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More Trees Please: Utilizing Natural Resources in the Urban Environmental Management of New York City

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MORE TREES PLEASE: UTILIZING NATURAL RESOURCES IN THE URBAN ENVIRONMENTAL MANAGEMENT OF NEW YORK CITY

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Introduction

Trees are an invaluable commodity to any community, capable of increasing the value of property[1] and also enhancing the physical terrain of a neighborhood, thereby attracting more residents and visitors.[2] Aside from aesthetic appeal, trees also serve an important role in the ecological system by cleansing the air,[3] reducing pollution,[4] mitigating extreme temperatures,[5] conserving energy[6] and preventing excessive stormwater runoff.[7] In recognition of these benefits, many urban environmental strategists desire to in-

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1. *See* Steve Goldman, *Preserve a Tree, Add Value to Property*, LEDGER (Lakeland, Fla.), Apr. 19, 1997, at 12L ("Properties with saved and transplanted trees have proven to sell or rent faster and better than properties without trees.").

2. *See* N.Y. ENVTL. CONSERV. LAW § 53-0301(5) (McKinney 1997) ("Improved and expanded urban tree programs for planting and maintenance of trees and associated vegetation in urban areas would make urban areas more pleasant and healthful places to live, work and visit[.]").

3. *See* Janine Benyus, *Click Here For Cleaner Air: CITYgreen Software Program*, 103 AM. FORESTS 34 (1997) ("[T]rees clean our atmosphere . . . by storing carbon.").

4. *See* Lynn MacDonald, *Global Problems, Local Solutions: Measuring the Value of the Urban Forest*, 103 AM. FORESTS 26, 26 (1996) ("[T]rees absorb and store carbon and remove numerous other particulates from the air."). *See also* Kyle Niederpruem, *Group Says City that Values Trees Has It Made in the Shade*, INDIANAPOLIS NEWS, Mar. 17, 1998, at C05 ("If the [tree] canopy was increased to just 10 percent, the pollution benefits would increase annually by over 1,100 percent[.]").

5. *See* Gary Moll & Cory Berish, *Atlanta's Changing Environment*, 102 AM. FORESTS 26 (1996) (noting that Atlanta's downtown and airport temperatures soared up to twelve degrees higher than the surrounding tree-laden areas).

6. *See* Dora Ann Reaves, *Tree Planting Goes Online*, POST AND COURIER (Charleston, S.C.), July 2, 1998, at 1 (CITYgreen program helped Dade County, Florida, determine that "its trees provide $5.3 million in direct summer energy savings.").

7. *See* Johns Hopkins, *Deluged: Value of Urban Trees*, 103 AM. FORESTS 24 (1997) ("[A] tree is like a huge straw: It draws water through its roots and facilitates evaporation through its leaves. The physical barriers it provides - its roots and fallen branches - regulate the flow of runoff, reducing the water's speed and spreading out its flow.").

corporate trees and other vegetation into their cities' development.[8] However, given the limited space available for additional housing, a city will opt for increased development at the expense of its urban greenery.[9]

In an urban setting such as New York City, where the growing population is clustered on so few square miles, open space for future development is at a premium.[10] To meet the demands of the expanding urban community, the City has received approval from the New York City Department of Housing Preservation and Development and the City Council to condemn several of its existing green spaces to build affordable housing.[11] Not surprisingly, this move prompted an impassioned response from those communities benefiting from the green sites and from several environmental groups. These concerned New Yorkers formed the New York City Coalition for the Preservation of Gardens (the "Coalition") to enjoin the condemnation and prevent the construction of residential units over their garden plots.[12] The Coalition sought help from the judicial system, demanding environmental impact review of the proposed construction and compliance with all applicable land use laws.[13]

The First Department of New York's Appellate Division affirmed the lower court's dismissal of the Coalition's petition for an injunction.[14] According to the Appellate Division, the Coalition

8. Although local public policymakers rank natural resources, growth and development as their highest priorities, almost half of these officials do not use geographic information system ("GIS") data as part of urban environmental management. A GIS survey can be used for comprehensive planning, zoning and subdivision review as well as drainage and floodplain management. *See Corporations Go Green: Global ReLeaf Forest Projects of Mobil Corp. and American Forests*, 104 AM. FORESTS 3 (1998).

9. *See* Douglas Martin, *City Takeover Looms for Gardens on Vacant Lots*, N.Y. TIMES, May 1, 1998, at B1. *See also* Taft Wireback, *City Considers Tree Ordinance, Traffic Changes*, NEWS & RECORD (Greensboro, NC), May 27, 1998, at B1 (Councilman Earl Jones stated that he wanted his city to stay "green and beautiful . . . [b]ut at the same time, I don't want to do anything that could stifle development."); Maria Saporta, *Development Concerns Often Winning Out Over Trees*, ATLANTA J. & CONST., May 18, 1998, at 8E ("[M]etro governments all too often are willing to give permission to cut down trees so they won't obstruct development.").

10. *See* New York City Coalition for the Preservation of Gardens v. Giuliani, 670 N.Y.S.2d 654, 657 (1997) (noting that the City program sought to reclaim garden lots for the needed development of low cost housing).

11. *See id.*

12. *See id.* at 656-57.

13. *See id.* at 660-61.

14. *See* New York City Coalition for the Preservation of Gardens v. Giuliani, 666 N.Y.S.2d 918 (1998).

lacked standing to bring the action because it could not demonstrate a "legally cognizable injury."[15] Even if the Coalition could bring such a suit, the Appellate Court indicated that the case would not survive on its merits.[16] Because the Department of Housing Preservation and Development determined that the project would not have a significant impact on the environment, it designated the proposed construction as a "Type II"[17] action under the State Environmental Quality Review Act ("SEQRA"),[18] and stated that the action would not require an environmental impact assessment, nor would it violate existing land use regulations.[19]

The issue of whether the Coalition had standing to sue New York City runs deeper than the statutory qualification to challenge a municipality's action. The Coalition's attempted injunction raises questions concerning the City's environmental strategy for further urban development. Will the City continue to construct housing at the expense of its scarce green spaces if the development qualifies as a "Type II" action under SEQRA? In zoning and planning appropriate land use, has the City forgotten the purposes set forth in its Urban Forestry Program some twenty years ago?[20] How can the City meet the housing needs of continued urban growth while also preserving the maximum benefits from natural resources? Although the City's action did not qualify for classification as a "Type I" action,[21] are there other less onerous methods of assuring increased environmental consideration in development decisions?

This Note contemplates some of the foregoing questions and proposes potential solutions to New York City's green space issues.

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15. *Id.*

16. *See id.*

17. *See infra* note 18.

18. N.Y. ENVTL. CONSERV. LAW § 8-0101 (McKinney 1997). In compiling the rules and regulations for SEQRA, the legislature defined certain classes of actions as "Type II," which the legislature determined would not have a significant impact on the environment or which it could otherwise be precluded from environmental review under SEQRA. Pertinent to the 1997 *Coalition v. Giuliani* case are actions which consist of "replacement, rehabilitation or reconstruction of a structure or facility, in kind, on the same site, including upgrading buildings to meet building or fire codes." N.Y. COMP. CODES R. & REGS. tit. 6, § 617.5(c)(2) (1998).

19. *See Giuliani*, 666 N.Y.S.2d at 918.

20. *See* N.Y. ENVTL. CONSERV. LAW § 53-0301(1) (McKinney 1997). The legislature found and declared that: "It is the purpose of this [law] to promote a comprehensive urban forestry program to assure positive benefit from urban trees planned and managed with adequate recognition of the physical, biotic and social surroundings in which they are encouraged to grow and provide their benefits." *Id.*

21. *See infra* notes 68-70 and accompanying text. The replacement or reconstruction in kind of buildings which previously existed on a site as "Type II," not "Type I" actions. *See* N.Y. COMP. CODES R. & REGS. tit. 6, § 617.5(c)(2).

Part I provides an overview of the environmental impact of trees as well as New York City's current policies with respect to environmental conservation and urban development. Part II examines alternate policies implemented by other cities and communities to meet the challenges of increased development and their environmental impact. Part III proposes solutions to New York City's green space issues, suggesting reliance on the incorporation of trees and other natural resources into urban planning instead of following the recommendations by SEQRA for the preparation of the lengthy environmental impact statement ("EIS")[22] for certain activities. Finally, this Note concludes that the development of an urban forestry program will effectuate the benefits inherent in an urban forest most successfully.

I. Overview

A. Benefits of Preserving Trees in an Urban Community

Research continually reveals that trees benefit urban communities in a number of ways. First, with respect to air quality, trees remove damaging pollutants from the atmosphere and replenish it with oxygen.[23] Through the process of transpiration and photosynthesis, trees sequester grams of ozone, sulfur dioxide, nitrogen dioxide and carbon monoxide every hour, amassing several tons of carbon storage each year.[24] This carbon sequestration process in turn reduces the harmful effect of these noxious gases that cause global warming as well as lung-related ailments.[25] Researchers also have been able to quantify the value of this carbon removal through the use of a carbon storage and sequestration model called UFORE-C.[26] In fact, utilizing the figures economists employ to estimate the effect pollutants cost society, one research ecologist was

22. The requirements for the preparation of an EIS are contained in N.Y. ENVTL. CONSERV. LAW § 8-0109 (McKinney 1997). For rules regarding the content of an EIS, see N.Y. COMP. CODES R. & REGS. tit. 6, § 617.9 (1998).

23. *See* E. Gregory McPherson & David J. Nowak, *Value of Urban Greenspace for Air Quality Improvement: Lincoln Park, Chicago*, 2 ARBORIST NEWS 30-32 (1993); David J. Nowak, *Urban Forest Structure and the Functions of Hydrocarbon Emissions and Carbon Storage*, *in* PROCEEDINGS OF THE 5TH NATIONAL URBAN FOREST CONFERENCE 48-51 (P.D. Rodbell ed., 1992).

24. *See* Benyus, *Click Here For Cleaner Air*, *supra* note 3.

25. *See* John H. Cushman, Jr., *Scientists Are Turning to Trees to Repair the Greenhouse*, N.Y. TIMES, Mar. 3, 1998, at F4.

26. *See* Benyus, *Click Here For Cleaner Air*, *supra* note 3; *see also* Rowan A. Rowntree & David J. Nowak, *Quantifying the Role of Urban Forests in Removing Atmospheric Carbon Dioxide*, 17 J. ARBORICULTURE 269-75 (1991); David J. Nowak, *Atmospheric Carbon Reduction by Urban Trees*, 37 J. ENVTL. MGMT. 207-17 (1993).

able to compute carbon sequestration into a tangible "dollar value."[27]

Carbon sequestration, however, is not the only role trees play in the urban ecosystem. Researchers also have found that trees alter the urban ecosystem by decreasing air temperatures.[28] Studies indicate that a ten percent increase in tree canopy cover results in a one to two degree Fahrenheit reduction in air temperature.[29] In addition, a one degree decrease in temperature will reduce the possibility of smog by six percent.[30] Furthermore, increased tree canopy coverage protects urban dwellers from the harmful effects of ultraviolet radiation ("UV").[31]

Nevertheless, researchers have recognized some drawbacks in utilizing trees to mitigate the effects of UV.[32] For example, trees can become a public hazard if they interfere with above- or below-

27. Nowak, *Atmospheric Carbon Reduction*, *supra* note 26. One economist cautions against reliance on "dollar values" to emphasize the importance of urban forestry programs. *See, e.g.*, John F. Dwyer, *The Role Economics Can Play as an Analytical Tool in Urban Forestry*, *in* URBAN FOREST LANDSCAPES: INTEGRATING MULTIDISCIPLINARY PERSPECTIVES 88, 88-90 (Gordon A. Bradley ed., 1995). According to his view, public decisionmaking with respect to urban forestry involves more than "estimates of the monetary value of urban trees and forests." *Id.* at 89. It entails the "emotional attachment" of the community to its trees as well as the "net benefit" expected from tree planting programs. *Id.* at 89, 92 (For more on the emotional ties people feel with their urban landscape, see John F. Dwyer et al., *The Deep Significance of Urban Trees and Forests*, *in* ECOLOGICAL CITY 137, 137-49 (Rutherford H. Platt et al. eds., 1994)). In his opinion, the role of economics in promoting urban forestry should be expanded to encompass not only "dollar values" but also a framework for evaluating changes in urban forestry programs in context with other public initiatives. *See id.* at 96.

28. *See* C.S.B. Grimmond & T.R. Oke, *Comparison of Heat Fluxes From Summertime Observations in the Suburbs of Four North American Cities*, 34 J. APPLIED METEOROLOGY 873-89 (1995); E. Gregory McPherson, *Cooling Urban Heat Islands with Sustainable Landscapes*, *in* ECOLOGICAL CITY 151, 155-56 (Rutherford H. Platt et al. eds., 1994).

29. *See* Nancy Anne Dawe, *Sprinting Toward Sustainability: Tree Planting Programs in Atlanta, GA*, 102 AM. FORESTS 22 (1996). *See also* McPherson, *Cooling Urban Heat Islands*, *supra* note 28, at 158 (showing in a study that vegetation consistently lowered wall surface temperatures by about seventeen degrees Celsius and reduced air-conditioning costs by twenty-five to eighty percent).

30. *See* Moll & Berish, *supra* note 5.

31. Excessive exposure to UV can lead to skin cancer, cataracts and immune system disorders. If pollutants are allowed to reduce the ozone level, these problems are intensified. One study shows that trees reduce UV by twenty-five to forty percent in sunny locations between street trees. In the shade, UV is reduced fifty-five to eighty percent. *See* R.H. Grant & G.M. Heisler, *Solar Ultraviolet-B and Photosynthetically Active Irradiance in the Urban Sub-canopy: A Survey of Influences*, 39 INT'L J. BIOMETEOROLOGY 201-212 (1996).

32. *See* McPherson, *Cooling Urban Heat Islands*, *supra* note 28, at 162.

ground utility lines.[33] In addition, increased tree planting can amplify the amount of pollen that affects allergy sufferers, and also can constrain the use of scarce water supplies.[34] Furthermore, canopy coverage can trap some harmful pollutants and serve to reduce beneficial "country-city air flow."[35] Despite these potential problems, however, researchers believe that careful planning and proper selection of trees will minimize the possible damaging impacts of an urban forest.[36]

Strategic planting of trees also can increase a city's energy efficiency.[37] Research conducted since the mid-1980s has quantified the energy saving potential of urban forests.[38] According to the Energy Information Administration, household heating and cooling cost consumers $180 billion in 1987.[39] Studies have found that a twenty-five foot tall tree could save ten to twenty-five dollars annually on these energy costs alone.[40]

Because trees release cool vapor into the air during photosynthesis, the need for artificial cooling devices is reduced.[41] In fact, according to one study, the air-conditioning savings from a deciduous tree near a well-insulated home ranged from ten to fifteen percent, while an eight to twelve percent savings was reported during peak cooling periods.[42] Landscape vegetation around individual buildings also can result in heat savings of five to fifteen percent and cooling savings of ten to fifty percent.[43]

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33. *See id.*

34. *See id.*

35. *Id.* "Country-city air flow" describes the pattern of air currents that travel between the suburban and urban areas.

36. *See id.*

37. *See* Gary Moll, *Urban Ecosystems: Breakthroughs for City Green*, 101 AM. FORESTS 23 (1995) (energy savings could double if trees were planted in vacant strategic locations); MacDonald, *supra* note 4 (adding one mature tree in the right location at each home will increase energy savings).

38. *See* E. Gregory McPherson et al., *Energy-Efficient Landscapes*, *in* URBAN FOREST LANDSCAPES: INTEGRATING MULTIDISCIPLINARY PERSPECTIVES 150, 153-54 (Gordon A. Bradley ed., 1995); G.M. Heisler, *Energy Savings with Trees*, 12 J. ARBORICULTURE 113-25 (1986); E. Gregory McPherson & Rowan A. Rowntree, *Energy Conservation Potential of Urban Tree Planting*, 19 J. ARBORICULTURE 321-31 (1993); E. Gregory McPherson, *Using Urban Forests for Energy Efficiency and Carbon Storage*, 92 J. FORESTRY 36-38, 40-41 (1994).

39. *See* McPherson et al., *Energy-Efficient Landscapes*, *supra* note 38, at 151.

40. *See id.* at 152-53.

41. *See* MacDonald, *supra* note 4.

42. *See* McPherson et al., *Energy-Efficient Landscapes*, *supra* note 38, at 152-53.

43. *See id.* at 153.

Moreover, scientists have recognized that trees also can serve as a tool in the reduction of stormwater runoff.[44] The incorporation of trees and other vegetation costs five to ten times less than using solely manmade stormwater infrastructures.[45] The leaves on trees keep large quantities of rain and snow from falling to the ground and tree roots absorb excess surface water, thereby stabilizing ground soil.[46] Street trees provide the greatest annual benefit in avoiding stormwater runoff by diverting 327 gallons of water compared with the 104 gallons averted by park trees.[47]

Irrespective of such obvious benefits, some critics view the utilization of trees to combat the greenhouse effect with skepticism. Michael Oppenheimer of the Environmental Defense Fund believes, for instance, that the carbon sequestration power of trees can produce many benefits, but warns that if the sequestration project is implemented poorly, it actually could do more harm to the ecosystem and exacerbate the greenhouse problem.[48] The head of climate programs at the Sierra Club likewise holds tree sequestration proposals with reservation. He believes one would need to plant enough trees to cover the area of Australia in order to offset U.S. industrial emissions.[49] Advocates of natural resource use do agree that trees can handle only a fraction of the greenhouse gas problem, but point out that failure to replace "hard-scape" with some tree cover contributes to permanent environmental predicaments.[50]

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44. *See* Benyus, *Click Here for Cleaner Air*, *supra* note 3.

45. *See* Hopkins, *supra* note 7.

46. *See id.*

47. *See* E. Gregory McPherson, *Net Benefits of Healthy and Productive Urban Forests*, *in* URBAN FOREST LANDSCAPES: INTEGRATING MULTIDISCIPLINARY PERSPECTIVES 180, 188 (Gordon A. Bradley ed., 1995).

48. *See* Cushman, *supra* note 25 (noting that improperly placed trees can increase building energy use and power plant emissions and that care and removal of trees will expend some fuel use which also emits carbon dioxide into the air); *see also* USDA Forest Service, *Current Research: Tree Influences on Carbon Dioxide* (visited Mar. 20, 1999) <http://svinet2.fs.fed.us/ne/syracuse/unit.html#air>.

49. *See* Cushman, *supra* note 25.

50. "Hard-scape" refers to roads, sidewalks and other concrete or asphalt areas of a city. *See* Benyus, *Click Here For Cleaner Air*, *supra* note 3. Permanent environmental hazards include poor air quality, depletion of the ozone layer, inefficient energy use and unmitigated urban air temperatures.

B. New York City's Current Policies and Goals

New York State adopted its environmental conservation law, SEQRA, in 1975.[51] SEQRA was modeled after the National Environmental Policy Act of 1969 ("NEPA").[52] Both SEQRA and NEPA contain similar provisions regarding the content of an EIS and which agencies would enforce compliance with the act.[53] SEQRA allows various "lead agencies" to determine whether or not a particular action requires an EIS.[54] This policy has resulted in inconsistent and unpredictable treatment of proposed activity. For example, while one lead agency may require an EIS for single family home construction, another may not require an EIS for a large industrial project, a venture that ostensibly would have a significant impact on the environment.[55]

The New York State legislature has attempted to correct these incongruities and provide some predictability in the process through numerous amendments to SEQRA.[56] The state now designates some activities as warranting automatic preclusion from environmental assessment review while insisting on an assessment

51. *See* 1975 N.Y. Laws ch. 612, § 2, amended by 1976 N.Y. Laws ch. 228, § 4. Shortly after enactment of SEQRA, New York City promulgated the City Environmental Quality Review ("CEQR"), 62 R.C.N.Y. ch. 5, app. A (1997). CEQR resulted from Executive Order No. 91 of 1977, which was superseded by 62 R.C.N.Y. ch. 5 (1997), in recognition of the city's continuing policy that "environmental, social and economic factors be considered before governmental approval is given to proposed activities that may significantly affect [the] urban environment." 62 R.C.N.Y. ch. 5, app. A. Authorization for CEQR stems from N.Y. ENVTL. CONSERV. LAW § 8-0113(3) (McKinney 1997).

52. § 102, 42 U.S.C.A. § 4332(2)(C)(i)-(v) (1995). NEPA sets forth the requirements for a detailed statement whenever major Federal actions will have a significant effect on the quality of the human environment. SEQRA duplicates each of these requirements and adds a few additional requirements of its own. *See* N.Y. ENVTL. CONSERV. LAW § 8-0109(2)(f)-(j).

53. *See* 42 U.S.C.A. § 4332(2) (all agencies of the Federal Government are authorized to oversee the integrated use of natural science and the environmental design arts in planning and in decisionmaking as well as the preparation of a detailed statement on the environmental impact of proposed actions); *cf.* N.Y. ENVTL. CONSERV. LAW § 8-0109(2) (agencies, including any state and local municipalities, are responsible for the preparation of an EIS on any action that may have a significant effect on the environment).

54. "Agency means a state or local agency." N.Y. COMP. CODES R. & REGS. tit. 6, § 617.2(c) (1998). A "state agency means any state department, agency, board, public benefit corporation, public authority or commission." *Id.* § 617.2(ah). A local agency includes "any local agency, board, authority, district, commission or governing body, including any city, county and other political subdivision of the state." *Id.* § 617.2(v).

55. *See* Michael B. Gerrard & Monica Jahan Bose, *Possible Ways to "Reform" SEQRA*, N.Y. L.J., Jan. 23, 1998, at 3.

56. *See id.*

for certain activities by classifying as either "Type II" or "Type I" actions.[57] For example, the maintenance or repair of an existing structure involving no substantial changes qualifies as a "Type II" action, legislatively precluded from environmental assessment review.[58] SEQRA, however, requires an assessment for any "Type I" action, such as the adoption of a municipal land use plan.[59]

Even these modifications to SEQRA have failed to provide the assurance of preclusion from review sought by some developers whose projects ostensibly qualify as "Type II" activities. A trial court still can invalidate an EIS it finds "arbitrary and capricious" even though courts generally accord great deference to lead agencies' judgments on the EIS' adequacy.[60] Furthermore, most "Type II" actions with respect to development involve changes to existing facilities or construction of nonresidential structures with only a limited allowance for new construction.[61] Because the significant effort necessary to prepare an EIS may be squandered in these ways, developers in areas such as New York City may choose to forego certain construction activities if they must prepare an EIS.[62]

SEQRA is not the only measure the New York State legislature has enacted to inject an environmental focus in municipal planning. In 1978, the State added a tree conservation provision to its general

57. *See* N.Y. COMP. CODES R. & REGS. tit. 6, §§ 617.5 and 617.4, respectively.

58. *See* N.Y. COMP. CODES R. & REGS. tit. 6, § 617.5(c)(1). CEQR contains a list of its own "Exempt Actions," which are less numerous than those posed by SEQRA. *Compare* 43 R.C.N.Y. § 6-04 (1997), *with* N.Y. COMP. CODES R. & REGS. tit. 6, § 617.5. Exempt actions under CEQR include those necessary on a limited emergency basis and certain modifications to projects classified as "Type I" which occur after 1977. *See* 43 R.C.N.Y. §§ 6-04(a), (b) and (h). Nevertheless, "Type II" actions under SEQRA are included within CEQR's exemption list by legislative fiat. *See* N.Y. COMP. CODES R. & REGS. tit. 6, § 617.4(a)(2) ("An agency may not designate as Type I any action identified as Type II [under SEQRA].").

59. *See* N.Y. COMP. CODES R. & REGS. tit. 6, § 617.4(b)(1). CEQR has similar "Type I" actions. *See* 43 R.C.N.Y § 6-15 (1997).

60. *See* Gerrard & Bose, *supra* note 55, at 3; *see also* South Bronx Clean Air Coalition v. New York State Dep't of Transp., 630 N.Y.S.2d 73 (1995); People for Westpride, Inc. v. Board of Estimate, 568 N.Y.S.2d 732 (1991).

61. *See, e.g.*, N.Y. COMP. CODES R. & REGS. tit. 6, §§ 617.5(c)(1), (4) and (7). There does exist "Type II" activity that permits new development, however, the structure must be either a reconstruction "in kind" and on the same site or construction of a single-, two- or three-family residence. N.Y. COMP. CODES R. & REGS. tit. 6, §§ 617.5(c)(2) and (9).

62. "[F]ew developers want to bet on whether their EISs are thrown out by errant trial-level judges. Thus they either pay the insurance of preparing a massive EIS that covers almost every conceivable issue, or they quietly forgo the pleasure and invest their money in something that does not require SEQRA review." Gerrard & Bose, *supra* note 55, at 3.

municipal law.[63] The legislature found a "direct relationship between the *planting of trees*, shrubs and associated vegetation in sufficient number in populated areas and the health, safety, and welfare of communities,"[64] and empowered the legislative body of any county, city, town or village to promulgate any specific rules or regulations that protect and conserve trees and related vegetation.[65]

Despite the enactment of this law, New York City has not adopted any rules or regulations providing for the planting of trees. Instead, it has created a limited protection of trees which may be affected by construction or which lie on public property.[66] To date, the City has not brought any proceeding against a person who may have violated these laws. For the most part, environmental conservation of the City's urban forest rests on its local version of SEQRA,[67] which restricts or permits development activity based on its classification as either a "Type I" or "Type II" action.[68]

C. "Type I" and "Type II" Actions under SEQRA

"Type I" development projects involve the construction of residential units in excess of 2500 where a connection to the public water and sewage system is required.[69] A "Type I" classification of a development project may entail the preparation of an EIS.[70] An EIS involves a detailed description of the proposed activity along with its short- and long-term environmental effects.[71] There are several other requirements for completion of the EIS, including

63. *See* N.Y. GEN. MUN. LAW § 96-b (McKinney 1986).

64. *Id.* § 96-b(1) (emphasis added).

65. *See id.* § 96-b(2).

66. *See* N.Y.C. ADMIN. CODE § 18-107 (1997) (mandating that trees removed during construction must be replaced with 2½ to 6 inch caliper trees at the remover's expense); N.Y.C. ADMIN. CODE § 27-1030 (1997) (mandating that trees outside the street line may not be disturbed or removed without permission from the commissioner of parks and recreation); N.Y.C. ADMIN. CODE §§ 10-148 and 10-149 (1997) (imposing a fine of up to $15,000 and imprisonment of not more than one year on any person, firm, corporation or agent who unlawfully cuts trees on city property).

67. *See* Richard L. Schaffer, *Reflections on Planning and Zoning*, *in* PLANNING AND ZONING NEW YORK CITY: YESTERDAY, TODAY AND TOMORROW 239, 248-50 (Todd W. Bressi ed., 1993).

68. A "Type I" action indicates that the project or action will more likely require the preparation of an EIS while a "Type II" action (or "Exempt Action" under CEQR) has been determined to not have a significant impact on the environment or is otherwise precluded from environmental review. *See* N.Y. COMP. CODES R. & REGS. tit. 6, §§ 617.4 and 617.5, respectively; *see also* R.C.N.Y. § 6.04.

69. *See* N.Y. COMP. CODES R. & REGS. tit. 6, § 617.4(b)(5)(v).

70. *See* N.Y. COMP. CODES R. & REGS. tit. 6, § 617.4(a)(1).

71. *See* N.Y. ENVTL. CONSERV. LAW § 8-0109(2)(b).

studies on issues such as energy conservation and solid waste management.[72]

Once the lead agency determines that the EIS adequately covers all potential types of environmental impact, or that it will issue a negative declaration under SEQRA, there is no guarantee that the project will continue unchallenged.[73] A developer may still face legal obstacles from the community which can delay the project for months or years at the developer's expense.[74] One commentator has suggested the elimination of EISs for proposed structures in New York City.[75] Alternatively, if a developer's plans do not threaten the environment according to SEQRA and are classified as one of the "Type II" actions, the potential delay and cost of litigation may be prevented.

Designation of an activity as "Type II" under SEQRA, however, will not shield it from a private legal challenge. Pursuant to New York law, a party can challenge an agency's determination that a specified action does not require an EIS or that the action is exempt under SEQRA.[76] Courts, however, are reluctant to sustain a challenge to a "Type II" designation because the legislature has declared that such a designation is "'not subject to review under SEQRA.'"[77] A party must demonstrate "injury in fact" or some "actual legal stake" in the matter to bring an action before the court.[78]

Furthermore, regulations stipulate that an agency "may not designate as 'Type I' any action identified as 'Type II.'"[79] Therefore, no environmental review will ensue for "Type II" activities although there may exist measures to improve the local environment. For example, the in kind replacement of buildings, irrespec-

72. *See* N.Y. ENVTL. CONSERV. LAW §§ 8-0109(2)(h) and (i).

73. *See* Hoffman v. Town Bd. of Queensbury, 680 N.Y.S.2d 735 (1998) (concerning an Article 78 proceeding seeking to annul town board's resolution of negative declaration for proposed subdivision).

74. *See* Gerrard & Bose, *supra* note 55, at 3 (indicating that an erroneous trial court decision over the adequacy of an EIS can delay a project for months or years, making the project "extremely costly").

75. *See* Peter D. Salins, *Zoning for Growth and Change*, *in* PLANNING AND ZONING NEW YORK CITY: YESTERDAY, TODAY AND TOMORROW 164, 179-81 (Todd W. Bressi ed., 1993).

76. *See* N.Y. C.P.L.R. § 7801 (McKinney 1994); *see also, e.g.*, King v. County of Monroe, 679 N.Y.S.2d 779 (1998) (holding that landowner had standing to challenge a county's negative declaration of a proposed sports complex).

77. Coalition for the Preservation of Gardens v. Giuliani, 670 N.Y.S.2d 654, 661 (quoting N.Y. COMP. CODES R. & REGS. tit. 6, § 617.5(a)).

78. *Id.* at 659.

79. N.Y. COMP. CODES R. & REGS. tit. 6, § 617.4(a)(1).

tive of any intervening use of the property, is a "Type II" activity.[80] Where communities have utilized the property for several years as garden lots, adverse environmental contingencies may flow from converting the natural landscape into concrete and asphalt.[81] If the conversion qualifies as a "Type II" activity, however, SEQRA will not require an environmental impact assessment nor make suggestions on ways to preserve the benefits conferred by the garden lots.[82]

Consequently, a petitioner must demonstrate that the proposed activity is either a "Type I" action or an "Unlisted" action that exceeds certain threshold requirements.[83] While "Unlisted actions" do not carry the presumption that they will have a "significant adverse impact on the environment and may require an EIS,"[84] an agency must make a determination of significance by "comparing the impacts which may be reasonably expected to result from the proposed action."[85]

Although New York City's population will approach close to 7.5 million people by the year 2000,[86] it has not adopted any other environmental review strategy. The City Planning Commission intends to change its local version of SEQRA in an effort to eliminate separate review by each lead agency of every action and to develop procedures to conduct "meaningful environmental reviews of proposed areawide rezonings."[87] Aside from these initiatives, the City appears content to rely on the current environmental safeguards for its urban planning and development.

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80. *See* N.Y. COMP. CODES R. & REGS. tit. 6, § 617.5(c)(2).

81. This was the argument advanced by the Coalition for the Preservation of Gardens in the 1997 *Coalition v. Giuliani* case. The Coalition contended that the use of the vacant lots as community gardens for periods ranging from five to ten years essentially re-characterized the nature of those lots. Therefore, the proposed condemnation of the lots for residential development would "present serious environmental consequences requiring review under SEQRA" even though SEQRA classifies such action as "Type II." *Coalition v. Giuliani*, 670 N.Y.S.2d at 660.

82. *See* N.Y. COMP. CODES R. & REGS. tit. 6, § 617.5 (stating "Type II" actions are not subject to SEQRA review, hence will not require EISs nor any other environmental conservation efforts).

83. *See* N.Y. COMP. CODES R. & REGS. tit. 6, § 617.4(a)(1).

84. *Id.*

85. *Id.*

86. *See* CITY AND THE WORLD: NEW YORK'S GLOBAL FUTURE 102-03 (Margaret D. Crahan & Alberto Vourvoulias-Bush, eds., 1997); New York City Department of Planning, *Population Projections for the Year 2000*, Technical Report 1.

87. Schaffer, *supra* note 67, at 250.

II. Various Responses

A. Alternate Policies Implemented by Other Cities and Communities

New York City is not the only community faced with the formidable task of urban environmental development. Several cities and communities nationwide have attempted to address the needs of their growing populations' infrastructure while preserving their urban forests.[88] For example, in preparation for the 1996 Summer Olympics, Atlanta, Georgia faced an environmental crisis. By converting sixty-five percent of its urban forest into a "built environment,"[89] Atlanta created a palpable "urban heat island."[90] The Atlanta Committee for the Olympic Games ("ACOG") feared that the increased air temperature and accompanying humidity would result in "bad experiences and major emergencies for the 15,000 athletes, trainers and Olympic officials" expected that summer.[91] Although the city planned to counterbalance the urban heat island effect with increased air conditioner use, it realized that these measures were temporary and limited, at best.[92]

Recognizing the need to develop a sustainable strategy which would not drain the municipal coffers, Atlanta took advantage of a recently developed program called CITYgreen to devise a solution to its problem.[93] Analyzing data taken by a Landsat satellite from 1972-1993, the CITYgreen program highlighted the fact that rapid deforestation had produced more pollution, reduced water quality and resulted in more expensive summer cooling bills.[94] ACOG uti-

88. *See, e.g.*, Moll & Berish, *supra* note 5 (Atlanta responded by utilizing CITYgreen software); MacDonald, *supra* note 4 (Milwaukee, Wisconsin and Austin, Texas conducted UEA of their cities); Jennifer Radcliffe, *Committed to Saving Trees: Keller Joins Area Cities in Preservation Effort*, FORT WORTH STAR-TELEGRAM, Dec. 4, 1998, at 1 (Keller, Texas enacted a strict tree preservation ordinance).

89. A "built environment" consists of buildings, roadways and other improvements that replace the natural landscape. *See* Moll & Berish, *supra* note 5.

90. "Urban heat islands" result from a city's reduction in its tree canopy coverage. As urban infrastructure needs increase, natural resources are removed for the sake of developing buildings and roadways. These structures create "heat islands" that adversely affect air quality and drain utility resources because they absorb the sun's heat and retain it longer than natural resources would. As a result, air temperatures increase which in turn increase smog and air pollution. *See id.* The structure of urban heat islands is explained in McPherson, *Cooling Urban Heat Islands*, *supra* note 28, at 152-55.

91. Dawe, *Sprinting Toward Sustainability*, *supra* note 29.

92. *See id.*

93. *See* Moll & Berish, *supra* note 5.

94. *See id.*; *see also* Michelle Robbins, *Thinking Sustainably: Sustainable Ecosystems*, 102 AM. FORESTS 7 (1996).

lized the CITYgreen data to influence the construction of Centennial Olympic Park, the largest urban green space developed in over a quarter of a century.[95] The environmental analysis also acted as an impetus for the Atlanta Regional Commission to pass and enforce new tree conservation ordinances.[96]

Prior to 1995, however, cities had few analytical tools to quantify the environmental impact of their development.[97] Although most planners intuitively knew that trees and other natural resources play a vital role in the urban environment, they could not place an actual value on natural resource use.[98] Developed in response to this problem, the CITYgreen program utilizes computerized land-use planning software to enable every community to determine the value of its local ecosystem.[99] Without a sufficient cost-benefit analysis like that made possible by CITYgreen, many city officials simply could not justify creating a budgetary allowance for natural resources.[100]

Atlanta was among the first communities to utilize the CITYgreen software program.[101] Studies revealed that a tree canopy increase of only ten percent would yield a one to two degree reduction in air temperatures.[102] CITYgreen models also demonstrated how Atlanta could reduce stormwater runoff which contributed to an increase in flooding and poorer water quality.[103]

In light of CITYgreen's notable success in Atlanta, other communities have employed the computerized mapping tool.[104] Mil-

95. *See* Nancy Anne Dawe, *Atlanta: Positive Energy, Positive Future? Georgia*, 103 AM. FORESTS 22 (1997) (noting that satellite images showed the dramatic tree loss and temperature build-up between 1972 and 1993).

96. *See* Dawe, *Sprinting Toward Sustainability*, *supra* note 29.

97. *See* Moll, *Urban Ecosystems*, *supra* note 37.

98. Gary Moll, Vice President of Urban Forestry at American Forests stated, "Instinctively, we knew that paving paradise and putting up a parking lot was a bad idea, . . . but now, with scientific and engineering data, we can prove it." Janine Benyus, *Saving For a Rainy Day: Forests and Trees as Helpers in Fighting Floods and Pollution*, 104 AM. FORESTS 24 (1998) (internal quotations omitted).

99. *See* Moll, *Urban Ecosystems*, *supra* note 37.

100. *See Helping Cities Save the Green: Desktop Geographic Information System CITYgreen*, 103 AM. FORESTS 10 (1997).

101. *See* Moll & Berish, *supra* note 5.

102. *See* Dawe, *Sprinting Toward Sustainability*, *supra* note 29.

103. "Runoff from developed areas typically causes water flow to increase [thereby] increasing the risk of flooding, more sediment in the water, and reduced water quality." Moll & Berish, *supra* note 5.

104. *See Urban Ecosystem Analysis & CITYgreen: Success Stories from Cities and Individuals* (visited July 5, 1999) <http://www.amfor.org/ufc/cgreen/success.html>. CITYgreen was developed by American Forests, a nonprofit citizen conservation organization founded in 1875.

waukee, Wisconsin and Austin, Texas used CITYgreen to perform an Urban Ecosystem Analysis ("UEA") of those cities.[105] CITYgreen enabled these communities to visualize definitive "what if" scenarios from the loss or addition of urban trees.[106] Moreover, CITYgreen provided "dollar values" to increased canopy coverage.[107]

In addition to its use of CITYgreen, Atlanta also enacted one of the state's most stringent tree ordinances.[108] The executive director of the Atlanta Regional Commission believed that the City no longer could afford to take its trees for granted.[109] State Representative Mark Burkhalter likewise supported the drafting of legislation that would require each Georgian county to enact tree preservation laws.[110] Unfortunately, Atlanta's existing ordinance has never been enforced.[111] Unless local authorities make enforcement a "budget priority," even the strictest ordinances may prove ineffective.[112]

B. Environmental Conservation Ordinances

1. *Effective Ordinances*

Communities in Texas are experiencing less resistance to the enactment and enforcement of the state's environmental protection ordinances than other urban communities, such as Baltimore, Maryland and Chicago, Illinois.[113] One of Texas' fastest growing

105. *See* MacDonald, *supra* note 4.

106. *See* Benyus, *Click Here For Cleaner Air*, *supra* note 3.

107. To compute this "dollar value," David Nowak, research ecologist with the U.S. Forest Service's Northeastern Forest Experiment Station, multiplies the tons of pollutants removed through canopy coverage by the figure economists use to estimate the effect pollutants cost society: $6750 per metric ton ("pmt") for nitrogen dioxide and ozone, $1650 pmt for sulfur dioxide, $950 pmt for carbon monoxide and $4500 pmt for particulate matter smaller than 10 microns. *See id.* Carbon sequestration is valued according to the price for carbon dioxide emission credits traded on the commodities market. *See id.*

108. *See* Editorial, *Things Looking Up for Atlanta's Trees*, ATLANTA J. & CONST., Dec. 2, 1998, at 22A. The ordinance requires "inch-for-inch replacement of trees destroyed by developers and builders or contributions to a tree bank for planting in other areas of the city when that's impossible." *Id.*

109. *See* Saporta, *supra* note 9.

110. *See* Editorial, *Things Looking Up*, *supra* note 108. The mandate to create tree ordinances will not stipulate what the ordinances must contain, but will allow local officials to design them to suit local needs. *See id.*

111. *See* Saporta, *supra* note 9.

112. Editorial, *Things Looking Up*, *supra* note 108.

113. *Compare* Radcliffe, *supra* note 88 (stating tree preservation ordinances enacted in Tarrant County to ensure leafy community remains green), *and* Vikas Bajaj, *Seeing Green: Laws Increasingly Require Builders to Consider Trees*, DALLAS MORN-

cities, Keller, passed a tree preservation law without encountering the friction that traditionally exists between developers and conservationists.[114] The ordinance that the Keller City Council approved obliges developers to obtain the City's permission before cutting down trees.[115] Residents who own more than five acres of land also must seek city permission before removing their trees.[116] Violations of the ordinance subject a developer or resident to fines of $100 per diameter inch of the tree illegally removed.[117] While at least one resident expressed dismay over the inclusion of residents in the city ordinance,[118] city planners believe the ordinance will ensure that their leafy communities remain "leafy."[119]

Another Texan community won a significant environmental victory defending its water pollution control ordinance.[120] In *Quick v. City of Austin*,[121] developers challenged an ordinance that prohibited home construction surrounding the City's watershed area.[122] The City maintained that the strictures it placed on converting its natural resources to an "impervious cover"[123] were rationally related to the protection of its water quality.[124] The Texas Supreme Court agreed, upholding the ordinance despite its determination that the ban on development would have the effect of significantly lowering property values in the area.[125] Two developers, however,

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ING NEWS, Jan. 16, 1999, at 35A (noting that developers, residents and city planners worked together to craft tree ordinance), *with* Richard O'Mara, *The Shrinking Canopy: Asphalt Covers More of Baltimore Every Year, Making Summers Hotter, Air Fouler, Costs Higher*, BALTIMORE SUN, Dec. 29, 1997, at 1D (reporting that Baltimoreans do not like trees because they are too "messy"), *and* Gary Washburn, *Red Tape May Grow on Trees*, CHI. TRIB., May 19, 1998, at 1 (describing how residents protested proposed ordinance which would require homeowners to plant trees).

114. *See* Bajaj, *supra* note 113.

115. *See* KELLER, TEX., ORDINANCE NO. 935 §§ 1(D)-(E) (1998).

116. *See id.* § 1(F).

117. *See id.* § 1(R)(1).

118. A Keller resident, Raymond Nolte, raised a potential constitutional challenge to the city's dictation of what property owners could do with their own property. This constitutional challenge could rest on issues of governmental taking, equal protection or due process. *See infra* notes 153-165 and accompanying text.

119. Radcliffe, *supra* note 88.

120. *See* AUSTIN CITY CODE OF 1992, ch. 13-7, art. I, § 13-7-36.1 (1992).

121. No. 96-1154, slip op., 1998 WL 236304 (Tex. May 8, 1998).

122. *See id.* at *1.

123. "Impervious cover" consists of non-porous material on the natural landscape, such as brick, concrete or asphalt. *See* O'Mara, *supra* note 113.

124. *See Quick*, 1998 WL 236304, at *9 (finding that under federal law, the city is required to monitor pollutant constituents in the water that result from runoff).

125. "[T]he fact that the Ordinance severely impacts some property values does not make it invalid, arbitrary, unreasonable, inefficient, or ineffective in its attempt to control water quality." *Id.*

testified that compliance with the ordinance actually saved them money because the impervious cover limitation decreased the need for stormwater retention facilities.[126]

The city of Austin also has conducted a UEA to increase its energy savings by expanding tree planting in appropriate locations.[127] A city's tree canopy coverage is essential to the effectuation of carbon sequestration.[128] According to the UEA, proper placement of the tree canopies in Austin could absorb thousands of tons of carbon each year, yielding an annual benefit of $5.3 to $9.2 million.[129] As a result of the UEA's cost-benefit analysis, the City's Office of Environmental Quality proposed the implementation of planting programs.[130]

As early as 1989, communities around Washington, D.C. recognized the need for sustained planting programs.[131] Despite the fact that tree ordinances existed in areas such as Takoma Park and Alexandria for several years, local officials pushed for greater tree protection.[132] In response to the disappearance of its shade trees, a Maryland delegate introduced a bill in the Maryland General Assembly to protect trees on state highway rights-of-way.[133] Coupled with Washington, D.C.'s aggressive tree-planting program, local communities hoped to profit from the many benefits that their trees provide.[134]

The benefits of an urban forest likewise have not escaped the attention of cities in Louisiana. Although New Orleans has never formed a comprehensive policy to protect its natural resources, a local environmental group has rallied the citizenry behind a proposed tree ordinance.[135] If passed, the ordinance would require persons involved with construction and maintenance projects to

126. *See id.* at *8.

127. *See Urban Ecosystem Analysis*, *supra* note 104.

128. *See supra* notes 23-26 and accompanying text.

129. For information relating to the computation of the annual benefit, see *supra* note 107.

130. *See Urban Ecosystem Analysis*, *supra* note 104.

131. *See* Editorial, *Save Our Trees*, WASH. POST, Feb. 26, 1989, at C8.

132. *See id.*

133. *See id.*

134. *See id.* (discussing benefits such as energy savings, increased property values, noise abatement and air pollution control).

135. *See* James Cohen, *Support Ordinance That Would Protect City's Trees*, TIMES-PICAYUNE, Apr. 18, 1998, at B6. The ordinance is supported by New Orleans Citizens for Urban Trees. *See id.*

obtain permits from the City's Department of Parks and Parkways before removing trees.[136]

Baton Rouge has the distinction of being known as a "Tree City, USA."[137] Its Tree and Landscape Commission has operated for several years to implement tree planting programs.[138] Both Baton Rouge Green, a grass-roots environmental group, and the Louisiana Urban Forestry Council have educated residents about the role trees play in their lives and the continued importance of incorporating trees into the planning process.[139] Baton Rouge treats its trees as a necessary part of the city's infrastructure and plans its urban forest "just as a community plans for development, roads and bridges."[140]

Not many communities plan their urban forests with the same enthusiasm with which they plan other infrastructures. For example, in an attempt to reorganize Indianapolis' development department and re-evaluate municipal priorities, its mayor discontinued development of a tree conservation ordinance in 1992.[141] No further developments have occurred since this temporary cessation in drafting the ordinance despite a county health department report revealing that residents placed a high priority on trees and green spaces.[142] The city of Indianapolis replaces only one in four trees lost on public property.[143] Urban forester John Parry lamented that "trees removed for development [often] fail to be replaced."[144] Currently, there are no plans to enact protective measures in Indianapolis.

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136. *See id.* The proposed ordinance also provides for enforcement, "giving the proper officials the right to issue citations to those violating the city's tree ordinances." *Id.*

137. In order to garner the label of a "Tree City," a municipality must "spend at least $2 a resident on urban forestry[,] . . . have a legally designated individual or group in charge of a tree program and an arboreal ordinance." Rachel Melcer, *Economies Really Do Grow On Trees, Towns Discover: Nature's Forgotten "Infrastructure" Gets Ringing Endorsement*, CHI. TRIB., Apr. 22, 1997, at 1.

138. *See* Bob Souvestre, *Trees Make Major Contribution to Landscape, Quality of Life*, ADVOCATE (Baton Rouge, La.), Aug. 30, 1998, at 10H.

139. *See id.*

140. *Id.*

141. *See* Clarke Kahlo, *The Public's Interest in Tree Protection*, INDIANAPOLIS STAR, Jan. 19, 1997, at B4.

142. *See id.* (noting that residents ranked the importance of flowers, trees and green spaces more highly than good school systems or a good economy).

143. *See* Niederpruem, *supra* note 4.

144. *Id.*

2. *Enforcement of Ordinances*

Even cities that have protective ordinances in effect may be unable to enforce them or may refuse to enforce them where they stifle development.[145] In Orland Park, Illinois, despite the city's stringent tree protection ordinance, a developer removed 100-year-old oak trees in a preservation area without incurring a fine.[146] Orland Park's attorney believed that the fine would not be upheld in court because the developer's annexation agreement predated the village's ordinance.[147] In a compromise with the village, the developer agreed to replace some trees with smaller and younger ones.[148]

Still other communities with active tree protection laws encounter resistance from the ordinances' beneficiaries. Expenditures aimed at maintaining Chicago and its suburbs as "Tree Cities" have "drawn flak" from area residents who believed that the money should be appropriated to other programs.[149] Similarly, some Baltimore residents expressed an outright dislike for their trees and did not react when its arboreal department was repositioned to a less influential office within the city.[150] Counties in Virginia generally require that developers leave a stand of trees as a buffer between a housing development and an office park, but most have not mandated that landowners replace trees lost to home construction, notably the largest source of tree loss.[151]

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145. *See, e.g.*, Darlene Gavron Stevens, *Builder Isn't Fined For Axing Old Oaks: Orland Park Doubts Penalty Enforceable*, CHI. TRIB., Jan. 19, 1999, at 1 (stating that the Orland Park, Illinois ordinance was not enforceable against development projects that predate its enactment): David Karp, *Tree Rules May Be Pruned for Builders*, ST. PETERSBURG TIMES (Tampa, Fla.), June 7, 1998, at 1 (reporting that Tampa, Florida will not enforce existing ordinance to encourage development).

146. *See* Stevens, *supra* note 145. The 1998 village ordinance imposes a fine on developers of $200 per diameter inch of illegally chopped trees. The developer in question did not have to pay what amounted to a $50,000 penalty because the "trees he cut were in the way of development and that some were on slopes that needed to be graded." *Id.*

147. *See id.*

148. *See id.* Despite this concession to the village, at least one resident was appalled at the removal. Resident Bob Loeb stated, "I'll be dead by the time those trees grow to be the same size as the ones we lost." *Id.*

149. Melcer, *supra* note 137 (noting that some residents indicated that they would rather see the money used for "police, roads, schools or other, more concrete services").

150. *See* O'Mara, *supra* note 113 (stating that residents who claimed a dislike for trees found them "messy, with their leaves and all" and resented their attraction of birds because "everybody knows what birds do").

151. *See* Rex Springston, *If a Tree Falls . . . We'll All Feel It, and It Won't Be Cool*, RICHMOND TIMES DISPATCH, Aug. 27, 1998, at E-1.

3. *Legal and Constitutional Challenges*

In communities where tree ordinances do dictate the manner in which a landowner must alienate her property, the law may face either invalidation or a constitutional challenge.[152] For example, the South Carolina Supreme Court invalidated the city of Spartanburg's tree protection ordinance, reasoning that the city lacked authority to enforce it.[153] As enacted in 1962, South Carolina's local planning and zoning ordinance did not stipulate protection for its urban forest.[154] As a result, the city could not enjoin a developer from cutting trees and shrubbery.[155] In 1988, however, the General Assembly amended the ordinance to provide specifically for the "landscaping and protection and regulation of trees."[156] Consequently, municipalities can promulgate regulations pursuant to this amendment enabling them to enforce tree protection ordinances without fear of invalidation.[157]

When it affects private property, a tree ordinance may be considered an uncompensated taking of property in violation of the Fifth Amendment.[158] An actual physical taking need not occur to create an unconstitutional exercise of eminent domain.[159] If an ordinance denies an owner all economically viable uses of her property and the government cannot demonstrate a rational relationship between the regulation and the goal thereof, then an unconstitutional taking has occurred.[160] Accordingly, a property owner must be compensated for the taking.[161]

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152. *See infra* text accompanying notes 153-165.

153. *See* Dunbar v. City of Spartanburg, 221 S.E.2d 848 (1976).

154. *See* S.C. CODE ANN. § 6-7-710 (Law Co-op. 1998).

155. *See Dunbar*, 221 S.E.2d at 850.

156. 1988 S.C. Acts 590.

157. *See* Code 1976 § 6-7-710.

158. *See* U.S. CONST. amend. V (stating that "private property [shall not] be taken for public use, without just compensation").

159. *See, e.g.*, Sheerr v. Township of Evesham, 445 A.2d 46, 57 (N.J. 1982) (finding that a taking occurs when an ordinance restricts property use so that the land cannot "practically be utilized for any reasonable purpose") (quoting Morris County Land Improvement Co. v. Parsippany-Troy Hills, 193 A.2d 232, 242 (N.J. 1963)).

160. *See* Parking Ass'n of Ga., Inc. v. City of Atlanta, 450 S.E.2d 200, 202 (Ga. 1994) (4-3 decision), *cert. denied*, 515 U.S. 1116, *reh'g denied*, 515 U.S. 1178 (1995); *see also* Stacy Plotkin Silber, *Afforestation Under Maryland's Forest Conservation Act and Selected County Codes: Viability of this Land Use Regulation Pre- and Post-*Dolan v. City of Tigard, 4 U. BALT. J. ENVTL. L. 53, 61 (noting that "government action becomes a regulatory taking where the ordinance does not substantially advance legitimate state interest . . . or denies an owner an economically viable use of his land").

161. *See* Lucas v. South Carolina Coastal Council, 505 U.S. 1003 (1992) (holding that landowner who purchased two residential lots and was subsequently banned from

Even where a municipality demonstrates a legitimate purpose for an ordinance, it still may violate the Fourteenth Amendment's Equal Protection and Due Process Clauses.[162] A court may determine that an ordinance applicable only to a select group or person abridges that group's or person's equal protection and due process rights, and is, therefore, unconstitutional.[163] However, an ordinance may single out a group without violating the equal protection or due process clauses if it has "some fair and substantial relation to the object of the legislation and furnishes a legitimate ground of differentiation."[164] Absent a showing that the ordinance presents a significant detriment to the landowner and that it is not substantially related to public health goals, the landowner cannot overcome the presumption that the ordinance is constitutionally valid.[165]

4. *Ordinances in Decline*

Communities with constitutionally valid and strictly enforceable ordinances may find that they nevertheless conflict with the city's future development goals. For instance, Tampa, Florida has considered amendments that will retract many aspects of its existing tree ordinance to encourage continued urban development.[166] The revised ordinance will make it easier for developers to cut down trees without any requirement to replace those below a certain

building homes thereon per the state beachfront preservation laws was entitled to compensation for the loss in value of the lots).

162. *See* U.S. CONST. amend. XIV, § 1 ("No State shall make or enforce any law which shall . . . deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.").

163. *See Sheerr*, 445 A.2d at 70-71. By making the ordinance applicable to only one developer, the ordinance in *Sheerr* failed to treat similarly situated landowners equally under the law. As enforced, the law would extract a public benefit from one landowner which had not previously existed. The landowner had no notice of the township's decision to impose a unique conservation burden on him. This results in a deprivation of his right to due process under the law. *See id.* at 60-65.

164. *Parking Ass'n of Ga.*, 450 S.E.2d at 203 (quoting Bailey Investment Co. v. Augusta-Richmond County Bd. of Zoning Appeals, 345 S.E.2d 596 (Ga. 1986)).

165. *See id.* at 202. *But see* Steel v. Cape Corp., 677 A.2d 634 (Md.App. 1996) (holding that the denial of a rezoning application resulted in an unconstitutional regulatory taking through application of the "rough proportionality test" set forth in Dolan v. City of Tigard, 512 U.S. 374 (1995)); Manocherian v. Lenox Hill Hospital, 643 N.E.2d 470 (N.Y. 1994), *cert. denied*, 514 U.S. 1109 (1995) (holding that a statute requiring owners to provide renewal leases to nonprivate hospitals constituted a regulatory taking through application of the *Dolan* test).

166. *See* Karp, *Tree Rules*, *supra* note 145; *see also* Ivan J. Hathaway, *Council Talks About Trees, HCC*, TAMPA TRIB., Jan. 10, 1997, at 1.

size.[167] Tampa officials believe that the revised tree ordinance will "encourage development in poor areas."[168] The Tampa Federation of Garden Clubs, however, has urged that the Tampa City Council actually *increase* the replacement requirement for trees of all sizes.[169] Even club members who agree that there exists a need to encourage urban development do not approve of protection for the City's "grand trees" only.[170]

Most recently, Tampa's City Council voted unanimously to "give a developer a break" with respect to its existing tree replacement rules despite the protests of local environmental groups.[171] While counsel for the developer of a large shopping center claimed that conforming to the existing ordinance created an economic hardship for her client, the Director of Florida Consumer Action Network saw no financial detriment.[172] The director felt that the city could ill afford to replace its own trees and that developers should bear the cost if they want to "take valuable habitat and turn it into a parking lot."[173] Instead of the required replacement of 1400 trees, the developer only would need to replace 1000, saving him several thousand dollars.[174] Under the existing ordinance, each uprooted tree must be reimbursed with $125. The revised ordinance will require a developer to pay only sixty-three dollars to the replacement fund if she or he is unable to replace uprooted trees.[175]

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167. *See* Richard Danielson, *Critics Say Tree Rules Cut Too Deep*, ST. PETERSBURG TIMES (Tampa, Fla.), Nov. 13, 1996, at 1B (reporting that the Mayor proposed elimination of requirement to replace trees of less than 12 inches in diameter); Michele Drayton, *Some Say City Tree Code Needs Pruning*, TAMPA TRIB., Oct. 31, 1996, at 1 (stating that the city will exempt developers from the ordinance with respect to landscaping parking lots).

168. Drayton, *supra* note 167.

169. *See* Richard Danielson, *Council Resists Tree Proposal*, ST. PETERSBURG TIMES (Tampa, Fla.), Nov. 15, 1996, at 3B.

170. The "grand trees" are those oak trees in the Tampa area with a diameter wider than 11 inches. One member of the Tampa Federation of Garden Clubs quipped that a failure to replace smaller trees will result in no "grand trees" for the future. She would modify the ordinance to require a proportional replacement of trees between five and eleven inches, as well as the grand oaks. *See* Ivan J. Hathaway, *City Tree Defenders Oppose Easing Replacement Rules*, TAMPA TRIB., Nov. 17, 1996, at 1.

171. David Karp, *Developer Gets a Break on Tree Replacement*, ST. PETERSBURG TIMES, Apr. 19, 1998, at 8.

172. *See* Karp, *Tree Rules*, *supra* note 145. Staff director Bill Newton exclaimed, "These developers' saying they can't afford to replace trees is outrageous. . . . We can't afford to not replace our trees." *Id.*

173. *Id.*

174. *See id.*

175. *See id.*

Ironically, Tampa's Mayor Greco stressed his commitment to environmental protection despite his administration's endorsement of the changes in the tree ordinance.[176] He claimed that during his tenure in office his administration has "worked to buy and preserve green space throughout the city" and that environmental conservation efforts will continue after his reelection.[177] Despite a recent meeting between Greco and environmental groups to discuss the city's future conservation policies, environmentalists remain skeptical of his commitment to their preservation concerns.[178] The environmentalists' concern appears to be justified by Mayor Greco's assertions that the projects he set in motion while working as developer, prior to taking office, would not be affected by the city's current protective ordinances.[179]

In another Florida community, the city commission passed an ordinance that would allow apartment dwellers and single-family home owners to remove trees without a permit.[180] The city commissioner felt that the new law would benefit areas where tree roots have caused problems with utility lines.[181] The director of the county's Department of Natural Resource Protection, however, urged the city of Deerfield Beach to repeal this new policy and maintain its prior strict ordinance.[182] Despite the county's strong suggestion that the city follow a more conservative tree preservation policy, the city emphatically stated that it did not "cut down trees indiscriminately" and did not need county authorities to stick "their noses into the city of Deerfield Beach."[183]

Without any interference from outside authorities, the city of Springfield, Illinois enacted a new tree ordinance that permitted

176. *See* Editorial, *Greco Moves on Environment*, TAMPA TRIB., Jan. 4, 1999, at 12.

177. *Id.*

178. Mayor Greco worked as a developer in the region for several years before taking office. He has negotiated several development projects which would be affected by the city's protective ordinances. Although he claimed that he was powerless regarding development projects approved before he became mayor, he still did not promise the environmentalists he would take action with respect to their on-going concerns. The Mayor did, however, agree to meet with the group in the future for further discussions. *See id.*

179. *See id.*

180. *See* Lisa J. Huriash, *City, County Clash: Tree Laws Have Them Seeing Red Over Green*, SUN-SENTINEL (Fort Lauderdale, Fla.), June 14, 1998, at 3.

181. *See id.*

182. Under the old policy, owners of multi-family homes could not remove trees without a city permit. Single-family homeowners could remove trees so long as they kept at least three trees and fifteen shrubs on their property. *See id.*

183. *Id.*

removal instead of preservation.[184] For example, if a resident deemed a tree a "nuisance," she could remove it at her own expense.[185] A local horticulturist resigned from the tree commission in protest of the proposed ordinance, noting that residents could remove trees even on their neighbors' land and replace them with mere "seedlings."[186] This ordinance surely jeopardizes Springfield's status as a "Tree City."[187]

Although Los Angeles does not permit residents to uproot "nuisance" trees, the city has engaged in an unofficial policy which may have the same deleterious effects.[188] According to one report, the Street Tree Division has lopped off tree tops in its urban forest as a grotesque form of "tree-trimming."[189] Once trees are "topped," they often no longer grow and may become breeding grounds for harmful insects.[190] One commentator noted that while the City officially did not condone the practice of "topping," its Environmental Quality and Waste Management Committee had done very little to prevent this activity.[191]

C. Other Proposed Environmental Strategies

At least two commentators have proposed a revision to SEQRA to serve the objectives of environmental protection.[192] According to the proposal, New York would create a new bureaucratic entity called the "New York State Environmental Review Board."[193] This Environmental Review Board ("ERB") would review only those actions where its participation was specifically requested and only with respect to positive or negative declarations of environ-

184. *See* Lisa Kernek, *Tree Expert Quits City Panel Over 'Insane' Ordinance*, STATE J.-REG. (Springfield, Ill.), May 31, 1997, at 1.

185. *See id.*

186. *Id.*

187. *See id.* There are reports that the proposed ordinance may be shelved. Instead of the controversial ordinance, the city proposed allowing homeowners to remove only those "nuisance" trees from a designated list of "undesirable" tree varieties. *See* Lisa Kernek, *Tree Ordinance Cut Short*, STATE J.-REG. (Springfield, Ill.), June 17, 1997, at 1. Furthermore, removal would be permitted for only those trees contiguous to the homeowner's property. *See id.*

188. *See* Editorial, *Branchless Policy: L.A. Can't See the Urban Forest for the Trees*, DAILY NEWS L.A., Feb. 10, 1999, at N16 (stating that "[t]he city of Los Angeles has the same policy for maintaining the trees it owns as King Louis XIV had for dealing with dissidents: Off with their heads").

189. *Id.*

190. For more information on the harmful effects of "topping," see GENE W. GREY, THE URBAN FOREST 113-17 (1996).

191. *See* Editorial, *Branchless Policy*, *supra* note 188.

192. *See* Gerrard & Bose, *supra* note 55, at 3.

193. *Id.* at 31.

mental impact or final EISs.[194] An applicant, lead agency or concerned environmental group seeking ERB review would file a statement detailing the basis for challenging or upholding the lead agency's determination.[195] Instead of the arbitrary and capricious standard of review under an Article 78 proceeding,[196] the ERB would use a "reasonableness" standard.[197] Its final determination would not be subject to judicial review except in circumstances involving allegations of corruption, fraud or misconduct.[198]

Although these commentators claim that an intermediate review process would "save significant litigation costs," the addition of an ERB would not alleviate any of the time and expense developers incur prior to receiving a negative or positive declaration under SEQRA.[199] The developer still must pay the lead agency's fee, as well as charges for any reports or studies required before the applicant could begin to invoke ERB review.[200] The commentators also recognized that concerns about the ERB's independence and professionalism might arise.[201] In response to this possibility, they have proposed that the ERB be comprised of individuals nominated by various organizations rather than employees of the state.[202]

Some U.S. lawmakers favor an extremely contentious environmental policy over expanded conservation laws.[203] These legisla-

194. *See id.*

195. *See id.*

196. Article 78 proceedings involve challenges to a municipality's final determination on issues authorized by state or local statutes. *See* N.Y. C.P.L.R. § 7801.

197. *Compare* New York City Coalition for the Preservation of Gardens v. Giuliani, 670 N.Y.S.2d 654, 654-60 (1997) (finding judicial review limited to whether the determination was made in accordance with lawful procedure and whether it was "arbitrary and capricious"), *with* Gerrard & Bose, *supra* note 55, at 31 (stating ERB review would be "less deferential than the arbitrary and capricious standard used in Article 78 proceedings").

198. *See* Gerrard & Bose, *supra* note 55, at 31.

199. *Id.* Furthermore, the applicant would be required to pay the review board's review costs in addition to the lead agency's review fees. The proposal also creates a 30 day period for anyone to challenge the board's decision with an additional 60 days for the board to respond. This 90 day period comes in addition to the time spent in preparing the EIS and conducting the required studies. Although the review board's decision is purportedly not subject to "judicial challenge," there are circumstances where an action can be brought to court, which will not save any litigation costs. *See id.*

200. *See* N.Y. ENVTL. CONSERV. LAW § 8-0109(7) (stating that developers must pay a fee for a lead agent's review).

201. *See* Gerrard & Bose, *supra* note 55, at 31.

202. *See id.*

203. One lawmaker advocates logging in the national forests, stating that, "My environmental friends may not agree with me on that issue, but I believe it is sustaina-

tors assert that expanded logging makes the most "environmental sense."[204] By harvesting mature forests that have sequestered a large volume of carbon, loggers clear areas for saplings, which will grow more rapidly. Carbon trapped in the mature trees is then converted into "homes, telephone poles [and] books."[205]

The debate over logging as a means of environmental conservation has raged for several years in Congress and has surfaced most recently with the introduction of a bill aimed at the management and protection of national parks and public lands.[206] The tension between logging as a benefit to the economy and a detriment to the environment has caused a large rift among environmentally conscious U.S. lawmakers.[207] On a national scale, the government certainly owns enough land to consider the possibility of some logging as a practical environmental management tool, at least with respect to a few designated forests.

On a local level, however, logging issues can position a community in an environmental quandary.[208] Residents in Missouri log and clear-cut their land for its local chip mill business.[209] Because nearly eighty-five percent of the forest is privately owned, the Missouri Department of Conservation cannot dictate how a landowner should exploit her property.[210] As a result, stormwater washes soil in clear-cut regions into local tributaries, contaminating the water supply.[211]

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ble, logging in the national forests." 143 CONG. REC. H5049-01, at H5103 (daily ed. July 10, 1997) (statement of Rep. Miller).

204. Cushman, *supra* note 25. The "most environmental sense" argument advocates the cutting of mature forests, "which are no longer growing quickly" and replacing them with saplings. *Id.*

205. *Id.*

206. *See* 144 CONG. REC. H9741-05, at H9756 (daily ed. Oct. 7, 1998) (statement of Rep. Vento) (passage of H.R. 4570 would be a "return to the thrilling days of the 104th Congress and the antienvironmental message that came from it" because it would accelerate the logging of the national forests); *see also* 138 CONG. REC. 22,027 (1992) (statement of Sen. Lieberman) (a proposed amendment to a bill would authorize "salvage logging" of dead and dying trees that would still have the same environmental effects "like any other logging . . . includ[ing] destruction of wildlife habitat, reduced water quality, and erosion"). *But see* 140 CONG. REC. S14,698-02, at S14,699 (daily ed. Oct. 7, 1994) (report commenting that "logging fire-killed timber provides the opportunity to explore new, efficient, economically and environmentally sound ways to manage the national forests").

207. *See* discussion *supra* note 206.

208. *See* Tom Uhlenbrock, *Which Forest Do You Prefer? (This is a Test)*, ST. LOUIS POST-DISPATCH, May 31, 1998, at B1 (debate over jobs versus the environment, and property rights versus government intervention, rages in the Ozarks).

209. *See id.*

210. *See id.*

211. *See id.*

Still, the Missouri Department of Conservation believes that logging for chip mills plays an important role in forest management because it removes trees otherwise not fit for timber sale.[212] Residents of Missouri, however, are concerned that excessive clear-cutting has taken a toll on the community's environment.[213] Although landowners do not want politicians to legislate their land use, the local forest manager fears that without some governmental intervention the region will bear the consequences of massive logging which lead to extensive soil erosion and water pollution.[214] While the community is not currently facing a drastic reduction in its tree canopy coverage, it may soon experience the adverse effects of unimpeded logging.[215]

III. Comprehensive Urban Forestry Program: Solutions to Green Space Issues

As discussed in Part II, cities and communities have responded differently to the issue of urban green space. While one city has relied heavily on its state environmental protection laws, others have employed the use of modern ecological analysis or tree and landscaping protective ordinances.[216] Individually, these responses have had varying degrees of success, but no particular plan has independently succeeded in protecting urban green space.[217]

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212. *See id.*

213. *See id.* Research has shown that massive clear-cuts alter wildlife makeup of the forest, eliminating some inhabitants permanently. Rain that was once trapped by the forest erodes the ground, carrying sediment into the waterways. *See id.*

214. *See id.*

215. *See id.*

216. *See, e.g.*, Gerrard & Bose, *supra* note 55, at 3 (New York City relies on CEQR which is based on SEQRA); Moll & Berish, *supra* note 5 (Atlanta utilized CITYgreen as well as a UEA of the city); Radcliffe, *supra* note 88 (Keller, Texas enacted strict tree preservation ordinances).

217. New York City's reliance on its version of SEQRA has resulted in "enormous fragmentation and inconsistency." Gerrard & Bose, *supra* note 55, at 3. Atlanta, which opted to conduct an ecological analysis of its city, could not act upon the analytical findings without the support of its local government and grass-roots citizens groups. *See* Dawe, *Atlanta: Positive Energy*, *supra* note 95; Moll & Berish, *supra* note 5. Tree and landscaping preservation ordinances may exist on a city's books, but they rarely find strict enforcement and may face constitutional challenges. *See* Editorial, *Things Looking Up*, *supra* note 108 (Atlanta's tree ordinance has never been enforced); *see also* Parking Ass'n of Ga., Inc. v. City of Atlanta, 450 S.E.2d 200 (Ga. 1994) (upholding the constitutionality of a city's tree and landscaping ordinance). *But see* Sheerr v. Township of Evesham, 445 A.2d 46, 66 (N.J. 1982) (holding that the tree legislation was deemed "presumptively valid," but its application to the plaintiff was unconstitutional).

A successful urban environmental strategy should combine each of these responses as part of a comprehensive urban forestry program ("UFP"). Under a UFP, a city may rely on its state sanctioned environmental protection laws, but should adopt measures that address the particular needs of its municipality. For instance, a city should employ the available ecological analysis tools to structure a sustainable urban community.

In conjunction with the laws and ecological analyses, a city also should enact tree and landscaping ordinances tailored to its urban environment. Tree ordinances should not only serve to protect existing trees, but also should contain aggressive planting programs. Moreover, in drafting the ordinances, the community should consider its local needs and enact rules that are flexible enough to allow for further development. Without such flexibility, the community may find enforcement difficult and the purposes of the ordinances frustrated.[218]

In addition, the ordinances should protect a property owner's constitutional use of land by providing uniform treatment to those similarly situated while assuring enforcement that is rationally related to the ordinances' goals.[219] Proposed development projects which meet the standards set forth in the city's UFP will ensure that continued community growth takes into account vital environmental concerns.

Under a UFP for New York City, actions that qualify as "Type II" or "Exempt Actions"[220] pursuant to SEQRA or CEQR should not escape environmental consideration. Although the state legislature has determined that these types of activities will not significantly impact the environment, it made such a determination without the ecological research tools currently available.[221] The New York State legislature should consider amending SEQRA to mandate use of an environmental analytical tool for development projects, such as CITYgreen. Through the use of CITYgreen, the

218. *See, e.g.*, *supra* notes 166-175 and accompanying text.

219. For a discussion of constitutional issues arising from tree ordinances, see *supra* notes 153-165 and accompanying text.

220. "Type II" and "Exempt Actions" have been determined not to have a "significant impact on the environment or are otherwise precluded from environmental review under Environmental Conservation Law, article 8." N.Y. COMP. CODES R. & REGS. tit. 6, § 617.5(a); *cf.* 43 R.C.N.Y. § 6-04.

221. The legislature made its determination based on its social policy. Legislators found that there was "a need to understand the relationship between the maintenance of high-quality ecological systems and the general welfare of the people of the state, including their enjoyment of the natural resources of the state." N.Y. ENVTL. CONSERV. LAW § 8-0103(3).

City can conduct a UEA for certain proposed "Type II" activities to decide if some natural resource measure will produce an environmental benefit from the activity, such as the addition of trees where none previously existed or the replacement of trees uprooted for development on a "Type II" site.

Similarly, the City can employ CITYgreen for certain "Type I" activities in lieu of preparing an EIS or in conjunction with the EIS's studies.[222] A UEA produced through CITYgreen could reveal alternate methods of energy conservation and stormwater management through the expansion or preservation of trees on property. It could also show whether natural resources can mitigate the otherwise adverse impact of certain "Type I" development actions. Because CITYgreen and the UEA are not as involved as the preparation of an EIS, they will not incur the same expense as an EIS.[223]

While some have criticized results from satellite imaging used in CITYgreen,[224] the message behind the aerial portraits has not been lost on communities.[225] Despite noting that "problems arise with differences in detail in the pictures taken by older, lower-resolution satellites and those taken by more modern equipment," officials

222. Currently, the designation of an activity as "Type I" presumes that the activity will likely have a significant adverse effect on the environment and "may require an EIS." N.Y. COMP. CODES R. & REGS. tit. 6, § 617.4(a)(1); *cf.* 43 R.C.N.Y. § 6-15. Preparation of an EIS involves considerable expense and time and does not guarantee that the project can proceed without additional delays or challenges thereto. On the other hand, a UEA through CITYgreen costs approximately $5000 to $80,000, depending on the size of the project, and can be conducted quickly. *Compare* N.Y. ENVTL. CONSERV. LAW § 8-0109 (requiring a number of studies as well as fees to the reviewing agency), *and* Gerrard & Bose, *supra* note 55, at 3 (noting that some EISs are approved within days of submission while others are delayed for months and those approved may be challenged in court), *with* Moll & Berish, *supra* note 5 (stating that the "cost of conducting an analysis can range from $5000 to $80,000, depending on the size of the city, the information local agencies have on hand, and the amount of time local officials can contribute to conducting the analysis"), *and* Moll, *supra* note 37 (stating that "[t]he analysis can be done quickly").

223. According to Alice Ewen, director of the CITYgreen program at American Forests, the cost of purchasing the software program is only $800.

224. Critics in Seattle disparage CITYgreen's use of black coloring on satellite images for areas with less than twenty percent tree cover. Although twenty percent canopy coverage is not optimal for some areas, there still are *some* trees in the area, which the choice of shading does not reveal. The shading projects the image of barren land, which is not accurate on ground level. *See* J. Martin McOmber, *Treeless in Seattle?: Images Miss Mark*, SEATTLE TIMES, July 17, 1998, at A1.

225. Skeptics in the Seattle area have questioned the results of a UEA conducted on its city from 1972-1996. According to American Forests, Seattle appears to have lost 37 percent of its heavily forested areas over the research period. Residents claimed, however, that some of the images that showed barren sites were actually wooded. *See id.*

have had to acknowledge that they needed greater focus on their local reforestation program.[226] CITYgreen has encouraged increased monitoring of the city's natural landscape.[227]

Even where a proposed activity would qualify for exempt or "Type II" treatment under CEQR or SEQRA, under the city's UFP, the developer may be required to conduct the geographic information system ("GIS") survey described in CITYgreen. The GIS will present the developer with various hypothetical scenarios involving the removal or addition of trees around the project.[228] The UFP also could provide a forum for concerned environmentalists and city residents to protest the urban forester's decision to allow tree removal.[229] Public notice could be provided with respect to trees selected for removal. The notice would contain the environmental analyses undertaken in making the decision. Protesters would have no more than thirty days to counter the decision by submitting their own environmental analyses of the project. The urban forester or environmental committee would make the ultimate decision on which plan makes the most environmental sense.

In addition to implementing CEQR and CITYgreen, New York City's UFP must contain a detailed, strictly enforceable tree and landscaping ordinance.[230] The ordinance should commission an Urban Forester[231] or city management committee to oversee its enforcement.[232] The type of project to be completed will determine

226. *Id.*

227. *See id.*

228. *See* Benyus, *Click Here For Cleaner Air*, *supra* note 3.

229. *See, e.g.*, Rachel Gordon, *City Fells Final 4 Hallidie Plaza Trees: Neighborhoods Come Together to Save Street Greenery*, S.F. EXAMINER, Mar. 19, 1998, at A-11 (reporting that the public has ten days to protest urban tree removal after notice posted on targeted tree).

230. Guidelines for developing a community tree preservation ordinance have been promulgated by the Community Tree Preservation Task Force of the Minnesota Shade Tree Advisory Committee. The first step in developing an ordinance is an assessment of the tree resources in the urban forest. The publication also acknowledges that enforcement issues cloud the drafting process and makes recommendations on how to overcome these challenges. *See A Guide to Developing a Community Tree Preservation Ordinance* (visited July 5, 1999) <http://willow.ncfes.umn.edu/mnstac/treepres.htm>.

231. An "Urban Forester" would be commissioned to oversee the city's UFP. The position would entail the supervision of the tree conservation ordinances, as well as the recommendation of appropriate tree plantings. *See, e.g.*, Brandon Loomis, *A New Tree Preservation and Planting Ordinance in Farmington Would Make It a City True to Its Roots*, SALT LAKE TRIB., Sept. 7, 1998, at D1; Wireback, *supra* note 9.

232. Currently, the City Planning Commission oversees the implementation of laws that require environmental reviews of actions taken by the city. *See* 62 R.C.N.Y. § 5-01 (1997). This commission could be placed in charge of tree ordinance enforcement.

whether the city ordinance requires the replacement in kind of those trees removed during development[233] or requires developers to reimburse a tree fund if replacement of the trees is not possible.[234] Alternatively, the ordinance can credit developers who conserve trees by relaxing other, less pressing zoning requirements.[235] If the ordinance places restrictions on private landowners' treatment of trees, it should be carefully drafted to avoid constitutional issues such as governmental takings, equal protection and due process.[236] Indeed, although the Supreme Court recently upheld a tree preservation law, two Justices believed that such laws may constitute a regulatory taking.[237]

Although the use of trees is not the only answer to the urban green space problem, it provides the most cost-effective solution.[238] The UFP need not involve the creation of another legislative board, such as the ERB.[239] Creating another bureaucratic group

233. Under the existing administrative code, trees removed need only be replaced by "2½ to 6 inch caliper trees." N.Y.C. ADMIN. CODE § 18-107. However, caliper trees are not necessarily the best trees for the urban environment. Recommended urban trees include dogwoods, crab apples or magnolias for small areas or plantings close to power lines. In larger spaces, the city can choose "ginkgo, oaks, sweet gum, linden and basswood" as well as sugar and red maples. Sue Lowe, *You Can Turn Over a New Leaf By Planting Trees*, S. BEND TRIB., Jan. 4, 1999, at B3.

234. *See* Editorial, *Things Looking Up*, *supra* note 108 (Atlanta's tree ordinance demands inch-for-inch replacement of trees destroyed by developers or contributions to a tree bank for plantings in other areas).

235. *See* Liz Szabo, *Chesapeake Panel to Consider Tree-Saving Ordinance*, VIRGINIAN-PILOT (Norfolk, Va.), Oct. 8, 1997, at B5 (stating developers who save trees may build closer to the road or construct fewer parking spaces under proposed ordinance); Jake Sandlin, *Council Chief Urges Builders to Save Trees*, ARK. DEMOCRAT-GAZETTE, Oct. 10, 1998, at B2 (noting that ordinance rewards developers with a point system based on tree preservation).

236. Keller's city tree ordinance requires developers, as well as residents who own more than five acres to obtain city permission to cut down trees. One resident complained that this restriction may be unconstitutional. *See* Radcliffe, *supra* note 88; *see also* Loomis, *A New Tree Preservation*, *supra* note 231 (stating ordinance requires homeowners to seek a permit from the city's urban forester before planting a tree).

237. *See* Parking Ass'n of Ga. v. City of Atlanta, 515 U.S. 1116, 1118 (Thomas, J., dissenting) ("The distinction between sweeping legislative takings and particularized administrative takings appears to be a distinction without a constitutional difference.").

238. *See, e.g.*, William Stevens, *Urban Trees: Forest Service Quantifies Benefits*, GREENWIRE, Apr. 19, 1994 (researchers calculated that planting and maintaining trees in Cook and DuPage counties in Illinois would cost $21 million, but yield a $59 million benefit). *See also, e.g.*, Gene Duvernoy, *Keeping It Green: Political and Administrative Issues in the Preservation of the Urban Forest*, *in* URBAN FOREST LANDSCAPES: INTEGRATING MULTIDISCIPLINARY PERSPECTIVES 78, 78-79 (Gordon A. Bradley ed., 1995) (noting that the benefits of urban land preservation programs are permanent and the payoffs are "extraordinary").

239. *See* Gerrard & Bose, *supra* note 55, at 31.

may exacerbate existing problems with environmental assessment review instead of realizing the purpose for which the state enacted SEQRA.[240] Input from an additional board would only compound the time delays already inherent in the environmental review process. Existing problems include a failure of SEQRA to incorporate tree planting programs as an integral part of development and a lack of environmental focus in certain "Type II" activities.

As an environmental management tool, logging would not affect a community such as New York City which does not maintain land for this purpose. As discussed earlier, logging creates its own environmental hazards for those urban areas which rely on their forests for the local economy. Similar to logging communities, however, New York City must consider the effect of failing to sustain adequate tree coverage. Without trees as natural allies in preventing excessive stormwater runoff and water contamination, the City and logging towns both subject their residents to substantial environmental risks associated with these phenomena.[241]

Under a UFP, use of CITYgreen software and a UEA can resolve these environmental risk factors. These ecological tools will be more consistent and predictable if required for both "Type I" and "Type II" actions. They can set a standard for judging the environmental effectiveness of urban planning. The lead agency will determine the effect of the UEA and can make an educated and economic judgment about urban development projects. Such analyses should also be made available to the public for review.

Those wishing to challenge the lead agency's decision should be allowed to contest the data only if the analysis was fraudulently conducted or the alternative chosen was clearly unreasonable given the other options available. Also, standing should be granted to any person wishing to challenge the city's environmental determinations by showing that the city has not fulfilled the objectives set forth in the UFP.[242] A court should show extreme deference to the

240. The New York State legislature, in enacting SEQRA, noted that:

> Trees and shrubs can improve the quality of urban environments by helping to prevent erosion, by providing shade, modifying extremes of temperature and humidity, helping to reduce noise and air pollution, and enhancing the aesthetic quality of life. . . . [V]egetation in urban green space can contribute to urban water shed management and provide habitats for desirable urban wildlife.

N.Y. ENVTL. CONSERV. LAW § 53-0301(3) (1997).

241. *See supra* notes 44-47.

242. *See, e.g.*, Sierra Club v. Glickman, 156 F.3d 606 (5th Cir. 1998) (holding that an organization had standing to pursue action against the USDA under the Endangered

lead agency's review and dismiss any case which does not meet the burden of proof set forth above.

Conclusion

In order to inject more environmental focus into future development, New York City should adopt a comprehensive UFP. As part of the UFP, the City would utilize recently developed environmental software, such as CITYgreen, as well as a UEA to assess the current status of its urban forest and evaluate the environmental impact of all development projects. A successful UFP will also incorporate tree and landscaping protection ordinances. These ordinances can mandate replacement of removed trees or payments to a tree planting fund in the event that replanting is not possible. They also can credit developers who endeavor to save existing trees.[243] Caution should be taken when drafting restrictive provisions for private landowners to avoid constitutional issues relating to governmental takings, equal protection and due process.[244]

Trees are not a "soft benefit"[245] as once characterized by developers.[246] Their concrete economic value can be ascertained through the use of CITYgreen and a UEA for many construction projects in New York City. Because all types of development projects would be reviewable under the City's UFP, it will generate greater predictability in the environmental review process than currently obtainable under SEQRA.[247] A comprehensive UFP also can actualize the potential benefits of urban green space by protecting existing trees and, hopefully, planting more trees . . . please.

Species Act for failure to carry out its conservation program for endangered darter, salamanders and wild rice without showing that it had suffered an injury in fact).

243. *See, e.g.*, Ed Cullen, *The Green Team: Baton Rouge Working Hard to Maintain City's Urban Forest*, ADVOCATE (Baton Rouge, L.A.), Apr. 20, 1997, at 1H.

244. *See supra* notes 153-165 and accompanying text.

245. The "soft benefit" argument stems from those developers, engineers and urban leaders who do not want to incur the expense of replacing trees after removing them for development. Often a city's requirements for drainage, roads and other infrastructure win out over tree conservation. If a city values these man-made improvements more than its natural resources, trees certainly appear less "beneficial."

246. *See* MacDonald, *supra* note 4; *see also* Tom Bailey, Jr., *Nothing So Unloved as a Tree Law in a Growth Town*, COMMERCIAL APPEAL (Memphis, Tenn.), Sept. 15, 1998, at B3 (trees viewed as a "hindrance" according to one developer).

247. *See* discussion *supra* Part I.B.