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BURNHAM, WATER, AND THE *PLAN OF CHICAGO*: A HISTORICAL EXPLANATION OF WHY WATER WAS IGNORED AND THE CONSEQUENCES OF IGNORING WATER

VIRGINIA M. HARDING*

INTRODUCTION

In 2009, the citizens of Chicago celebrated the Centennial of the *Plan of Chicago* written by Daniel H. Burnham and Edward H. Bennett, which was published on July 4, 1909.

The *Plan of Chicago* had its fans and opponents, but historians agree that it transformed urban planning. Its lasting mark has less to do with the ideas in it (many were not entirely new) and more to do with its sweeping scope and persuasive presentation. Its savvy advocates solicited press coverage, organized public presentations, and distributed copies to influential politicians . . . The cumulative impact of these efforts convinced communities across America of the value of professional planning.¹

“It was the prototype for twentieth-century city planning, viewing the metropolis as one interrelated organism: efficient, logical and neat. To this day, all city plans flow from it to some extent.”²

The Commercial Club of Chicago, founded in 1877, underwrote and published the *Plan of Chicago*.³ From its

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1. Make Big Plans: Daniel Burnham's Vision of an American Metropolis, City and Region: Planning After Burnham, <http://burnhamplan100.uchicago.edu/newberryexhibit/city-region/after-burnham.shtml> (last visited Jan. 1, 2010).

2. LOIS WILLIE, *FOREVER OPEN, CLEAR AND FREE: THE STRUGGLE FOR CHICAGO'S LAKEFRONT 88* (Henry Regnery Company 1991) (1972).

3. The Commercial Club of Chicago, Purpose and History, <http://www.>

inception, members engaged The Commercial Club in the most pressing issues facing Chicago.⁴ Dealing with Chicago's explosive growth was the kind of issue that its members would find important and pressing.

The *Plan of Chicago* set forth a plan to "transform the design and infrastructure of the burgeoning metropolis."⁵ It inspired a fifty-year development and beautification program for the "Metropolis of the Middle West" and is responsible for Wacker Drive, Grant Park, as well as the acres of parkland and the cluster of museums along the lake.⁶

Members of the Commercial Club were expected to have an "interest in the general welfare," and "a record of things actually done . . . as well as a willingness to do more."⁷ Its members were influential in the community, knew each other well, and worked together on various other Boards.⁸ Members were further expected to attend meetings and participate in Club initiatives. Various members of the Club had previously been involved in the establishment of the Sanitary District and staging the Columbian World's Exposition.⁹

Daniel H. Burnham was elected to membership in the Commercial Club in 1901 having achieved the "conspicuous success" required for membership.¹⁰ By the time of his election, in addition to being a highly successful architect and developer of the successful Columbian Exposition, Burnham had served two terms as President of the American Institute of Architects, developed and presented, as yet, unrealized plans for Chicago's lakefront, and was at work on a plan for Washington, D.C.¹¹

Thus, it was logical that the Commercial Club of Chicago would look to Burnham, one of its members, to prepare the *Plan*.

commercialclubchicago.org/purpose/index.html (last visited Jan. 17, 2010).

4. *Id.* These issues included taxation, street and school repairs, and launching several initiatives, including raising money for a vocational center for boys and donating land for the site of a local military base Ft. Sheridan.

5. *Id.*

6. *Id.*

7. CARL L. SMITH, *THE PLAN OF CHICAGO: DANIEL BURNHAM AND THE REMAKING OF THE AMERICAN CITY 64-65* (University of Chicago Press 2006). This included "a broad and comprehending sympathy with important affairs of city and state, and a generous subordinating of self in the interests of the community." *Id.* at 65.

8. *Id.* at 66. Many of the Commercial League members were also members on various corporate boards and active in numerous other businesses and social clubs such as the Union League Club, the University Club, suburban golf clubs, the American Bar Association, and the board of the Chicago Symphony.

9. *Id.* at 65.

10. *Id.* at 64.

11. THOMAS S. HINES & NEIL HARRIS, *BURNHAM OF CHICAGO: ARCHITECT AND PLANNER 125-38* (University of Chicago Press 2009) (1979).

While Burnham took no fee for his services, he looked to the Commercial Club of Chicago to provide funding to hire those necessary to complete the task, including architect Edward H. Bennett.¹²

The *Plan* has become part of Chicago's historical legacy. The Burnham Plan Centennial generated many programs presented by civic organizations, cultural organizations, educational institutions, neighborhood organizations, professional associations, public agencies, and others.¹³ These programs provided many opportunities for citizens and scholars to revisit and reconsider the *Plan*, whose impact on Chicago and the world continues. In the course of the Centennial, the *Plan* has been considered from many perspectives.

THE PLAN OF CHICAGO FROM A WATER PERSPECTIVE

This Article will consider the *Plan* from the perspective of water. Water is an appropriate perspective for considering a plan that was written in response to the dramatic growth of a city and region. The world's supply of fresh water is limited.¹⁴ Without water, a city cannot exist. Without an adequate supply of good quality water, a city cannot grow. Without proper arrangements for disposing of its sewerage (waste water), a city faces the threat of disease and an accumulation of filth and stench.¹⁵ People die if their supply of water is contaminated.¹⁶

The following statement was written in 2002: "Suddenly it is so clear: the world is running out of fresh water."¹⁷ This statement was written at time when concerns about the sufficiency of water supplies in non-arid regions were just starting to be raised. Today, concerns about the world's supply of fresh water are raised more and more frequently and with ever-increasing urgency.

Looking at the *Plan* from a water perspective enables us to determine the extent to which the *Plan* can be a source of relevant insight to those living in a "world [that] is facing a water crisis due to pollution, climate change and a surging population growth of such magnitude that close to two billion people now live in water-stressed regions of the planet."¹⁸

However, no chapter of the *Plan* expressly addresses the

12. WILLIE, *supra* note 2, at 85.

13. SMITH, *supra* note 7, at 151-52.

14. MAUDE BARLOW, BLUE COVENANT, THE GLOBAL WATER CRISIS AND THE COMING BATTLE FOR THE RIGHT TO WATER, Intro. (The New Press 2007).

15. *Id.* at 3 (stating that "two-fifths of the world's people lack access to proper sanitation, which has led to massive outbreaks of water borne diseases).

16. *Id.*

17. *Id.* Intro.

18. *Id.* at 3.

matter of providing the citizens of the growing city of Chicago with adequate supplies of quality drinking water or disposing of its sewage and other wastes. When you look in the *Plan's* index under "water," you find nothing.¹⁹ The same is true for terms such as "sanitation," sewerage treatment," and "waste."²⁰

Why was water not considered? Was it because water quantity had never been a matter of public concern in Chicago? Chicago's location on Lake Michigan—the second largest of the Great Lakes in volume, third in surface area²¹—ensured that it, unlike modern-day Las Vegas and Atlanta, would have sufficient quantities of fresh water to sustain its future growth. Water shortages would likely never be a concern for its residents.

Having sufficient quantities of water is not enough for a city to grow. The water that it has must also be quality water that the city's residents can safely drink. The *Plan of Chicago* was written at a time when no one saw an end to Chicago's rapid growth, which was optimistically expected to make Chicago larger than any existing city. As the city grew the challenge of providing its citizens with safe supplies of water became greater. This omission of water quality is striking.

THE CHICAGO OF 1909 NEEDED THE *PLAN OF CHICAGO*

By the early 1900s, Chicago's rapid growth was a cause for concern even though it had been America's most remarkable urban phenomenon. "In 1830 it was a tiny settlement of perhaps one hundred people. A decade later it had 4,470 inhabitants, making Chicago the ninety-second biggest city in the country. By 1890, the number was 1,099,850, and it had moved up ninety places."²²

As it grew in population, it also grew in size as adjacent communities were annexed.²³ Annexations in 1889-1890 increased the size of the city to over 179 square miles.²⁴ Barely half of the streets were paved, and most street lights were illuminated by gas.²⁵ By 1909, Chicagoans consumed close to half a billion gallons of Lake Michigan water a day provided by 11 pumping stations, including the one constructed on Chicago Avenue in 1854.²⁶ In 1900, the Sanitary Canal opened, which reversed the flow of the

19. DANIEL H. BURNHAM, EDWARD H. BENNETT & CHARLES MOORE, *PLAN OF CHICAGO* 164 (Charles Moore ed., Princeton Architectural Press 1993) (Chicago Commercial Club 1909).

20. *Id.* at 163, 164.

21. PETER ANNIN, *THE GREAT LAKES WATER WARS* 15 (2006).

22. SMITH, *supra* note 7, at xvi.

23. *Id.* at 38-39.

24. *Id.* at 39. This increase was "almost fivefold, from less than 37 square miles to over 179." *Id.*

25. *Id.* In 1909, close to 38,000 streetlights existed, only 8,500 of which were powered by electricity. *Id.*

26. *Id.*

Chicago River away from the lake and effectively reduced pollution of the city's water supply.²⁷ While most street cars were electrified, horses were still used to pull commercial and personal carriages.²⁸ Working livestock compounded the City's waste removal needs.²⁹

Growth was not limited to just Chicago. Between 1900 and 1906, twenty new suburban communities were incorporated beyond the boundaries of the City, which proved to be attractive to the middle class.³⁰

The few physical descriptions of Chicago in the *Plan* depict a city whose streets, railroads, and harbors were crowded and congested. It was a disorganized and inefficient city with numerous, disconnected rail lines, freight yards, and terminals.³¹

A 1909 report prepared by The Investigating Committee of the City Homes Association on slum housing claimed that 300,000 residents were inhumanly packed into multilevel structures built on the rear of lots intended for one building.³² "These people were assaulted by the stench of the privies, animal manure, and garbage, while deprived of decent light, air, and plumbing."³³

Chicago was a city noted for its industrial grime and neighborhood blight. At one time, it was considered to be an ugly city that was neither as attractive nor orderly as the long closed White City had been.³⁴ The City Beautiful Movement arose as a response to the poorly planned, crowded, and crime-ridden cities.³⁵ Burnham, as an adherent of the Movement, looked "to inspire a national discourse on the importance of public space, grand public works, more efficient transportation, and managed land use."³⁶ The *Plan of Chicago* would provide Burnham with an opportunity to do that for the citizens of Chicago.

The *Plan of Chicago* was a plan for the region as well as for the city because it included the lands as far north as Kenosha, Wisconsin, as far west as DeKalb, Illinois, and as far east as Michigan City, Indiana.³⁷ The *Plan* proposes a network of roadways to connect the growing suburban communities with Chicago.³⁸

27. *Id.*

28. *Id.*

29. *Id.*

30. JOSEPH P. SCHWIETERMAN & ALAN P. MAMMOSER, BEYOND BURNHAM: AN ILLUSTRATED HISTORY OF PLANNING FOR THE CHICAGO REGION 13 (Lake Forrest College Press 2009).

31. SMITH, *supra* note 7, at 34-36.

32. *Id.* at 45-46.

33. *Id.*

34. SCHWIETERMAN & MAMMOSER, *supra* note 30, at 10.

35. *Id.*

36. *Id.*

37. BURNHAM, BENNETT & MOORE, *supra* note 19, at 40-41.

38. *Id.* According to Burnham, "the suburban resident is vitally interested

Urban historian Carl Abbott noted that the *Plan of Chicago* was written at a time when both private and public interests were trying to come to grips with sprawling urban areas.³⁹ It was part of a conscious effort to think big but also to think comprehensively.⁴⁰ The *Plan* presents Chicago in the context of a larger region whose components are interdependent.⁴¹

WITHOUT THE WORLD'S COLUMBIAN EXPOSITION THERE WOULD
HAVE BEEN NO *PLAN OF CHICAGO*

"Like 1871 [the year of the Chicago fire], the year 1893 is epochal in the history of Chicago. Both mark the end of the old and the beginning of the new . . . Chicago had become the second city of the country outstripping both Philadelphia and Brooklyn."⁴²

In 1893, Chicago was the site of the World's Columbia Exposition, held to commemorate the four hundredth anniversary of Christopher Columbus's discovery of America.⁴³ A number of American cities including New York, Washington, D.C., and St. Louis competed for the right to hold this world's fair.⁴⁴ The City's location in the center of the country, the fact that it was the nation's rail hub, and the growth of Chicago from a frontier outpost to a City of over one million were reasons given for selecting Chicago.⁴⁵ Chicago finally won the support of Congress in 1890, and President Harrison signed the act providing for the Exposition to be held in Chicago.⁴⁶

The Exposition made Chicago the center of national and international attention. Over 27,000,000 attended the Exposition built on a 600-acre site on the shore of Lake Michigan, what is now Jackson Park.⁴⁷ The Exposition was dedicated on October 21, 1892, opened on May 1, 1893, and closed on October 30, 1893.⁴⁸ The Exposition was profitable and fair directors paid their stockholders a dividend of ten percent.⁴⁹

in the means of communication between his home and his place of business," and that a satisfactory way of achieving such a connection would be to run highways parallel to the railroads. *Id.* at 41.

39. SMITH, *supra* note 7, at 157.

40. *Id.*

41. *Id.*

42. BESSIE LOUISE PIERCE, *A HISTORY OF CHICAGO: THE RISE OF A MODERN CITY 1871-1893* 501 (1957).

43. *Id.*

44. *Id.*

45. *Id.*

46. HINES, *supra* note 11, at 75-76.

47. Carleton College, World's Fair Capsule, Columbian Exposition Chronology, http://www.carleton.edu/webarchive/timecapsule_1893/chronology.html (last visited Jan. 17, 2010).

48. *Id.*

49. WILLIE, *supra* note 2, at 68. Approximately 21,000,000 poured through the turnstiles at the fair in 1893. *Id.*

While the *Plan of Chicago* was the capstone of Burnham's career as a city planner, his work for the World's Columbian Exposition, popularly known as the "White City," launched his career as a planner.⁵⁰

Though it was the product of many minds and hands, the exposition as an achievement of unified social and aesthetic planning, owed its great debt to Burnham, its Director of Works The challenge of organizing and building the exposition inspired and equipped Burnham ultimately to become one of modern America's first great city planners.⁵¹

Without the World's Columbian Exposition, it is unlikely that there would have been a *Plan of Chicago*. Like the Exposition, the *Plan of Chicago* was the result of collaboration between civic minded businessmen and architects.⁵² The businessmen who organized the Exposition, like the members of the Commercial Club, were successful men who were accustomed to undertaking large scale projects.⁵³ Unlike the Exposition, government officials were not included in developing the *Plan of Chicago*.⁵⁴ Burnham himself recognized the critical role of the Exposition in the opening Chapter of the *Plan*:

The origin of the plan of Chicago can be traced directly to the World's Columbian Exposition. The World's Fair of 1893 was the beginning, in our day and in this country, of the orderly arrangement of extensive public grounds and buildings. The result came about quite naturally. Chicago had become a commercial community wherein men were accustomed to get together to plan for the general good. Moreover, those at the head of affairs were, many of them, the same individuals who had taken part in every movement since the city had emerged from the condition of a mere village.⁵⁵

The World's Columbian Exposition was the first time in the United States that such a large city had been built all at once. "It was in fact, even before the builders realized it, a controlled experiment containing the seeds of a larger urban planning movement."⁵⁶

A new concept emerged from the Exposition and, that concept was a city plan with relationships between buildings, water, and open space that were not only aesthetic but also practical and convenient.⁵⁷ "Altogether, the fair in microcosm added up to what

50. HINES, *supra* note 11, at 74.

51. *Id.*

52. *Id.* at 320-21; SMITH, *supra* note 7, at 71.

53. SMITH, *supra* note 7, at 71.

54. *Id.*

55. BURNHAM, BENNETT & MOORE, *supra* note 19, at 4.

56. HINES & HARRIS, *supra* note 11, at 74.

57. WILLIE, *supra* note 2, at 69.

the bright new city of the future might be—an idea that Daniel Burnham, in particular, pondered in the coming months.”⁵⁸

A SUPPLY OF SAFE WATER WAS CRITICAL FOR A SUCCESSFUL
EXPOSITION

The World’s Columbia Exposition was planned at a time when researchers were finally linking germs as the cause of the epidemics of typhoid fever and cholera, which regularly took place in Chicago and other urban areas throughout the world.⁵⁹

The Exposition officials were not willing to run the risk of an epidemic or other public health crisis during the Exposition.⁶⁰ Impure water was considered to have caused typhoid at previous world’s fairs, and much public concern had already been expressed about Chicago’s water.⁶¹

Notwithstanding reassuring articles in *Scribner’s* and *The Forum* on the purity of the water,⁶² the publication of Chicago water sample test results in *Lancet*, a leading British Medical Journal, along with a warning that visitors should not drink Chicago’s water unless it had been boiled, called the world’s attention to the quality of Chicago’s water.⁶³ Chicago officials feared that concerns about contracting waterborne diseases would discourage people from attending the Exposition and launched a publicity campaign proclaiming the cleanliness of the city’s water.⁶⁴

As Director of Works, Burnham was ultimately responsible for ensuring that visitors to the Exposition were provided with good quality water and would not suffer from waterborne diseases while visiting the Exposition.⁶⁵ Thus, it is not surprising that Burnham appointed William S. MacHarg, a sanitary engineer, to the position of director of water, sewerage, gas and fire protection, even before selecting the architects for the Exposition.⁶⁶

MacHarg’s Final Report to Burnham, written after the Exposition closed, describes his responsibilities for providing supplies of water and dealing with sewerage.

58. *Id.*

59. DONALD L. MILLER, *CITY OF THE CENTURY: THE EPIC OF CHICAGO AND THE MAKING OF AMERICA* 430 (1997).

60. *Id.*

61. Maurice Frank Neufeld, *The Contributions of the World’s Columbian Exposition to the Idea of a Planned Society in the United States* 161 (1935) (unpublished dissertation, University of Wisconsin) (on microfilm file at the Chicago Historical Society Research Library).

62. *Id.* at 162.

63. MILLER, *supra* note 59, at 430.

64. *Id.* at 430.

65. *Id.*

66. *Id.* at 430-31.

As regards water supply; that it would be necessary to furnish a supply of good drinking water for domestic purposes throughout the grounds, and an additional supply for fire protection, mechanical uses and fountains, which need not be of the same character As regards sewerage; . . . these persons [visitors] must be provided with all necessary facilities for the disposal of waste, and that in so doing the internal waterways, or lagoons, must be kept free from pollution; that the Lake Front must be polluted as little as possible, owing to the fact that the supply of drinking water was to be taken within a mile of the shore and that the Grand Promenade would be located on the water front.⁶⁷

MacHarg's report explains why the initial plans to use water from the City's water pumped from Lake Michigan were scrapped: "Numerous reports had been disseminated regarding danger from disease during the preparation of the Fair, based upon statistics of the Department of Health of the City of Chicago. These statistics showed up to February 1892 a very serious death rate from typhoid fever . . ." ⁶⁸ The Final Report of the Medical Director also referred to the February 1892 death rate from typhoid fever.⁶⁹

Since the success of the Exposition depended on successfully addressing this well-publicized public health issue—even though the quality of the City's water was much improved after February, 1892 due to the extension of intake pipes further into the lake—the Exposition authorities considered "it essential that we take extraordinary precautions to prevent disease of a zynotic character . . ." ⁷⁰

SAFE WATER FOR CONSTRUCTION WORKERS

For the Exposition to open on May 1, 1893, construction had to proceed rapidly and construction workers needed to remain healthy. This mandated that a safe supply of water be provided for construction workers.

As soon as practicable, arrangements designed and constructed by Mr. W.S. MacHarg . . . were completed for the supply of sterilized water for the use of the construction and others Although we had been boiling water for the use of the men on the grounds . . . it was with more or less difficulty that the employees were prevented from using hydrant and surface water. We did not at this time consider the untreated lake water safe, and notices were distributed

67. 2 DANIEL H. BURNHAM, THE FINAL OFFICIAL REPORT OF THE DIRECTOR OF WORKS OF THE WORLD'S COLUMBIAN EXPOSITION: REPUBLISHED IN TWO PARTS 65 (Garland Publishing 1989) [hereinafter REPORT OF THE ENGINEER].

68. *Id.* at 70-71.

69. 7 DANIEL H. BURNHAM, THE FINAL OFFICIAL REPORT OF THE DIRECTOR OF WORKS OF THE WORLD'S COLUMBIAN EXPOSITION: REPUBLISHED IN TWO PARTS 69 (Garland Publishing 1989) [hereinafter REPORT OF THE MEDICAL DIRECTOR].

70. REPORT OF THE ENGINEER, *supra* note 67, at 71.

prohibiting the use of water from hydrants and lagoons On certain . . . occasions . . . it was necessary for several days at a time to discontinue the use of sterilized water, and the [water] barrels, were filled directly from the City main The sterilization of water was of great importance, and the bacteriological reports . . . provided that it compared most favorably with any other water in use.⁷¹

SAFE WATER FOR VISITORS

Concerns about waterborne diseases resulted in the Columbian Exposition being “the first Exposition so far as I am able to discover where any attempt has been made to furnish water other than the ordinary City [water] supply.”⁷²

Visitors could obtain free filtered water from fountains located throughout the grounds, which had been equipped with Pasteur-Chamberland filters that had been purchased at a cost of \$10,000.⁷³ Visitors also had the option of purchasing cooled water from the Waukesha Hygeia Mineral Springs Company, which held the exclusive privilege of selling water to visitors.⁷⁴ This water was sold from 167 booths located throughout the grounds for a penny per glass.⁷⁵ Water was also sold by the gallon for a price of five cents per gallon.⁷⁶

These arrangements were unable to meet the needs of visitors during the hot months of July and August.⁷⁷ So the water sterilization plant that had been used during construction was put back into operation.⁷⁸ All restaurants and other concessionaires were to use filtered water.⁷⁹ The filtering requirement did not apply to the water brought in from Waukesha.⁸⁰

The concession given to the Waukesha Hygeia Mineral Springs Company to sell water at the Exposition was an effort to provide visitors the opportunity to purchase water renowned for being sweet, pure, and health giving.⁸¹ One Chicago mayor was accused of keeping Waukesha water at city hall to avoid drinking city water.⁸²

Waukesha water had won international acclaim and medals

71. REPORT OF THE MEDICAL DIRECTOR, *supra* note 71, at 69-70.

72. REPORT OF THE ENGINEER, *supra* note 69, at 72.

73. *Id.* at 85.

74. REPORT OF THE MEDICAL DIRECTOR, *supra* note 69, at 70.

75. *Id.*

76. REPORT OF THE ENGINEER, *supra* note 67, at 71.

77. REPORT OF THE MEDICAL DIRECTOR, *supra* note 69, at 70.

78. *Id.*

79. *Id.*

80. *Id.*

81. See ANNIN, *supra* note 21, at 240 (noting “Waukesha water was the ideal world’s fair beverage”).

82. *Id.*

at the World's Fair in Paris.⁸³ James E. McElroy, a Chicago businessman, established the Waukesha Hygeia Mineral Springs Company and devised a plan to transport spring water from Waukesha and sell it at the Exposition.⁸⁴ Visitors would have the "opportunity to get pure water at a cent a glass."⁸⁵

McElroy's plan was thwarted when Waukesha refused to grant him permission to lay his pipeline under its streets.⁸⁶ His plans were contrary to the expectations of the local spring owners, who expected that many visitors would take a small detour and visit the "Saratoga of the West."⁸⁷ The village council believed that people should be required to come to Waukesha in order to enjoy and benefit from its waters.⁸⁸

McElroy did provide water to the Exposition from a spring located twelve miles south of Waukesha. It was this water that was piped to the City limits of Chicago.⁸⁹ Denied permission to continue his pipeline under the streets of Chicago, McElroy shipped his water to the Exposition in giant tankers.⁹⁰ The water "arrived too warm and a bit "unsavory to the taste."⁹¹ Eventually, the Waukesha Hygeia Mineral Springs Company went into receivership in 1895 with over 1.3 million in debt.⁹²

MacHarg's Final Report makes it clear that water provided by the Waukesha Hygeia Mineral Springs Company was sold at the Exposition.⁹³ However, there is some question about just how this water actually reached the Exposition site, since MacHarg's Final Report describes it as being piped to the grounds and entering the site at 63rd Street and Stoney Island Avenue but makes no mention of it arriving by tanker.⁹⁴

Burnham's Final Report gave recognition to the enormity of the task that faced MacHarg and his assistant C.M. Wilkes and the importance of providing both the workers and later the visitors to the Exposition with clean drinking water and sewer service.

83. David Paul McDaniel, *Spring City and the Water War of 1892*, 89 WIS. MAG. OF HIST. 1, 34 (2005-2006), available at <http://content.wisconsinhistory.org/cdm4/document.php?CISOROOT=/wmh&CISOPTR=43055&CISOSHOW=43024>.

84. *Id.*; ANNIN, *supra* note 21, at 240.

85. *Id.*

86. City of Waukesha, Waukesha's History, http://www.ci.waukesha.wi.us/web/guest/great_water_fight (last visited on Jan. 16, 2010).

87. *Id.*

88. *Id.*

89. McDaniel, *supra* note 83, at 39.

90. *Id.*

91. *Id.* "With the handling through the [100 miles of] pipes, reservoir, and finally tankers . . . the water tasted flat." *Id.*

92. *Id.*

93. REPORT OF THE ENGINEER, *supra* note 67, at 71.

94. *Id.*

In the entire enterprise, these gentlemen had the hardest part The enormous water and sewerage service of the park was enough for a city of 300,000 inhabitants, and the ease and smoothness with which it operated during the Exposition was proof enough of the superb engineering ability displayed by the men who designed and controlled the service.⁹⁵

BURNHAM TURNS TO CITY PLANNING

A successful architect and builder of the World's Columbian Exposition known as the "White City," Burnham has been described as the ideal man to change a city.⁹⁶ The Exposition took place at a time when even prosperous cities were dirty, squalid and dangerous—a sharp contrast to the urban world of the White City. The White City "launched the City Beautiful Movement, giving the country a seemingly insatiable appetite for monumental courthouses, museums, libraries, and train stations that made every city look as if its roots went back to ancient Rome."⁹⁷

After the Exposition closed, the already wealthy Burnham decided to devote some of his time to the new profession of city planning.⁹⁸ "Burnham decided to make the fair a template for the future of Chicago, and trumpeted the virtues of the City Beautiful to anyone who would listen."⁹⁹

As part of this new focus, Burnham worked with others who had also been involved in the Columbian Exposition on a project for the Senate Park Commission in Washington, D.C.¹⁰⁰ This project resulted in the 1901 plan for the redevelopment of the lands comprising the Mall.¹⁰¹ That plan was followed in 1903 by a plan for Cleveland to revitalize its blighted lakefront.¹⁰² The following year, he undertook a plan for San Francisco with Edward Bennett as his assistant. Burnham's plans for Cleveland, San Francisco, as well as the one prepared for Manila in 1906, gave emphasis to the visible physical city. These plans featured grand boulevards, parkways, foundations, majestic buildings, and public spaces. They provided a sense of order and harmony.¹⁰³

95. 1 DANIEL H. BURNHAM, THE FINAL OFFICIAL REPORT OF THE DIRECTOR OF WORKS OF THE WORLD'S COLUMBIAN EXPOSITION: REPUBLISHED IN TWO PARTS 19 (Garland Publishing 1989) [hereinafter REPORT OF THE DIRECTOR OF WORKS].

96. Paul Goldberger, *Toddlin' Town: Daniel Burnham's Great Chicago Plan Turns One Hundred*, THE NEW YORKER, Mar. 9, 2009, available at http://www.newyorker.com/arts/critics/skyline/2009/03/09/090309crsk_skyline_goldberger.

97. *Id.*

98. WILLIE, *supra* note 2, at 82-83.

99. Goldberger, *supra* note 96.

100. SMITH, *supra* note 7, at 22-23.

101. *Id.*

102. *Id.*

103. SCHWIETERMAN & MAMMOSER, *supra* note 30, at 12.

The *Plan of Chicago* “announced the importance of creating a City Beautiful out of the chaotic ‘center of industry and traffic,’ called upon Chicago’s civic character to realize its construction, and—in anticipation of success—applauded Chicagoans as people able and willing to act in the public interest.”¹⁰⁴

The scope of the *Plan* and the goals that the *Plan* was intended to accomplish for the citizens of Chicago are outlined in the opening Chapter entitled “Origin of the Plan of Chicago.”¹⁰⁵

The plan frankly takes into consideration the fact that the American city and Chicago preeminently, is a center of industry and traffic. Therefore attention is given to the betterment of commercial facilities; to methods of transportation for persons and for goods; to removing the obstacles which prevent or obstruct circulation; and to the increase of convenience. It is realized, also, that good workmanship requires a large degree of comfort on the part of the workers in their homes and their surroundings, and ample opportunity for that rest and recreation without which all work becomes drudgery. Then, too, the city has a dignity to be maintained; and good order is essential to material advancement. Consequently, the plan provides for impressive groupings of public buildings, and reciprocal relations among such groups.¹⁰⁶

These words not only set lofty goals for the *Plan*, but also are noteworthy for what they do not include. This elegant and uplifting language does not mention water.¹⁰⁷ This omission is surprising, given Chicago’s long struggle to provide its residents with safe water.

POLLUTED WATER AND EPIDEMICS IN NINETEENTH CENTURY CHICAGO

When Chicago was incorporated in 1833, rather than taking its water from Lake Michigan, its residents obtained their water from the Chicago River and from shallow wells.¹⁰⁸ The scientific testing of water to determine its quality was far in the future, and the link between diseases such as typhoid fever and cholera and polluted water was not yet established. The determination of whether water was potable was based upon its smell and taste.¹⁰⁹

In 1842, the Chicago Hydraulic Company—chartered by the

104. Julia Vitullo-Martin, *Chicago, City Without Limits: Celebrating 100 Years of Urban Elegance and the Plan that Started It All*, WALL ST. J., June 20, 2009, available at http://online.wsj.com/article/SB20001424052970204482304574217771125507970.html?mod=googlenews_wsj.

105. BURNHAM, BENNETT & MOORE, *supra* note 19, at vii.

106. *Id.* at 4.

107. *See id.* (exhibiting an absence of any mention of water in discussing the goals of the Plan of Chicago).

108. MARTIN V. MELOSI, *THE SANITARY CITY: URBAN INFRASTRUCTURE IN AMERICA FROM COLONIAL TIMES TO THE PRESENT* 80 (2000).

109. *Id.* at 84-85.

State of Illinois in 1836 to provide Chicago with water—built Chicago's first water works that pumped water directly from Lake Michigan for delivery to its customers.¹¹⁰ Cholera arrived in 1849 and raged across the City, focusing public attention on the polluted river and the City's water supply.¹¹¹

The residents demanded a public water system and established a Chicago Board of Water Commissioners as a response to the outbreak of cholera.¹¹² A water works system was built by the City after it received a charter from the Illinois Legislature in 1851.¹¹³ A pump house was constructed at Chicago Avenue and Pine Street to pump water out of Lake Michigan. The new system went into operation in 1854.¹¹⁴ By 1861, nearly the entire City had running water provided by the City system from Lake Michigan.¹¹⁵

The growing City regularly suffered from epidemics of what people eventually came to recognize as waterborne diseases.¹¹⁶ Chicago's death rates from typhoid fever in the period from 1850 to 1874 were significantly higher than the rates in New York City and Brooklyn.¹¹⁷ These continued epidemics indicated that Chicago's drinking water was contaminated by the polluted waters of the Chicago River flowing into Lake Michigan.

In 1864, in an effort to solve its water quality problems, the City under the direction of Chief Engineer Ellis Chesbrough began digging an underground tunnel to relocate the City's water intake pipe to a point in Lake Michigan far enough from the shore which was believed to be beyond the reach of the pollution from the Chicago River.¹¹⁸ The completed tunnel was called "the wonder of America and the world," and Chesbrough was hailed as one of the supreme engineers of the age.¹¹⁹

The tunnel was not the solution that Chesbrough hoped it would be. The spring floods that he expected would cleanse the River drove sewage out into the Lake and into the water-intake pipes.¹²⁰ The problem became worse after the Army Corps of Engineers extended the pier at the mouth of the Chicago River one

110. DOMINIC A. PACYGA, CHICAGO: A BIOGRAPHY 44 (2009).

111. *Id.*

112. *See id.* at 44-46 (describing the steps the city took to clean its water supply and protect it from future contamination).

113. *Id.* at 44, 46.

114. *Id.* at 44.

115. *Id.*

116. *Id.* at 86.

117. *Id.*

118. *See MILLER, supra* note 59, at 127 (detailing how Ellis Chesbrough constructed an underground tunnel in order to control Chicago's water system).

119. *Id.* at 128.

120. *Id.* at 129.

thousand feet into Lake Michigan.¹²¹ The extended pier routed the flow of the River toward the City's water intake pipes.¹²² The City still lacked a reliable supply of quality water.

REVERSING THE CHICAGO RIVER TO PROVIDE A SAFE WATER SUPPLY FOR CHICAGO

While Chicago was one of the first cities to construct a system of underground pipes to transport its sewerage, the sewers it built drained into the Chicago River, which in turn flowed into Lake Michigan.¹²³ The River received not only human waste, but also the waste from its packinghouses and other industries.¹²⁴ The Illinois Legislature provided authority for the City's sewage commissioners to build sewers and ditches to carry waste and runoff, which they did in 1855 under direction of Chesbrough.¹²⁵ As a result, the Chicago River became the City's main interceptor sewer, carrying its polluted waters into Lake Michigan.¹²⁶

Something had to be done. Chesbrough devised a plan using the Illinois and Michigan Canal to route the City's sewerage away from Lake Michigan and into the Illinois and Mississippi Rivers, whose waters would dilute and "deodorize" the sewage.¹²⁷ Chesbrough planned to reverse the flow of the Chicago River by deepening the Illinois and Michigan Canal and using gravity to make Chicago's sewage flow into the Canal and away from Lake Michigan.¹²⁸ This early effort to reverse the flow of sewerage failed, as gravity alone was not enough.¹²⁹

By the 1870s, public officials throughout the Great Lakes region were beginning to worry about the danger to health that might be developing.¹³⁰ Notwithstanding warnings that dumping sewage into lakes and streams was dangerous, the practice was condoned.¹³¹ "Sewage treatment was a new technology and was expensive. Cities were just beginning to recognize the problems generated by burgeoning populations and to consider assuming a new role as purveyors of clean drinking water and other sanitary

121. PACYGA, *supra* note 112, at 44.

122. *Id.*

123. *Id.*

124. *Id.* at 45.

125. *Id.* at 46.

126. *Id.*

127. MILLER, *supra* note 59, at 129.

128. *See* PACYGA, *supra* note 112, at 46 (describing how Chesbrough altered the water system in order to drain waste away from the city).

129. *See id.* (explaining that the river's waste disposal depended on a new sanitation system that had yet to be developed).

130. DAVE DEMPSEY, *ON THE BRINK: THE GREAT LAKES IN THE 21ST CENTURY* 96 (2004).

131. *Id.*

services.”¹³²

During the years after the fire of 1871, Chicago’s growth exploded and thousands upon thousands of people moved to Chicago.¹³³ Chicago was unsuccessful in coping with the ever-increasing quantities of excrement produced by its residents. “[D]ubbed the ‘First City of Filth’ for its sheer quantity of waste, Chicago’s problem was not unique; cities all over the continent agonized over how to protect their populations from water-borne disease and repulsive nuisances caused by the discharge of sewerage into rivers and lakes.”¹³⁴

In 1885, with eighty-five percent of the City’s sewage flowing into the Chicago River, the City received six inches of rain in less than a day.¹³⁵ The resulting floods contaminated the City’s water supply.¹³⁶ The City endured outbreaks of typhoid, cholera, dysentery, and other waterborne diseases that killed an estimated 12% of the City’s population.¹³⁷

In 1886, the then prosperous and successful Burnham had had enough of the filth, dirt, and risk of disease and moved his family to Evanston, even writing to his mother, “I can no longer bear to have my children run in the streets of Chicago”¹³⁸

In 1889, the Illinois Legislature passed the Sanitary District Enabling Act, which created the Sanitary District of Chicago.¹³⁹ The Sanitary District was authorized to build and operate a new, deep canal that would draw a greater volume of water from Lake Michigan than the earlier Illinois and Michigan Canal, thereby making it a stronger running stream, capable of sending Chicago’s polluted waters downstream.¹⁴⁰

In 1892, before the Sanitary District could begin construction of a canal to keep the waters of the Chicago River out of the Lake, the City suffered through another typhoid epidemic that gave Chicago the highest typhoid death rate of any major city in the United States and Europe.¹⁴¹ This was likely the typhoid epidemic, which greatly concerned the builders of the Columbian Exposition. Construction of the canal finally began on September 3, 1892.¹⁴²

In late 1899, when the project was nearly complete, the Sanitary District Trustees learned that the State of Missouri planned to seek an injunction to keep the canal from opening

132. *Id.* at 96-97.

133. PIERCE, *supra* note 42, at 501.

134. DEMPSEY, *supra* note 132, at 100.

135. MILLER, *supra* note 59, at 425-26.

136. *Id.*

137. *Id.*

138. SMITH, *supra* note 7, at 58.

139. *Id.*

140. *Id.* at 426-27.

141. *Id.* at 427.

142. *Id.*

because the raw sewerage that the Canal would carry away from Chicago would pollute the Mississippi River from which St. Louis obtained its drinking water. Faced with this threat of litigation, on January 2, 1900, with no ceremony or fanfare, the Trustees ordered removal of the dam, keeping the Chicago River out of the Canal.

After the dam was removed on January 2, 1900, the "Chicago River was permanently reversed, making it the first river in the world to flow away from its mouth."¹⁴³ The *Chicago Tribune* declared the opening of the Canal to be "one of the most important events in the history of Chicago" and the beginning of the "pure water era."¹⁴⁴ "In the eyes of many other observers, the river's reversal was a sanitary milestone, a \$31 million monument to human ingenuity. The threat to the public health of Chicago was vanquished."¹⁴⁵

WATER IN THE *PLAN OF CHICAGO*

The adequacy of the supply of water available to the City of Chicago was not worthy of consideration due to Chicago's location on Lake Michigan. The reversal of the Chicago River in the year 1900 was seen as solving the water quality problems.¹⁴⁶ Chapter 3 of the *Plan* recognizes the consequences of Chicago's explosive growth.¹⁴⁷ "Thoughtful people are appalled at the results of progress; at the waste in time, strength, and money which congestion in city streets begets; at the toll of lives taken by disease when sanitary precautions are neglected . . ."¹⁴⁸

The one simple phrase—"when sanitary precautions are neglected"—is the only instance where the *Plan of Chicago* considers the consequences that would befall the City if it failed to provide its residents with clean and safe supplies of drinking water.¹⁴⁹

While the *Plan* ignores the matter of providing water for human consumption, the *Plan* does consider the use of the waters in the Chicago River for transportation and the waters of Lake

143. *Id.*

144. *Id.* at 428.

145. DEMPSEY, *supra* note 132, at 102.

146. *See supra* note 7, at 39 (noting that the opening of the Sanitary Canal on January 17, 1900, reversed the flow of the Chicago River away from Lake Michigan, effectively reducing pollution of the water supply).

147. *See* BURNHAM, BENNETT & MORE, *supra* note 19, at 31-42 (explaining the rapid growth of Chicago's population and the required improvements to public works in order to handle the increased congestion caused by such a population growth).

148. *Id.* at 32.

149. *See generally* BURNHAM, BENNETT & MOORE, *supra* note 19 (indicating that the concept of sanitary precautions for the City of Chicago is mentioned only on page 32).

Michigan for harbors and for recreation.¹⁵⁰

The references to “Chicago River” in the Index for the *Plan of Chicago* relate to “forests along,” “improvement of,” and “treatment of the banks.”¹⁵¹ The text addressing “improvement of” the Chicago River begins in a promising manner:

The Chicago River, which gave the city its location and fostered its commerce, has become a dumping spot and a cesspool; bridges of every possible style and condition span it at irregular intervals and at all angles; and year by year riparian owners have been permitted to encroach upon its channel The widening proposed by the Sanitary District authorities and the fact that almost all the docks are in a dilapidated condition will combine to make changes imperative. The opportunity should be seized to plan a comprehensive and adequate development of the river banks, so that the commercial facilities shall be extended, while at the same time the aesthetic side of the problem shall be worked out.¹⁵²

The opportunity that Burnham calls upon the citizens to seize in this quotation from the *Plan* is not the opportunity to stop dumping in the river and to begin cleaning up the resulting mess, but rather to seize upon a matter of aesthetics—the opportunity for uniform bridge designs with bridges constructed at regular intervals and dilapidated docks replaced.¹⁵³

The single reference in the *Plan* to “cleanliness” refers to street cleaning rather than to cleaning up the polluted waters of the Chicago River.¹⁵⁴ “The first consideration for all thoroughfares is cleanliness, which is the result of a good roadbed kept in thorough repair, and unremitting care on the part of the city cleaning department.”¹⁵⁵ Clearly, effort and attention should be given to keeping streets clean, but a similar call to expend effort and attention to cleaning up the polluted river water was not afforded in the *Plan*.

Lake Michigan and its waters are addressed in great detail in Chapter IV entitled “The Chicago Park System.”¹⁵⁶ This Chapter focuses on the waters in the lake not as the source of vast quantities of water for the city, but rather as first in importance for the creation of large parks.¹⁵⁷

[T]he shore of Lake Michigan . . . should be treated as park space to

150. *Id.* at 50-53, 97.

151. *Id.* at 160.

152. *Id.* at 97.

153. *See id.* (describing the congestion caused by the roads and bridges surrounding the Chicago River and calling for the “aesthetic side of the problem” to be worked out).

154. *Id.* at 82.

155. *Id.* at 82.

156. *Id.* at 50-53.

157. *Id.* at 50.

the greatest extent. The Lake front by right belongs to the people The Lake is living water, ever in motion, and ever changing in color and in the form of its waves Its colors vary with the shadows that play upon it Not a foot of its shores should be appropriated by individuals to the exclusion of the people [E]verything possible should be done to enhance its attractiveness and to develop its natural beauties, thus fitting it for the part it has to play in the life of the whole city. It should be made so alluring that it will become the fixed habit of the people to seek its restful presence at every opportunity.¹⁵⁸

Nowhere in the *Plan* is there a discussion of whether the City and region would have enough water to meet its future needs, nor is there a discussion of what would need to be done, so that growth would not result in water pollution and the return of waterborne diseases. There is also no discussion of water quantity or water quality, which are essential elements if a city is to grow and its citizens are to remain healthy. This omission is striking because the *Plan* was written at a time when the City's population had already grown to two million.¹⁵⁹ The members of the Commercial Club expected that the City would continue to grow.¹⁶⁰

Chicago is now facing the momentous fact that fifty years hence, when the children of today are at the height of their power and influence, this city will be larger than London; that is, larger than any existing city. Not even an approximate estimate can be ventured as to just how many millions the city will then contain. Mr. Brion J. Arnold, after a careful discussion of the increase that may be expected, reaches the conclusion that if the national and local conditions governing the population of Chicago shall average in the future exactly as in the past the population in 1952 will be 13,250,000.¹⁶¹

The failure of the *Plan of Chicago* to address or mention the need to provide Chicago's growing population with safe drinking water and to safely dispose of waste and sewage is striking. It is all the more striking because of the efforts Chicago made during the nineteenth century to provide its citizens with safe water and the importance that its leading citizens, including Burnham himself, placed upon providing safe water to workers and visitors to the World's Columbian Exposition.¹⁶² The members of the Commercial Club must have been aware of this part of Chicago's history, since it had taken place during their lifetime.

158. *Id.*

159. *Id.* at 32.

160. *Id.* at 33.

161. *Id.*

162. See MILLER, *supra* note 59, at 423-27 (noting that Chicago officials sought to clean up the city streets and waterways in anticipation of the World's Columbian Exposition).

UNDERSTANDING THE OMISSION OF WATER

If the Columbian Exposition is the key to understanding Burnham's beginnings as a planner of cities, what explains his failure to address water quantity and the public health issues brought about by polluted water in the 1909 *Plan of Chicago*?

Certainly it was not from a lack of knowledge that cities need water in sufficient quantity and of good quality. From his role as Director of Works for the Exposition, Burnham received firsthand experience with making the necessary arrangements to provide visitors with adequate quantities of good quality water and gave credit to MacHarg, an engineer, for accomplishing this reality. A resident of Chicago since the 1850s, Burnham grew up and became a successful architect in a City that regularly endured epidemics of waterborne diseases and most likely participated in the public outcries that resulted in construction of the Sanitary Ship Canal.

Location helps to explain why there was no consideration in the *Plan of Chicago* about the need to ensure that there would be sufficient quantities of water needed if Chicago continued to grow as expected. Chicago's location on the shores of Lake Michigan meant that it would never lack sufficient quantities of water.

The engineering achievement resulted in the Sanitary Ship Canal and ended the discharge of sewerage and other pollutants into Lake Michigan and thereby solved Chicago's long-standing water quality problem. Since the issues of water quality had been solved to the satisfaction of the public, it too was something that the *Plan* did not need to consider.

BURNHAM DREW INSPIRATION FROM HAUSSMANN'S PARIS

In the *Plan's* chapter discussing City Planning in Ancient and Modern Times, Burnham cited Paris as being the city that: "Among great cities, Paris has reached the highest stage of development; and the method of this attainment affords lessons for all other cities."¹⁶³ He then goes on to describe the work of George Eugene Haussmann, who was promoted to become prefect of the Seine in 1853 and whose work in Paris "established for all time his place among the city-builders of the world."¹⁶⁴

Burnham described Haussmann's 'peculiar task' for Paris as providing for circulation within the city. He lists the task that Haussmann accomplished as including: cutting new streets, widening old streets, removing "unwholesome rookeries," creating open spaces for monuments, placing railroad stations around the old city center, opening avenues to approach stations and creating diagonal thoroughfares to shorten distances The task which Haussmann accomplished for Paris corresponds with the work

163. BURNHAM, *supra* note 19, at 14.

164. *Id.* at 17-18.

which must be done for Chicago, in order to overcome the intolerable conditions which invariably arise from a rapid growth of population.¹⁶⁵

The Paris described in the *Plan* is the Paris that Burnham visited and knew when he started making annual visits to Europe after the Columbian World's Exposition. However, that Paris was not the Paris that existed when Haussmann was appointed in 1853.

As early as 1827, an official report on the city's health had noted how "the sense of smell gives notice that you are approaching the first city in the world before your eyes could see the tips of its monuments." The population of Paris had increased from 786,000 in 1831 to over 1,000,000 by 1846. Growing congestion threatened to bring social and economic life to a standstill. The devastating cholera epidemics of 1832-35 and 1848-49 had spread panic in rich and poor quarters alike.¹⁶⁶

"One of Haussmann's first priorities was cleaning up the city" because at the time Parisians still used the inefficient method of "water carriers."¹⁶⁷ Paris already had "a sewer system in place, but it was outdated and only extended 100 miles."¹⁶⁸ "Haussmann appointed the engineer Eugene Belgrand as Director of Water and Sewers of Paris."¹⁶⁹

When Haussmann and Belgrand began their work in the early 1850's, the city was still served by a medieval network of sewers clustered around the city center The layout, elevation and gradient of the sewers were unable to prevent water from periodically flooding onto the streets, and much of the growing city was not even integrated into the existing drainage system. In 1857, the sewer reconstruction programme began in earnest.¹⁷⁰

Before Haussmann could transform a congested medieval city into the Paris, which Burnham knew and saw as a role model for transforming Chicago, Haussmann first had to ensure that Paris had sufficient quantities of drinking water and a sewerage system able to safely transport its waste so that it would not pollute its water supply.¹⁷¹ These early and critical engineering accomplishments by Haussmann and his engineer Begrand were

165. *Id.* at 18.

166. Matthew Gandy, *The Paris Sewers and the Rationalization of Urban Space*, in TRANSACTIONS OF THE INST. OF BRITISH GEOGRAPHERS 23, at 26 (1999), available at <http://www.geog.ucl.ac.uk/about-the-department/people/academics/matthew-gandy/selected-publications>.

167. *Baron Haussmann, and the Transformation of Paris*, FRANCE MONTHLY, <http://www.francemonthly.com/n/1202> (last visited Jan. 16, 2010).

168. *Id.*

169. *Id.*

170. *Id.* at 29.

171. *Id.*

the essential conditions precedent to transforming Paris—accomplishments that Burnham neither acknowledged nor discussed in the *Plan*.

By the early 1900s, Chicago was a city whose residents were benefitting from the achievements of Chicago's engineers who extended tunnels two miles into Lake Michigan to collect unpolluted drinking water and who built the Sanitary Ship Canal that kept the polluted waters of the Chicago River out of Lake Michigan.¹⁷² Chicago was still a disorganized, dirty, and chaotic city, but it was also a city that had had adequate quantities of quality water to support its future growth. The critical issues of the prior century had been successfully resolved. Like Haussmann in Paris, the time to plan and build a better Chicago had arrived.

SUBSEQUENT PLANS HAVE CONTINUED THE LEGACY OF THE *PLAN OF CHICAGO*

Planning for Chicago and the region did not end with publication of the *Plan of Chicago*. Since 1909, a number of plans have been prepared for Chicago and the surrounding regions. The Commercial Club of Chicago undertook another planning project for the region which culminated in *Chicago Metropolis 2020: The Chicago Plan for the Twenty-First Century* ("*Metropolis 2020*"), which was first released in March of 1999 and published in 2001.¹⁷³

Eager to build on the legacy of the *Plan of Chicago*, the Commercial Club of Chicago undertook a new planning project for the region.¹⁷⁴ Elmer W. Johnson, a former partner of the law firm of Kirkland & Ellis and retired General Motors executive, served as director of the project.¹⁷⁵

Like the Plan of Chicago, which took a regional approach, the Club members working on new project assumed that the issues facing the region comprised of Cook, DuPage, Lake, McHenry, Kane, and Will counties are interdependent and must be addressed regionally.¹⁷⁶ These issues included: "unlimited, low density sprawl; concentration of poor minorities; the spatial mismatch between jobs, affordable housing and transportation; and disparate degrees of access to quality education."¹⁷⁷

More than 200 members of The Commercial Club examined these issues in special committees, focusing on education, economic development, taxation, governance, transportation, and

172. PACYGA, *supra* note 110, at 44-46

173. SCHWIETERMAN & MAMMOSER, *supra* note 30, at 172.

174. *Id.* at 172-73.

175. *Id.*

176. Chicago Metropolis 2020, About Us, http://www.chicagometropolis2020.org/5_3.htm (last visited on Jan. 16, 2010).

177. *Id.*

land use and housing.¹⁷⁸ “The committees consulted with experts and met with regional community, civic and government representatives.”¹⁷⁹ The new regional planning project took a less architectural and more social and economic approach to planning for the region.¹⁸⁰

Written by Johnson, *Metropolis 2020* discusses many of the topics covered by the *Plan of Chicago* such as economic viability, transportation, and recreation; but it also places more emphasis on the need for better schools, expanded health care, child care, and improved services for low-income residents.¹⁸¹

Like the *Plan of Chicago*, *Metropolis 2020* does not address the adequacy of the region’s water supply even though many parts of the region’s counties did not have access to water from Lake Michigan or were not within its watershed. This omission is even more surprising when one realizes that while the total drainage basin area for Lake Michigan is 45,600 square miles, only 100 square miles of that drainage basin are located in Illinois.¹⁸² With the exception of those lands in Cook and Lake Counties, which are adjacent to Lake Michigan, the remainder of the six-county region must look to other sources such as rivers and aquifers to provide themselves with water.

The matter of wastewater treatment is mentioned in Chapter Four of *Metropolis 2020* entitled “Governance and Taxation.” In this chapter, Johnson noted that “the provision of sewers and related wastewater treatment services has largely defined when and where suburban expansion has occurred.”¹⁸³

Metropolis 2020 notes that there is no comprehensive state or regional policy governing the extension of wastewater treatment services.¹⁸⁴ Location determines which entity will collect, transport, and treat wastewater.¹⁸⁵ In the Chicago area, developers construct sewer systems to collect and transport waste water, which are then dedicated to the municipality or county.¹⁸⁶ The process of wastewater treatment can be undertaken by a municipality, sanitary district, county, or private utility; however, small residential developments sometimes utilize individual septic

178. *Id.*

179. *Id.*

180. SCHWIETERMAN & MAMMOSER, *supra* note 30, at 172-73.

181. SMITH, *supra* note 7, at 165.

182. The Great Lakes Information Network, Lake Michigan Facts and Features, <http://www.great-lakes.net/lakes/ref/michfact.html> (last visited on Jan. 16, 2010).

183. ELMER W. JOHNSON, CHICAGO METROPOLIS 2020: THE CHICAGO PLAN FOR THE TWENTY-FIRST CENTURY 62 (2001).

184. *Id.*

185. *Id.*

186. *Id.*

systems to treat wastewater.¹⁸⁷ “Clearly, a comprehensive state policy is needed with respect to governing the extension of wastewater treatment services and such related matters as storm-water management, [and] water supply”¹⁸⁸

While this call for a comprehensive policy, which mentions the term “water supply,” *Metropolis 2020* with its focus on waste water treatment as limiting growth, fails to consider that without an adequate supply of water there can be no wastewater to treat. It fails to consider that the implications of the fact that most of the land within its six-county region cannot pump water from Lake Michigan.

PLANNING MUST INCLUDE THOUGHTS ABOUT WATER

Neither the *Plan of Chicago* nor *Metropolis 2020* addresses the basic and critical question of whether the region has adequate quantities of water to meet its future needs. This very question is one of the many water issues that other civic organizations have started to address.

Openlands Land Preservation, whose tagline is “conserving nature for life,”¹⁸⁹ is one of those organizations. Openlands was founded in 1963 for the protection of natural and open spaces in north-eastern Illinois and the surrounding region.¹⁹⁰ Water is a significant part of its mission because:

Water is vital to our health and well-being. It is an economic driver, a recreational asset, and a haven for a rich diversity of wildlife. Because water plays such an important role, Openlands carefully examines the relationship between development practices and water quality Openlands has also advocated for several approaches to improving water quality.¹⁹¹

Openlands works on watershed planning because individual communities alone cannot prevent flooding and protect water resources that cross boundaries.¹⁹² Openlands collaborates with other organizations on stormwater management practices because stormwater runoff is a threat to water quality.¹⁹³ Stormwater can discharge oil, metals, fertilizers, and other chemicals into rivers and streams to the detriment of the quality of the water, as well as fish and wildlife.¹⁹⁴

187. *Id.*

188. *Id.*

189. Openlands, <http://www.openlands.org/> (last visited on Mar. 31, 2010).

190. Openlands – Who We Are, <http://www.openlands.org/index.php/Who-We-Are/Who-We-Are/who-we-are.html> (last visited on Mar. 31, 2010).

191. Openlands, Water Quality Issues, <http://www.openlands.org/index.php/Policy/Issues/water-quality.html> (last visited on Jan. 22, 2010).

192. *Id.*

193. *Id.*

194. *Id.*

Metropolitan Planning Council (“MPC”) is another civic organization whose programs now include water supply planning. MPC is an independent, nonprofit, nonpartisan organization established in 1934 to develop, promote, and implement solutions for sound regional growth.¹⁹⁵ Its programs now include water supply planning.¹⁹⁶

MPC’s interest in regional water supply issues began in 2000, when data issued by the Illinois State Water Survey started to show depletion of the aquifers that supply water to the western parts of the Chicago region that do not use water from Lake Michigan.¹⁹⁷

Since then, MPC, in collaboration with Openlands, has published: *Changing Course* (2003), which examines the relationship between development practices and water quality and quantity in a twelve-county northeastern Illinois region; *Troubled Waters* (2005), which urges the State of Illinois to establish a statewide framework for regional supply planning, based on data, integrated management of surface water and groundwater, and inclusion of water demand analysis in land use planning; and *Before the Wells Run Dry* (2009), which sets forth a series of recommendations for how Illinois can support and continue the existing regional water supply planning groups, reform state policies and programs to support regional water supply planning throughout Illinois, increase the efficiency of investment in water-related infrastructure, and ultimately reward local management that conserves shared water resources.¹⁹⁸

These publications, like the *Plan of Chicago* and *Metropolis 2020*, take a regional approach to planning and are also the work of civic organizations. But these publications are the work of civic organizations, which recognize that an essential part of regional planning is ensuring that the region has sufficient quantities of water to maintain and sustain its existing population and to enable the region to continue to grow. These publications are putting forth the question of whether the region has a sufficient supply of water onto the planning table. Without an adequate supply of water, there is nothing to plan.

195. Metropolitan Planning Council —Mission & Agenda, <http://www.metroplanning.org/about/mission.html> (last visited on March 31, 2010).

196. Josh Ellis, *New MPC and Openlands Report Tackles Illinois Water Supply Concerns*, Nov. 19, 2009, <http://www.metroplanning.org/news-events/article/5699>.

197. E-mail from Josh Ellis, Associate, Metropolitan Planning Council, to Virginia M. Harding, Counsel, Gould & Ratner LLP (Jan. 11, 2010, at 9:50 CST) (on file with author).

198. Metropolitan Planning Council, *Water Supply Planning—Our Work*, <http://www.metroplanning.org/work/project/16> (last visited on Mar. 31, 2010).

