶⁰ Originally a superior source of

53. See *infra* notes 69-71 and accompanying text.

54. See CHARLES H. WEIDNER, *WATER FOR A CITY: A HISTORY OF NEW YORK CITY'S PROBLEM FROM THE BEGINNING TO THE DELAWARE RIVER SYSTEM* 14 (1974).

55. See *id.* at 14-15. Fortunately for the early Dutch and English immigrants and their less fortunate African slaves, there was an abundant supply of pure fresh water in the porous layer of soil laid down on Manhattan Island by the Great Labrador Icecap. See *id.*

56. See *id.* at 15.

57. See *id.*

58. See *id.*

59. See WEIDNER, *supra* note 54, at 15.

60. See EDWARD WEGMANN, *THE WATER SUPPLY OF THE CITY OF NEW YORK 1658-1895* 2 (1896). Called the "Kalch-Hook" by the Dutch, the English later

fresh water, the Collect became known as a "very sink and common sewer" where people threw their slop buckets and some dumped their dead dogs and cats.⁶¹ The deteriorating water quality obviously spurred the development of a "pure and wholesome" water supply, but it was not the most important.⁶²

In 1793, Philadelphia was struck by a savage epidemic of yellow fever which killed over 4000 of the city's population.⁶³ New York, Baltimore, and Norfolk were all struck in 1795 with heavy fatalities.⁶⁴ Many contemporary medical authorities believed the abysmal water quality and the putrid condition of city streets were to blame for the epidemics.⁶⁵ The almost omnipresent threat of fire was also a catalyst for upgrading city water systems.⁶⁶

The need for a public water system was recognized before the Revolutionary War and became more pressing as New

refined it into the "Collect". See *id.* Extending from Pearl Street to Franklin Street the Collect covered an area of forty-eight acres and was about fifty to sixty feet deep. See WEIDNER, *supra* note 54, at 15.

61. See SIDNEY I. POMERANZ, *NEW YORK: AN AMERICAN CITY 1783-1803: A STUDY OF URBAN LIFE* 278-79, 288-90 (1938).

62. See *id.* at 278-79.

63. See JOHN HARVEY POWELL, *BRING OUT YOUR DEAD: THE GREAT PLAGUE OF YELLOW FEVER IN PHILADELPHIA IN 1793* 281 (1949).

64. See WILLIAM CURRIE, *A SKETCH OF THE RISE AND PROGRESS OF THE YELLOW FEVER, AND THE PROCEEDINGS OF THE BOARD OF HEALTH IN PHILADELPHIA, IN THE YEAR 1799* 55 (1800). New York and Philadelphia were struck again in 1798 with losses of over 2000 and 3500, respectively. See NELSON MANFRED BLAKE, *WATER FOR THE CITIES* 6 (1956). And in 1799, yellow fever struck yet again in Philadelphia, New York, and Charleston. See CURRIE, *supra* at 55.

65. See *id.* at 18. It should be pointed out that yellow fever is caused by the bite of a particular female mosquito and is not waterborne. See POWELL, *supra* note 63, at vii-viii. These facts, however, were not known at the time of the outbreaks. The state of medical knowledge that then existed attributed yellow fever, at least in part, to the substances contained in "noxious" water. See *id.* at viii-ix. Thus, yellow fever served as a dramatic motivator.

66. For example, the fire of 1776 destroyed one quarter of all of the houses in New York City. See BLAKE, *supra* note 64, at 5. Another fire in 1835, destroyed 674 buildings and caused, according to some estimates, \$40 million in casualty. See WEIDNER, *supra* note 54, at 18. Thus, fire-fighting was also an important motivation driving the clamor for sufficient water supplies.

York's population continued to grow.⁶⁷ In addition to the population pressures, the progress made by other eastern cities prompted the business community to insist on action. The *New York Daily Advertiser*, for example, warned its readers in 1798: "Citizens of New York, what are you doing . . . If you procrastinate, you are ruined; while you are immersed in business or sunk in pleasure, careless of the future, other towns, your rivals in trade, have vigorously begun the effectual measures of precautions."⁶⁸

Thus by 1799, the stage was set for the creation of the legendary and notorious Manhattan Company. Although the chartering of a private corporation to develop a water supply system was opposed by then Mayor Richard A. Varick, his objections were overcome through the united efforts of Aaron Burr and Alexander Hamilton.⁶⁹ Hamilton used his considerable influence to persuade the City Council that the municipality should not build its own water works because it could not raise sufficient capital through loans and taxes.⁷⁰ Aaron Burr, then a New York State Assemblyman, shrewdly rushed the bill chartering the corporation through the state legislature in three days.⁷¹

67. For example, in 1790 Manhattan's population stood at 33,131. See THE ENCYCLOPEDIA OF NEW YORK CITY 923 (Kenneth T. Jackson ed. 1995). By 1800, the population had nearly doubled to 60,515. See *id.*

68. CLAYPOOLE'S AMERICAN DAILY ADVERTISER, Dec. 20, 1798, at 2. The editors were responding to water works projects in Baltimore, Philadelphia, and Bethlehem. See *id.*

69. See 2 MINUTES OF THE COMMON COUNCIL OF NEW YORK 514-15 (1917); James M. Betton, *Extracts from a "Report Relative to Supplying the City of New York with Pure and Wholesome Water, November, 1833*, 18 J. NEW ENGLAND WATER WORKS ASS'N 254, 255 (1904). What prompted this strange alliance is a matter of conjecture. Compounding the mystery is the fact that Burr hoped to break the Federalist stranglehold on banking by obtaining banking authorization in the Manhattan Company's charter from the Legislature. See BLAKE, *supra* note 64, at 52-53. Why Hamilton would participate in such an artifice remains a mystery.

70. See BLAKE, *supra* note 64, at 49.

71. See *id.* at 50. Burr introduced the bill on March 27, had it read twice the same day, from whence it went to a special committee composed of Burr and two other members. See *id.* On March 30, the bill passed after superficial consideration. See *id.*

Enacted on April 2, 1799, the Charter for the Manhattan Company authorized the Company to condemn land for “purposes germane to water acquisition and distribution.”⁷² The Charter stipulated that if the company failed to furnish “pure and wholesome water sufficient for the use of all citizens” within ten years of incorporation, the corporation would be dissolved.⁷³ As Edward Wegmann, author and water engineer, stated in his work, *The Water Supply of the City of New York: 1658-1895*, “[o]nly enough was done in introducing water to maintain the Charter.”⁷⁴ By 1832, two years before the beginning of the first Croton Reservoir construction project, the Manhattan Company had laid only twenty-three miles of pipe.⁷⁵ This was the first of two phenomena that were to plague New York’s quest for water ever since: searching for water outside its boundaries and an almost congenital failure to meet its obligations concerning water.

72. Act of Apr. 2, 1799, ch. 84, § 2, 1799 N.Y. Laws 433 (Act providing for the supply the City of New York with pure and wholesome water). It is interesting to note that this provision allowed Aaron Burr to build the beginnings of what is now known as the Chase-Manhattan Bank. See WEIDNER, *supra* note 54, at 21 (quoting MOSES KING, KING’S HANDBOOK OF NEW YORK 706 (1893); Saul Hansell, *Banking’s New Giant: The Deal; Chase and Chemical Agree to Merge in \$10 Billion Deal Creating Largest U.S. Bank*, N.Y. TIMES, Aug. 29, 1995, at A1.

The Manhattan Company’s financial businesses proved to be wildly successful. In fact, in 1955, the Manhattan Company merged with the Chase National Bank to form the Chase-Manhattan Bank. See Hansell, *Banking’s New Giant*, at A1. The historical irony is quite thick since the Watershed Agreement requires New York City to obtain a letter of credit in order to secure some of its financial commitments. See NEW YORK CITY WATERSHED, MEMORANDUM OF AGREEMENT, FINAL DRAFT, Sept. 10, 1996, at para. 86 [hereinafter WATERSHED AGREEMENT]. Chase-Manhattan is the issuing bank. Things have come full circle.

73. Act of Apr. 2, 1799, ch. 84, § 7, 1799 N.Y. Laws 433.

74. WEGMANN, *supra* note 60, at 11.

75. See WEGMANN, *supra* note 60, at 12. Nevertheless, by June 11, 1800, the *New York Gazette and General Advertiser* reported that six miles of pipe had been laid and over 400 houses were receiving water. See I.N. PHELPS STOKES, *THE ICONOGRAPHY OF MANHATTAN ISLAND: 1498-1909* 1378 (Arno Press Inc. 1967) (1922). Thus, at the turn of the century, over 30,000 people still were without access to clean safe water. Water quality was so poor that it was reported at the time that Manhattan Company water contained “125 grains of foreign matter in the gallon.” Betton, *supra* note 69, at 258.

With the population growing three and one half times in thirty years to 202,589 in 1830,⁷⁶ the Collect and other ground sources became intolerably polluted and overburdened.⁷⁷ Fire-fighting also continued to be a major concern as 1828 saw another destructive fire that destroyed hundreds of thousands of dollars of property.⁷⁸ By 1832, the public demand for clean water had reached a fever pitch.

1. The First Croton Project

When asiatic cholera struck the East Coast in 1832, almost 3500 people were killed in New York City alone.⁷⁹ Upon examination, New Yorkers were impressed by the considerably lower toll of 900 which the disease claimed in Philadelphia.⁸⁰ Although incorrect in the conclusion, most observers attributed Philadelphia's lower death-rate to its practice of flushing the streets with water every day.⁸¹

In 1832, the New York City Council requested that the state legislature enact a law directing the Governor to appoint five commissioners to study the problem and recommend a solution.⁸² On May 2, 1834, a permanent Board of Water Commissioners⁸³ was authorized to raise the capital necessary to finance the project and vested the Commissioners with the power to acquire water rights and land by condemnation.⁸⁴ This delegation of authority by the state legislature to the City to regulate land use in the upstate wa-

76. See THE ENCYCLOPEDIA OF NEW YORK CITY, *supra* note 67, at 923.

77. See *id.* at 1244.

78. See WEIDNER, *supra* note 54, at 18.

79. See JOHN SHARPE CHAMBERS, CONQUEST OF CHOLERA, AMERICA'S GREATEST SCOURGE 17 (1938).

80. See *id.* at 76.

81. See *id.* at 63-77.

82. See *id.* at 35.

83. See WEGMANN, *supra* note 60, at 31.

84. Act of May 2, 1834, ch. 256, 1834 N.Y. Laws 451 (Act to provide for supplying the City of New York with pure and wholesome water). In February 1835, the Board of Water Commissioners submitted a report to the City Council. See WEIDNER, *supra* note 54, at 36. On April 16, 1835, based on this report, the voters approved a plan to dam the Croton River and convey the captured waters into Manhattan via an underground aqueduct. See WEGMANN, *supra* note 60, at 35.

tershed communities was the seminal act in a conflict that has continued for over a century. Throughout the history of the New York City Watershed, the power of condemnation, which was first vested in the City for the construction of the Croton System, would precipitate controversy, acrimony, political battles and legal actions.⁸⁵

From the first Croton project through the completion of the Catskill and Delaware systems, the City has relied on the power of condemnation for one obvious reason: local landowners would not sell or vacate their land voluntarily at the prices offered by the City.⁸⁶ Although the City was, and is, required by law to compensate the landowners, the prices paid have not been considered adequate to justify the trauma and heartache of having one's land, or entire town, absorbed by the City's water supply systems.⁸⁷ This is not meant to suggest that landowners wanted more for their land; they did not want to move even if they received fair market value.

The condemnation of land implicates far more than just the economically quantifiable costs, or "just compensation," required by the letter of the law.⁸⁸ More often than not, people were resistant because of traditions and centuries old ties to the land.

Opposition to the City's powers of condemnation coalesced almost immediately. Westchester property owners mobilized and petitioned the state legislature during its 1836 session to reduce the powers granted to the City.⁸⁹ Although unsuccessful, their action did lead the Legislature to pass an Act on May 26, 1836 requiring that any land taken and not used for the aqueduct or construction of necessary fences and the like promptly be returned to the owner.⁹⁰ Considered insufficient by the landowners, they continued to fight for addi-

85. See notes 72-191 and accompanying text.

86. See WEIDNER, *supra* note 54, at 35.

87. See *id.* at 38-39.

88. See U.S. CONST. art.V. The relevant clause reads: "nor shall private property be taken for public use without just compensation." *Id.*

89. See BLAKE *supra* note 64, at 148.

90. See [Communication from the Water Commissioners to the Common Council, Aug. 1, 1836], in 3 Documents of the Board of Aldermen 65-66 (1837).

tional protections through legislation over the succeeding decades.

The Westchester landowners again petitioned the legislature in 1837 to restrict the powers of the City.⁹¹ The 1835 legislation was condemned as extending the boundaries of New York City and “invading the historic manor of Cortlandt and county of Westchester.”⁹² The legislation was characterized as “repugnant to the Constitution of the United States and the Constitution of New York.”⁹³ Foreshadowing future Watershed disputes, it was asserted that the “good citizens should be left, free from any such intrusion or disseizin, peaceably to enjoy, retain, or dispose of their respective real estates and property . . .”⁹⁴ As resistance to the acquisition of land and construction of the aqueduct grew, surveying crews were harassed, verbally assaulted, physically attacked, and regularly denied access to property.⁹⁵

New York City also had to contend with land speculators who bought farm land along the proposed aqueduct route, divided the land into lots, and sought to convince the appraisers that each of the lots was worth more than the entire parcel had been before acquisition by the speculators.⁹⁶ Yet despite the vociferous opposition, protests, and harassment, the condemnation proceedings progressed at an accelerated pace. By the end of 1838, the condemnations were concluded for the entire aqueduct as well as the massive Croton Dam.⁹⁷ The quick conclusion was to stand in stark contrast to later condemnation programs and the reason was simple: New

91. See Blake, *supra* note 64, at 148.

92. *Id.* (quoting WESTCHESTER HERALD, Mar. 7, 1837).

93. *Id.*

94. BLAKE, *supra* note 64, at 148 (quoting WESTCHESTER HERALD, Mar. 14, 1837).

95. See *id.* (citing Stephen Allen, NEW YORK WATER WORKS NARRATIVE, in NEW YORK HISTORICAL SOCIETY, Book 3).

96. See *id.* at 149. (citing [Communication from the Water Commissioners to the Common Council, Jan. 9, 1837], in 3 Documents of the Board of Aldermen 100-01 (1837)).

97. See *id.* at 150. See also WEIDNER, *supra* note 54, at 40.

York City was willing to pay a premium for the land it acquired.⁹⁸

In 1837, construction of the Old Croton Dam commenced on the Croton River about six miles from its confluence with the Hudson River.⁹⁹ The aqueduct to which it was connected was 41.5 miles in length with a receiving reservoir at the terminus at Murray Hill on Fifth Avenue at Forty-Second Street, the site of the present day Public Library.¹⁰⁰ It was 1826 feet long by 836 feet wide and covered thirty-five acres of land.¹⁰¹ It had a capacity of approximately 180 million gallons.¹⁰² With great pomp and circumstance, the Croton Dam and Aqueduct officially began supplying water to New York City on the Fourth of July, 1842.¹⁰³

When construction of the Croton Dam and Aqueduct began in 1837, the population of New York City was approximately 300,000.¹⁰⁴ Per capita consumption stood at 26.4 gallons per day for a daily requirement of 7.9 million gallons per day.¹⁰⁵ The Croton system was designed to accommodate

98. For example, Chief Engineer Jervis' predecessor, Major Douglass, had estimated the value of the property necessary for the aqueduct at \$39,600. See BLAKE, *supra* note 64, at 150. New York City actually paid the landowners \$165,786. See *id.* Similarly, Major Douglass estimated the cost of the property necessary for the Croton Reservoir at \$28,500. See *id.* New York City paid \$91,412. See *id.* This "generosity" on the part of New York City was not to be repeated.

99. See WEGMANN, *supra* note 60, at 37-38.

100. See *id.*

101. See WEIDNER, *supra* note 54, at 45.

102. See *id.* The first Croton Aqueduct was small by modern standards with a cross section of fifty-three square feet, although it was almost three times the size of *Aqua Claudia*, one of the more famous Roman Aqueducts. See LAZARUS WHITE, *THE CATSKILL WATER SUPPLY OF NEW YORK CITY: HISTORY, LOCATION, AND SUB-SURFACE INVESTIGATIONS AND CONSTRUCTIONS* 6 (1913). The aqueduct route follows the Croton River to the Hudson, continues along the Hudson to Yonkers and then along the ridge between the Hudson and East Rivers. See *id.* From there it crosses the Harlem River via the High Bridge, which was 1450 feet long between gatehouses and is composed of fifteen semi-circular arches. See *id.* At the time, the High Bridge was considered quite a feat of engineering and construction skill. See *id.*

103. See WEIDNER, *supra* note 54, at 48.

104. See THE ENCYCLOPEDIA OF NEW YORK CITY, *supra* note 67, at 923.

105. See WEIDNER, *supra* note 54, at 48.

nine times the City's daily needs.¹⁰⁶ At that time, it was expected to service the needs of the City for generations to come.¹⁰⁷ But to the surprise of all it was determined to be inadequate almost as soon as it was constructed.

If one thing could be said to characterize New York's perpetual battle for a water supply, it is that demand has always outstripped supply.¹⁰⁸ Within a few short years, the City experienced a dramatic increase in water consumption. The City's population continued to grow at an astounding rate.¹⁰⁹ The proliferation of the water closet, or bathroom, together with the flush toilet caused shocking increases in household water use.¹¹⁰ Finally, water waste was as prolific as it was unpredictable.¹¹¹ In fact, it was the water waste which prompted the City government to begin installation of water meters to promote conservation.¹¹² The absence of water me-

106. *See id.*

107. *See id.*

108. *See id.* at 56. Forty million gallons were consumed each day, four million gallons in excess of the two thirty-six inch water mains that spanned the Harlem River. *See id.* Thus, the reservoirs were drained dramatically in order to meet the increased demand.

109. Manhattan's population, 312,710 in 1840, had grown to 515,547 by 1850 with a concomitant increase in the other boroughs. *See THE ENCYCLOPEDIA OF NEW YORK CITY, supra* note 67, at 923. In fact, the original chief engineer of the Board of Water Commissioners, John B. Jervis, had, in the late 1830s planned the capacity of the Croton Aqueduct on the assumption that New York's population would not exceed 800,000 before thirty years had passed. *See John B. Jervis, General Report on the Croton Aqueduct, Dec. 17, 1845, in 12 DOCUMENTS OF THE BOARD OF ALDERMEN 456-57 (1845).* In fact, New York City's population crossed the one million threshold in the late 1850s. *See THE ENCYCLOPEDIA OF NEW YORK CITY, supra* note 67, at 923.

110. According to a study done by Sears & Roebuck, one toilet used about 115 to 120 gallons per day, or about 42,000 gallons per year in normal use. *See WEIDNER, supra* note 54, at 55.

111. Two years after the Croton Aqueduct began to supply New York City, the Water Commissioners observed that their plans had never contemplated that fountains would be erected in public and private parks all over the city. *See BLAKE, supra* note 64, at 168.

112. *See WEIDNER, supra* note 54, at 56-58. According to Edward Wegmann, chief engineer of the Aqueduct Commission (1910), the Croton Aqueduct Department began to supply meters as early as 1852. *See WEGMANN, supra* note 60, at 105-06. By introducing market forces into the equation, the installation of water meters did have an effect on consumption. For example, according to Commissioner Campbell of the Department of Public Works (1880),

ters in many New York residences and businesses remains a sore subject among Watershed residents.

At the height of flow from the Old Croton Aqueduct, the system provided about ninety-five million gallons per day.¹¹³ As the following table illustrates, water consumption continued to grow at astronomical rates as more and more people flooded into New York City:¹¹⁴

1842	12 million gallons daily (mgd)
1850	40 mgd
1870	77 mgd
1880	92 mgd
1885	100 mgd
1890	145 mgd
1894	183 mgd

As consumption increased, new facilities were needed and New York City built several new reservoirs in Westchester County, and expanded northwards into Putnam and Dutchess Counties. On April 3, 1865 (three days before Lee surrendered at Appomattox) the state legislature passed an act that authorized the City to build storage reservoirs in Westchester, Putnam, and Dutchess Counties which set the stage for a large expansion of the Croton System.¹¹⁵ These

One large hotel which on the first application of a meter was found to be consuming, or rather wasting, 115,000 gallons of water daily was reduced to 45,000 gallons, and another from 80,000 to 24,000 gallons per day. In the first case resort was had to the aid of a well, but in the second the saving was from stoppage of waste.

Id. at 106.

113. See BLAKE, *supra* note 64, at 277.

114. See WEGMANN, *supra* note 60, at 107.

115. See WEIDNER, *supra* note 54, at 61. At the same time, the Legislature passed an Act to "reorganize the Local Government of the City of New York," creating the Department of Public Works, which superseded the Croton Aqueduct Department. See *id.* The Croton Aqueduct Department succeeded the Board of Water Supply some years earlier. See BLAKE, *supra* note 64, at 161. The infamous Boss Tweed of Tammany Hall fame was the first head of the Department of Public Works and used the position to enrich himself and his cronies. See WEIDNER, *supra* note 54, at 62.

New York City responded by building the Boyd's Corner dam and reservoir with a capacity, 2.7 billion gallons. See *id.* at 61. The next addition to the Croton system was located on the middle branch of the Croton River and was

efforts were successful, but events during the late 19th and early 20th centuries made it clear that even more would have to be done.¹¹⁶ Whence was born the New Croton Aqueduct and Dam system.

2. The New Croton Aqueduct and Dam

By 1883, the demand for water had already outstripped supply. Once again the legislature responded. Chapter 490 of 1883 authorized the construction of a new Croton Dam to replace the original, which was then only forty years old.¹¹⁷ The legislation placed authority for construction with a Board of Aqueduct Commissioners.¹¹⁸ The Aqueduct was finished on June 24, 1891 and handed over to the Department of Public Works for operation.¹¹⁹ Construction on the New Croton Dam was completed in 1905 at a total cost of approximately

named, appropriately enough, the Middle Branch dam and reservoir. See William W. Brush, *New York City Water Supply*, 23 J. NEW ENGLAND WATER WORKS ASS'N, 371, 374 (1909). Some years later, in 1891, the East Branch Reservoir entered service. See NRDC REPORT, *supra* note 2, at 57. The same year, in 1891, the Bog Brook Reservoir was built in Putnam County, near the town of Southeast. See *id.* at 38. The Bog Brook was followed by the construction of the Titicus and West Branch Reservoirs in 1893 and 1895, respectively. See Brush, *New York City Water Supply*, at 374.

Two years later, in 1897, the Amawalk Reservoir in north central Westchester County was completed. See NRDC REPORT, *supra* note 2, at 34. Over the next fifteen years several more reservoirs were added to the Croton System. The Muscoot Reservoir entered service in 1905; the Cross River Reservoir in 1908; and the Croton Falls Reservoir and Diverting Reservoir in 1911. See *id.* at 45, 49, 53, 65.

116. 1880 and 1881 saw severe droughts during the summer months. See WEGMANN, *supra* note 60, at 84-87. During July, August and September 1881, less than five inches of rain fell. See *id.* at 86. Public fountains, drinking fountains, and street cleaning hydrants were all shut during this period. See *id.* at 87.

117. Act of June 1, 1883, ch. 490, § 1, 1883 N.Y. Laws 666.

118. See *id.* § 1. The Department of Public Works (which formerly had authority over construction of water supply infrastructure) was delegated the authority to conduct surveying and drafting of plans. See *id.* § 2. This Department was to submit its plans to the Aqueduct Commission for approval. See *id.*

119. See WEIDNER, *supra* note 54, at 77.

\$15 million.¹²⁰ The new dam added nineteen billion gallons of additional capacity to the Croton System.¹²¹

However, as had happened when the first Croton Dam was constructed, it was clear even before construction was completed that the new Croton system would be inadequate within a generation.¹²² Again, the legislature responded. On June 11, 1895, the legislature passed Chapter 985 of the Act of 1895¹²³ establishing the Ramapo Water Company and vesting it with the authority to acquire land and water rights in upstate watersheds.¹²⁴ The proposal was severely attacked by many in and out of government. The prior efforts of the Manhattan Water Company convinced many that this approach would fail and that, as the prior experience demonstrated, supplying water to the public should be properly left

120. See Brush, *New York City Water Supply*, *supra* note 115, at 372. The New Croton Aqueduct system was, for its time, one of the greatest engineering feats in the world. More than three times as large as its predecessor, the New Aqueduct could deliver 300 million gallons per day through its thirty-one mile length. See BLAKE, *supra* note 64, at 277. At the time of its completion, New York City's daily consumption stood at 183 million gallons per day and overall water supply at 425 million gallons per day. See *id.* Thus, it seemed that New York City's water problems had been solved for years to come. Once again, this confidence was misplaced.

121. See NRDC, *supra* note 2, at 70.

122. See BLAKE, *supra* note 64, at 277-78. Others had begun thinking about this issue several years before the completion of the New Croton system and they pressed the Legislature to charter another water company similar to the failed Manhattan Company of Aaron Burr fame. See *id.* 100-07. History about the principal players in this effort is spotty but Nelson Manfred Blake described it as an "outrage perpetrated through an unholy alliance of Boss Platt's Republican machine which controlled the Legislature and Boss Croker's Tammany Democrats who ruled the city." *Id.* at 279.

123. Act of June 11, 1895, ch. 985, 1895 N.Y. Laws.

124. See WEIDNER, *supra* note 54, at 140 (citing MERCHANTS ASS'N OF NEW YORK, AN INQUIRY INTO THE CONDITIONS RELATING TO THE WATER-SUPPLY OF THE CITY OF NEW YORK 598-99 (1900)). In addition to this incredible grant of power to the Ramapo Water Company, the Legislature largely emasculated New York city's own rights to obtain water. See BLAKE, *supra* note 64, at 278. For example, the Greater New York Charter Act of 1897 prohibited New York City from taking water from any watershed that was already serving as a source of water for another municipality. See Act of May 4, 1897, ch. 378, § 472, 1897 N.Y. Laws vol. III, 1, 163.

to those serving the public, namely the government. On March 19, 1901, the legislature repealed the statute.¹²⁵

3. New York City Comes to the Catskills

The failure of the Ramapo Water Company prompted New York City to renew its efforts to secure new water supply sources. In 1901, the Commission on Additional Water Supply for the City of New York was formed to study the water problem and propose possible solutions.¹²⁶ The Commission proposed that the Esopus, Rondout and Schoharie Creeks be dammed and incorporated into the New York City water delivery system.¹²⁷ The Commission's report set the stage for New York's entrance into, some might say invasion of, the Catskill region.

In 1901 and 1902, bills empowering New York City to build a new water supply system were introduced in the state legislature.¹²⁸ The staunch opposition of legislators from the affected rural areas killed these measures.¹²⁹ However, by 1905, the demand for a solution increased and the legislature passed a bill creating a new Board of Water Supply with broad powers to plan and build a new dam and reservoir system on the western side of the Hudson River.¹³⁰

125. See BLAKE, *supra* note 64, at 278-80; WEIDNER, *supra* note 54, at 147-48; WILLIAM H. BURR ET AL., REPORT OF THE COMMISSION ON ADDITIONAL WATER SUPPLY FOR THE CITY OF NEW YORK 4 (1904).

126. See BLAKE, *supra* note 64, at 279. The Commission presented its findings on November 30, 1903. See BURR ET AL., *supra* note 125, at 3. The thrust of the Commission's study was that

Manhattan and the Bronx are already drawing from the Croton supply an amount dangerously close to the limit of its yield in ordinary years . . . If the City should experience either one year of low rainfall, or, still worse, two such years in succession, as has occurred a number of times in the near past, the capacity of the Croton basin would be exhausted unless consumption were restricted.

Id. at 5. In addition, Commission's estimated that water waste "from leaky and defective plumbing fixtures probably exceed[ed] fifteen percent of the total supply, or upward of 40 million gallons per day." *Id.* at 11 (emphasis added).

127. See BURR ET AL., *supra* note 125, at 19-20.

128. See BLAKE, *supra* note 64, at 280.

129. See *id.*

130. See *id.*

On June 3, 1905, chapters 723¹³¹ and 724¹³² of the Acts of 1905 were signed into law.¹³³ Structurally, chapter 723 created a five member State Water Supply Commission that was vested with authority over the state's water resources and gave the state veto power over any land acquisitions and other related proposals.¹³⁴

Chapter 724, known as the McClellan Act after its proponent, Mayor George B. McClellan of New York, granted the City the authority to tap the waters of the Catskill region, subject only to approval of the State Water Commission.¹³⁵ In an obvious effort to secure support of legislators from Westchester County, local municipalities would be permitted to acquire water, at a cost not to exceed New York City's cost, from any of the reservoirs and aqueducts located within the county.¹³⁶ In recognition of the City's shabby treatment of Westchester and Putnam County residents during the creation of the Croton System, chapter 724 guaranteed access to the courts for determining a fair price for condemned land.¹³⁷ While this may appear to be a rather insignificant protection, it must be recalled that earlier statutes authorizing the construction of the Old Croton Dam and the New Croton Dam specifically referred adjudication of land values in condemnation proceedings to three-person appraisal boards with no provision for appeal to the courts.¹³⁸

Ironically, the 1905 Statutes did not accord Catskill residents the same protections since New York City could take possession of a parcel of land, including the owner's dwelling, just ten days after the appointment of an Appraisal Commission.¹³⁹ Condemnation in the Catskills began almost immediately. The reaction was, of course, predictable. The following year, 1906, responding to the outrage generated by

131. Act of June 3, 1905, ch. 723, 1905 N.Y. Laws 2022.

132. Act of June 3, 1905, ch. 724, 1905 N.Y. Laws 2027.

133. See WEIDNER, *supra* note 54, at 177.

134. See *id.* at 177-78.

135. See *id.* at 178.

136. See *id.* at 178-79.

137. See *id.* at 179.

138. See Act of May 2, 1834, ch. 256, 1834 N.Y. Laws 451.

139. Act of June 3, 1905, ch. 724, §§ 7, 11, 1905 N.Y. Laws 2031-32, 2033-34.

the condemnation proceedings, the legislature passed an amendment requiring New York City to pay one-half of the assessed value of the land before taking possession.¹⁴⁰ In addition to the short period of notice, valuations of land were quite low and led to some property owners and their families being ousted from their homes for as little as \$250.¹⁴¹

In June of 1905, Mayor George B. McClellan, pursuant to authority granted in Chapter 724,¹⁴² appointed the original Board of Water Supply.¹⁴³ Two months after the appointment of the Board of Water Supply, surveying and boring crews descended on the Esopus Creek area.¹⁴⁴ The City's haste and seeming disregard for established procedures engendered resentment in Ulster County.¹⁴⁵ The Catskill water system was, according to Mayor McClellan, "certainly the greatest engineering achievement of any kind, in the

140. Act of Apr. 24, 1905, ch. 314, 1906 N.Y. Laws 736 (amending section 11 of the Act of June 3, 1905, ch. 724, 1905 N.Y. Laws 2027).

141. See BOB STEUDING, *THE LAST OF THE HANDMADE DAMS: THE STORY OF THE ASHOKAN RESERVOIR* 83 (1985).

142. Act of June 3, 1905, ch. 724, § 1, 1905 N.Y. Laws 2027.

143. See WEIDNER, *supra* note 54, at 180. The nominees were selected from names proffered by the New York State Chamber of Commerce, The Manufacturers Association of Brooklyn, and the Board of Fire Underwriters. See *id.* J. Waldo Smith, a highly regarded civil engineer and chief engineer of the Aqueduct Commission, was named Chief Engineer. See STEUDING, *supra* note 141, at 24. Smith became the driving force behind the Board and served as Chief Engineer through 1922 and then as a consultant until his death in 1933. See *id.*

144. See STEUDING, *supra* note 141, at 26. Shortly after appointment, the Board presented its plans to the State Water Commission, as required by law, for approval. In May 1906, the State Water commission gave its approval to the Board of Water Supply's plan for construction. See WEIDNER, *supra* note 54, at 185. The Board's plan, roughly speaking, envisioned a system consisting of the Ashokan in Ulster County, Kensico in Westchester County, Hill View in Yonkers, and Silver Lake Reservoir in Staten Island and 126 miles of aqueduct. See *id.* at 191. Essentially, the system would impound the water of Esopus Creek in the Ashokan Reservoir, send Ashokan water through the aqueduct and the Hudson River siphon to the Kensico Reservoir for storage, then to the Hill View Reservoir in Yonkers, and from there into City Tunnel #1 and distribution around the City. See NRDC REPORT, *supra* note 2, at 28, 82.

145. See STEUDING, *supra* note 141, at 26-32.

world."¹⁴⁶ As such, the Catskill project required immense amounts of machinery and labor.¹⁴⁷

The invasion and occupation of the Catskills was real. Surveyors were found everywhere. More than 17,000 laborers suddenly appeared in the area.¹⁴⁸ Tent villages complete with stores, churches, and taverns followed.¹⁴⁹

Not surprisingly, the invading work force engendered great resentment among the local residents. They blamed it, probably correctly, for an increase in crime in the area.¹⁵⁰ An anti-immigrant sentiment developed.¹⁵¹ Nevertheless, work proceeded rapidly. By the end of December 1911, 78% of the construction on the Ashokan Reservoir and the Catskill Aqueduct was complete.¹⁵²

Earlier that year, excavation and lining of the siphon underneath the Hudson River began.¹⁵³ Construction of the Kensico Reservoir in Westchester County began the following year in 1912.¹⁵⁴ At the same time, work on the Hill View Res-

146. BLAKE, *supra* note 64, at 280.

147. Just on the dam construction alone were nineteen steam shovels rated at twenty to seventy tons, sixteen thirteen-ton steam rollers, twenty-five miles of standard and narrow gauge railroad for the movement of earth and necessities and a trestle bridge across Esopus Creek. See WEIDNER, *supra* note 54, at 207. Rolling stock consisted of thirty-three steam locomotives and 579 railcars. See *id.* By October, 1911, 1.5 million barrels of Alsen Portland cement from Catskill, New York had been poured, and approximately 17,250 people labored on the project and lived in camps maintained by the contractors. See *id.* at 212. See also, STEUDING, *supra* note 141, at 41, 50.

148. See WEIDNER, *supra* note 54, at 212.

149. See *id.* See also, STEUDING, *supra* note 141, at 41, 50.

150. See STEUDING, *supra* note 141, at 50-53.

151. See *id.*

152. See WEIDNER, *supra* note 54, at 212. As completed, the Ashokan Reservoir has a surface areas of 12.8 square miles (an area the size of Manhattan below 110th Street), see *id.* at 191, a storage capacity of 127.9 billion gallons, and a drainage area of 253 square miles. See NRDC REPORT, *supra* note 2, at 2.

153. See WEIDNER, *supra* note 54, at 214-15. The Hudson River siphon, the largest ever constructed, was a supreme engineering achievement. It is, for most of its length, a fourteen-foot diameter concrete-lined tunnel that at its greatest depth is 1,114 feet below sea level. It extends 5.5 miles from its descent on the west side of the Hudson to its maximum point of ascent on the east side of the Hudson. See *id.* at 215.

154. See *id.* Kensico, with a capacity of 30.6 billion gallons, was excavated to create the western portion and is connected to Rye Lake in the east. See NRDC REPORT, *supra* note 2, at 28.

ervoir made rapid progress and by June, 1912 contractors were laying the concrete bottom of the reservoir.¹⁵⁵ Finally, on December 20, 1916, nine years and three months after the first construction contract was awarded for the Ashokan dam, the reservoir and aqueduct system was complete.¹⁵⁶

4. Ashokan Land Condemnations

"New York City just washed us away" said Mrs. Ferris Davis of Kingston, New York and a former resident of the submerged territory condemned to build the Ashokan Reservoir.¹⁵⁷ Anecdotal evidence suggests that more than 85% of the male population in the Catskill region considered themselves farmers when the Ashokan Reservoir was built.¹⁵⁸ With such a large proportion of the population engaged in agriculture, the economic and emotional pain of the condemnations was profound.

Indeed, the condemnation of land has costs far beyond the mere compensation paid to the land owners.¹⁵⁹ The emotional bonds formed by inhabitants cannot be financially quantified but nevertheless were quite real. It is facile to suggest that the affected people could simply pick up and move to another locale and resume their lives.¹⁶⁰ According to Elwyn Davis, a former resident of the village of West Shokan (submerged by the Ashokan Reservoir), New York City took the heart of the land and left the inhabitants the rim.¹⁶¹

155. See WEIDNER, *supra* note 54 at 216. Progress on City Tunnel #1 from the Hill View Reservoir to the West Bronx, Manhattan and Brooklyn was also substantial. Eight and a half miles had been excavated and concrete lining was commenced. See *id.* Ultimately, City Tunnel #1 would be eighteen miles long. See NRDC REPORT, *supra* note 2, at 82.

156. See STEUDING, *supra* note 141, at 105.

157. *Id.* at 100.

158. See *id.* at 101.

159. See *supra* notes 160-61 and accompanying text.

160. The commitment of the residents of the Catskills is evident from the fact that 80% of the inhabitants who were displaced by the building of the Ashokan Reservoir remained within twenty-five miles of their former homes. See STEUDING, *supra* note 141, at 100.

161. See *id.* at 101.

As stated previously, Chapter 724 of the Acts of 1905¹⁶² enabled New York City to condemn land and take possession quickly.¹⁶³ The condemnation procedure was effected by publication of notice in two public newspapers for six weeks, petitioning of the court in the relevant county to appoint an Appraisal Commission,¹⁶⁴ and then, after an Appraisal Committee was sworn, giving the landowner ten days notice¹⁶⁵ and half the assessed value of the land before taking possession.¹⁶⁶ According to the New York City Department of Finance, New York City paid more than the market value of property in every area of the Catskill Aqueduct.¹⁶⁷

As one might expect, appraisal hearings were extremely contentious.¹⁶⁸ Section 42 of Chapter 724 of the Acts of 1905 provided for the compensation of consequential damages inflicted on land adversely affected by adjacent condemnation.¹⁶⁹ Yet, when average citizens presented evidence of

162. Act of June 3, 1905, ch. 724, 1905 N.Y. Laws 2027.

163. *See id.* § 11.

164. The Appraisal Commissions consisted of three commissioners. *See id.* § 1, 1905 N.Y. Laws 2027. The law provided that one commissioner reside in the county where the condemned land was located, another reside in New York county; and the third reside somewhere in New York State. *See id.* § 9, 1905 N.Y. Laws. Ultimately, eleven commissions were appointed. *See WEIDNER, supra* note 54, at 234. Through 1912, they heard 954 claims encompassing 21,138 acres, 15,222 acres of which were located in Ashokan. *See STEUDING, supra* note 141, at 86.

165. *See* Act of June 3, 1905, ch. 724, §§ 7, 8, 11, 1905 N.Y. Laws 2031-34.

166. *See* Act of Apr. 24, 1906, ch. 314, § 11, 1906 N.Y. Laws 738-39.

167. *See* HERMAN A. METZ, LANDS TAKEN IN CONDEMNATION FOR THE NEW CATSKILL WATER SUPPLY: THEIR COST AND THE ATTENDANT EXPENSES, attach. (1909). For example, the Department of Finance states in a report on the condemnation proceedings that the fair market value of land condemned for the Hill View Reservoir in Yonkers was \$6,500 per acre. *See id.* The report goes on to say that New York City actually paid an average of \$11,541.18 per acre. *See id.* Similarly, the fair market value of the land taken for the Ashokan Reservoir was \$60 per acre; the City allegedly averaged \$153.46 per acre in payout. *See id.* Taken at face value, these numbers suggest that New York City was overly generous in compensating affected property owners.

168. New York City employed appraisal witnesses paying them \$10 a day for their services. *See WEIDNER, supra* note 54, at 240. Derisively referred to as the "city's experts," they became discredited and "the subject of uncomplimentary remarks." *Id.* From the perspective of property owners, the valuations done by the commissions were insultingly low.

169. Act of June 3, 1905, ch. 724, 1905 N.Y. Laws.

consequential or indirect damage, the New York City Corporation Counsel objected that the commission did not have jurisdiction to pass on such matters.¹⁷⁰ Furthermore, New York City had the temerity to maintain that since the dam had not yet been built and the reservoir had not been filled, no decrease in the value of businesses or lands had occurred.¹⁷¹ The City pointed to the new villages that had developed and the more than 400 new buildings constructed.¹⁷² The contention that pervaded the hearings occasionally produced some absurd exchanges. While trying to determine the value of property, the commissions heard testimony over whether a "quiet sylvan brook" was worth more than a "murmuring brook."¹⁷³ And on one occasion over whether a house was located "on the dirty side of street."¹⁷⁴ As a consequence of the disrespect and caprice shown by many of the commissions, relations between the City and local residents was, at best, strained and, at worst, bitterly hostile.¹⁷⁵

The conduct of the commissions was not the only reason local residents had such contempt for the City. Corruption and bureaucratic inefficiencies enraged local property owners and fed the negative perception of the City. Speculation was rampant during these years.¹⁷⁶ Landowners also resented

170. See WEIDNER *supra* note 54, at 237-38 (reprinting Letter from Justice A.T. Clearwater to Assemblyman Joseph M. Fowler (Apr 9, 1908)). Appraisal Commission Two, while not agreeing with Corporation Counsel's argument, nevertheless ruled that evidence of indirect damages would not be received. See *id.* at 231 (quoting Commissioner of Appraisal Proceedings). When Appraisal Commission Five decided to admit evidence of indirect damages, Special Counsel John J. Linson decried it as "absolutely monstrous." See *id.* at 232.

171. See *id.*

172. See BOARD OF WATER SUPPLY, EIGHTH ANNUAL REPORT OF THE BOARD OF WATER SUPPLY 21 (Jan. 1914).

173. See STEUDING, *supra* note 141, at 87.

174. See *id.*

175. Appraisal Commission Two's decision to exclude evidence of consequential damages was made in 1908 in the case of Tina B. Lasher. See WEIDNER, *supra* note 54, at 236, 249. Although this decision was ultimately reversed by the Court of Appeals in 1910, it was cold comfort to Ms. Lasher who died in penury during its pendency. See *id.*

176. According to the *Pine Hill Sentinel*, many landowners sold their land or gave options on it to a "land option ring" identified with Tammany Hall. *The Catskill Water Scheme*, PINE HILL SENTINEL, Dec. 12., 1908, at 2. Other news reports stated that "shrewd real estate operators, with political affiliations have

the fact that for every dollar that was paid in compensation, the commissions spent more than fifty-four cents on administrative expenses.¹⁷⁷ Commissioners were paid \$50 a day plus expenses and appraisal witnesses paid between \$10 and \$50 per day.¹⁷⁸ To see the perpetrators of their injustice enriched while many were reduced to poverty, created deep and lasting bitterness toward the City.¹⁷⁹ It is unsurprising, therefore, that bitterness and hostility were pervasive. The infirmity of the 1905 laws coupled with the actions of the City and the commissions created and perpetuated these feelings.

taken title to more than 1/3 of the land to be taken." STEUDING, *supra* note 141, at 84.

177. See BOARD OF WATER SUPPLY, NINTH ANNUAL REPORT OF THE BOARD OF WATER SUPPLY 44 (Dec. 1914).

178. See WEIDNER, *supra* note 54, at 230, 247.

179. The ultimate insult occurred in mid-1913. In May 1913, the city condemned the church property of the Methodist Church in Glenford. See *New York City Sues Glenford Church*, KINGSTON DAILY FREEMAN, May 19, 1913, at 1. Subsequent to the \$5,600 award received by the congregation, the property was conveyed to the Ulster-Delaware Railroad as part of the line relocation agreement entered into with New York City. See *id.* As a result of the change in ownership, the congregation of the Methodist Church asked the president of the railroad, S.D. Coykendall, if the Church could purchase the church edifice from the company. See STEUDING, *supra* note 141, at 88-89. Coykendall replied that the Church could take it no charge. See *id.* When news of this reached the generous souls at the Corporation Counsel's office, they immediately and unabashedly demanded the return of the edifice on the grounds that half of the edifice actually stood on city property. See *id.*

To add insult to injury, the Corporation Counsel sued for the full value of the condemnation award instead of the rational remedy of the salvage value of the church. See *New York City Sues Glenford Church*, *supra* note 179 at 1. It also attempted to try the case in New York City despite the property, witnesses, and defendants being located in Kingston and that the alleged tort of trespass was committed in Ulster County. See STEUDING, *supra* note 141, at 88-89. Sensibly, the court granted the defendants' motion for change of venue. See *New York City Sues Glenford Church*, *supra* note 179, at 1. At trial, it was adduced that while four-fifths of the church actually stood on City property, City engineers who witnessed the removal had given their approval. See WEIDNER, *supra* note 54, at 259-60. Appraisers called by the court estimated the salvage value of the church at \$75. See *id.* at 260. The jury ultimately found for the City, but awarded only nominal damages. See *id.*

5. The Delaware System: The Last Piece of the Puzzle

The completion of the Catskill system, however, did not end New York City's perennial quest for more water.¹⁸⁰ The continued need for more water prompted the Board of Water Supply to plan and build the Schoharie Reservoir and Shandaken Tunnel which entered service in 1926.¹⁸¹

Approval from the Board of Estimate and Apportionment for development of the Delaware System came on January 12, 1928.¹⁸² Shortly after approval was granted, New Jersey sued New York in the Supreme Court to prevent it from diverting water from the tributaries of the Delaware River; Pennsylvania intervened to protect its own interests.¹⁸³

180. As Chief Engineer J. Waldo Smith reported in 1921:

During the 5-year period from 1916 to 1920, inclusive, the annual rate of increase in the consumption of water has been 42 million gallons per day. The Catskill supply was introduced early in 1917 and it is therefore evident if the increase in consumption should continue at the rate of 42 million gallons per day per year, that the entire supply of 600 million gallons per day will serve to meet the increase in demand only until 1932, and that thereafter the water supply situation will, in general, be the same as that which led up to the development of the Catskill project in 1905.

See WEIDNER, *supra* note 54, at 284 (quoting BOARD OF WATER SUPPLY, FIFTEENTH ANNUAL REPORT OF THE BOARD OF WATER SUPPLY 42 (1921)). J. Waldo Smith's statement is typical of the history of New York City's water supply.

181. See NRDC REPORT, *supra* note 2, at 6. Water from the Schoharie Reservoir flows through the eighteen mile Shandaken tunnel into Esopus Creek and then another eleven miles to the Ashokan Reservoir. See *id.* From the Ashokan, water is carried through the ninety-two mile Catskill Aqueduct into the Kensico Reservoir. See *id.*

182. See WEIDNER, *supra* note 54, 291.

183. *New Jersey v. New York*, 283 U.S. 805 (1931). A Special Master was appointed by the Court and hearings were held throughout 1930. See WEIDNER, *supra* note 54, at 285. The Supreme Court handed down its decision on May 25, 1931 and it restricted New York's take of water from Delaware tributaries to 440 million gallons per day. *New Jersey*, 283 U.S. at 805. The decision also provided for inspections by New Jersey and Pennsylvania in order to ensure compliance, and the construction a sewage treatment plant at Port Jervis, New York. See *id.*

The decree issued by the Supreme Court in 1931 was modified in 1954 to reflect the agreement reached by the Special Master appointed pursuant to the City of New York's amended petition, in which New York State joined. *New Jersey v. New York*, 347 U.S. 995 (1954). The Amended decree allowed New York City to divert 490 million gallons per day (mgd) after the Pepacton Reser-

Construction on the Delaware system, delayed by the financial woes of the Great Depression and the Second World War,¹⁸⁴ was not substantially complete until the early 1950s.¹⁸⁵ Although the building of the Delaware System did not generate the same level of attention as previous water projects, it has the largest yield and storage in the entire New York City water supply system.¹⁸⁶

The building of the Pepacton Dam and Reservoir demolished the hamlets of Pepacton, Dunsraven, Shavertown, Union Grove and Arena.¹⁸⁷ Some residents sold their land directly to New York City, thereby avoiding condemnation proceedings.¹⁸⁸ Another aggravating aspect of the process was the fact that some residents had to wait almost four years to receive all of the monies due them. As noted earlier, claimants received half the assessed value of their land when New York City took possession and received the balance of their claim when their case was settled by the Appraisal Commission.¹⁸⁹ Again, the City pointlessly alienated the

voir was completed and up to 800 mgd after the completion of the Cannonsville Reservoir. See 347 U.S. at 996-97.

184. See WEIDNER, *supra* note 54, at 287.

185. See NRDC REPORT, *supra* note 2 at 12, 16, 19, 23.

186. See FGEIS, *supra* note 5, at II-4.

187. See Dorothy Kubik, *Water for New York City: The Pepacton Reservoir*, CATSKILL LIFE, Spring 1991, at 16, 20 [hereinafter *Pepacton Reservoir*].

188. See *id.* at 23. This approach, however, had its drawbacks. For example, the Congregation of the Old School Baptist Church in Union Grove received \$4750 by settling directly with New York City. See *id.* By contrast, the Appraisal Commission awarded \$15,500 to the Congregation of the nearby Union Grove Methodist Church. See *id.* According to the *Catskill Mountain News*, "[t]he buildings appear to be of comparable quality outside." *Id.* The duality of the City's land acquisition process, it seems, exacerbated the tensions between itself and the Watershed residents.

189. See Act of Apr. 2, 1906, ch. 314, 1906, N.Y. Laws 738 (amending "[a]n act to provide for an additional water supply of pure and wholesome water for the City of New York"). However, in Shavertown, several property owners who had their property taken in 1950 had to wait until May 1952 when the Appraisal Commission heard their claim. See *Pepacton Reservoir*, *supra* note 187, at 23. The awards were reduced, however, when the City appealed the claims. See *id.* Fortunately, the property owners persevered until the Appellate Division of New York State reinstated the original awards in 1954; almost four years after the land was taken by New York City. See *id.*

very people it would depend on to act as stewards of its drinking water.

New York City's approach to interpersonal relations had not changed much when the building of the Cannonsville Reservoir began.¹⁹⁰ However, monetary compensation does not tell the whole story. Once again, New York City's representatives alienated the affected residents with their insensitive and inflexible behavior.¹⁹¹

190. The Town of Cannonsville was submerged by the building of the Cannonsville Reservoir. See Dorothy Kubik, *Water for New York City: The Cannonsville Reservoir*, CATSKILL LIFE, Spring 1992, at 10, 20 [hereinafter *Cannonsville Reservoir*]. All in all, ninety-four farms and five settlements were inundated and 941 persons displaced by the rising water in 1966. See *id.* at 20. According to Harold Peaslee of the nearby town of Walton, many residents thought the prices paid by the City for condemned property were reasonable. "Most people took what they were offered because they thought it was pretty good." *Id.* at 10.

191. Pauline Goodrich, whose farm was taken as part of the buffer zone around the Cannonsville Reservoir, described the notification process to Dorothy Kubik:

"This was put up 30 days after the date on the notice," she said, indicating a large square cloth with fringed edges. Exposure to the elements had turned it a streaked murky gray, but the black lettering still stood out sharp and clear with the message that the property to which it was attached had been condemned by the City of New York. It was dated March 8, 1962. This notice, fastened to a pole below the house, was the only legal notification the Goodrichs received that their property would be taken by the city.

Id. at 17.

Mrs. Goodrich went on to recall that "four or five men would drive up . . . and while the driver sat in the car, the others got out and told the owners they had to go. They just said it's ours." *Id.* at 18. "My husband was a quiet mild man, but when I came home from school one day and found him polishing his gun, I really began to worry." *Id.*

Helen Zandt, another resident who lived through the construction, had to go to court to force New York City to give her family of farmers more than thirty days to vacate their farm. See *id.* at 15. They ultimately moved out about one year after being given notice. See *id.* Helen Zandt's brother lost all of his farm and another seventy-six acres. See *id.* at 14. Her father lost only about fifty acres, but according to Ms. Zandt, the City "took the land where the house was and the flats." *Id.* at 15. "They took all the best land." *Id.* Ms. Zandt represents some of the living memory that can't forget the upheaval caused by New York City's quest for drinking water.

6. Conclusion

The completion of the Cannonsville Reservoir in 1965 effectively finished construction of the New York City Watershed. From the first exertions in the Croton watershed in the 1830s, it took New York City another one-hundred and twenty years to complete the system that it has today. It is one of the greatest feats of civil engineering in American history and is one of the largest, if not the largest, unfiltered water supply systems in the entire world. However, the completion of the reservoir system did not end New York City's regulatory intrusion into the land use of the upstate watershed communities, nor the continued animosity engendered thereby.

II. THE WATERSHED AGREEMENT AND REGULATIONS

A. COUNTDOWN TO A CRISIS: REGULATORY OVERVIEW

In the years following the completion of the three reservoir systems, the City all but retreated from the watershed region. With the dams and aqueducts complete, City officials returned home. Land acquisition efforts halted and few inspectors ventured north to survey the area.¹⁹² Over time, the City's policy became one of benign neglect. Although authorized to protect its drinking water, New York City did not attempt to regulate land use in the Watershed until 1954.¹⁹³ However, by the time the City chose to consider land use controls, State law had been changed to require New York State Department of Health (DOH) approval of its regulations.¹⁹⁴ Partly as a result of this check on the City's authority, and partly as a result of a lack of communication, the best City officials managed to get on the books was two and one half pages of woefully inadequate provisions which were more appropriate for addressing turn of the century health issues

192. See *supra* note 193 and accompanying text.

193. See FGEIS, *supra* note 5.

194. See N.Y. PUB. HEALTH LAW § 1100.

than mid to late twentieth century environmental concerns.¹⁹⁵

The impact of these inadequate regulations was further compounded by inadequate land holdings by the City around the reservoirs and tributaries. By 1990, the City owned only narrow strips of land around the reservoirs, leaving the rest in private ownership.¹⁹⁶ At some locations, development had encroached almost to the water's edge.¹⁹⁷ What little land the City owned had come to be viewed as parkland by many area residents. The results for water quality were disastrous and nowhere were the results of the City's policy of neglect evident than in the Croton Watershed.

Over the first hundred years of the life of the Croton System, surrounding land use slowly changed from large agrarian holdings to a mix of smaller farms and residential housing on large tracts of land. Land around the aqueducts healed and lush vegetation reappeared. Secondary forest growth emerged from the old farm fields in the area. In short, from the perspective of water quality impacts changed little between 1842 and 1942. Thus, prior to the Second World War, it mattered little whether the buffer areas were privately or City owned. After the War, that would irreversibly change with the devastating effects of the post-war housing boom.

During the post-war years, while the population increased in each of the three systems, the greatest growth occurred in the region surrounding the Croton.¹⁹⁸ To the horror of regional planners and a budding environmental movement growth mostly occurred without the benefit of any environ-

195. See N.Y. COMP. CODES R. & REGS. tit. 10, § 128.1.

196. See GORDON & KENNEDY, *supra* note 19, at 25. "The City owns about 7 percent of the land in the three watersheds, and about half of that lies beneath the reservoirs." *Id.* at 25.

197. See *id.* at 25.

198. See GORDON & KENNEDY, *supra* note 19, at 5. For example, between 1970 to 1990, the population of the Croton watershed increased by 38.9% to 157,600 and the population in the Catskill/Delaware watersheds increased 13% to approximately 47,000. See *id.*

mental or regional planning.¹⁹⁹ Privately owned buffer lands, which had hitherto protected water quality, disappeared.²⁰⁰ By the late 1980s, the City was left with a narrow strip of land.²⁰¹ Indeed, in some instances there was no buffer at all.²⁰² Development had stressed the reservoirs with the addition of pollutants and the removal of forests and wetlands that served as natural filters.²⁰³

Microbial contaminants and eutrophication from septic systems discharges and sewage discharges from faulty treatment plants, grease and oil from roads and parking lots and biocides, fertilizers and pesticides from the lawns of homes, corporate parks and golf courses posed and continue to pose major threats to the reservoir water quality.²⁰⁴

Since 1953, enormous changes have taken place within the boundaries of the Watershed:

199. Ironically, at the time Watershed negotiations began in 1995, many of the local governments in the Catskill and Delaware systems either did not have comprehensive land use plans or zoning ordinances or, if they did, they did not require planning or zoning plans to consider avoidance of City water supply degradation. As of June 1991, as much as twenty-one of the thirty-eight towns in the Catskill and Delaware watersheds did not have zoning ordinances. See GORDON & KENNEDY, *supra* note 19, at 5.

200. For example, in 1991, more than 10,000 new housing units were planned for the already polluted Croton Watershed. See *id.*

201. See GORDON & KENNEDY, *supra* note 19, at 5.

202. See *id.* at 5.

In the Catskill and Delaware drainage basins, buffer lands usually extend 300 to 500 feet from the reservoir shore, while in the Croton watershed the buffer is often as thin as 50 to 150 feet. . . In addition, the City has exacerbated the problem by granting development easements over its buffer lands.

Id. at 25.

203. See *id.* at 7.

204. See NRDC REPORT, *supra* note 2, at v. Among the most significant polluters are 145 facilities holding DEC permits to discharge treated sewage and other pollutants into watershed rivers and streams. See *id.* In addition, the reservoirs and tributary streams are vulnerable to degradation and contamination from urban, suburban, rural, agricultural land use practices that result in nonpoint source pollution and/or in adverse changes to the natural rate that water flows into and through a specific drainage basin; improper use, handling, storage, transport and disposal of a substance, including hazardous substances and wastes, radioactive materials, pesticides, herbicides, fertilizers, winter highway maintenance materials, solid wastes and animal wastes. See FGEIS, *supra* note 5, at III-1.

substantial population increases have occurred, particularly east of the Hudson River in Westchester and Putnam Counties [principally the Croton System], traditional economic activities have been supplanted by new ones, second-home developments have grown up and evolved into year-round communities; and every where the impact of development on the natural environment has resulted in adverse consequences never imagined in 1953.²⁰⁵

The failure of the State and the City to effectively prevent the degradation of the water quality over the past thirty years is evidenced by the routine granting of permits by the Department of Environmental Conservation (DEC) for homes, businesses, and hospitals to discharge sewage waste directly into the water supply.²⁰⁶ In addition, there has been a total failure by the state and City to prosecute polluters, particularly where the source is the government.²⁰⁷ Further, thousands of acres of wetlands which filter and remove pollutants, store water for slow release into streams and aquifers, provide habitat and help control floods have been filled or paved over for development, particularly in the Croton System. Where vegetation once broke the flow of falling rain to

205. See FGEIS, *supra* note 5, at IV-1. Of particular concern to EPA are: the potential contamination by GIARDIA LAMBLIA and viruses that results from activities associated with residential and commercial development; the potential for significant threats to water quality from other human activities, including runoff from dairy farming operations and discharges from wastewater treatment plants (WWTPs) that are violating their State Pollutant Discharge Elimination System (SPDES) permits; and the recurring high turbidity in the Catskill System that threatens long-term compliance with the raw water turbidity requirements of the SWTR. ENVIRONMENTAL PROTECTION AGENCY, NEW YORK CITY FILTRATION AVOIDANCE DETERMINATION 15 (April 1997) [hereinafter FILTRATION AVOIDANCE DETERMINATION].

206. See GORDON & KENNEDY, *supra* note 19, at 3. By 1990, DEC had issued approximately 130 permits to housing developments, schools, towns, prisons, mental hospitals and industries to discharge treated sewage and waste water directly into the streams and tributaries of the City water supply. Two-thirds of these discharges were within the Croton Watershed. See *id.* at 10. None of the permits set limits for pollutants discharged or required treatment to minimize pollution. See *id.* at 11.

207. See *id.* at v. Thirty percent of the sewage treatment plants discharging waste in the water supply in 1988 did so in violation of their permits, including City-owned facilities, the State prison in Bedford, and several local governments. See *id.*

allow for absorption and filtration by natural processes, the rain now sweeps across parking lots and roads, picking up contaminants and “poison runoff - a toxic mix of road salts, pesticides, gasoline, oil, pathogens, industrial chemicals, dissolved metals and sediments”—and depositing them into the reservoirs.²⁰⁸

By 1990, as a result of “decades of careless development, inadequate pollution controls and virtually non-existent enforcement of regulations,” one third of the water supply was borderline in quality.²⁰⁹ Thus, even before the most recent Watershed crisis developed, the reduction and eventual elimination of harmful discharges into the Watershed and the future land use controls for the Catskill and Delaware Watershed areas were identified as critical to the City for long-term protection of the water supply.²¹⁰

By 1990, concerns for New York City’s drinking water were being raised in many quarters. It was clear that the City would have to take some action. But surprisingly, as the City began exploring its options, it encountered two obstacles, public opinion in the Watershed Region and the often arcane applicable laws and regulations. The roots of public opposition have already been explored, but the obstacles presented by New York law warrant some discussion.

208. See GORDON & KENNEDY, *supra* note 19, at 8-9. According to a 1988 EPA survey, poison runoff was the major cause of pollution in 30% of the stream and river miles surveyed and 26% of the lake acres surveyed nationwide. See *id.* at 9.

209. See *id.* at iv. In 1992, due to the significant degradation in the quality of the water quality within the Croton Watershed, the City entered into a stipulation with DOH and EPA for the construction of a full scale water treatment facility to filter Croton System water. See *id.*

210. See NRDC REPORT, *supra* note 2, at v. Indeed, the Kensico Reservoir, the receiving basin for the Catskill and Delaware Systems which supplies 90% of the water supply, is facing major pollution problems due to failing septic systems, bird droppings and runoff from Westchester County Airport in its heavily populated, nine-square mile watershed. See *id.*

1. Existing Watershed Regulations

In a rare preemption of local land use control,²¹¹ the New York legislature passed a bill which became Chapter 723 of the Laws of 1905²¹² (1905 Statutes) which preempted local land use controls of the Watershed Region transferring it instead to the City of New York. This extraordinarily broad delegation of power was limited only by the requirement that any plan to “acquire, take or condemn lands for new or additional sources of water”²¹³ must have first secured the approval of the “State Water Supply Commission,” a newly constituted body established pursuant to a companion 1905 Statute.

The 1905 Statutes were extraordinary in New York not just because of the state’s long tradition of Home Rule,²¹⁴ but because the City was given such extraordinary control over land use outside of its own jurisdiction. The 1905 Statutes survive to the present day as Section 15-1501 of the Environmental Conservation Law which provides that no person or public corporation may take or condemn lands for any new or additional sources of water supply or for the utilization of such supplies without a permit issued by the State Department of Environmental Conservation.²¹⁵ The years following enactment of the 1905 Statutes saw various attempts by up-state legislators to chip away at the broad powers granted the City in what became increasingly viewed as an unbalanced, unfair, one-sided law.

211. Due to the inability of local regulation to protect regional interests, numerous statutes have been adopted that preempt local control, including those to protect estuaries, wetlands, drinking water reservoirs, wildernesses and rivers, among other public objectives. In order to understand the ability of the state legislatures to restrict local actions to achieve broader state objectives, it is helpful to examine the history of home rule in New York and its constitutional and statutory limitations. See John R. Nolon, *The Erosion of Home Rule Through The Emergence of State Interests In Land Use Control*, 10 PACE ENVTL. L. REV. 497 (1993).

212. Act of June 3, 1905, ch. 723, 1905 N.Y. Laws 2022.

213. *Id.* § 2, 1905 N.Y. Laws 2023.

214. See generally, Nolon, *supra* note 211.

215. N.Y. ENVTL. CONSERV. LAW § 15-1501 (McKinney 1997).

For the purpose of understanding the latest Watershed crisis, the most important of these legislative counterbalancing attempts was a new provision added to the Public Health Law (PHL) in 1953.²¹⁶ Article II, Title I, Section 1100 of the PHL authorizes DOH to issue rules and regulations to protect New York State and New York City drinking water.²¹⁷ Section 1100 further requires that DOH approve any rules developed by the New York City Department of Environmental Protection (DEP) pursuant to the authority vested in that agency by the 1905 Statutes.²¹⁸ It was through this counterbalancing process that the first Watershed regulations emerged in 1954.²¹⁹ And it was this process that probably guaranteed that the regulations would have little impact prompting one environmentalist to characterize the regulations as "straight out of Mayberry RFD."²²⁰ While these regulations are by today's standards feeble, their existence alone was source of great friction between the host communities and the City over the forty year period following their promulgation.²²¹ But they also evidence a subtle, interesting, but altogether important shift that had occurred in the fifty years since the 1905 statutes were enacted.

216. See N.Y. PUB. HEALTH LAW §§ 1100-05.

217. See N.Y. PUB. HEALTH LAW § 1100. The section states: "[t]he department may make rules and regulations for the protection from contamination of any or all public supplies of potable waters and water supplies of the state or United States, institutions, parks, reservations or posts and their sources within the state . . ." *Id.* § 1100(1).

218. See *id.* According to section 1100 of the Public Health Law, "[t]he commissioner of environmental protection of the city of New York and the board of water supply of the city of New York may make such rules and regulations subject to the approval of the DOH for the protection from contamination of any or all public sources or potable waters and their sources within the state where the same constitute a part of the source of the public water supply of said city." *Id.*

219. See FGEIS *supra* note 5.

220. GORDON & KENNEDY, *supra* note 19, at iv. These regulations focused on "manure piles outhouses and cemeteries, and ignored the threat of modern toxins and the very transformation of the Watershed from forest or meadow to suburb." *Id.* See N.Y. COMP. CODES R. & REGS., tit. 10, § 128.1.

221. For example, the fines for improperly disposing of human, animal, manufacturing, and household waste were \$10 for the first violation and \$50 for each additional violation. See N.Y. COMP. CODES R. & REGS., tit. 10, § 128.1(k).

After 1953, the Environmental Conservation Law (ECL) and the PHL had to be read together when assessing the City's regulatory powers. For the first time since 1905, there was a mechanism for Watershed communities to check the unfettered power of New York City over the land use issues in the watershed region. That subtle shift in power, while unsatisfactory to both the City and Watershed communities, was to have a profound impact on later attempts to protect the Watershed, and even statewide politics, since DOH effectively could stalemate any attempt to promulgate new Watershed Regulations.

Several other sections of the PHL, also enacted in 1953, created a complicated legal balance between the City and up-state interests. Section 1104, which has its roots in a 1909 statute, requires the City, at its own expense, to provide for the removal or purification of sewage while also authorizing it to condemn land necessary for such purposes.²²² In addition, section 1105 provides for the payment of damages "occasioned or sustained by such removal or enforcement, *including all injuries caused to the legitimate use or operation of such property.*"²²³ Section 1105 also requires that an action for damages must be brought in accordance with the eminent domain procedure law.²²⁴

In sum, sections 1100 through 1105 of the PHL provide New York City with the authority to protect its water supply from contamination and degradation along with the obliga-

222. See N.Y. PUB. HEALTH LAW §§ 1104. In a recent Third Department case, the court affirmed the DOH's ruling that Section 1104-1 "requires the City to pay construction, maintenance, and operating costs for all sewage treatment plants in the watershed, including privately owned plants that are public utilities, where such costs are incurred to comply with [New York City Department of Environmental Protection (DEP)] or DOH regulations which protect specifically the City's water supply and are not otherwise required by existing regulations of other regulatory authorities." *City of New York v. New York State Dep't of Health*, 164 Misc.2d 247, 251, 623 N.Y.S.2d 491, 194 (Sup. Ct., Albany County 1995). In essence, the decision stands for the proposition that New York City must pay for the implementation of regulations that protect its water supply.

223. N.Y. PUB. HEALTH LAW §§ 1105(1) (emphasis added).

224. See *id.* § 1105(2). See N.Y. EM. DOM. PROC. §§ 101-709 (McKinney 1979).

tion to pay for it.²²⁵ Ironically, as a result of sections 1104 and 1105 the more the City chose to regulate, the more it increased its exposure to damages. At the time these regulations were promulgated, there was little engineering or scientific information relating to the many potential threats to unfiltered surface water drinking supplies.²²⁶

2. Changes in Federal Law

There has also been an enormous evolution in federal environmental law since 1953. In fact, EPA did not exist until 1973. Nowhere is this enormous evolution more evident than in the body of law that regulates water quality, especially drinking water.²²⁷ The most important of these changes is the Safe Drinking Water Act (SDWA) which was first promulgated in 1974. Pursuant to the SDWA, EPA promulgated nationwide drinking water regulations specifying the maximum level of harmful contaminants allowed in drinking water. Its provisions also govern the construction, operation, and maintenance of the water supply systems.

In 1986, SDWA was amended requiring EPA to promulgate additional regulations specifying criteria under which filtration would be required for surface water supply systems. The Surface Water Treatment Rule (SWTR), promulgated in 1989, provides that avoiding filtration would require implementation by June 1993 of a comprehensive watershed management plan containing rigorous water quality standards.²²⁸ Thus, without a Watershed Protection Plan containing at least new regulations, the City would have no choice but to

225. The statutory revision of the 1905 statute in the PHL and the introduction of the state ECL regulations reduced the "unfettered" powers of New York City over the Watershed. A water supply permit from DEC is now required before the City can acquire additional land either by sale or condemnation to protect the watershed. See N.Y. ENVTL. CONSERV. LAW. The permit must contain conditions requiring a mitigation of the economic damage to Watershed residents and communities resulting from any land acquisitions. See *id.* In addition, City Watershed regulations must be approved by DOH. See N.Y. PUB. HEALTH LAW § 1101.

226. See FGEIS, *supra* note 5, at III-9.

227. See FGEIS *supra* note 5 at IV-6.

228. Violation of the terms of the SDWA, generally, or the SWTR, particularly, can result in fines not to exceed \$25,000 for each day of violation.

filter the Catskill and Delaware Systems.²²⁹ It is important to note that sandfilter beds, which are used in most standard filtration plants, are not capable of removing two pathogens that are of particular concern to New York City; cryptosporidium and giardia lamblia.²³⁰ Disinfection technology, such as chlorination, can create by-products like trihalomethanes which have deleterious effects on water quality and is largely ineffective against cryptosporidium and giardia lamblia.²³¹

Further, filtration does not address the health concerns related to nitrate runoff from farming operations, as well as the everyday "toxic chemicals from household cleaners, paints, gasoline, pesticides and fertilizers which are dumped down toilets or washed off the street and into the City water supply" which can not be effectively screened by filtration. In addition, the immense cost of filtering the Catskill/Delaware System did nothing for the financial health of the City.²³² Failure to meet the avoidance criteria was estimated to cost the City between \$6 and \$8 billion in capital expenses to install a filtration system and between \$200 and \$400 million in annual operation and maintenance costs.²³³ On balance, the public health and New York City seemed to be better served if filtration could be avoided.

As of June 1993 upstate and downstate interests were on a collision course. Upstaters who did not want new regulations and more land acquisition supported filtration. City residents wanted filtration at all costs and felt legally entitled to enact new regulations as permitted by laws long on the books.

In 1989, New York City began a review process of its regulations to further protect the water supply and to avoid the filtration of the Catskill and Delaware Systems pursuant to a

229. It should be noted, however, that the efficacy of filtration is equivocal.

230. See GORDON & KENNEDY, *supra* note 19 at 30.

231. Sarah J. Meyland, *Land Use & the Protection of Drinking Water Supplies*, 10 Pace Envtl. L. Rev. 563, 577-578. Trihalomethanes are determined to be carcinogenic.

232. See GORDON & KENNEDY, *supra* note 19 at 30-31.

233. See *id* at 3.

stipulation entered into with EPA.²³⁴ The regulations proposed by New York City in 1990 in its filtration avoidance application to the EPA, included further regulation of land use and watershed activities within the watershed which further exacerbated the upstate/downstate conflict.

3. Roadmap to an Agreement

The legal exigencies created by the SWDA and the SWTR compelled New York City to address the deteriorating water quality in the Catskill and Delaware Systems. The requirements of the SWTR opened a new chapter in the conflict between New York City and the Watershed communities with commencement of litigation by a coalition of upstate watershed towns challenging the City's filtration avoidance application to EPA, the proposed regulations and the City's land acquisition program.²³⁵ This chapter, however, was complicated by the participation of some of New York's largest and most respected environmental advocacy organizations. So, not only were the traditional combatants ready to battle, but a third group was ready to attack either or both sides if the Watershed protection proposals were not deemed protective of the water quality.

In September 1990, New York City released a "discussion draft" of proposed regulations to comply with the SWTR and avoid filtration.²³⁶ The proposed regulations, intended to replace the 1954 rules, provoked a firestorm of opposition and litigation from the Watershed communities. Included in the proposal were restrictions on agriculture, a ban on building any new or expanded wastewater treatment plants, prohibitions on new septic systems within 500 feet of any watercourse or 1000 feet of a reservoir and a ban on cemetery expansion. In addition, in 1991, the DOH granted the City a conditional waiver on the filtration requirement provided the

234. See FEIS *supra* note 5 at II-14.

235. Preliminary Official Statement Dated April 21, 1997, New York City Municipal Water Finance Authority, p.53.

236. FGEIS at E.S.-1 The proposed regulations were entitled *Proposed Watershed Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and Its Sources*.

City buy more buffer land, enact stricter watershed regulations and hire more personnel to properly police the watershed and prosecute polluters.²³⁷ Obviously, these regulations would have had dramatic economic and social impacts on upstate communities, home to approximately 350 dairy farms.²³⁸ Watershed residents argued that the prohibitions on infrastructure construction confined the Watershed Region to a future devoid of economic or community growth. In fact, one resident group concluded that the prohibition regarding construction near watercourses left the communities with no land on which any development could occur.

The proposed regulations also greatly exceeded local zoning provisions and state wetlands restrictions prompting concerns that inhabited areas along watershed streams and rivers would no longer be able to expand, greatly reducing the density of rural land development.²³⁹ Essentially, Watershed residents characterized the proposal as a depopulation scheme. These conflicting interests - erosion of local control, arrested economic development and water supply degradation - "pitted the self-interest of the state's largest city against those of a host of awakening rural towns and villages."²⁴⁰

And as if the regulations themselves were not enough to set the parties at odds, New York City's rhetoric virtually guaranteed an atmosphere of acrimony and bitterness.²⁴¹ For example, in August 1990, Al Appleton, then head of the DEP, tactlessly asked the rhetorical question: "Do we make nine million people pay billions to clean up after those who

237. Watershed Update at 1.

238. N.Y. TIMES, May 27, 1993, Section B. p. 1, Col. 5

239. Diana Shaman, Upstate Developers Irked at City's Plans, N.Y. TIMES, Sept. 20, 1991, at A24.

240. 10 PACE ENVTL. L. REV. 497 at 537.

241. This is not to say that heated rhetoric was the exclusive preserve of New York City. Robert F. Kennedy, Jr., environmental attorney for the Hudson Riverkeeper and the Natural Resources Defense Council, rhetorically asked in a media campaign, "How much of Amy Fisher's urine was seeping into City reservoirs from the Bedford Correctional Facility?" Ken Market, director of the Coaction of Watershed Towns, remarked "They (NYC) have for the longest time been a conquering force in this area. . ."

would turn the pristine waterways and beautiful mountainsides of our Catskills watersheds into a chop-chop environmental ticky-tack?"

Mr. Appleton's labeling the watershed "our Catskills" touched an exposed raw nerve in the region. As was previously noted, the roots of the Watershed communities date back to before the founding of the Republic. Two years later, Commissioner Appleton further exacerbated the situation when he was quoted as saying: "What the [proposed] watershed regulations represent is this: It's over, folks. You got to pay the real costs now."²⁴² This needlessly inflammatory rhetoric precipitated an immediate counterattack.

Watershed residents wasted no time preparing themselves for another "Conflict in the Catskills." First, they formed a Coalition of Watershed Towns (CWT)—comprising thirty-three towns and five county governments—to fight the proposed regulations.²⁴³ Then to ensure that the CWT had adequate resources to fight the City's proposal, State Senator Charles Cook, who represented a portion of the Watershed region, secured a \$100,000 appropriation in the State Budget to aid the coalition. The appropriation would continue for the next five years. Thus, we had the amazing circumstance of state tax dollars being used to defeat a proposal advanced by the City to protect the drinking water of two-thirds of the state's residents. The Coalition used much of the appropriation to pay legal fees incurred after commencing legal action challenging the proposed Watershed Protection Plan.

As a result of the litigation, DOH withdrew the waiver. In January 1993, EPA issued a one-year Filtration Avoidance Determination (FAD) requiring the City to finalize a Watershed Protection Plan by September 31 of that year which included: new watershed regulations and a minimum of \$44 million commitment for land acquisition. Later that year, after negotiations broke down, the EPA appointed a panel of experts to review existing data, and advise whether the conditions of the FAD could be met, and what, if anything, DEP

242. *Audubon*, National Audubon Society, Vol. 94, No. 1, p. 94.

243. See Watershed Update at 1.

and DOH could do to improve water quality conditions. Amazingly, the panel reported that filtration could and should not be avoided, and recommended that EPA order the City to begin filtering its water supply immediately. The prospects for filtration avoidance looked grim. Indeed, the prospects for New York City, already faced with a multi-billion dollar budget deficit, looked even worse. Commissioner Appleton, added the “coup de gras” describing Watershed Protection as “manure management” in a New York Times article. There appeared to be no possibility of reaching a consensus.

In August 1993, the City took a significant step toward filtration avoidance when it submitted a water supply permit application to DEC for the acquisition of 10,000 acres. In September 1993, under the Dinkins Administration, the City submitted to EPA a Long-Term Watershed Protection and Filtration Avoidance Program for the Catskill/Delaware System. The proposal, which included revised “draft regulations” and a \$759 million water control program, was viewed quite rightly by most impartial observers as a cost shifting sham.²⁴⁴

Thus, the relations between the two sides were less than amicable when Governor Pataki took office in 1994. Litigation was pending. The parties were barely speaking. EPA

244. The program which included a land acquisition program (\$201 million), an increase in City staffing (\$200 million); the remediation of Kensico Reservoir (\$7 million); the proposed upgrade of City-Owned WWTPs (\$121 million); an In-City sampling program (\$8 million); a cover for the Hillview Reservoir (\$100 million); a Zebra Mussel program (\$19 million); and cost sharing measures (\$103 million); Agricultural programs (\$35 million); WWTP upgrades and septic (\$65 million); individual sewer/WWTP projects for which the City was already obligated (\$2 million). In October 1993, legislative hearings on the City's water supply permit application were held in Watershed communities located both east and west of the Hudson River. Although the meetings held east of the Hudson were subdued, the first meeting held in the west of the Hudson Watershed communities was attended by nearly 800 people at the Tri-Valley Central School Auditorium in Grahamsville. The people in attendance were angry about the City not consulting with the communities before the water supply permit application was filed with DEC, and the City continued to be unclear about its intentions regarding the land acquisition program, particularly its potential use of eminent domain. The meeting started at 7:00 pm and lasted past midnight.

maintained that filtration would be necessary absent an agreement. New York City's financial ability to build an operate the filtration plant was dubious. Something had to be done.

It was not now a matter of good environmental policy that New York replace outdated regulations and acquire land to protect the water from over development. The City had the Hobson's Choice of building a multi-billion filtration plant or instituting a Watershed Protection Plan that was acceptable to EPA, affordable to New York City and protective enough of Watershed interests to satisfy the ECL and PHL.

Throughout most of the 1990s this appeared an impossible task. Devising a solution could only be accomplished in a manner that respected the New York State home rule tradition of local control.²⁴⁵ Thus, the stage was set when the EPA and other interested parties urged the Governor of New York to intercede.²⁴⁶ The Governor agreed to bring the parties, including the state, the City, Watershed communities, and various environmental organizations together in a consensus-building approach to negotiate a reasonable, effective and scientifically-defensible watershed protection program.²⁴⁷

As we surveyed the landscape, we quickly realized several things had to be done. First, the Governor's office must act as a neutral convener.²⁴⁸ Thus, the counsel to the Governor's office convened an issues meeting with all the governmental parties. Included in the meeting were the City of New York, EPA, West of Hudson communities represented by the

245. The concept of home rule is quite simple. Embodied in Article IX of the New York State Constitution, "home rule" is intended to preserve local control for cities, towns, and villages and to preserve the powers of self-government. The New York State Constitution of 1777 recognized local self-government and provided that the principle could not "be departed from without changing the Constitution itself." Indeed, the opening paragraph of Article IX enunciates the philosophy underlying home rule, "Effective local self-government and inter-governmental cooperation are purposes of the people of this state."

246. See FILTRATION AVOIDANCE DETERMINATION, *supra* note 205, at 20-21.

247. See *id* at 21.

248. As John Gardener in "On Leadership" said, "the convener must be perceived by potential members of the coalition as neutral and trustworthy, but need not be seen as powerful." John W. Gardener, *On Leadership*, Free Press, 1990, p. 107.

Coalition of Watershed Towns, Putnam and Westchester Counties.

4. The Birth of the Watershed Agreement

At the outset of the negotiations, all day meetings were held at least twice a week. As the negotiations progressed, the parties met more frequently, until it was not uncommon to meet every day. At the outset, the Counsel's office realized that creating an atmosphere of trust and consensus building was imperative. Given the strained nature of the relationship, this was the *sine qua non* of the negotiations. Accordingly, the Counsel's Office laid down several ground rules for the process.

First, there was to be no negotiating in the press. The parties agreed not to answer substantive questions from reporters, but were free to talk about the process. Second, the parties were told to prioritize their issues. Prioritization made it possible to achieve consensus because it structured meetings in a way that addressed bridgeable differences at the beginning and end of meetings, thereby avoiding parties walking away with a bad taste in their mouth. Third, meetings were conducted at neutral locations, the locations were moved frequently, and casual dress was urged in order to reduce the formality. Fourth, the parties agreed that issues discussed and agreements reached could not be used against a party in later negotiations. By insisting on adherence to these simple rules, tension was reduced, the beginnings of trust were established, and substance began to triumph over rhetoric.

After establishing the ground rules, the participants were organized into "principals groups" that dealt with the most important issues at meetings with the highest levels of the parties. After the governmental parties felt comfortable with the course of the negotiations, representatives of the environmental community were brought into the negotiations and members of the business community were consulted. Finally, the participants and the administration realized that consensus was necessary in order to obtain the support of the constituents of the parties. Thus, it was understood and ac-

cepted that the agreement would be a compromise, and would not be perfect from any one party's perspective.

Flexibility was also engineered in the process to deal with issues that were not capable of being resolved in a timely fashion. For instance, in situations where the scientific evidence is equivocal, the Watershed Agreement (Watershed Agreement or Agreement) plans to generate the science, make a decision, and if needed to modify the Watershed Regulations. Also, the Agreement establishes a number of mechanisms to continually track the progress of the parties in implementing and meeting the goals of the Agreement. For example, adjustments in the programs created by the Agreement will be considered in order to adjust to changing circumstances. And, an oversight body, the Watershed Partnership and Protection Council, was established with representation from nearly every constituent group interested in, or relying on, the water supply. This is just one illustration of the parties' commitment to regulating the Watershed in the most prudent and least burdensome manner.

B. WATERSHED AGREEMENT

The New York City Watershed Agreement reached among the Watershed communities, certain environmental organizations, New York City, New York State and the EPA identifies the elements of the City's Watershed protection program that will protect the City's drinking water supply and the economic vitality of the upstate Watershed communities. The Agreement reflects a new partnership among the parties to implement a variety of watershed protection programs in the midst of economic and environmental circumstances that have no analog anywhere in the United States. The Watershed Agreement recognizes that the preservation of the City's water supply must be achieved through vigorous water quality protection and the preservation of the vitality of the upstate Watershed communities.

Included in the Watershed Agreement are programs to protect water quality and foster partnership between the City and the upstate Watershed communities. The Agreement

consists of several different Watershed protection programs, including Land Acquisition,²⁴⁹ Watershed Regulations,²⁵⁰ Watershed Protection and Partnership Programs,²⁵¹ and the Watershed Protection and Partnership Council.²⁵²

1. Land Acquisition Program

The Land Acquisition Program will enable the City to acquire, through the purchase of fee title to, or conservation easements on, environmentally sensitive, undeveloped land from *willing sellers*.²⁵³ This represents a seismic shift in watershed relations that gives form to the City's recognition of the resentment generated by the use of eminent domain. In addition, the City will pay fair market value for property,²⁵⁴ continue to pay property taxes,²⁵⁵ and will participate in a community review process for property the City intends to purchase.²⁵⁶

The Agreement provides for a ten year water supply permit for land acquisition to be issued by the Department of Environmental Conservation (DEC), with environmental groups and the Coalition of Watershed Towns agreeing not to oppose the issuance of the permit.²⁵⁷ In turn, New York City will spend \$260 million (\$250 million in the Catskill & Delaware Watershed and \$10 million in the Croton Watershed) to acquire property important to the protection of drinking water quality.²⁵⁸ New York State has pledged \$7.5 million for land acquisition in the Croton watershed.²⁵⁹

249. See *infra* notes 253-61 and accompanying text.

250. See *infra* notes 262-65 and accompanying text.

251. See *infra* notes 307-17 and accompanying text.

252. See *infra* notes 326-32 and accompanying text.

253. See *id.* paras. 59-61.

254. See *id.* para. 61.

255. See *id.* para. 76. It is a historical irony that the meeting at which New York City agreed to relinquish its eminent domain authority occurred in Kingston, New York, which was the site of the most bitterly contested condemnation hearings of the Ashokan Reservoir construction. See STREUDING, *supra* note 141, at 32.

256. See WATERSHED AGREEMENT, *infra* note 270, para. 60.

257. See *id.* para. 58.

258. See WATERSHED AGREEMENT, *infra* note 270, para. 74.

259. See *id.* para. 76.

An innovative aspect of the Agreement allows towns and villages in the Watershed an opportunity to exempt certain areas from solicitation under the Land Acquisition Program²⁶⁰ and prevents the City from acquiring inhabited lands.²⁶¹ These provisions recognize the need to balance the protection of environmentally sensitive areas and the protection of reasonable economic opportunities.

2. Watershed Regulations

The new Watershed Regulations, which replace the two and a half pages of 1953 regulations, have been carefully crafted to ensure the continued, long-term protection of the City water supply and minimize, to the extent feasible, the adverse impacts on the Watershed communities. The 1953 regulations were written prior to the recent appreciation in the engineering and scientific community of the wide range of threats facing surface water supplies.²⁶² Moreover, the 1953 regulations do not reflect the recent federal and state legislation regarding drinking water standards, water pollution, and hazardous and solid waste.²⁶³

A major breakthrough negotiated in the Watershed Agreement is the City's commitment to pay for infrastructure upgrades or management practices that are required to comply with *City*, as opposed to state or federal, watershed protection regulations.²⁶⁴ By putting its money where its drinking water is, New York City is ensuring that the costs of safe drinking water are borne by the people who use it; New York City residents. The City has also committed to help fund upgrades required by the State Pollution Discharge Elimination System permits.²⁶⁵

260. *See id.* paras. 68, 70.

261. *See id.* paras. 67, 69.

262. *See* FGEIS at III-9.

263. *See id.*

264. *See* WATERSHED AGREEMENT, *infra* note 270, para. 121.

265. *See id.*

3. Wastewater Treatment Plants

Under the new Regulations, all existing wastewater treatment plants (WWTPs) must install sophisticated technology to perform micro-filtration and phosphorous removal within five years of the signing of the Agreement.²⁶⁶ "The City agrees to pay for the costs of designing, permitting, constructing and installing all regulatory upgrades called for by the Regulations."²⁶⁷ In order to help Watershed communities avoid reallocation of scarce municipal resources away from needed public services, New York City will also provide \$5 million in funding to help existing plants comply with New York State regulations.²⁶⁸

Recognizing the deleterious effects on water quality of phosphorous discharges²⁶⁹ associated with the operation of WWTPs and the health implications of coliform bacteria, the Regulations prohibit the construction of new surface discharging WWTPs in phosphorous and coliform restricted basins and areas within the sixty day travel time to the City's distribution system.²⁷⁰

The Regulations, however, are not applied in a dogmatic or mechanistic fashion. The Watershed Agreement and Regulations provide for pilot programs in east and west of the Hudson River areas in order to study the feasibility of expanded WWTPs within water quality sensitive areas.²⁷¹

East of the Hudson River, the Regulations provide for up to three surface discharging WWTPs in phosphorous restricted basins to be built in Putnam County.²⁷² Similarly,

266. *See id.* para. 141.

267. *See id.*

268. *See id.* para. 121.

269. *See* ROBBINS ET AL., *supra* note 10, at 10. Discharge of poorly treated wastewater with high concentrations of nitrogen and phosphorous contributes to accelerated rates of algal activity and eutrophication. *See id.*

270. *See* WATERSHED AGREEMENT, Attachment W, Proposed Watershed Rules and Regulations § 18-36(b), (c), (d)(1) [hereinafter WATERSHED REGULATIONS]. Sixty day travel time refers to the period necessary for water to enter a reservoir and then reach the City's distribution system. *See id.* Sixty days are required for the natural extinction of the most common pathogens. *See id.*

271. *See id.* §§ 18-82, 18-83.

272. *See id.* § 18-82(g).

the Regulations provide for the construction of up to three pilot WWTPs west of the Hudson River.²⁷³

Assuming the pilot programs demonstrate the efficacy of phosphorous offsets, the Regulations permit the construction or expansion of WWTPs.²⁷⁴ Section 18-82 allows construction or expansion of WWTPs within phosphorous restricted basins or the sixty day travel time in the Croton system if certain conditions are met. First, site constraints must prevent the proposed new WWTP or the expansion of an existing plant from discharging subsurface.²⁷⁵ Second, DEC must determine that the new or expanded WWTPs will not discharge more than 10% of the total volume of plants whose discharge has been diverted outside the Croton watershed.²⁷⁶ Alternatively, DEC must determine that for every one kilogram of increased phosphorous discharge there is a three kilogram reduction of phosphorous loading within the basin where the plant is located.²⁷⁷

4. State Assistance for New Wastewater Treatment Plants Constructed Under Pilot Program

Six hundred thousand is available from the State to participants in the Phosphorus Off-set Pilot Program established by the Watershed Regulations to be used to (1) design and construct equipment or facilities necessary to achieve the phosphorus off-sets required by the Pilot Program, (2) monitor the effectiveness of the measures in achieving the phosphorus off-sets, and (3) evaluate the effectiveness of the Pilot Program in protecting water quality.²⁷⁸

5. Septic Systems

The Watershed Agreement provides, at the option of Putnam, Westchester, Schoharie, and Ulster Counties, for delegation of approval authority for septic systems to the re-

273. See *id.* § 18-83(a).

274. See *id.* § 18-82(e)(ii).

275. See WATERSHED REGULATIONS, *supra* note 270, § 18-82(e)(1).

276. See *id.* § 18-82(e)(4)(i).

277. See *id.* § 18-82(e)(4)(ii).

278. See WATERSHED AGREEMENT, *supra* note 270, para. 152. XX

spective county health departments.²⁷⁹ In addition, the Regulations provide for expeditious review of septic placements in cases where the City's approval is needed.²⁸⁰ Furthermore, the City will reimburse the counties for their costs in administering the delegated program beyond the activities required by County and DOH regulations and standards.²⁸¹

Recognizing the impact septic systems can have on water quality, the Regulations prohibit new conventional septic systems within 100 feet of a watercourse or wetland or 300 feet of a reservoir.²⁸² The Regulations also ban new raised septic systems within 250 feet of a watercourse or 500 feet of a reservoir.²⁸³ As in the case of phosphorous control, if it is determined that septics can be safely placed within the 100 foot buffer zone, the Regulations will be amended to reflect that reality.²⁸⁴

The issue of how large a buffer zone must be to provide adequate protection to drinking water is subject to some dispute since the science is relatively inconclusive. As a result, the Agreement calls for a septic siting study in order to develop the science necessary for a truly informed judgment regarding the size of effective buffer zones.²⁸⁵ Making sure that the judgments in the Agreement were based on hard science in order to minimize the adverse economic impact was crucial to the success of the endeavor.

6. Septic System Rehabilitations and Replacements

The City is providing \$13.6 million for a program to (1) pump-out and inspect such systems to determine whether rehabilitation or replacement is appropriate, (2) rehabilitate such systems that are failing, and (3) replace or upgrade ex-

279. *See id.* para. 93.

280. *See id.* para. 93(b).

281. *See id.* para. 93.

282. *See* WATERSHED REGULATIONS, *supra* note 270, § 18-38(a)(5).

283. *See id.* § 18-38(a)(6)(i). In the event lot size prevents compliance with the septic system buffer zone requirements, section 18-38(a)(6)(ii) allows placement 100 feet from any watercourse or wetland and 300 feet from any reservoir or controlled lake.

284. *See* WATERSHED AGREEMENT, *supra* note 270, para. 170.

285. *See id.*

isting substandard underground sewage treatment systems.²⁸⁶ The Catskill Watershed Corporation (CW Corporation) will act as program manager of this Partnership Program and will select and prioritize areas, allocate specific funding amount based on the prioritization, and disburse program funds.²⁸⁷

The CW Corporation, an independently locally based and administered not-for-profit corporation, will be created to establish a working partnership between the City and Watershed communities that lie west of the Hudson River.²⁸⁸ The CW Corporation is to be involved in a variety of partnership programs included in the Watershed Agreement.

7. Stormwater Controls

Stormwater runoff from farms and impervious surfaces such as roads and parking lots are a significant source of water contamination.²⁸⁹ Section 18-39 prohibits new impervious surfaces within 100 feet of a watercourse or wetland, and within 300 feet of a reservoir.²⁹⁰ New roads within fifty feet of an intermittent stream or wetland, 100 feet of a perennial stream or 300 feet of a reservoir.²⁹¹

However, paving of an existing dirt or gravel road is permitted if there is a satisfactory stormwater pollution prevention plan.²⁹² Also, access roads to subdivisions will be allowed within the 100 foot buffer distance subject to approval of the City of a stormwater pollution prevention plan.²⁹³

Impervious surfaces are also prohibited within 100 feet of a watercourse or wetland, except for certain activities if located in a village, hamlet or area zoned commercial/industrial in west of the Hudson River or a "designated Main

286. *See id.* para. 124.

287. *See id.*

288. *See id.* paras. 117, 118, 120.

289. *See* ROBBINS ET AL., *supra* note 10, at 11-12, 14.

290. *See* WATERSHED REGULATIONS, *supra* note 270, § 18-39(a)(1).

291. *See id.* § 18-39(a)(6)(ii).

292. *See id.*

293. *See id.*

Street Area" east of the Hudson River and the project sponsor receives approval of the stormwater pollution prevention plan from the City.²⁹⁴

8. Stormwater Pollution Prevention Plans

The Regulations provide New York City with review and approval authority for stormwater pollution prevention plans submitted for certain types of projects.²⁹⁵ The following projects are subject to City approval: (1) activities that result in the disturbance of five acres or more; (2) the construction of new subdivisions; (3) land clearing involving two or more acres, located at least in part within 100 feet of a watercourse or wetland or 300 feet of a reservoir; (4) the construction of an impervious surface of 40,000 square feet or more; (5) the construction of solid waste management facilities within 300 feet of a watercourse or wetland or 500 feet of a reservoir; and (6) the construction of all new gas stations.²⁹⁶ In order to provide the local communities input into the planning and approval process, the Regulations allow state, county, and local officials to make recommendations to the City.²⁹⁷

9. Regulation of Hazardous Substances

No new DEC registered tanks are permitted within 100 feet of a watercourse or 500 feet of a reservoir.²⁹⁸ Owners of such tanks located between 100 feet and 250 feet of a watercourse, must (1) provide a copy of the state tank registration form before installation; (2) design a plan using best management practices, as required under state law, to prevent or minimize the release of hazardous substances; and (3) meet all other requirements of the state's hazardous substances tank regulations.²⁹⁹

294. *See id.* § 18-39(a)(7)(i).

295. *See* WATERSHED REGULATIONS, *supra* note 270, § 18-39(b)(3).

296. *See id.*

297. *See id.* §§ 18-39(a)(3),(4),(7),(8),(11).

298. *See id.* § 18-32(b).

299. *See id.* § 18-31(c)(1).

10. Regulation of Petroleum Storage

The Regulations prohibit the building of new gas stations within 100 feet of a watercourse or 500 feet of a reservoir.³⁰⁰ New tanks that are exempted from state registration are not permitted within twenty-five feet of a watercourse or 300 feet of a reservoir, unless the limiting distance would preclude the continuation of an existing business.³⁰¹ Similarly, new tanks requiring state registration under state law are not permitted within 100 feet of a watercourse or 500 feet of reservoir, unless the applicant demonstrates that the ban would preclude the continuation of an existing business.³⁰² New home heating oil tanks within 100 feet of a watercourse or 500 feet of a reservoir must be aboveground or in the basement.³⁰³ However, the above distances do not apply to the replacement in kind of existing tanks.³⁰⁴

11. Pesticides and Fertilizers Working Groups

The Watershed Agreement provides for the establishment of a Pesticide and Fertilizer Working Group to analyze the state's regulations on the storage, use and application of fertilizers and pesticides.³⁰⁵ Within six months after receiving the final report of the Working Group, the state shall develop, in consultation with DEP, training materials to be incorporated into the state's pesticide applicator certification program that informs the applicators of the potential of contamination from improper application.³⁰⁶

12. Watershed Protection and Partnership Council

One of the most innovative features of the Watershed Agreement is the creation of the Watershed Protection and

300. See WATERSHED REGULATIONS, *supra* note 270, § 18-34(b).

301. See *id.* § 18-34(d).

302. See *id.* § 18-34(b). This is another illustration of the balancing of environmental protection against economic sustainability.

303. See *id.* 18-34(c).

304. See *id.* § 18-33(e)(3).

305. See WATERSHED AGREEMENT, *supra* note 270, para. 168.

306. See *id.*

Partnership Council (WPPC).³⁰⁷ Envisioned as a forum for Alternative Dispute Resolution (ADR), the purpose of the WPPC is to provide a permanent, regional forum to aid in long-term Watershed protection and enhancement of the economic vitality of the Watershed communities.³⁰⁸

The WPPC will be broadly based with members coming from all the stakeholders: New York City, the Coalition of Watershed Towns, New York State, certain environmental groups, and the EPA.³⁰⁹ Structurally, the Partnership will have several committees, including an Executive Committee,³¹⁰ a Technical Advisory Committee³¹¹, an East of Hudson Advisory Committee,³¹² and an East of Hudson Sporting Advisory Committee.³¹³

The WPPC and its constituent committees will serve as a forum for discussions and developing recommendations relating to Watershed protection and environmentally responsible economic development. By soliciting input from all the interested parties, including the public, the WPPC will review and assess Watershed protection efforts regarding the watershed and drinking waters supply, and provide a dispute resolution mechanism among the parties.³¹⁴

Specifically, on October 1, 1999, the Executive Committee of the WPPC will conduct a review of the parties' compliance with the terms of the Agreement, including the Watershed Regulations, Watershed Land Acquisition program, and other Watershed Protection Programs contained in the Agreement.³¹⁵ Pursuant to the review, the Executive Council will provide recommendations to the City, State, and EPA regarding modifications of any programs.³¹⁶

307. *See id.* para. 97.

308. *See id.*

309. *See id.* paras. 99, 104.

310. *See* WATERSHED AGREEMENT, *supra* note 270, para. 100.

311. *See id.* para. 99.

312. *See id.*

313. *See id.*

314. *See id.* para. 101.

315. *See* WATERSHED AGREEMENT, *supra* note 270, para. 105(j).

316. *See id.*

One of the most important functions of the WPPC is its responsibility to conduct a five year review of the implementation of the Watershed Regulations, the Watershed Land Acquisition Program, any comprehensive water quality monitoring, and Watershed Protection and Partnership Programs.³¹⁷

13. Catskill Watershed Corporation

Another innovative approach to promoting comity and fostering cooperation is the creation of the CW Corporation. The parties agree that in order to establish a working partnership between the City and the west of Hudson communities, and to carry out the many Watershed Protection and Partnership Programs, an independent and locally administered not-for-profit corporation will be established. The CW Corporation will consist of the following 15 members:³¹⁸

- six members representing Delaware County;
- two members representing Ulster County;
- two members representing Greene County;
- one member representing Schoharie County;
- one member representing Sullivan County;
- two members appointed by the Governor, one of which will be chosen from a listing of three possible members submitted by the environmental community;
- one member appointed the Mayor of the City of New York.

The CW Corporation shall administer³¹⁹ money paid by the City for programs in sewage treatment infrastructure for towns, villages and hamlets;³²⁰ sewer extensions;³²¹ stormwater retrofits that are necessary to correct or reduce existing erosion and/or pollutant loading.³²² The CW Corporation will also administer \$31.7 million for the construction

317. *See id.* para. 105(c).

318. *See id.* para. 117(b).

319. *See id.* para. 118(a)(1).

320. *See* WATERSHED AGREEMENT, *supra* note 270, para. 122.

321. *See id.* para. 123.

322. *See id.* para. 125.

of new stormwater controls³²³ and \$3 million for the construction of septic systems required solely to comply with the requirements of the Watershed Regulations on subsurface treatment systems.³²⁴ The CW Corporation will make final determinations as to the funding of Qualified Economic Development Projects authorized under the Catskill Fund for the Future program.³²⁵

14. Watershed Protection & Partnership Programs

The Watershed Protection and Partnership Programs include the City's and state's investment in the Watershed, including a host of programs designed to remediate existing adverse impacts on water quality as well as programs to prevent adverse impacts to water quality in the future. New York City has committed more than \$270 million to the area west of the Hudson River for water quality protection and partnership programs and an additional \$126 million for the area east of the Hudson River.³²⁶ Combined, these water quality protection and partnership programs include almost \$300 million for pollution prevention efforts, such as the upgrade of all 105 public and privately-owned sewage treatment plants; septic system maintenance and rehabilitation;³²⁷ the construction of new centralized sewage systems and extension of sewer systems to correct existing problems;³²⁸ stormwater management measures;³²⁹ public education;³³⁰ improved storage of sand, salt, and de-icing materials;³³¹ and stream corridor protection projects.³³²

323. *See id.* para 128(a).

324. *See id.* para. 129(a),(b).

325. *See* WATERSHED AGREEMENT, *supra* note 270, para. 135(e)(vi).

326. *See id.*

327. *See id.*

328. *See id.*

329. *See id.*

330. *See* WATERSHED AGREEMENT, *supra* note 270.

331. *See id.*

332. *See id.*

15. State Pollution Discharge Elimination System Permit Upgrades

State Pollution Discharge Elimination System (SPDES) permits, issued by DEC, require WWTPs to meet certain discharge benchmarks in order to continue operation.³³³ The Watershed Agreement requires the City to provide up to \$5 million to assist existing public and private wastewater treatment plants to rehabilitate, replace or upgrade equipment to allow the WWTP to meet SPDES permit requirements.³³⁴ The New York State Environmental Facilities Corporation (NYSEFC), in consultation with the City, will manage this Partnership Program.³³⁵

16. New Sewage Treatment Infrastructure Facilities

The City also is providing \$75 million for the construction and installation of WWTPs or community septic systems or creation and funding of septic districts in communities west of the Hudson River.³³⁶ Any WWTPs constructed must discharge subsurface, to the extent practicable. The City, in consultation with the community and CW Corporation, will determine the appropriate project for the community, estimate the cost of the project, and allocate funds for construction. The CW Corporation will administer and disburse the funds for the creation of any septic districts.³³⁷ NYSEFC will administer and disburse the funds for the construction of new infrastructure³³⁸ and will serve as a resource for the communities on the project.

17. Sewer Extensions

Ten million dollars will be provided by the City for the construction of sewer extensions to City-owned WWTPs in areas where sewerage is necessary to alleviate existing water quality problems and reduce the reliance on failing or soon-

333. N.Y. ENVTL. CONSERV. LAW § 17-0809 to 17-0815.

334. See WATERSHED AGREEMENT, *supra* note 270, para. 121.

335. See *id.*

336. See *id.* para. 122.

337. See *id.* para. 122(m)(i).

338. See *id.* para. 122(j).

to-be failing septic systems.³³⁹ The City, in consultation with the community and the CW Corporation, will select projects and allocate funds based on the priority of the water quality problems to be addressed.³⁴⁰

Communities together with City technical staff, will identify areas to be served. Communities will adopt a sewer use ordinance, a comprehensive plan, subdivision regulations, and appropriate land use laws and ordinances that assure that future growth can be adequately serviced by the sewer connection.³⁴¹ The City will serve as program manager for this Partnership Program.³⁴²

18. Stormwater Retrofits

New York City is providing \$7.625 million for a program to design, permit, administer, construct, implement, and maintain stormwater best management practices (BMPs) to address existing stormwater run-off in certain areas in order to correct or reduce existing erosion and pollution.³⁴³ The CW Corporation and the City, in consultation with the localities, will select and prioritize sites.³⁴⁴ The CW Corporation will act as program manager of this Partnership Program and will oversee construction and implementation of the BMPs and disburse program funds.³⁴⁵

19. Future Stormwater Controls for Single Family Homes, Small Businesses and Low-Income Housing

The City will pay the costs of designing and implementing stormwater pollution prevention measures pursuant to individual stormwater permits required by the Regulations³⁴⁶ for new individual residences constructed within the

339. See WATERSHED AGREEMENT, *supra* note 270, para. 123.

340. See *id.*

341. See *id.*

342. See *id.*

343. See *id.* para. 125(a).

344. See WATERSHED AGREEMENT, *supra* note 270, para. 125(c)(ii).

345. See *id.* para. 125(c)(i).

346. See WATERSHED REGULATIONS, *supra* note 270, § 18-39(e)(1).

buffer distances when lot constraints prevent the construction outside the buffer.³⁴⁷ Additionally, the City will pay 50% of the costs of designing and implementing stormwater pollution prevention plans required by the Regulations for all small businesses.³⁴⁸ Small businesses are defined as New York State resident businesses that are independently owned and operated and employ 100 people or less.³⁴⁹ The City will pay the costs of designing and implementing stormwater pollution prevention plans required by the Regulations for facilities funded through publicly-subsidized low income housing projects.³⁵⁰

20. West of Hudson Stormwater Fund

The City is providing \$31.7 million for a program to design, construct, implement, and maintain new stormwater measurements identified by stormwater pollution prevention plans required by the Watershed Regulations.³⁵¹ The CW Corporation will act as program manager for this Partnership Program.³⁵²

21. Sand and Salt Storage Facilities

The Watershed Agreement calls for the City to provide \$10.25 million to improve the storage of sand, salt, and other road de-icing materials to better protect water quality and assist local governments in complying with the Watershed Regulations.³⁵³ Funds can be used to upgrade existing and construct new sand and salt storage facilities.³⁵⁴ The CW Corporation, in consultation with localities and the City, will select and prioritize sites and allocate funds.³⁵⁵ The CW Corporation will act as program manager for this Partnership

347. See WATERSHED AGREEMENT, *supra* note 270, para. 145(a)(i).

348. See *id.* 145(a)(ii).

349. See *id.*

350. See *id.* para. 145(a)(iii).

351. See *id.* para. 128(a).

352. See WATERSHED AGREEMENT, *supra* note 270, para. 128(c)(i).

353. See *id.* para. 126(a).

354. See *id.* para. 126(b).

355. See *id.* para. 126(c)(ii).

Program and will oversee construction and installation of such facilities as well as disburse funding.³⁵⁶

22. Stream Corridor Protection

Three million dollars is provided by the City for a program to design, construct, and implement stream corridor protection projects such as stream stabilization and fish habitat improvements.³⁵⁷ The City will act as program manager for this Partnership Program and administer and disburse such funds.³⁵⁸ The City, in consultation with the Coalition of Watershed Towns, will select and design and allocate funds for the projects.³⁵⁹

23. Alternate Design Septic Systems

Another \$3 million is provided by the City for the design, construction, and installation costs of fill material and pumping apparatus in connection with the installation of alternate design septic systems.³⁶⁰ The funding of costs is intended to off-set the requirements of the Watershed Regulations.³⁶¹ The CW Corporation will act as program manager for this Partnership Program to administer and disburse funding.³⁶²

An alternate design septic system is a system that because of site conditions requires either or both of the following to comply with the Watershed Regulations: (1) the importation and deposit of fill material beyond what is required to meet State or local regulations, and/or (2) the installation of apparatus to pump septic effluent upgrade to an absorption field when recommended or required by the City.³⁶³

356. *See id.* para. 126(c)(i).

357. *See* WATERSHED AGREEMENT, *supra* note 270, para. 127(a),(b).

358. *See id.* para. 127(c).

359. *See id.* para. 127(c)(i).

360. *See id.* para. 129.

361. *See id.* para. 129(b).

362. *See* WATERSHED AGREEMENT, *supra* note 270, para. 129(d)(i).

363. *See id.* para. 129(c).

24. Forestry Management Program

Five hundred thousand dollars is provided by the City for a forestry management program to fund programs and projects intended to promote forestry practices that protect the City's water supply against run-off and other pollution.³⁶⁴ The Watershed Agricultural Council will act as program manager for this Partnership Program and will select projects and administer and disburse funding.³⁶⁵

25. Public Education

Two million dollars is provided by the City for a program of public education on the nature and importance of the City's water supply system and the critical role of Watershed residents as stewards of their water quality.³⁶⁶ Up to one million dollars can be used to establish and maintain exhibits on the City's water supply and the Watershed at a regional museum located west of the Hudson River.³⁶⁷ The CW Corporation, acting as program manager, will establish an advisory group of educators and educational institutions to recommend appropriate programs and projects for funding.³⁶⁸

26. Catskill Fund for the Future

The Watershed Agreement requires the City to provide \$75 million for the Catskill Fund (Fund) for the Future to be paid over fifteen years.³⁶⁹ The payment schedule has been accelerated to six years and the equivalent present value is set at \$59.9 million.³⁷⁰ The Fund will be used to provide loans and grants for responsible, environmentally sensitive economic development projects which encourage environmentally sound development and the goals of Watershed protection and job growth west of the Hudson River.³⁷¹

364. *See id.* para. 13(a)(b).

365. *See id.* para. 130(c)(i).

366. *See id.* para. 131(a).

367. *See* WATERSHED AGREEMENT, *supra* note 270, para. 131(a).

368. *See id.* para. 131(c)(ii).

369. *See id.* para. 135(a).

370. *See id.* para. 135(e)(ii).

371. *See id.* para. 135(c).

The CW Corporation will make the final decision on whether to fund a proposed project under the program³⁷² although, NYSEFC will act as the program manager for this Partnership Program.³⁷³ The CW Corporation, in consultation with localities and the City, will select and prioritize sites and allocate funds.³⁷⁴

27. Upgrades to Existing WWTPs

The City will pay the incremental costs, including annual operation and maintenance of all upgrades required solely by the Watershed Regulations, incurred by public and private WWTPs in operation or permitted and under construction as of November 2, 1995.³⁷⁵ The upgrades will include equipment and processes required solely by the Watershed Regulations.³⁷⁶ NYSEFC will be the program manager for this Partnership Program.³⁷⁷

28. Payment of Costs and Expenses Associated with the Review of City's Watershed Protection Program

The City is providing \$1.535 million to the Coalition of Watershed Towns for reimbursement of costs and expenses incurred in reviewing and responding to the City's Watershed protection programs.³⁷⁸ The City will also provide \$750,000 and \$300,000 to Putnam and Westchester Counties, respectively, for the same purposes.³⁷⁹

29. Good Neighbor Payments

In recognition of the past sacrifices made by the Watershed communities, \$9.675 million is provided by the City to the municipalities that sign the Agreement to establish a bet-

372. See WATERSHED AGREEMENT, *supra* note 270, para. 135(f).

373. See *id.* para. 135 (e)(v),(vi).

374. See *id.* para. 135.

375. See *id.* para. 141(a).

376. See *id.*

377. See WATERSHED AGREEMENT, *supra* note 270, para. 146(d)(i).

378. See *id.* para 146 (a)(i).

379. See *id.* para. 146(a)(ii),(iii).

ter working relationship with communities in order to protect water quality.³⁸⁰ Good Neighbor Payments can be used to pay the costs of public works or public improvements and purchasing public equipment that will benefit the public at large.³⁸¹ The Coalition of Watershed Towns, Putnam County and Westchester County will disburse the funds for this Partnership Program.³⁸²

30. Local Consultation in the Land Acquisition Process

Up to \$20,000 is provided by the City to each town and village in the Catskill and Delaware Watershed to them in the review of the parcels and conservation easements the City proposes to purchase.³⁸³ The Coalition of Watershed Towns or the CW Corporation will disburse the funds for this Partnership Program.³⁸⁴

31. East of Hudson Water Quality Investment Program

The City will provide sixty eight million dollars for the costs of designing, planning, environmental assessment, permitting, acquisition, financing, constructing, and installing of facilities necessary for water quality protection.³⁸⁵ Thirty eight million dollars will be distributed to Westchester County and Putnam County will receive thirty million dollars.³⁸⁶

III. Conclusion

The New York City Watershed Agreement is a commitment of historic proportions. New York City's financial commitments to land acquisition, Partnership Programs, and infrastructure and water quality improvements totals over

380. See *id.* para. 147(a).

381. See *id.* para. 147(b)(iii).

382. See WATERSHED AGREEMENT, *supra* note 270, para. 147.

383. See *id.* para. 148(a)(i).

384. See *id.* para. 148(c).

385. See *id.* para. 140.

386. See *id.* para. 140(f).

\$1.2 billion. New York State commitments to land acquisition and Partnership Programs amount to more than \$53 million and federal commitments under the 1996 Safe Drinking Water Act Amendments total \$105 million.

This level of financial commitment represents New York City's understanding that the financial burden of clean drinking water should be borne primarily by those who enjoy it. The financial package mandated by the Watershed Agreement constitutes a needed injection of market forces in the distribution of water. Water waste has been a significant problem since the days of the first Croton Dam. It is hoped that having New York City actually bear the cost of its water will induce a more responsible use of resources within the watershed.

Even with the substantial financial assistance extended by the City, the Watershed communities bear the cost of foregone development in economically advantageous but environmentally sensitive land. Those communities have survived under the sometimes onerous burden of New York City's need for clean water and should be commended for their perseverance.