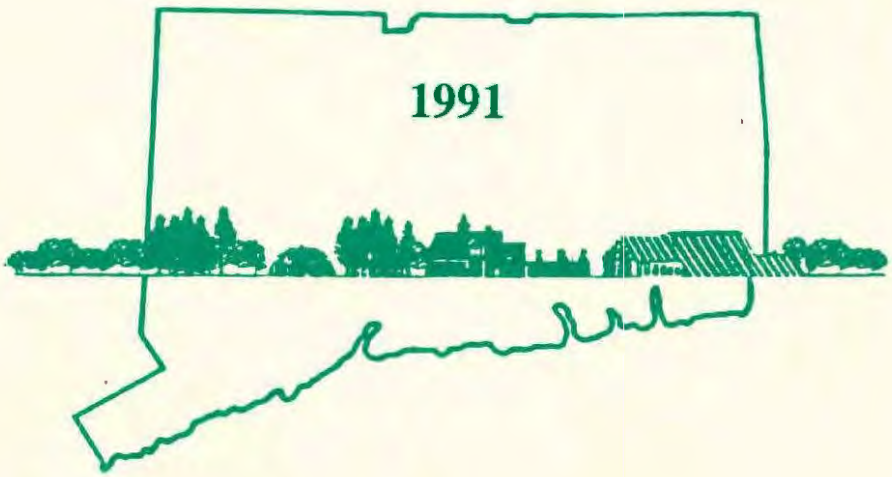
The Annual Report of
The Council on
Environmental Quality

20th Anniversary Issue

CONNECTICUT ENVIRONMENT REVIEW



STATE OF CONNECTICUT

COUNCIL ON ENVIRONMENTAL QUALITY

The duties and responsibilities of the Council on Environmental Quality are described in Sections 22a-11 through 22a-13 of the Connecticut General Statutes. The Council is a nine-member, bi-partisan board that functions independently of the Department of Environmental Protection (except for administrative functions). The Chairman and four other members are appointed by the Governor; two members are appointed by the President Pro Tempore of the Senate, and two by the Speaker of the House.

The Council's primary functions include:

1) Submittal to the Governor of an annual report on the status of Connecticut's environment, with recommendations for remedying deficiencies in state programs;

2) Review of state agencies' construction projects; and

3) Investigation of citizens' complaints and allegations of violations of environmental laws.

In addition, under the Connecticut Environmental Policy Act and its attendant regulations, the Council on Environmental Quality reviews Environmental Impact Evaluations that state agencies develop for major projects; the Council must be consulted when disputes arise regarding any agency's finding that its project will not cause significant environmental impact.

COUNCIL MEMBERS -- 1991

John A. Millington, Chairman
Washington Depot

Terry Backer
Stratford

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Gregory A. Sharp
Northford

Dana B. Waring
Glastonbury

Karl J. Wagener
Executive Director

STATE OF CONNECTICUT

COUNCIL ON ENVIRONMENTAL QUALITY

April 10, 1992

Honorable Lowell P. Weicker, Jr.
Governor of Connecticut
State Capitol
Hartford, Connecticut 06106

Dear Governor Weicker:

I am pleased to present the annual report of the Council on Environmental Quality for 1991, a year that saw the 20th anniversary of the Council on Environmental Quality, Department of Environmental Protection, and Connecticut Environmental Policy Act. In recognition of this milestone, Part One of this report is an expanded "Guide to the Quality of Connecticut's Environment." Where possible, the Council has summarized two decades of environmental progress, current conditions, and probable future trends.

In Part Two, the Council explores an exciting new approach to land conservation: Greenways. A greenways program in Connecticut would make our public lands and the outdoors accessible to all the residents of the state, provide an effective tool for planning open space acquisitions, and leave a legacy of green spaces for generations to come. The Council encourages you to support this proposal by appointing a Greenways Commission to further explore the possibilities afforded by greenways.

Having concluded my first year as Chairman, I am impressed with the knowledge and hard work of my fellow Council members. Their time and effort is volunteered generously for the sole purpose of making Connecticut a better place to live. Part Three highlights some of the projects undertaken by the Council members working as a whole and in subcommittees.

The Council hopes this report will be interesting and informative to you, the General Assembly, and the citizens of Connecticut. We look forward to working with you to accomplish the challenging goals we have set forth. If the Council can be of assistance, please do not hesitate to let me know.

Best personal regards,

John A. Millington
Chairman

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CONTENTS

PART I

A GUIDE TO THE QUALITY OF CONNECTICUT'S ENVIRONMENT

A GUIDE TO THE QUALITY OF CONNECTICUT'S ENVIRONMENT

INTRODUCTION

"What is Connecticut?

The gateway to New England and one of the original thirteen states, a pioneer in industrial development, with a wide variety of scenery and rich exhibits from the Colonial Era... You are never out of sight of the wooded hills. In spite of the dense population, the wilderness may be reached in a few miles from almost every manufacturing town. The open agricultural plateau gives wide vistas."

Emergency Relief Commission, *The Connecticut Guide*, 1935.

"Connecticut enjoys one of the highest standards of living in the country, with consistently high income levels and a wide choice of cultural activities, all amid a picture-postcard setting."

Department of Economic Development, *Connecticut Market Data*, 1990.

Connecticut has long portrayed itself as a culturally-advanced populace inhabiting a developed landscape that harmonizes with the natural environment. Any resident knows that such a characterization is based on much truth and considerable fiction. In 1991 we marked the 20th anniversary of the Council on Environmental Quality, as well as the Department of Environmental Protection and the Connecticut Environmental Policy Act. It seems an ideal time to reflect on our accomplishments over the past twenty years. The Council intends the following pages to present a factual overview of the state's long efforts to achieve its ideal of a conservatively developed landscape drained by clear rivers, enveloped by sweet, healthful air, and cradling a clean sea.

The view *toward* Connecticut, from the vantage of numerous nationwide surveys and comparisons, is instructive. Connecticut is generally viewed as:

* a leader in environmental policy. The 1991-92 Green Index ranks our state 4th in development of environmental policy that other states imitate;
* cheap. Connecticut regularly ranks near the bottom in spending to implement and enforce its environmental laws, on both a per-capita basis and as a percent of annual state spending;
* average in water quality. Slightly better for drinking water;
* below average in air quality. Hartford and New Haven are in the 17th worst metropolitan area, Fairfield County is in the 10th. Most of the problem is caused by automobile emissions;
* among the poorest in public lands (actual and per capita). A slide from our years as a leader earlier this century. Also among the lowest in per-capita expenditures for operating and maintaining parks.

Are these outsiders' views of Connecticut correct? In the following sections on air, water, wildlife, land, and the built environment, we have used the best data believed to be available to evaluate trends in the quality of our environment and progress toward our shared goals. We have placed a special emphasis on long-term trends and, where possible, comparisons with conditions in 1971 to illustrate how far we have come and how far we must go.

AIR

WHERE WE RANK among the 50 states (1=best, 50=worst):

- 50th in percentage of population protected from unhealthful levels of ground-level ozone (the "bad ozone"); one of 6 states with 100% exposed. Fairfield County and the rest of Connecticut are ranked 10th and 17th respectively among the nation's 250+ metropolitan areas in severity of the problem.
- 50th in minimizing per-capita emissions of chemicals that deplete upper-atmosphere ozone (the "good ozone").
- 7th in minimizing per-capita emissions of carbon dioxide (a greenhouse gas believed to cause global climate change).

STATE TAX DOLLARS spent on air quality programs, per-capita, FY 1991: $1.07
(For perspective, total spending of all state tax dollars per capita in FY 1991 was about $2300.)

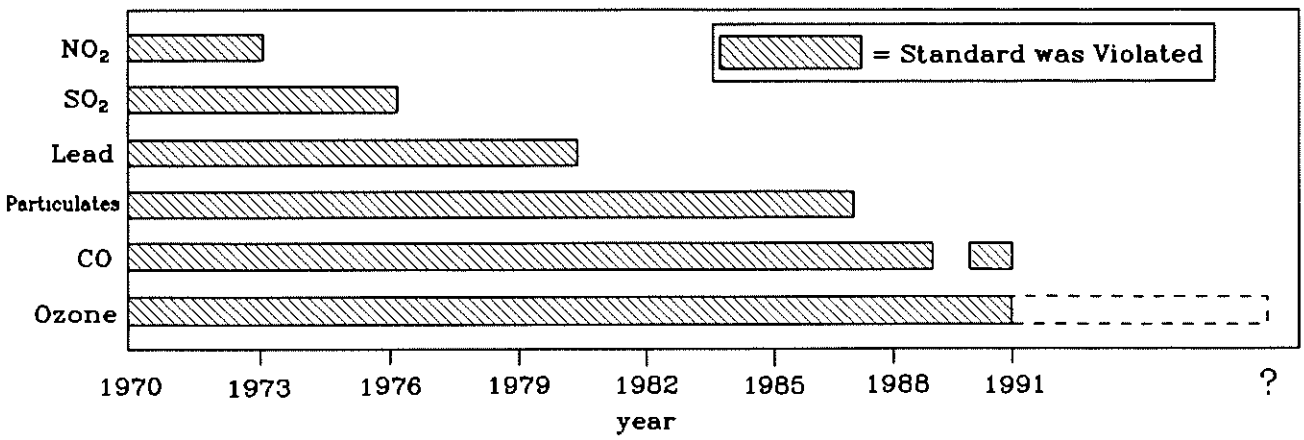
NUMBER OF AIR POLLUTANTS regulated in 1985: 6
NUMBER OF AIR POLLUTANTS regulated in 1991: 656

KEY FACTS: One air pollutant impairs human health statewide: ground-level ozone, or smog, caused primarily (70%) by gasoline-powered vehicles. Other health-threatening pollutants have been kept in check by industrial pollution controls, fuel standards, energy conservation programs, and heavy reliance on nuclear energy. Industrial chemical emissions can cause local health and odor problems, but do not have ozone's widespread effect.

TWENTY YEARS AGO: Connecticut's air failed to attain the air quality standards for the six priority pollutants. In the two years from 1971 to 1973, violations of the sulfur dioxide and particulate standards decreased (improved) by 67 and 77 percent respectively. But the state had a "considerable problem with photochemical oxidants [ground-level ozone]." In August, 1973 alone, our air violated the ozone standard 25 days in Stamford, 21 days in Greenwich, and 5 days in Windsor. (*1971-1973 Connecticut Air Quality Summary*)

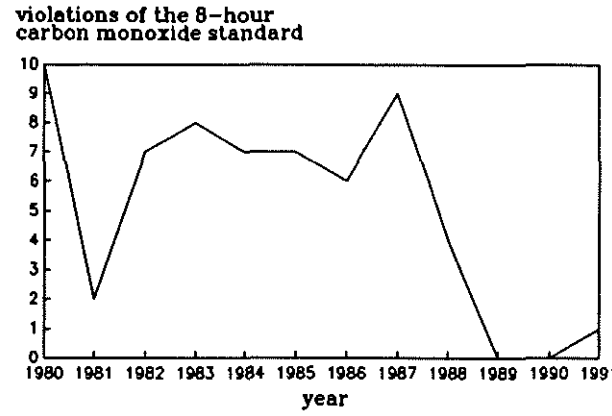
Timeline Illustrating Years in which Connecticut Violated the Air Quality Standard for Six Priority Pollutants

(chart does not indicate frequency of violations)

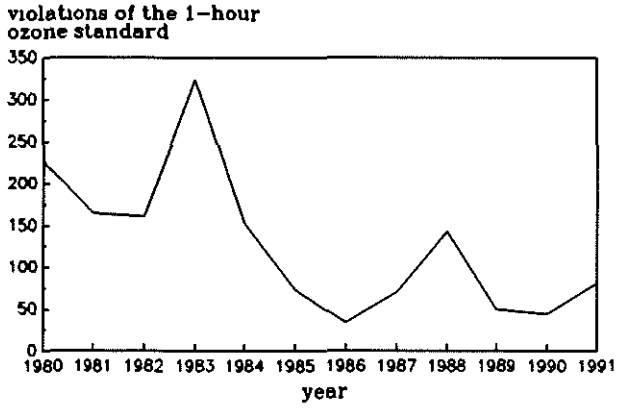


RECENT TRENDS: Along with most other statewide air problems, the carbon monoxide problem has been solved almost completely (see graph at right), leaving ground-level ozone as the only pollutant which regularly violates the federal standard set to protect human health (see graph below). Ozone is formed when volatile organic compounds (VOCs) and nitrogen oxides react in sunlight. About 70% of VOCs are from automobile emissions. Even as car emissions have improved Connecticut residents have negated these improvements by driving more each year.

CO Violations



Ozone Violations



The constant increase in miles driven far exceeds population growth. While Connecticut spends more per capita on mass transit than many states, most drivers' destinations are too scattered to be served by transit. The trend continues to be toward automobile-dependent residential and commercial development, a trend which imperils the state's plan for achieving healthful air. (See the CEQ's 1990 annual report for a discussion of the need to integrate transportation and land use planning to prevent further deterioration of air quality.)

THE FUTURE: The 1990 Clean Air Act Amendments are the most powerful set of federal environmental laws to be enacted in years. The ozone pollution reduction requirements will exert a heavy influence on the future of development in Connecticut. They will require reductions in emissions from automobiles, probably through efforts to help residents drive less. The Act will also require many new industrial permits, which will be an administrative burden unless the DEP is given full support in its efforts to institute innovative, fee-funded permitting programs.

PUBLIC LANDS

STATE TAX DOLLARS spent to manage state parks and forests, per capita, FY 1991: $2.68
(net expenditures based on general fund appropriation minus revenue produced by parks and forests for the general fund)

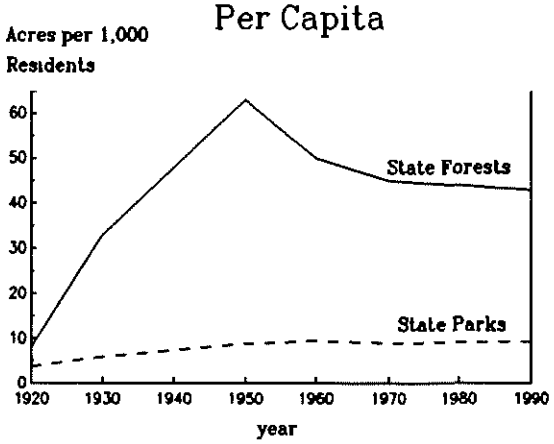
WHERE WE RANK among the 50 states (1=best, 50=worst):

46th in percentage of the state budget appropriated for management of state parks (0.12%)
49th in total amount of federal, state, and local public land per capita (96 acres)
49th in percentage of state's land area in federal ownership (0.4%)

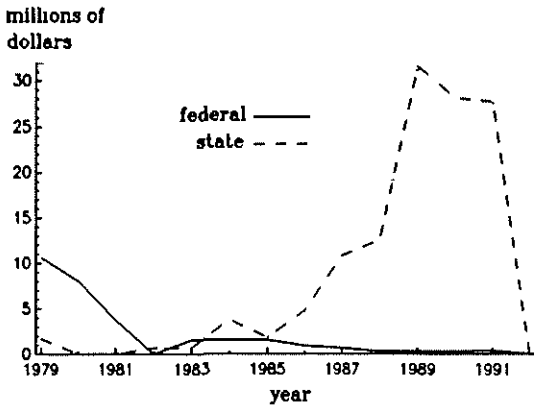
KEY FACTS: By all standards, Connecticut is impoverished in public lands. The state stands nearly 100,000 acres shy of its 300,000-acre land ownership goal. From 1987 through 1991, the state bought 5600 acres at 68 cents on the dollar by cooperating with municipalities and private land conservation groups. Connecticut has never adopted a land acquisition plan; instead the DEP evaluates lands offered to it.

THE EARLY YEARS: When the state parks and forests movement got underway in the early 20th century, Connecticut was a leader. In 1928, Connecticut was fourth in the nation in percentage of its land area that was preserved as state parks and sixth in percentage that was state forest. Even then, concern about population density spurred the author of a report on state lands to note that *"it is evident that Connecticut has made considerably less provision for her citizens in this regard* [i.e., access to land for recreation] *than New York, Vermont, and New Hampshire and is about on a par with Massachusetts."* (Philip Buttrick, *Public and Semi-Public Lands of Connecticut*, 1930.) Progress continued until the 1950s, then leveled off (see graph at right).

Acres of State Forests and Parks Per Capita



Allocations for Open Space Aquisition in Adjusted Dollars



RECENT TRENDS: The 1970s saw a surge in federal dollars for state and municipal land acquisition. From 1980 to 1986, funding dropped and progress again leveled off until the creation of the state Recreation and Natural Heritage Trust Fund in 1986. Substantial funding to purchase land in cooperation with municipalities and private conservation groups continued through 1990 (see graph at left). Land is expensive, however, and the acreage acquired did not greatly affect the acres to person ratio.

The 1980s saw a modest but unprecedented level of land conservation by the federal government in Connecticut, a state that had lost out on federal lands for two centuries. (In large part, it is the absence of much federal land that puts Connecticut near the bottom of open space rankings today). Connecticut's Congressional delegation cooperated to help create the Stewart B.

McKinney National Wildlife Refuge, the Appalachian Trail corridor, the Weir Farm National Historic Site, the Silvio Conte National Fish and Wildlife Refuge, and federal studies of the Farmington River and the Eastern Connecticut Heritage Corridor. Total federal acreage, however, remains small (about 10,000 acres).

THE FUTURE: Our challenge is to find a way to take maximum advantage of the public lands we have already and the willingness of 110 land trusts and 169 municipal conservation commissions to work toward a common goal. See Part II of this report for a special report on **Greenways for Connecticut**.

FOCUS: CONNECTICUT RECYCLES

In 1971 recycling was a popular topic of discussion; by 1991 Connecticut converted talk into action. While we have not met the goal of 25% established by the General Assembly, hundreds of thousands of tons per year are being recycled and composted annually. More than one in five municipalities have met or exceeded the 25% goal, and more than 80% have curbside collection. The environmental benefits of recycling are largely found in avoided problems: fewer landfills, less groundwater contamination, energy saved, and less air pollution. These benefits may take years to manifest themselves as upturns in the environmental indicators tracked in this report. The invisible nature of recycling's benefits make our citizens' accomplishments even more remarkable. With this strong start, Connecticut can continue to make progress by developing stronger markets for recycled products and pursuing more aggressive waste reduction policies.

WOODLANDS

PERCENTAGE OF CONNECTICUT covered by forests: 59

KEY FACTS: Fragmentation of the forest is the single greatest factor diminishing the quantity and quality of economic and environmental values of our forests. Eighty-eight percent of Connecticut's forest land is privately owned; most parcels (77%) are less than ten acres. Small woodland parcels are usually not managed and yield few commercial forest products, no public recreation benefits, and diminished wildlife habitat. The 59% figure (above) includes many wooded subdivisions that actually provide few forest benefits.

SIXTY YEARS AGO: *"Practically all of the original forest growth has been wiped out by the inroads of lumbering and the effects of fires... Today nearly 50 percent of the area of the state is covered with second-growth timber."* Connecticut Geologic and Natural History Survey, *The Mammals of Connecticut*, 1935.

TWENTY YEARS AGO: The acreage of forest land was the same in 1971 as now, but trees were smaller. Most of the forestland was classified as seedlings/saplings or poletrees; now 63% is considered sawtimber, the largest class. In twenty years, red maples grew in volume by 55% supplanting red oaks (the growth rate of which declined because of large harvest rates and gypsy moth infestations) as the top species in the forest.

THE FUTURE: Because the average age of forest owners now exceeds 60 years, estate settlements will follow only slightly behind development pressure as a major cause of further forest fragmentation. More than sixty thousand acres of hemlocks are also threatened by the hemlock woody adelgid, a particularly deadly, introduced pest.

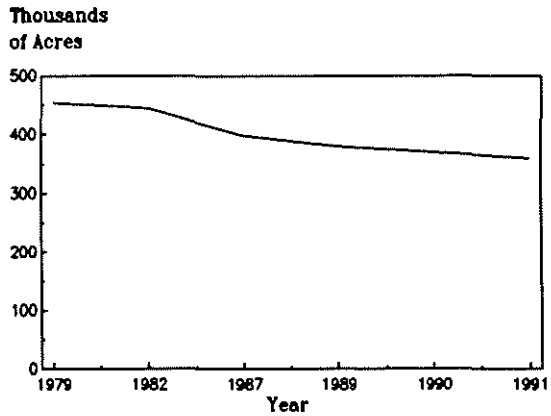
FARMLAND

PERCENTAGE OF CONNECTICUT covered by cropland and pasture: 7

WHERE WE RANK among the fifty states (1=best, 50=worst):

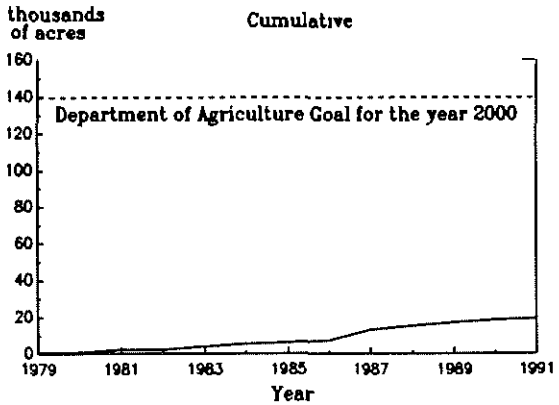
1st - in dollar value of production per farm acre
3rd in value of an acre of farmland
10th in minimizing cropland erosion
12th in minimizing herbicide use per acre of cropland
45th in percentage of state's land in farms

Farmland in Connecticut



KEY FACTS: The common understanding that New England agriculture declined in the late 19th/early 20th centuries because land was less productive than land in western states is wrong. Per-acre yields were and are higher here than the national average. Development has claimed more Connecticut farmland since 1940 than all causes combined from 1880 to 1940. The graph at right illustrates the continuing decline.

Acres of Farmland Preserved by CT Department of Agriculture



TWENTY YEARS OF EFFORT: In 1973, the Council on Environmental Quality suggested that Public Act 490 (use-value taxation for farmland) *"has served effectively to deter the forced sale of farmland in the past, but this statute can no longer be relied upon as a satisfactory safeguard, because of the increasing pressures of development,"* and recommended a comprehensive study. In 1974, Governor Meskill appointed a task force which recommended purchasing development rights under a maximum bond authorization of $500 million; it was to have been financed by a tax on real estate conveyances. The state began a program of purchasing development rights in 1979 (see graph at left), but no permanent funding source was ever established.

THE FUTURE: The future of agriculture depends on a combination of profitability and land preservation. Dairy profitability has been affected dramatically by deflated milk prices. Preservation will require mutual effort as the state can not reach its goals acting alone. The City of Middletown has shown leadership among municipalities in protecting farmland, and the Town of Coventry has pioneered the use of additional tax breaks for working farms.

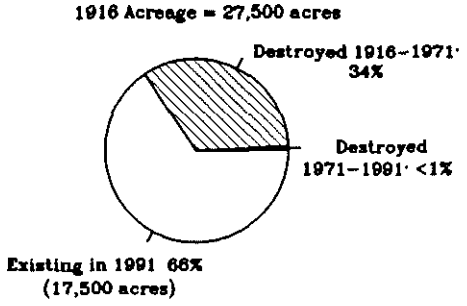
WETLANDS

PERCENTAGE OF CONNECTICUT currently covered by wetlands: 14.6
(14% inland, 0.6% tidal)

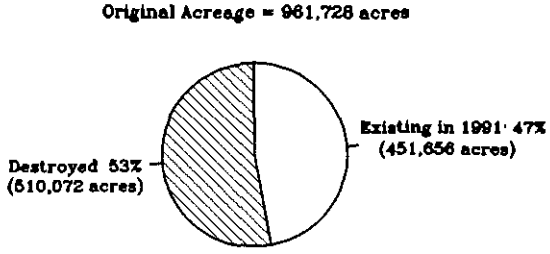
KEY FACTS: Loss of *tidal* wetlands has been virtually halted by the state's successful regulatory program (begun 1969).

Inland wetlands are regulated largely by municipal agencies; in 1990, approximately 800 acres were lost or altered.

Tidal Wetlands in CT Since 1916



Loss of Inland Wetlands in CT



TWENTY YEARS OF EFFORT: Tidal wetlands and inland wetlands have been protected since 1969 and 1972 respectively. In the 1980s the Council on Environmental Quality found that *tidal* wetland losses were minimal but no data were available to assess the effectiveness of the *inland* program. Major inland wetland statutory amendments in 1987 reduced the regulatory burden on the DEP, freeing staff to help train municipal commissions, provide technical assistance, and to plan and coordinate the overall program. Comprehensive inland wetland loss data were collected for the first time in 1990; these will allow documentation of trends in future years.

THE FUTURE: *Tidal* wetland acreage can actually increase if restrictive regulations are maintained while previously-degraded wetlands continue to be restored through special restoration projects and Open Marsh-Water Management, an innovative method of mosquito control that replaces grid ditching. Global warming might cause sea level to rise and innundate some coastal wetlands. *Inland* wetland protection will depend on perpetual education of municipal wetlands officials and the public. Recent controversies about federal wetlands definitions do not affect these state and local programs directly, but could affect some projects on wetlands that also require federal permits.

Acres of Tidal Wetlands Restored by Open Marsh Water Management

WILDLIFE

STATE TAX DOLLARS spent to manage fish and wildlife, per capita, FY 1991: $0.80
(net expense, based on general fund appropriations minus license revenues returned to general fund)

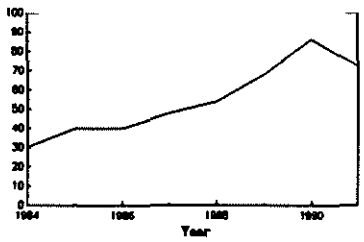
PERCENTAGE of Connecticut residents who view, study, and photograph wildlife: 80

KEY FACTS: Species which adapt well to man-made changes in the landscape are thriving in Connecticut. For obvious reasons, these are the species most familiar to us. Species requiring specialized natural habitats are threatened and/or declining.

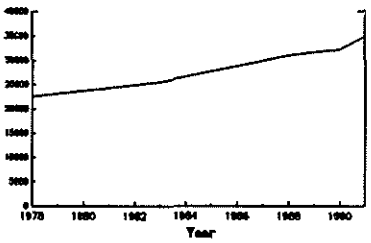
SEVENTY YEARS AGO: *"If the 27,000 sportsmen...had been sufficiently assiduous to kill even half as much game as the law allows they would probably have exterminated the last remnant of game in the state.... There is practically no good freshwater fishing left."* 1921 Report of the State Board of Fisheries and Game.

Nesting Osprey

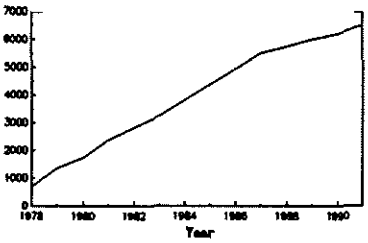
Nesting Piping Plover



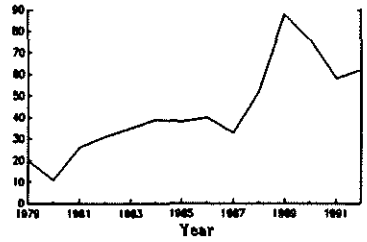
Estimated White-tailed Deer



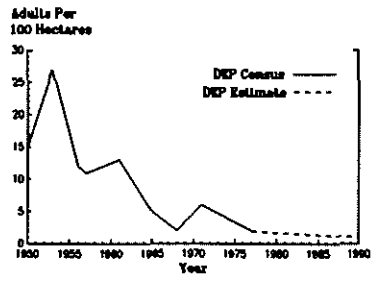
Estimated Wild Turkey



Wintering Bald Eagles



Nesting Black Ducks



TWENTY YEARS AGO: Deer were pests on some farms but too scarce to hunt elsewhere. Turkeys, black bears, and fishers had been absent for decades. Ospreys and bald eagles were at their nadir, victims of pesticide contamination. Coyotes were uncommon. Coastal waterfowl still consisted largely of New England's natives such as the black duck, though the shift was on toward the human-assisted Canada goose, mallard, and mute swan. Few management activities were undertaken that were not directly related to enhancement of game species.

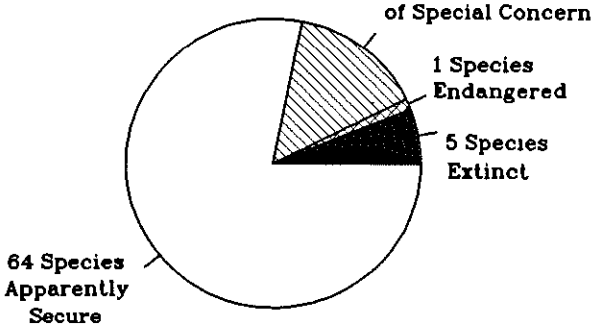
RECENT TRENDS: Intensive protection and management efforts in the 1980s were successful in reviving selected species, especially some non-game species which previously received little or no state attention (see graphs at left). Population data are not available for the majority of wildlife species. Experts express concern about woodland-nesting birds, certain waterfowl species,and other species with special habitat requirements. Several human-tolerant species, such as deer and Canada goose, have fared so well that they are considered pests.

ENDANGERED SPECIES: The DEP developed a list of Connecticut's threatened and endangered species in 1991. A 1989 state law will, for the first time, give these species some protection from state-sponsored projects which might destroy their habitat. The number of species classified as extinct, endangered, threatened, and of "special concern" are illustrated below.

Status of Connecticut Species

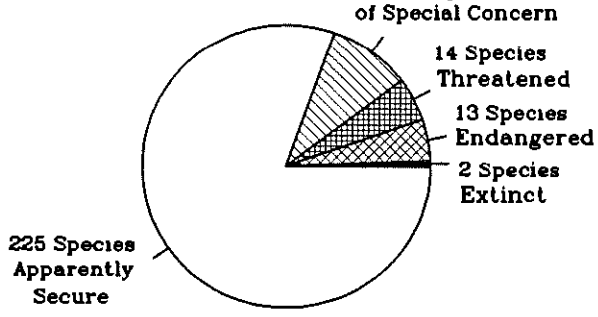
MAMMALS

82 SPECIES



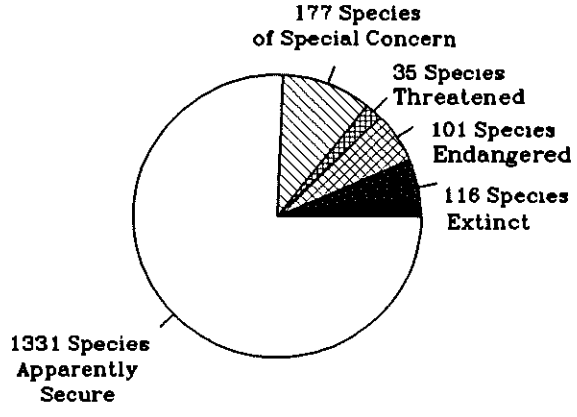
BIRDS

280 SPECIES



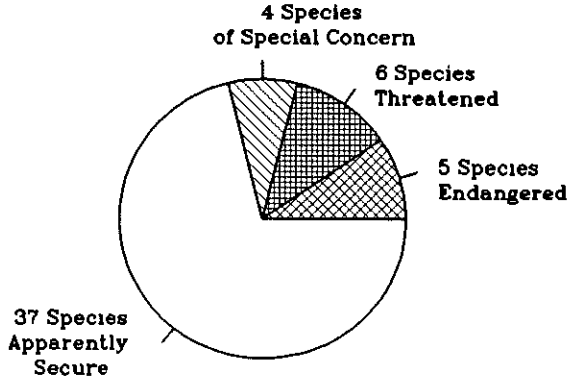
VASCULAR PLANTS

1760 SPECIES



REPTILES AND AMPHIBIANS

52 SPECIES

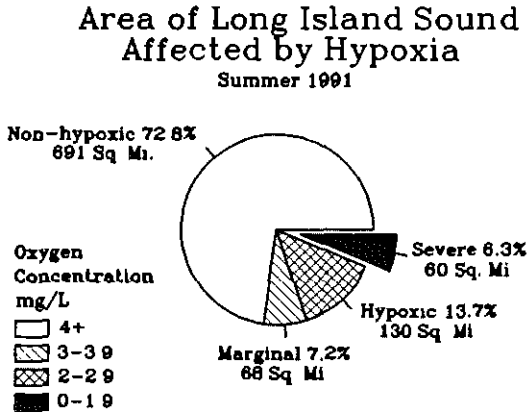


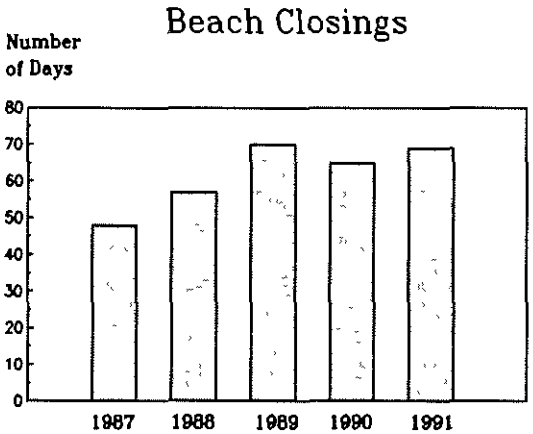
THE FUTURE: Pollution, human disturbance, and disease are important factors in wildlife populations, but the extent and condition of habitat is paramount. Species which depend on specialized habitats -- black ducks, whip-poor-wills, upland sandpipers -- will decline in the face of land clearing and development unless Connecticut maintains intensive efforts to preserve their habitats and manage their populations. Human-tolerant species -- deer, crows, chickadees, mallard ducks -- will continue to thrive.

CONNECTICUT'S SEA: LONG ISLAND SOUND

KEY FACTS: Increasing amounts of nitrogen from fertilizers, polluted rain, and (most importantly) sewage have caused a decline in water quality since the 1950s. Improvements and setbacks to fisheries, beaches, and harbors have been local in nature and, compared to the nitrogen increase, less significant.

THE OPEN WATER: Connecticut's share of Long Island Sound and its coastal waters total 600 square miles. More than 550 of those are swimmable, but only 370 are classified as fishable. A large portion of the Sound, primarily the western end, is without oxygen in the summer months. This condition is known as hypoxia, and arises when the aquatic vegetation, stimulated by nitrogen in pollution, dies and is decomposed by oxygen-consuming bacteria (see graph at right).

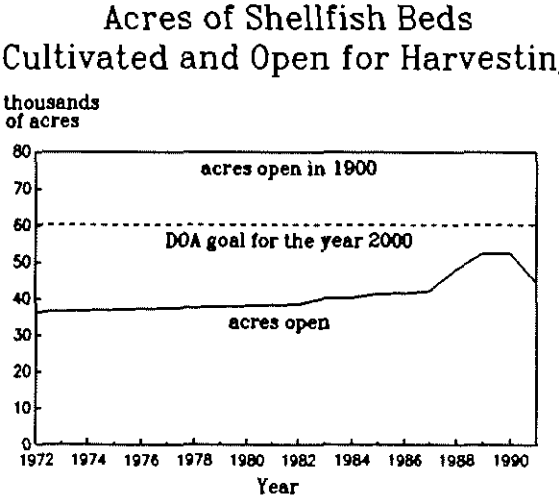




THE BAYS: At least 12 coastal bays that once produced shellfish, finfish, and waterfowl were cut off from tidal flushing by railroad and road causeways. Improvement will depend on investment in restoration projects. A model project is being planned in Quiambog Cove in Stonington.

THE BEACHES: Overflows from combined storm and sanitary sewer systems cause most beach closings (see graph at left).

LIFE IN THE SOUND: Public investments in aquaculture have moved Connecticut closer to its goal (see graph at right), but we will probably never see the expansive beds of a century ago. The primary impediment to the opening of more shellfish beds is the presence of raw and partly-treated sewage.



THE FUTURE: In 1991 the Department of Environmental Protection and the Long Island Sound Study Policy Committee adopted a "no-net nitrogen increase" policy, requiring any increases in nitrogen discharge to be offset by reductions. Reductions will depend on substantial investments in sewage treatment plant improvements and combined sanitary/storm sewer separations. Some short-term improvements are being gained though the state's $15 million nitrogen-reduction retrofit project. Eventual costs will total hundreds of millions of dollars. Proper land-use planning and management -- including reducing growth in automobile traffic, which adds nitrogen to the rain -- will be needed to keep the nitrogen problem from worsening.

LAKES AND RESERVOIRS

"One of the attractive features of Connecticut topography is the great number of beautiful lakes dotted promiscuously over the state."

Connecticut Geologic and Natural History Survey, *The Mammals of Connecticut*, 1935.

NUMBER OF LAKES, ponds, and reservoirs in Connecticut: 3,280
NUMBER OF SIGNIFICANT publicly-owned lakes: 106
PERCENT OF PUBLICLY-OWNED lake area that is fully fishable and swimmable: 87

KEY FACTS: Most (92%) publicly-owned lakes are impaired somewhat by non-point pollution sources, especially septic systems, highway runoff, land development, and agriculture. The majority, while supporting recreation, are classified as "threatened" by pollution. Acidity from acid rain threatens 12% of public lakes but actually impairs none. All utility-owned water supply reservoirs provide potable water, but utilities report that the majority are threatened by the same types of non-point pollution sources.

TWENTY YEARS OF EFFORT: Eighty-five (85) public lakes were examined for changes since the 1970s: 69 stayed the same, 10 got better, 6 got worse.

THE FUTURE: Lakes and reservoirs now affected or jeopardized by non-point pollution sources will improve permanently only when the pollution sources are eliminated and, in many cases, when money is invested in restoration. Lakes of high quality can be protected from most pollutants by proper land-use planning and management.

GROUND WATER

KEY FACTS: The water under 92% of Connecticut is presumed to be uncontaminated. However, from 1980 to 1990 more than 1300 wells were found to be contaminated by pesticides (30%), solvents (29%), gasoline (14%), and other pollutants, many within areas presumed to be clean.

THE FUTURE: Prospects are good if momentum is maintained. Protection of major aquifers (ground water bearing resources) is largely dependent on keeping risky land uses at a distance. The DEP's aquifer protection programs are aimed at promoting proper land-use planning and managment. Success will depend largely on effective implementation of regulations. Existing land uses, such as gasoline stations, are required to install spill/leak prevention technologies; success will depend on monitoring and enforcement, which will in turn depend on funding.

RIVERS AND STREAMS

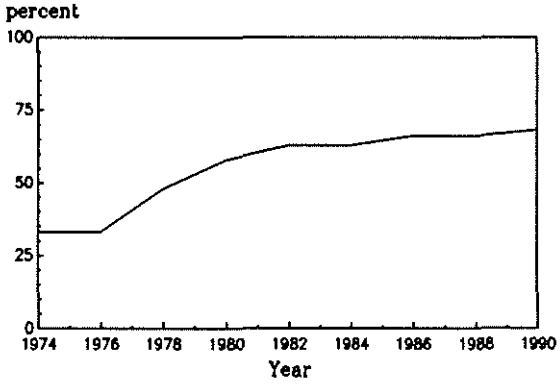
WHERE WE RANK among the 50 states (1=best, 50=worst):

27th in percent of river and stream miles impaired by pollution
45th in minimizing pounds of toxic chemicals released into surface waters per capita
2nd in minimizing gallons of fresh water consumed per capita

STATE TAX DOLLARS spent on surface and ground water pollution control, wetlands protection, and coastal management programs, per capita, FY 1991: $1.51
(does not include capital investment in sewage collection and treatment projects)

KEY FACT: Partly-treated sewage is the largest impediment to achieving Connecticut's goals of fishable and swimmable rivers. The second largest is raw sewage from combined storm and sanitary sewers of the bigger cities. Various industrial and non-point (runoff, septic systems, erosion, etc.) discharges are important but smaller problems.

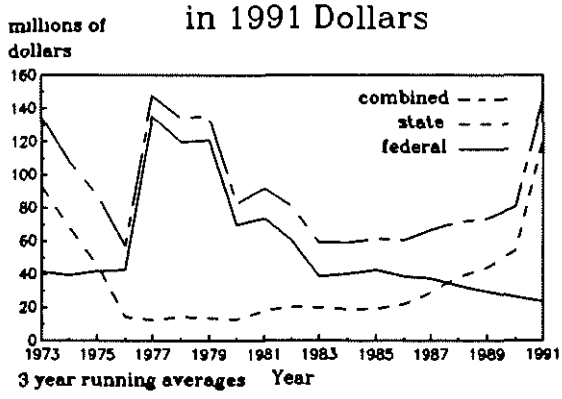
Percentage of CT's Major Rivers and Streams Classified as Fishable and Swimable



TWENTY YEARS OF EFFORT: In 1972, the United States Congress established a national goal of achieving water quality suitable for fishing and swimming by 1983. For Connecticut, a state where two-thirds of major river miles failed to meet that standard, the goal was ambitious. Nonetheless, progress was swift until federal grants dried up after 1980 (see graph at left and below).

RECENT TRENDS: After progress slowed in the early 1980s, the state began investing considerable sums through its own clean water fund (see graph below).

Sewage Treatment Plant Construction Funds in 1991 Dollars



COMBINED SEWER OVERFLOWS: Combined storm and sanitary sewers overflow and discharge raw sewage after it rains. Rivers downstream of the 14 cities with combined sewers cannot be considered swimmable until the sewers are 100% separated.

THE FUTURE: For improving the major rivers, there is no practical substitute for large capital investments in improved treatment facilities and in separation of combined storm/sanitary sewers. Connecticut's innovative Clean Water Fund loans money to municipalities; if funded annually through 2000, it will be largely self-sustaining thereafter. Reducing the impacts of industrial discharges will require a combination of improved treatments and pollution prevention. Better land-use planning and storm-water management will keep non-point pollution from getting worse.

THE BUILT ENVIRONMENT

WHERE WE RANK among the 50 states:

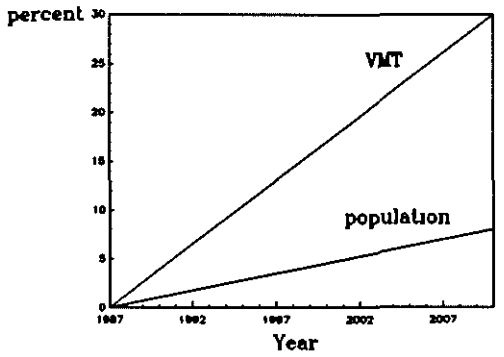
2nd greatest number of shopping centers per square mile
3rd greatest number of people per square mile
4th greatest miles of highway per square mile
4th greatest number of miles driven per mile of road
4th best in efficiency of energy use
32nd greatest rate of population growth in the 1980s

SUCCESS: HISTORIC PRESERVATION. In the twenty-five years since the adoption of the National Historic Preservation Act, more than 35,000 Connecticut buildings, sites, and structures have been placed on the National Register of Historic Places. Connecticut has 277 national historic districts, 23 local scenic roads ordinances, and 11 local archaeological ordinances, where twenty-five years ago there were none. Historic resources are still being lost, but there is more widespread understanding of the value of historic resources today.

FAILURE: LAND USE. The pattern of land development in Connecticut is still diffuse and automobile-dependent, despite decades of appeals to use land more efficiently. The newest (proposed) version of the State Policies Plan for the Conservation and Development of Connecticut encourages dense development linked by mass transit. With no means to implement such a vision, current land use policies threaten to perpetuate land waste, energy waste, and automobile-generated air pollution. In Connecticut, people drive more each year because they must in order to reach their automobile-dependent destinations. The number of vehicle miles traveled continues to increase far in excess of population growth (see graph at right).

Projected Increase
In Population and Vehicle Miles Traveled (VMT)

Adapted from the Connecticut Statewide Transit System Plan, 1990



Has much changed since the following was written more than sixty years ago?

"The limit of concentration of motor vehicles upon the highways has by no means yet been reached. Even now their large numbers and abundant use has set in motion many developments along the highways not conducive to best use of land. Many lines of business have sprung up along their courses formerly nonexistent or confined to business sections of towns. They create a neighborhood not suited to a high grade of development of any kind... This type of land used along the roadside places a heavy burden upon the neighboring communities for all public services... In addition it destroys the scenic beauty of the highways -- something having a financial as well as a real estate value."

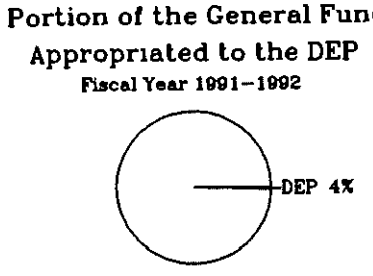
Philip Buttrick, *Public and Semi-Public Lands of Connecticut*, CT State Geological and Natural History Survey Bulletin #49, 1930.

FOR MORE INFORMATION on the ways in which state policies have encouraged sprawling, inefficient land use to the detriment of cities and towns, see the 1990 annual report of the Council on Environmental Quality.

FUNDING FOR ENVIRONMENTAL PROTECTION

"In summary, the Department [of Environmental Protection] today is an agency that is under-resourced to adequately meet a number of its major programmatic mandates. This situation has resulted in both significant work backlogs and key mandates not being fully addressed. Given this mandate/resource imbalance, it is not possible to recommend significant reductions in the Department's program/technical staff. Rather, in certain program areas, increases in staff are required to ensure basic delivery of services."

Commission to Study the Management of State Government (aka "the Thomas Commission") Final Report, May 1990.

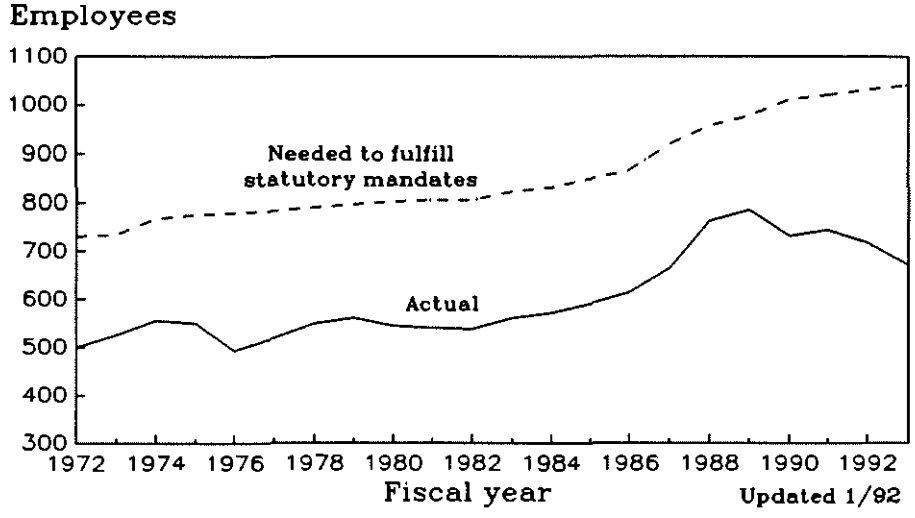


LESS THAN $9.75 of the average Connecticut resident's 1992 taxes will be used to operate the Connecticut Department of Environmental Protection. This includes environmental quality programs (including air and water quality management, waste management, coastal management, wetlands protection, and Long Island Sound programs) as well as environmental conservation programs (including parks, forests, fisheries, and wildlife management).

In 1989, the Council assessed the responsibilities assigned to the DEP since its inception in 1971, and compared those responsibilities to the DEP's staffing levels. There has always been a gap between responsibilities and resources, though the size of the gap has varied (see graph below). In 1990, the General Assembly authorized the DEP to collect fees for its services and to place those fees in a dedicated fund. The fees were intended to narrow the gap and allow the DEP to adequately protect the state's environment. General Fund appropriations to the DEP, however, have declined faster than the growth in fee revenue available to the Department, and the gap between resources and responsibilities is widening. The impact of funding shortfalls on business and public health has not been quantified, but could be substantial if the trend continues.

DEP Responsibilities Vs. Resources

DEP resources are represented by the number of full-time permanent general fund and special fund employees



EMERGING ISSUES

A SPOTLIGHT on some issues that will command Connecticut's attention in the next two years:

LEAD: Lead is re-emerging in the public consciousness after the decade of complacency that followed federal bans on lead in gasoline and new paints. Lead dust in and around pre-1970 buildings, the dominant building stock in Connecticut's cities, is considered by state and federal agencies to be the primary environmental threat to childrens' health. News events of the past year helped to illuminate other lead sources in the environment including used motor oil, incineration of batteries, and lead in water supply pipes and solder.

POLLUTION PREVENTION: Connecticut's hope for a better environment lies in pollution prevention. The alternative (traditional "end of pipe" controls) is frequently slower and more costly. Numerous programs have sprung up across the nation to encourage industries to engage in pollution prevention. Connecticut has already taken some direct actions, such as banning the most hazardous (when incinerated) components of packaging and initiating a small business pollution prevention assistance program. The time is right for this state to use more low-cost incentives -- such as priority attention in the application-review process -- to stimulate private-sector pollution prevention.

The New England Pollution Prevention Council, a private-public partnership chaired by U.S.E.P.A. Region I Administrator Julie Belaga, is tackling the question of how best to prevent ground-level ozone and other automobile-generated pollution. It is exploring improvements to the transportation system that result in less vehicular traffic. With cooperation from New England's state governments and businesses, this group could initiate a major move toward prevention of automobile pollution.

Connecticut was engaged in an active pollution prevention program for agriculture called Integrated Pest Management. IPM kept thousands of pounds of pesticides out of the environment, but funding for this research and training program has been eliminated.

TRANSPORTATION AND LAND USE: The placement of traffic-generating development in dispersed locations not accessible to mass transit threatens to doom the state's goals of reviving its cities, relieving traffic congestion, developing a larger transit network, and improving air quality. The proposed Griffin Line project in north-central Connecticut exemplifies the best future course: land development planned in conjunction with efficient transportation. The Greater Hartford Transit District is working with the towns along the abandoned Griffin rail line to re-zone for more dense, mixed private land development to justify the public expenditure of rebuilding the transit line.

Public Act 91-395 has started to improve the general planning situation by discouraging state subsidy of sprawl-inducing development. Further work is needed in the siting of large traffic generators which now receive no state environmental review. A legislative task force on State, Regional, and Local Land-Use Planning will prepare much needed recommendations for improved state policy in 1992 and 1993.

PERMITS: *"...there have been many instances of unavoidable delays in processing permit applications, according to the testimony of a number of business and development representatives. Since, in a business sense, time equates to money, these delays, not the permit requirements themselves, are considered by the private sector to be the most nettlesome characteristic of the present permit process in Connecticut, particularly in connection with new development."* (1978 Report of the CT Commission on Environmental Protection and Economic Development)

That statement was as apt in 1991 as it was in 1978. The DEP hopes to cut the 2000+ permit backlog by two-thirds in eighteen months by introducing general permits for low-impact discharges, and other improvements. The implementation of general permits, while important to reducing the burden on industry, will not lessen the need for adequate monitoring and enforcement staff. The 1990 federal Clean Air Act amendments threaten to swamp the department with new applications unless improved permitting procedures are adopted. Long-term efficiency will depend on stable funding, best achieved through a system of permit fees to cover the full cost of processing permits. Statutory authorization for such fees has been in place since 1990, following the CEQ's recommendations for the same.

The environmental regulatory system that has been built up over 20 years may be inherently inefficient, or at least something short of ideal. The Connecticut Environment Roundtable, a cooperative discussion group of environmental and industry representatives, is preparing to explore wholly new regulatory systems that might achieve the goals of environmental quality and regulatory efficiency. Enormous potential lies down that road; the Roundtable's efforts should be encouraged and assisted.

COMPARATIVE RISK ASSESSMENT: The nation and the states are spending their environmental budgets on the wrong problems, according to a series of studies by state and federal environmental agencies. Most dollars are spent on high-visibility problems which often present far fewer real ecological and human health risks than problems which receive less money and attention. In tight fiscal times, any state, including Connecticut, would benefit by systematically evaluating risks before establishing its budget priorities. Comparative risk assessment costs some money up front and requires political fortitude, but promises to improve our management of environmental problems.

URBAN TREES: Like most of the nation, Connecticut has let its urban tree stock decline. Utility line-clearance programs are just one cause of the decline. Few public investments return as many economic benefits to the community as do urban trees. Several years of educational efforts by the Connecticut Urban Forest Council and others have helped to prepare the public for a major new urban tree initiative. Utilities, municipalities, and the state should work together to restore Connecticut's urban greenery to its former proud condition.

SUMMARY

A REVIEW of key facts and trends suggests that the national surveys are frequently correct: Connecticut can take pride in being a leader in innovative legislation and regulation, but we do not appropriate much money to implement or enforce environmental programs. One exception is funding of sewage treatment plant improvements. Where do we excel? In energy efficiency, control of industrial pollution, protection of wetlands (especially tidal), conservation of wildlife in a densely settled state, and development of new approaches to challenges such as aquifer protection. (This analysis overlooks a few areas of excellence such as recycling, which yields environmental benefits that will require years to be manifested in cleaner air and water.) Where do we lag? Water quality goals have been pushed further and further into the future and we have far to go to bring our air and public lands up to the American standard. The prescription that applies to most of our problems is to continue to seek innovative approaches, put all environmental management programs on a firm financial foundation, focus more on long-term trends, continue to build productive state-local and public-private partnerships, and keep up the commitment and efforts of individual citizens.

PART II

GREENWAYS FOR CONNECTICUT

GREENWAYS FOR CONNECTICUT

GREENWAY *n.* 1. A linear open space established along either a natural corridor, such as a riverfront, stream valley, or ridgeline, or overland along a railroad right-of-way converted to recreational use, a canal, a scenic road, or other route. 2. Any natural or landscaped course for pedestrian or bicycle passage. 3. An open-space connector linking parks, nature reserves, cultural features, or historic sites with each other and with populated areas. 4. Locally, certain strip or linear parks designated as a parkway or greenbelt. [American neologism: green + way; origin obscure.] (From Charles Little, *Greenways for America*.)

It has long made sense to conservationists to stitch together existing parks, forests, and refuges into green ribbons that stretch for miles. "Greenways" is a collective term for all the projects that do just that: urban walkways, scenic trails, bicycle paths, and green natural corridors that link town parks with state parks, state parks with state forests, land trust preserves with utility lands, cities with the countryside, people with the outdoors. Most follow linear features of the landscape either natural (rivers, ridgetops) or built (mostly abandoned railways). Though at least as old as Frederick Law Olmsted's "Emerald Necklace" plan for Boston and Benton MacKaye's Appalachian Trail proposal, the greenways idea has never been as strong as it is now.

Three characteristics of greenways make them particularly suited to the approaching turn of the century: cost-efficiency, linkages, and partnerships. By cost-efficiency, we mean making the most of what we have with the least money. Seventy-five years of state park and forest acquisition have left this state with a lacy mosaic of green spaces. They range in size from 23,000-acre Cockaponset State Forest to Minnie Island State Park comprising a single acre. Municipal land protection in its various forms -- acquisition, developers' set-asides, easement donations -- has added thousands of pieces to this mosaic, as has the nation's most active land trust movement. A greenways-based plan for land conservation can provide access to many of these lands for virtually everyone, and multiply the ecological benefits of the individual parcels.

Greenways are intended to provide linkages between open spaces in a way that links people with their public lands. A greenways program will not give short shrift to the cities; to the contrary, the ideal greenways program involves pedestrian and bicycle trails -- like those being developed by Riverfront Recapture in Hartford, the Town of Groton, and others -- so that city residents have a pathway to the outdoors. Greenways may be as wide as the hills flanking a river, or as narrow as the abandoned railroad-turned-bikeway through a historic area, but they all go somewhere people want to be. Some greenways cannot accommodate human visitors, but will allow the movement of wildlife through developed areas and provide other ecological benefits.

Partnerships are the building blocks of greenways. In a successful greenways program, there is never any intent that the state or other sponsoring government is going to purchase all of the land in a planned greenway. Rather, once there is a plan or vision that is generally agreed upon, everyone chips in to help. Who is everyone? State agencies, municipalities, land trusts, conservation groups, fish and game clubs, land-holding corporations, utilities, and individuals. To give an example, a town might put together a desired map of greenways; it might be a town where most land preservation takes place at the time of land development, i.e. through open-space dedications associated with subdivisions. By working these dedications into a plan, and coooperating with some large landowners to gain access over identified streches, the town might assemble greenways that reach from border to border. With good coordination, these will match the greenways of the towns across the border.

Connecticut's official goal of acquiring 100,000 more acres of open space (for a total of 300,000 acres in state ownership) is fading into the distant future, and is not an easy goal to visualize and understand. How big is 100,000 acres, and how can it be used? The acreage goal is valid for many reasons, but perhaps an additional goal is needed, one that has immediate meaning to most

people: *Within 15 minutes of every Connecticut household, create access to a system of large and small greenways that provide recreation, transportation, and nature conservation.*

Several persistent land conservation problems and questions have vexed this state for years, and greenways could be the unifying answer to all of them: How do we provide high-quality outdoor recreation opportunities for people in the cities and towns where large-scale open space acquisition is impossible? How can we put high-quality outdoor opportunities within fifteen minutes of every household? How can we make maximum use of the public lands we already have? How can we make walking and bicycling realistic alternatives to automobile dependency? How can we focus our land-conservation goals into one program that is easily understood by everyone? How can the state, municipalities, land trusts, citizen conservation groups, fish and game clubs, utilities, land-holding corporations, land developers, and individuals all pitch in toward a common goal for land conservation? How do we do all this with a reasonable sum of money?

Greenways are being developed in several northeastern states, partly as an outgrowth of the President's Commission on Americans Outdoors and the promotional efforts of The Conservation Fund, a national group working with state and local, public and private organizations. More importantly, however, several Connecticut organizations and municipalities have already put successful projects in place that exemplify the greenways idea, though few are actually called greenways. These *home-grown examples* illustrate the enormous potential of greenways and illuminate the critical points that can make or break a successful greenway.

FEDERAL FUNDING: MISSED OPPORTUNITIES, NEW OPPORTUNITIES

The old federal Surface Transportation Act earmarked $45 million for bicycle and pedestrian ways not associated with roads. The State of Connecticut elected to spend the $4.5 million for which it was eligible on other types of projects. The federal government also would have paid for 75% of the cost of any bicycle or pedestrian path associated with a road, regardless of the cost. A few miles of bike paths were constructed under this program in Manchester and East Hartford.

The Connecticut Department of Transportation is providing for bicycle and pedestrian access over the Connecticut River in the upgrading of the Founders Bridge in Hartford and is planning two more stretches of bicycle path in Manchester and South Windsor. In contrast, Rhode Island has already used federal money to establish two lengthy bikeways that enjoy heavy use and is planning five more bikeways connecting downtown Providence with its suburbs.

There is little time to lament opportunities lost, however, as the new federal Intermodal Surface Transportation Efficiency Act of 1991 presents greater opportunities. The Act requires states to include bicycle and pedestrian facilities in their annual and long-range transportation improvement plans. In addition, Connecticut will have to spend about $26 million over the next six years (10% of the Surface Transportation Program funds) on "transportation enhancement activities" including bicycle and pedestrian facilities and conversion of abandoned railway corridors to pedestrian and bicycle use, among other types of projects.

The Symms National Recreational Trails Act of 1991, while not funded by Congress last year, will in the future provide money for recreational trails. In order to be eligible for Symms funding, the State of Connecticut must establish and Recreational Trails Advisory Board and a recreational trails plan.

Both the Surface Transportation Act and the Symms Act provide new opportunities for Connecticut to build greenways. Connecticut must be careful not to let these opportunities pass us by.

ORIGINS OF THE GREENWAYS CONCEPT

(Summarized from Charles E. Little. *Greenways for America*. (Baltimore: Johns Hopkins University Press: 1990).)

The word "greenway" is a combination of elements from the words **green**belt and park**way**. Little defines a greenway as "a natural green way based on protected linear corridors which will improve environmental quality and provide for outdoor recreation." According to Little, the word was first used in 1959 by William H. Whyte, author of *Connecticut's Natural Resources: A Proposal for Action*.

PARKWAYS: Frederick Law Olmsted's plan for the college grounds in Berkeley, California (1865) included parkways for walking and horseback or carriage riding. He also designed parkways in New York City, Buffalo, and Riverside, Illinois. His Emerald Necklace in Boston was a 4.5 mile arc around the city. All of his parkways were designed to provide a scenic experience for pedestrians and horses; bicycles and cars were not yet in use.

Robert Moses designed dozens of parkways in and around New York City. His initial intention was to create a recreation network for city residents by connecting existing parks and creating new parks, such as Jones Beach. Cars entered in the early part of the twentieth century; the Model T Ford was introduced in 1908 and the Bronx River Parkway was the first designed for cars in 1913. Automobiles required changes in design and, in the end, Moses abandoned his earlier ideas and became a highway builder.

The Merritt Parkway in Connecticut, built in the 1930s, was "designed and built not alone or even primarily to afford rapid transit, but to be in itself an object of beauty and to tend to the rest and peace and satisfaction of those who inhabit the country and to those who pass through it." Schuyler Merritt's "All–season Gateway to New England" combined automobile travel with the scenic experiences promoted by Olmsted.

BRITAIN'S GREENBELTS: The function of the greenbelt in Britain was to separate communities, to keep towns distinct and maintain urban and rural integrity. Ebenezer Howard introduced the idea in 1898 by proposing the establishment of "country belts" around cities. The London Green Belt Act was passed in 1938. Today, the London Greenbelt extends around the city and is five miles deep. In the United States, Rexford Tugwell applied the British idea to the New Deal greenbelt towns of the 1930s in Maryland, Wisconsin, and Ohio. The only other cities in the United States that have established greenbelts of this sort are San Francisco and Boulder.

OPEN WAYS: Benton MacKaye's proposals were related to the British greenbelts. MacKaye believed prophetically that cities would spread along highways. He urged the establishment of open spaces along ridgelines to act as dams and levees for controlling the urban flood. These open spaces would also have trails and would thereby serve the dual purpose of guiding urban development and providing recreation opportunities to city dwellers. The Appalachian Trail, proposed by MacKaye in 1921, was originally intended to be a dam for contain urban sprawl along the entire eastern seaboard.

ECO–PLANNING: Environmental planners like Ian McHarg and Phillip Lewis propose locating development in areas where natural, scenic, and historic resources are not present, in order to protect natural processes. Steep slopes, wetlands, streams, and scenic areas that should be protected tend to be located linearly along ridges and waterways, making them ideal for greenways.

THE BENEFITS OF GREENWAYS

There is nothing theoretical about the benefits of greenways. Industrious application of the greenways idea has demonstrated the reality of the following benefits that flow from investments in greenways.

RECREATION: Greenways can create opportunities close to everyone's home for the most popular forms of outdoor recreation. Currently most residents of Connecticut must drive to reach a state or municipal park to walk, jog, hike, bike, or study nature. A greenway could provide a trail closer to home for these types of activities, as well as a link to an outdoor world of far greater opportunities. Many urban residents -- especially children -- do not drive; a walkway along an urban river could be the path to a full day of free fun.

The demand for outdoor recreation is substantial and the availability of open space has diminished as the state's population has grown in size and dispersion (see page 4 of this report). Especially acute is the loss of "casual" open space, the privately-owned field or stream traditionally open to friendly trespassers out for a short walk or after-work fishing outing. Increasingly these lands are developed and/or closed, leaving nearby residents with only the publicly-owned park land to which they most probably have to drive. More than three-quarters of all Connecticut residents participate in some sort of wildlife-related recreation (hunting, fishing, birdwatching, and wildlife photography) and half walk for pleasure. Seven and a half million Americans mountain bike. Connecticut's state parks have well over 6 million visitors each year. Greenways also provide access to water-based recreation for the growing numbers of fishermen and boaters.

WILDLIFE HABITAT PROTECTION: Wildlife experts agree that the greatest threat to most of our native species is the continual fragmentation of their habitats. Many species from box turtles to bobcats cannot cross developed areas to breed. Isolation of separate populations threatens the long-term genetic stability and survival of the species. A greenway could link areas of preserved open space, providing corridors for wildlife and increasing the value to wildlife of existing preserved open space.

POLLUTION CONTROL: Trees can help mitigate the effects of air and noise pollution directly and greenways may reduce automobile travel, indirectly reducing pollution. Vegetation adjacent to waterways protects surface water from pollutants in runoff and from sedimentation. In addition, greenways located in floodplains can protect the public from some of the costs of flooding.

PROTECTION OF ECOLOGICALLY SENSITIVE AREAS: Greenways can be used to protect special natural areas such as shorelines, wetlands, ridgelines, rivers streams, and unique wildlife habitats and scenic areas.

CONNECTING OUR OPEN SPACES: While traditional open space protection can accomplish some of the aforementioned goals, linear greenways have unique benefits. A greenway along a riverfront could connect the urban and rural, providing natural settings for recreation and commuting.

TRANSPORTATION: In 1987, 2.7 million people in the U.S. commuted to work by bicycle. (NPS) Few do so in Connecticut because the transportation network is hostile to bicycling. Connecticut, like other states in the northeast, must reduce automobile emissions in order to meet the new federal Clean Air Act requirements. To do so, we first must reverse the upward trend in automobile travel. If people could walk or bicycle on a greenway to get where they are going,

demand for automobile travel could be reduced. Greenways that link residential areas to commercial areas could become an integral part of Connecticut's transportation and air quality plan.

EFFICIENCY: Greenways are more cost effective than traditional open space initiatives. When land is purchased, less is required to gain substantial effect because greenways take maximum advantage of existing preserved open space. Greenways also give the option of protecting land through conservation easements or other forms of protection that cost less than outright purchase.

ECONOMIC DEVELOPMENT: The heritage park concept -- working landscapes built around history, architecture, and our ancestors' use of our land and rivers -- fits right into greenways. On many of Connecticut's rivers, truly green ways will be punctuated by distinctly urban landscapes, which, if revitalized, can be attractive in themselves as well as an interesting setting for the passing walker, bicyclist, or boater. These are "natural" attractions on rivers that at one time were among the most densely-industrialized in the world. The combination of heritage and scenery can be exploited for tourism, with the tourists arriving for anything from bicycle-camping to steam train rides.

Greenways have several other positive economic values, both direct and indirect. The effect on Connecticut's cities could be substantial; greenways would provide outdoor recreation, commutation routes, educational opportunities, and links to the countryside that could help make our cities more livable and pleasant. A riverfront greenway will make Hartford unique and will attract new businesses to the downtown area as riverfronts have in San Antonio, Texas, and Pueblo, Colorado; it would attract more if it were famous for being a link in a chain of Connecticut River greenways. For every dollar of public investment in the Lowell National Historic Site in Massachusetts, there was an incidental investment by the private sector of $7. Quality of life is an important factor in locating businesses. Cities like Atlanta and Seattle are considered the best cities for business and are also ranked very high in quality of life. In 1988, the governors of five New England states recognized that access to natural settings, outdoor recreation, and open space is a key element in quality of life in the region.

Parks and greenways are known to effect adjacent property values positively. The Burke-Gilman Trail in Seattle, Washington, with 3/4 of a million users each year, raised property values adjacent to the trail by 6%. Values of property adjacent to greenbelts in Boulder, Colorado were 32% higher than those of property just 3,200 feet away. Landowners near greenways acknowledge the positive effects of the open space on their property values and quality of life.

Greenways may enhance incidental spending as well. In 1982, Americans spent more on recreation and leisure than the federal government spent on defense. Connecticut residents have more disposable income than those of any other state ($19,096 per capita in 1988). Americans buy approximately 90,000 canoes and 12 million bicycles annually. Users of greenways will purchase supplies and patronize local businesses or concessions. Maintenance of greenways may create jobs and generate expenditures for supplies and equipment that will return the initial investment in the greenway to the local community.

CONNECTICUT AND GREENWAYS: A PERFECT FIT

Among all states, Connecticut is perhaps in the best position to assemble an interesting and cost-effective network of greenways. Below are some of the reasons.

1. **OPPORTUNITIES ABOUND.** Among America's public lands programs, Connecticut's is the national tortoise: it's about the oldest and the slowest (see page 4 of this report). Despite the slow pace, more than 75 years of setting aside state parks, municipal parks, and private conservation lands have produced a green mosaic that provides a remarkable foundation for creating an interconnected web of green spaces.

2. **VIGOROUS PRIVATE LAND TRUST ACTIVITY.** With 110 land trusts, Connecticut's citizenry is among the most locally active. The state Recreation and Natural Heritage Trust Program has cooperated on acquisition with several land trusts, but the opportunity for more coordination and cooperation is strong.

3. **DEMONSTRATED SUCCESSES.** Several Connecticut municipalities have developed exemplary greenways programs, without calling them such. Some concentrate on easements along streams donated by developers and landowners, while some have spent millions to acquire green corridors that link park to park. Some cities are building riverfront walkways/bikeways which ultimately will be linked to much larger networks providing access to the natural world only minutes from city residents' back doors.

   Over decades, the Connecticut Forest and Park Assocition has developed a 500-mile system of trails, built on volunteerism, public lands, and the good will of many private landowners. This partnership illustrates the formula for a successful greenways program, though the trails themselves face new challenges as land parcels get divided and subdivided. Connecticut's trails are among the best-maintained in the nation thanks to the strong tradition of volunteerism in CFPA.

   Additionally, The Nature Conservancy -- the largest land-conserving group in the state -- is beginning to focus on protection of entire ecosystems, an effort that will blend well with a state greenways program. May other land trusts, watershed associations, and other conservation groups are focusing on greenway protection as well. (See the Appendix for a description of some of these.)

4. **COORDINATION MULTIPLIES INDIVIDUAL EFFORTS.** Many of the exemplary municipal greenways programs stop at the towns' borders; an effort to help towns to coordinate their open-space plans might be one of the most cost-effective land conservation tools available, and is also likely to stimulate new projects that might not otherwise occur. Similarly, there are opportunities to create a greenways system that is "greater than the sum of its parts" by urging Connecticut's ambitious land trust movement and other private organizations to put some of their efforts toward greenways.

5. **GREENWAYS REQUIRE A STRONG LOCAL FOCUS.** Greenways are built parcel by parcel, link by link, most often at the local level. The exact route, functions, designs, and boundaries are best determined by the knowledgable corps of land-use commission members in the 169 municipalities. The state can best provide guidance, coordination, and assistance.

6. **DEVELOPMENT CREATES OPPORTUNITIES.** Big acquisitions get the most attention, but developers continually donate portions of their land as conservation easements or public open spaces. Often, these are fragmented and provide few public benefits. More forward-thinking towns have protected entire streambelts by obtaining donations of easements as the nearby land is developed. Developers are usually happy to participate when they see the overall plan and the public good. Paradoxically, development thus creates an excellent opportunity to complete greenways in a densely-settled state.

7. **GREENWAYS PROVIDE THE MOST BENEFIT PER DOLLAR.** Connecticut is a densely-settled state with many competing needs for the public purse. Greenways can help answer some of the tough questions that have vexed Connecticut for decades: How can we provide access to the outdoors, especially to the public lands we already have, for everyone regardless of where they live? What can we do in the built-up areas where large scale acquisition is impossible? How can we provide corridors for wildlife when forests are being continually broken into smaller parcels? How can we help people leave their cars at home? How can the state, municipalities, land trusts, corporations, and individuals all work toward a common land-conservation goal? No other land conservation programs can provide the answer to so many questions at once at such small cost.

RECOMMENDATIONS

1. The state should embark on a statewide greenways program.

2. The Governor should appoint a Greenways Commission composed of representatives from major conservation groups, watershed associations, recreation groups, municipalities (especially cities), corporations, utilities, professional groups (landscape architects, planners, etc.), and lay citizens.

3. The charge to the Commission should be to:

   a. establish a realistic but ambitious **goal** for greenways completion. Important: this goal should not be for DEP acquisition; it should be a joint goal of all public and private entities. The Commission should also determine how progress toward the goal will be monitored using a registry of projects. The registry should be updated frequently and should include greenways created with conservation easements, donations of use rights, handshakes -- everything.

   b. develop a **rough plan** for possible "major greenways." Making a comparison to a road map, these would be the major highways. These might include corridors along major rivers, important links between large public lands, bikeways and walkways built with federal money along abandoned railroad beds, and some coastal greenways.

   c. develop a detailed proposal for a permanent greenways program which would provide technical assistance and some financial assistance to municipalities and private organizations. Using the same road map analogy, this help could go toward creating the local streets and roads that feed into the highways (major greenways). Towns and groups have told the Council they would welcome assistance in planning greenways and in implementing the partnership tools used to create them. A portion of the federal and state grant money traditionally awarded to towns for parks and open space could be directed toward greenways, especially where acquisition of land is necessary to complete a particularly nettlesome link in a chain. Emphasis should also be placed on development of walkway and bikeway corridors that join with larger open spaces.

d. place equal emphasis on all the benefits of greenways, including recreation, movement of wildlife, and transportation.

e. emphasize local action and local decision-making, with state guidance and assistance.

f. study ways to reach agreements on maintenance responsibilities, so that the most effective arrangement is selected for each greenway.

g. propose a means of paying for the greenways program. Central to the project should be an understanding that state dollars will support the program only as long as all parties continue to work to meet the collective goals of the program. It would be a state-assisted, not a state-developed program.

h. solicit input in formal public hearings from all segments of the public when formulating its recommendations.

i. submit recommendations to the Governor and the General Assembly no more than one year from its inception.

4. Establish immediately the organization or structure required to begin receiving and spending federal money on bicycle and pedestrian ways. Integrate these with the "major greenways" plan (3b above).

5. Greenways that provide an alternative to automobile travel should be integrated into Connecticut's air quality and transportation plans. (Even a greenway that is created primarily for recreation, if it lessens a person's need to drive to get to a recreation area, will lessen the demand for automobile travel.)

GUIDE TO THE ACCOMPANYING MAP

Some opportunities for greenways seem so promising, the Council thought it would be useful to put them on a map in order to illustrate the greenways concept. For assistance, the Council sought suggestions from state, municipal, and private (non-profit) conservationists who were known to have an interest or to be working on linear open space projects that might fit the greenways idea. After ideas were collected, rough lines were drawn, and the result is the "Greenways Ideas and Opportunities" map that accompanies this report.

Most of the greenways on the map follow major natural or man-made linear features of the landscape, including (from west to east) the Housatonic River, the Farmington River, the trap rock ridges, a section of the Farmington Canal abandoned railroad line owned by the DEP, the Connecticut River, the Scantic River, the "Air Line" abandoned railroad line owned by the DEP, the abandoned Manchester-to-Willimantic rail line owned by the DEP, and the Quinnebaug and Shetucket Rivers. Also highlighted are some smaller features that have been subjects of linear conservation efforts, such as the Mianus River in Greenwich, the Mill River in Stamford, and the Eight Mile River in Lyme. Some major blue-blazed trails, maintained by the members of the non-profit Connecticut Forest and Park Association, have been included, as have some small but notable municipal/private river projects. Some water company lands were included even though they are not necessarily permanent or open to the public, because they often provide the link between other open spaces.

When viewing the map, it is important to keep three points in mind. First, the green arrows are intended to highlight the linear features that might be suited to greenways and are not intended to show boundaries or recommended acquisitions. Second, only "major" greenways are illustrated; a web of smaller greenways should spread through every town! Third, greenways will be built through partnerships at the local level; no state agency can prescribe greenways routes. The Council hopes the map stimulates further thought and discussion; that is its real purpose.

APPENDIX: GREENWAYS PROJECTS

COMMON THEMES AND LESSONS LEARNED

Some interesting greenways projects from near and far are profiled below. Many are still in their infancy, but a few are far enough along to be called "successful." While most of the Connecticut projects are not officially termed "greenways," they are open spaces that follow linear features of the landscape and provide recreation and conservation benefits -- in short, greenways. Several common threads run through these many projects:

LOCAL FOCUS. Decisions are made where the most first-hand knowledge is available -- at the local level. State assistance and guidance is often welcome, but the scope and function of a greenway are best determined by the people who have knowledge of the land and cultural resources that could be included.

COMMON VISIONS AND VOLUNTARY PARTNERSHIPS. The most successful projects are the products of many diverse parties who collectively agree that the idea is a good one. They are clear visions that excite people and define the projects' scope and functions. The efforts of everbody -- town, state, citizens, developers -- go toward the common goal. Acquisition is but one tool; the emphasis is on anything that works to build the greenway. Where people in a proposed corridor have no interest, the greenway planners must be flexible to accommodate their wishes.

A COORDINATING BODY. Because of the diversity of involved parties, execution of the total greenway is often beyond the capabilities of any one party. Someone must facilitate the partnerships and linkages.

COMPATIBILITY WITH OTHER LAND USES. The issue of "development vs. preservation" is not usually relevant to greenways. In general, greenways complement or even stimulate tourism and other economic development efforts. Many towns have found that developers are pleased to participate by, say, donating an easement along a river when they see the overall plan and the public good. In many towns, most land preservation occurs at the time of development, when developers donate open space. Too often, however, these open spaces are isolated and bear no relation to the overall plan. Greenways provide a focus that can help a town integrate its open space plan with its master plan of development

PROJECTS IN CONNECTICUT

RIVERFRONT RECAPTURE. Riverfront Recapture of Hartford, Connecticut envisions an urban park along the Connecticut River which would reclaim the riverfront for the urban population and liberate the river from the development that girds it. The project is designed to provide recreation and boost the economic development potential of the area. The plan includes a six mile river walk with "charms" such as docks, parks, and other amenities. A true partnership, Riverfront Recapture, Inc. is a non-profit organization, founded by corporate and civic leaders, that uses private, state, federal, and local funds to implement the vision. Portions have been completed in Hartford and East Hartford. The project may one day connect with other greenways including the...

HOCKANUM RIVER LINEAR PARK. Four towns are working independently to turn this partly-urban river into a linear park. In short distances, it flows from historic areas to wild areas. State funds enabled the towns to hire a landscape architect to work with the citizens' committees to produce a plan, which is being implemented as opportunities allow. In Vernon, the river nearly intersects the abandoned rail line, owned by the Department of Environmental Protection, that could be a bikeway to Willimantic.

BLACKLEDGE RIVER. An all-volunteer group (including pro-bono work by a law firm) works with towns to protect the environmental quality of the river and, secondarily, to eventually provide a recreation trail along the river.

QUINNEBAUG AND SHETUCKET RIVERS. Citizens and municipalities are working with the National Park Service on a plan to protect these rivers' unique features -- natural as well as cultural -- and provide better access. The vision is of a "Heritage Corridor" in which historical use of the river shares the tourism spotlight with wildlife and natural scenery.

OTHER RIVERS. Everywhere in Connecticut, it seems, people are looking for ways to provide better protection and enjoyment of the rivers that flow through and define their communities. The **Mystic**, **Mianus**, and **Coginchaug** are but three examples of small rivers at the core of active citizen and municipal conservation efforts. In Stamford, a project on the **Mill River** has the dual roles of providing recreation and removing flood-vulnerable structures from the flood zone. The State of Connecticut has been working in partnership with The Nature Conservancy, a land trust, and private landowners on a string of properties along the **Eight Mile River**; the string includes land protected under the state's agricultural land preservation program. The Conservation Fund is looking at similar greenways ideas nearby. The **Scantic River** is a DEP-coordinated effort that is one of the state's oldest linear park efforts, exemplifying the patience and continued effort that is needed to realize a vision.

The larger rivers present different challenges. The **Housatonic** Valley Association dreams of a greenway from Sound to source, but the diversity of communities along that river necessitates a slow, step-by-step approach. The Association is hoping to work with seven communities at the southern end to see what people might wish to do to protect their river valley. Across the border, citizens of Great Barrington got together to start work on a greenway on their stretch of the river.

The **Connecticut River** flows through a mix of urban and rural communities as well, and already enjoys the attention of six or more regional government and private sector initiatives. In 1990, Congress created the Silvio Conte National Fish and Wildlife Refuge encompassing the entire river, with specific land areas to be selected for more protection in the future. The aforementioned Riverfront Recapture is working to link people with their river in one urban area, while the City of Middletown has done the same. The Connecticut River Gateway Commission regulates land uses and works with landowners in the estuary area, while towns on the northern part in Connecticut work together on the Connecticut River Assembly. The Nature Conservancy continues to focus much of its effort on this nationally-significant ecosystem, and the Connecticut River Watershed Council works along the river's entire length for better protection. The DEP owns an abandoned rail line along the western bank of the estuary; on part of this, a historic steam train provides tours of the river, a unique greenway experience. Other parts might be suitable for walking and bicycling. These many diverse interests could, through their own efforts, contribute to an overall greenway plan for the river.

FARMINGTON CANAL RAIL-TO-TRAIL. This one-time canal-turned-railroad is now partially abandoned. The towns of Hamden and Cheshire, in cooperation with the state, purchased a portion of this railbed that stands ready to be converted to a scenic, semi-urban bikeway. An active citizens group envisions a trail that runs from New Haven to Massachusetts, but are focusing immediate efforts on a section near the southern end. A half million dollars would open a link connecting municipal parks with state parks. At one point, bicyclists could gain access to a municipal park which would connect to another greenway project...

PROSPECT RIDGE. In a true partnership project, the Trust for Public Land is acquiring many small parcels along one of Connecticut's trap rock ridges for later transfer to the State of Connecticut and the Town of Cheshire. The project will complete a 21-mile greenway and hiking trail that runs from West Rock Park in New Haven to Cheshire. One million residents of the state live within 25 miles of the greenway making it a valuable addition to the recreation resources of the state.

THE BLUE-BLAZED TRAILS. Half of the 500 miles of blue-blazed trails are on public land, half are on private land. The Connecticut Forest and Park Association, through mostly volunteer effort, blazes, builds, and maintains these high-quality hiking trails for use by all citizens who enjoy hiking. The mileage on private lands are constantly in peril as lands change hands; more and more, the Association reports, new landowners do not want the trails on their lands, even though Connecticut law protects landowners from liability. Some of these trails (among the best-maintained in the nation, according to a 1991 study) could provide the backbone of some rural greenways. No state greenway effort can afford to overlook these trails and the lessons of partnership learned by the Connecticut Forest and Park Association over 75 years.

MUNICIPAL PROJECTS. Many of Connecticut towns and cities have built their open space plans around linear features. Glastonbury must be considered a leader in the use of private conservation easements to protect stream valleys. Developers in that town know that any development along a major stream is likely to entail a donation of a private conservation easement, which protects private ownership as well as the streambank's natural condition. This approach was recommended by the U.S. Soil Conservation Service and the Soil and Water Conservation Districts in the 1970s, but few towns have pursued the strategy as religiously as Glastonbury.

The Town of Groton provides a model of how existing state, municipal, and utility lands can be joined to form corridors. Using the Bluff Point Coastal Preserve as its focus, the town's Conservation Commission updated it open space plan and illustrated how north-to-south green corridors could be created. Citizens liked the idea and approved a multi-million dollar bond authorization. Many of the necessary acquisitions have been completed. The town also made use of a small state grant to mark coastal access points and is building a river walkway through an urban area to provide access to its growing network of greenways.

OTHER GREENWAYS VISIONS

Not all greenways have to be narrow ribbons following distinct linear features. The National Audubon Society (NAS) presented to the Council its vision for a Long Island Sound Greenway (a vision it shares with the Long Island Sound Watershed Alliance and others). Obviously, the Connecticut coast is not available for a continuous green swath. But NAS hopes that a carefully-devised program can protect key wildlife habitat, preserve scenic ares, and provide improved public acess, perhaps by linking more public lands to the Sound. Some of the research has been done, including a federal inventory of the important wildlife habitats completed in 1991.

Another interesting idea is a continuation of the Highlands project, a wide swath encompassing much of the ridge line that runs from Pennsylvania to the Berkshires. The New Jersey and New York areas are under study, and the Regional Plan Association would like to see Connecticut included. Obviously not a proposal for a wilderness preserve, the idea is to conserve a semi-rural, inhabited landscape. This idea can trace its roots to Benton MacKaye, who advocated much more than a narrow Appalachian Trail corridor.

While the Appalachian Trial goes from Georgia to Maine for rugged hikers, a group of citizens is figuring out how to create an urban trail for bicyclists from Washington, D.C. to Boston. Not surprisingly, Connecticut presents some of the most difficult challenges.

NOTABLE PROJECTS IN OTHER STATES

HUDSON RIVER. The proposed Hudson River Greenway has been described as "a linked system of trails and recreation–ways, open spaces, parklands, historic sites, tourist attractions, and nature preserves forming an emerald necklace of recreation and natural areas along both sides of the Hudson River." A Greenways Council was appointed by the Governor in 1988; following several public hearings and reports, legislation was approved in 1991 to establish the Greenway. An interesting element is the financing mechanism: a two–tenths of one percent tax on motel rooms in the Greenway area.

MARYLAND. The Maryland Greenways Commission envisions "ribbons of green reaching from the suburban counties that ring Washington, D.C. to the Chesapeake Bay ...and other corridors linking city parks to shady streamsides." The vision is of a statewide network of greenways that would provide recreation, wildlife habitat, and protection of the water quality of the Bay. The Maryland Department of Natural Resources, with assistance from The Conservation Fund and a grant from the National Oceanic and Atmospheric Administration, studied the potential for a greenways network in Maryland. In 1990, Governor Schaefer appointed the Maryland Greenways Commission which held public hearings to assess the level of public support for greenways. The Commission is pursuing several demonstration projects in hopes of encouraging more towns and groups to build greenways.

FLORIDA. One Thousand Friends of Florida is working with the Conservation Fund to implement the Greenways idea in Florida and is finding considerable public support.

PART III

1991 ACTIVITIES OF THE COUNCIL ON ENVIRONMENTAL QUALITY

1991 ACTIVITIES OF THE CEQ

THE TWENTIETH ANNIVERSARY of the Council on Environmental Quality's creation found the Council exploring some new territory, while holding to its previously charted course. With broad responsibilities but modest resources, the Council has adhered carefully to its tri-partite mission: monitoring of all state environmental trends, with in-depth evaluations of problems and programs of greatest import; methodical review of state-agency construction projects; and thorough investigation of citizen complaints. Frequently, a single case will include all of these functions. The new territory explored by the Council in 1991 included several investigations and actions aimed at helping other state agencies fulfill their mandates while the economy and state environmental expenditures were shrinking.

HIGHLIGHTS of Council activity in 1991 include:

* The Council's interest in land-use and transportation planning continued after the January, 1991 issuance of its 1990 annual report which focused on this topic. Many of the Council's recommendations were included in Public Act 91-395, An Act Concerning Global Climate Change. The Council testified on parts of the bill and worked with the General Assembly in the drafting of the bill. Among other provisions, the bill established a task force to seek consensus on ways to obtain consistency among state, regional, and local plans. Council staff served on the task force, which will offer final recommendations in January, 1993. An interim report was to be issued in early 1992.

* Following the Council's December, 1990 report on utility line clearance programs, the Department of Public Utility Control held hearings on the recommendations. The Council testified at the DPUC hearings as well as at the General Assembly where a bill implementing the report was raised. The Council also participated in discussions with several utilities.

* The Council reviewed all Environmental Impact Evaluations and Findings of No Significant Impact prepared by state agencies. While the number of documents prepared was lower than normal, each one required extra attention because of the requirements of Public Act 91-395, which requires state agency construction projects to be consistent with the State Plan of Conservation and Development. The Council views consistency with the State Plan to be an important component of good environmental planning by state agencies. The Council commented and followed up on all documents received.

* For the first time in years, the Council was unable to give adequate attention to 100 percent of complaints received. The Council investigated fully more than fifteen new complaints (in addition to uncounted routine requests for information and referrals). New complaints involved air, water, and land contamination, solid and low level radioactive waste, wetlands, and state parks planning. The Council also continued working on four complaints from previous years involving a wood-burning facility, a power line, and a septage lagoon. Many complaints called attention to possible defects in state regulations, procedures, or programs which the Council will continue to investigate.

* Instead of issuing an update of progress toward the goals of the Environment-2000 plan, the Council reviewed and commented extensively on the draft revision of the plan. Staff researched comparative risk analysis, as employed by other states and federal agencies to set environmental priorities, which the Council may use for future recommendations regarding the E-2000 plan.

* In the late spring, the Council provided information to the General Assembly and the public regarding the Department of Environmental Protection's budget. In the fall, at the request of Governor Weicker, the Council met with DEP staff and consultants to review the Department's plans to streamline permitting. Council staff also met with the Connecticut Environment Roundtable, which is a group representing business and conservation interests that is working on long-term improvements to Connecticut's environmental regulatory structure.

* The Council reviewed the draft revision of the five-year State Policies Plan for the Conservation and Development of Connecticut, prepared by the Office of Policy and Management, and submitted uncommonly detailed comments. The Plan took on new importance following the passage of Public Act 91-395.

* The Council helped to initiate or was otherwise involved with several other projects during the year, including an initiative to raise private-sector funds for shoreline parks' capital improvements, an effort to coordinate volunteers for the state and conservation organizations, and a project to include universities in state environmental projects.

* The Council's Executive Director is the only representative from Connecticut on the New England Pollution Prevention Council -- which is pursuing new transportation policies as a means of preventing pollution -- and helped arrange a transportation forum for heads of environmental and transportation departments throughout New England.

* Research and preparation of the 1991 annual report was different from some previous years, in that the Council was investigating new ideas instead of evaluating the effectiveness of existing programs. Council members and staff met with numerous representatives of state and municipal agencies and conservation groups. The Council also convened an ad hoc Greenways Group to assist in the preparation of recommendations for the report.

The Council looks forward to maintaining productive relationships with Governor Lowell Weicker, the General Assembly, state agencies, and citizens in working toward our common goal of environmental excellence for Connecticut.

CEQ MEMBERS

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A group of individuals took the time to participate in an informal greenways discussion group which assisted the Council in its investigation of the greenways concept. The Council wishes to thank those individuals for lending their time and expertise to this exciting new program.

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