



FINAL REPORT OF THE WATER RESOURCES TASK FORCE

State of Connecticut
GENERAL ASSEMBLY



ENVIRONMENT COMMITTEE

ROOM 400
STATE CAPITOL
HARTFORD, CONNECTICUT 06106

February 4, 1985

TO: Governor William A. O'Neill
Connecticut General Assembly

FROM: Representative Teresalee Bertinuson
Mr. Robert Reinert
Co-Chairmen, Water Resources Task Force

Pursuant to S.A. 82-28 and 84-1 we, hereby, transmit to the Governor and the Connecticut General Assembly, the final draft of the Water Resources Task Force completed February 1, 1985.

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MEMBERS OF THE WATER RESOURCES TASK FORCE

1. CO-CHAIRMAN: Rep. Teresalee Bertinuson, Environment Committee
2. CO-CHAIRMAN: Robert Reinert, Bridgeport Hydraulic Company
3. Representative Julie Belaga, Environment Committee
4. Martin Smith, Environment Committee
5. Senator William Dibella, Planning and Development Committee
6. Representative Robert T. Keeley, Planning and Development Committee
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10. Representative Michael Helgott, Public Health Committee
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2. John Hiscock, Norwalk Second Taxing District (for Rep. Rudolf)
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ACKNOWLEDGEMENT: Special thanks to Arthur Young and Company, who made time available for their employee and Task Force member Martin Smith to finalize the Connecticut Plan proposal.

SUMMARY

SUMMARY

The Water Resources Task Force was formed as a result of Special Act 82-28, "An Act Concerning a Study of State Agency Authority in the Management of Water Resources for Public Water Supplies".

The Task Force consists of seventeen members: three members of the Environment Committee; two members of the Public Health Committee; two members of the Energy and Public Utilities Committee; three members of the Planning and Development Committee; Commissioners of Environmental Protection and Health Services or their designees; Secretary of the Office of Policy and Management or his designee; Chairperson of the Department of Public Utilities Control or his designee; one member representing a small privately-owned company; and one member representing a municipal or regional water authority, and one member representing a large, private water company.

The Task Force was charged with evaluating and making recommendations concerning: the authority of state agencies in the management of water resources for public water supplies; institutional structure, franchise, and operational areas of water utilities; the state's water supply system, including sources, present and future demands, and rate structures; conservation of water resources; and groundwater supply problems.

The Task Force formed three subcommittees to pursue the requirements of the legislation. These subcommittees, "Water Utility", "Water Supply", and "State Agency Role", met regularly for the initial one and one-half years of the Task Force. This period was for the gathering of information particularly through public hearings and forums on specific topics, preparing background reports, and formulating initial recommendations. The legislation required the Task Force to submit its final report by February 1, 1984. Instead an interim report was submitted to the General Assembly while legislation was introduced and passed extending the Task Force for another year, with the final report due in January 1985. In its second year the work of the State Agency Role group was primarily undertaken by the Water Utility subcommittee.

In its 1984 interim report, the Task Force recommended significant legislation which was passed during the 1984 Session (see PAs 84-330, 84-281 and 84-502). While these pieces of legislation are considered important in coping with Connecticut's water supply problems, the Task Force felt that additional solutions of a long-term nature should be pursued. Thus, in its final year, the Task Force concentrated its activities on the development of a public water system coordination law based on a program in place in the state of Washington, present and future ground and surface water protection, sale and abandonment of supplies and water conservation.

WATER UTILITY ISSUES

INTRODUCTION

There are about 700 water utilities in the state, 50 of which are publicly owned by either a municipality or regional authority. The remaining 650 systems are privately owned and vary greatly in size, adequacy of service, quality of water, financial resources, design and engineering standards, and accountability to customers as well as regulators.

In general, the state's water resources are of high quality, due in part to the fact that many water utilities have improved the quality of their supplies in accordance with federal Safe Drinking Water Act (SDWA) requirements. Significant problems remain with small utilities serving less than 1,000 customers. There are approximately 600 small water utilities located primarily in suburban and rural areas of Connecticut. While not true of all 600 small systems, many small water companies have problems of quality, service, planning, maintenance and repair, and design. These problems are often a result of a lack of financial resources and technical expertise. Many small systems lack even the most basic managerial skills to apply for rate increases.

The proliferation of new small water systems will only add to the already serious problems faced by the water utility industry. Under-capitalized, inadequately designed, and poorly managed new small systems are not in the state's best interest.

Although not necessarily an immediate problem, such systems are inadequate to meet future growth demands. These new systems are often constructed in conjunction with new housing development with only token consideration of possible interconnections with existing systems.

Previous Legislation Enacted

The Water Resources Task Force addressed many of the above problems in its 1984 recommendations (see Water Resources Task Force, Interim Report, January 1984), many of which were enacted into law by the 1984 General Assembly. The major piece of legislation passed was PA 84-330. This law, "An Act Concerning Small Water Companies and the Receivership of Water Companies," restricts the establishment of new small water companies by encouraging interconnections through a joint Department of Public Utility Control (DPUC) and DOHS certification procedure. A municipality approving a development proposal that includes a new water system will end up operating that system if a local planning and zoning commission approves such a development prior to the system's receiving the necessary state certificate and if the water system subsequently provides inadequate service.

The law also gives the DPUC the authority to order another water company or municipality to take over a failing small water company. Finally, PA 84-330 requires a water company owner to pay for the value of improvements to a water company in receivership in order to reacquire it. This law took effect on October 1, 1984.

CONSIDERATION OF A "CONNECTICUT PLAN" LAW BASED ON THE "WASHINGTON PUBLIC WATER SYSTEM COORDINATION ACT"

Background

While the passage of PA 84-330 is expected to make a strong contribution towards meeting the problems faced by the water utility industry and its consumers in Connecticut, much work still remains. Over the past year, the Task Force has attempted to develop a long range solution to the problems of water supply and utilities in Connecticut. This process actually began in late 1983 when contact was made with the state of Washington about the water utility law it had passed addressing virtually all of the problems raised and debated by this subcommittee. Washington's "Public Water System Coordination Act" (PWSCA) is an innovative approach to problems of water supply, service, quality and planning. The PWSCA promotes the development of countywide water management systems to address the proliferation of small water system, overlapping service areas, lack of coordinated land use and water system planning, and inconsistent system design. The act is attractive because it primarily builds on existing law rather than creating new state authorities. The act can be initiated in a particular region by county government or state government (Department of Social and Health Services (DSHS)).

The Washington law does the following:

- A. establishes fixed regulatory control areas;
- B. requires appointment of a committee with representatives from all water utilities in the regulatory area with at least 50 customers and representatives of county government and its agencies;
- C. prohibits the establishment, with limited exceptions, of any new water system in a controlled area;
- D. requires identification of a permanent service area for all existing water systems and development of a plan to meet all regulatory requirements;
- E. requires county governments and water utilities to coordinate land-use and water system planning; and
- F. identifies the need for utility management assistance ("satellite support system").

While the act is administered by the state DSHS, county government and water utilities are given significant decision making authority related to the plan. Once the Act is implemented in a particular area related to the plan, a partnership of local elected officials, planners and water purveyors is formed to prepare a coordinated water system plan. Once completed and approved by county and state officials, the plan must be followed by all decision makers and purveyors in the region.

The Washington PWSCA has generally been viewed favorably by county governments, water purveyors, state agencies, and the public at large. Some of its major benefits are: restricting new water systems; providing a forum for various parties to meet and work out their differences; stressing a "grass-roots" approach to water problems; providing

predictability to both purveyors and developers; monitoring consistency between water system and land use plans; and probably most importantly, achieving the organized development of water utilities within a defined geographical area.

Review of Washington Act-Hiring of Consultant

In September 1983, The Task Force contacted Robert Wubbena, a Washington water utility management consultant, for information on the development and implementation of the Washington law. Mr. Wubbena had primary responsibility for writing this law while working for the Washington Department of Social and Health Services. He spoke to the Task Force in Hartford and his presentation was favorably received. Following a more detailed analysis of the Washington law, the water utility subcommittee decided to concentrate its activities on the potential development and application of such a law in Connecticut. Mr. Wubbena was formally hired as a consultant by the Task Force in June 1984, and employed primarily to advise and comment on the development of a "Connecticut Plan" modeled after the state of Washington law.

The consultant's work culminated in a two day session in Hartford on September 24-25, 1984. These all-day sessions were used for extensive examination and analysis of Connecticut's need for a Washington-type law. Following these sessions, the Task Force agreed that pursuit of the Washington model in Connecticut was desirable.

The work of the Task Force was complemented by extensive in-house work by the Department of Health Services, Department of Environment Protection, the Department of Public Utility Control and the Office of Policy and Management. The agencies examined current authorities, necessary new authorities, possible barriers to implementation, and needed information for a Connecticut plan. The Department of Health Services also developed a report entitled, "Water Supply Problems in Connecticut," which is an overview of water supply issues facing the state, presented on a regional basis. This document would serve as an important starting point if a Washington-type law were passed in Connecticut. It divides the state into preliminary water supply areas and discusses each region in terms of quality, quantity, reliability, and planning and coordination issues. (This report is attached in the appendix.)

Reasons for Adopting a Connecticut Plan

The Task Force attempted to resolve problems of water quality, water supply planning, protection of present and future sources, the state's role in regulating water supply and service, proliferation of small water systems, inadequate maintenance and repair of utilities, overlapping service areas, and adequacy of rates. A Connecticut law modeled on Washington's act provides a creative, long-term solution to many of the state's water-related problems with a minimum of new state authorities while encouraging participation of the utility industry, and local and regional levels of government.

There are significant differences between the states of Washington and Connecticut concerning water supply, utility regulation, the role of counties, degree of water and land use planning, population densities and financial assistance by state government. But the Washington-based approach seems to have meaning for Connecticut and its water supply problems. A Connecticut act would address:

- A. comprehensive planning for water supply, service and quality on a regional basis,
- B. future water supply planning,
- C. water quality and quantity problems,
- D. problems of water utility performance,
- E. the proliferation of new small water systems,
- F. integration of water system plans and land use plans, identification and resolution of conflicts between land and water system planning,
- G. cooperation among water purveyors: large vs. small, public vs. private,
- H. coordination and accountability among water purveyors concerning provision of service, interconnections, responsibility for service, future service areas, future sources and other potential areas of conflict,
- I. satellite management, (large water utilities provide technical, managerial and financial assistance to small water companies)
- J. enforcement of state law, regulation and policy relating to water supply, and
- K. uniformity of water system standards, standardization of water system data to aid in evaluation of water company performance.

All municipal utilities, regional water authorities, and private water utilities serving a minimum of 15 service connections or 25 persons would be subject to the proposed act. The state Department of Health Services (DOHS) would have primary responsibility, at the state level, for implementation of the act.

A water utility coordinating committee (WUCC) would be formed in each water supply management area and would be responsible for developing a coordinated plan for that area, subject to DOHS approval, as well as municipal, DEP, DPUC and OPM review.

***Recommendation**

The Task Force recommends that the General Assembly adopt a "Connecticut Public Water Supply Coordination Act" modeled on the Washington law.

A framework for such a law is as follows:

I. Preliminary Assessment

The Department of Health Services (DOHS), in consultation with DEP, OPM and DPUC recently completed a statewide preliminary assessment, evaluating water systems and particular problems (e.g. quality, quantity, unreliable service, lack of coordinated planning). Resources of DOHS (water quality and quantity problems), DEP (water supply data and water demand projections), DPUC (identification of particular troublesome utilities and other problems), and OPM (planning information and population projectives), were used.

II. Dividing the State into "Public Water Supply Management Areas"

- A. DOHS, in consultation with DEP, DPUC and OPM should be responsible, after the statewide preliminary assessment is completed, for dividing the state into "Public Water Supply Management Areas."
- B. DOHS should define preliminary areas based on criteria such as population, location of existing water utilities, service and franchise areas, location of water supplies, natural drainage basins, topographic and geological factors, existing interconnections, local boundaries, and regional planning agency boundaries. DOHS should attempt to identify problems in need of regional solutions.
- C. Areas should be identified within a specified time after passage of legislation. Six months after the effective date might be an acceptable time for this task, assuming sufficient staff support.
- D. Following DOHS' identification of preliminary public water supply management areas, public hearings should be held in each area. Interested parties should be given the opportunity to comment on these preliminary areas.
- E. Following the public hearings, DOHS should establish the final water supply management areas, again within a specified time, making necessary adjustments to the preliminary boundaries. The public hearing process and designation of final regions should be completed within a year of the legislation's effective date.
- F. After the final boundaries are set, DOHS should identify areas which need immediate attention under Connecticut's coordination act.
- G. Actual work on a coordinated plan for an area would depend on these priorities.
- H. Legislation necessary: legislation should specify that DOHS has the responsibility of dividing the state into public water supply management areas. The legislation should address the general criteria DOHS must consider, allowing DOHS to also consider other appropriate criteria.

III. Water Utility Coordinating Committees

- A. A water utility coordinating committee (WUCC) should be established for each public water supply management area. Actual formation of the WUCC for an area will depend on the priorities established by DOHS.
- B. A particular region's WUCC should be established just prior to beginning work on a coordinated plan for that area.
- C. WUCC membership - limited solely to the eligible water utilities in the region (those utilities serving a minimum of 15 service connections or 25 customers - private and municipal), and including those utilities with watershed land in that region. The WUCC membership should elect a chairperson, adopt rules, review the "Connecticut act," decide on a work plan. WUCC meetings would be open to the public.

- D. The WUCC would be required to solicit the input of municipalities, regional planning agencies and state agencies at certain points in the planning process. The WUCC should present information to those groups, receive written comments, meet with these groups, and document the comments received and the WUCC response to those comments. Input should be required at least at the following points:
1. Preliminary Assessment: does it accurately reflect the conditions, problems and concerns within the region? If not, what are the suggested additions or deletions?
 2. Service Areas: when tentative areas have been delineated by the WUCC, the review group should have input. Municipalities should confirm that service is proposed for areas likely to require it.
 3. Draft Plan: the review group should review the draft coordinated plan. Municipalities should also pay particular attention to consistency with local land use plans and policies, including water quality protection. (It should be noted that DOHS, DPUC, DEP and OPM will have already reviewed existing individual utility plans, which become part of the coordinated plan, PA 84-502).
- E. Role of DOHS - primary role is organizational and secretarial. DOHS staff should aid in developing the work plan of the WUCC. WUCC (in Washington's experience) usually hires a consultant to write the coordinated plan. The DOHS should contract with the consultant when providing services to a WUCC although the consultant takes his direction from the WUCC. Also, DOHS should have authority to make final decisions to resolve disputes including using outside parties to mediate, (e.g. service area boundary disputes).
- F. Legislation necessary: legislation should address the make-up of the WUCC by providing general guidelines for membership. It should be up to the individual WUCCs to determine final membership assuming potential members meet the consumers-served criteria. The role of the DOHS in the WUCC should be addressed in statute. The role of municipalities, state agencies, and RPAS should be clear, including the specific points of required participation. The statute should specify funding available to WUCC and responsibilities, if any, of utilities and local governments to provide funds. The WUCC is a planning group and implementation of the plan will rely on voluntary compliance by participating utilities as well as pre-existing state regulatory authorities.

IV. Water Utility Services Areas

- A. The WUCCs should establish the exclusive service areas of the water utilities in their particular region. No utility should lose its current service area. Future service areas should be assigned if appropriate.
- B. The establishment of new water utilities would be prohibited except in cases of demonstrated need (e.g. no water purveyor in area, no possible interconnection, no feasible satellite management service, etc.).

- C. The exclusive service areas should be identified early in the WUCC's work - but do not have to be finalized until end of committee's work.
- D. The DPUC should attempt to resolve questions or disputes over existing service areas. If no resolution can be reached, DOHS would have the ultimate authority to decide the service area questions. If two municipal utilities disagree, they should attempt to resolve it themselves.
- E. A clear understanding of the distinction, if any, between water utility franchise areas vs. water utility service areas is necessary. If "franchise area" refers to the area the utility is legally entitled to serve, will the designation of exclusive service areas (present and future) conflict with current law in the area?
- F. Legislation necessary: existing service areas of water utilities need to be recognized formally by state law. A prohibition on new water systems must be clearly stated in legislation with exceptions in cases of demonstrated need. Legislation should define "cases of demonstrated need" for a new water system. If "franchise" vs. "service area" distinction is an impediment, legislation should attempt to resolve the problem, by having clear statutory definitions of these terms and their application. Future service areas should be recognized by statute.

V. Development/Approval of Coordinated Plan

- A. The coordinated water system plan, developed by the WUCC, has two parts: (1) individual water system plans of each utility within the public water supply management area; and (2) an areawide supplement to the individual plans which addresses water system concerns pertaining to the area as a whole. An individual plan of a utility should address its future service areas.
- B. WUCC needs a solid data base to do its work: population projections, water demand projections, supply availability. The WUCC should accept this data as a starting point for development of a coordinated plan.
- C. DOHS should outline and standardize the content of the individual plans. DOHS should also identify how individual plans are to be integrated into the regional supplement.
- D. The coordinated plan should be reviewed by towns in the water supply area for consistency with their land use planning. Towns should have a set period of time in which to review the plan (60 days) or waive its rights to review. The coordinated plan should be submitted for approval by the state (DOHS), with approval procedures clearly defined. DOHS should approve/disapprove the coordinated plan within a specified time period or it is deemed approved. Law should consider resolution procedure when local land use policies inhibit supply facilities development or protection.
- E. Utilities should acknowledge that the coordinated plan is consistent with the individual plans required. (individual plans are already required of some water utilities under P.A. 84-502.)

- F. Criteria for plan approval - DOHS must look at consistency of coordinated plan with land use plans for the town and region, if they exist, and address major problems, potential conflicts and other impediments in implementing the plan. DOHS should review town comments on the plan in regard to consistency with land use. The major criteria for approval should be will the plan provide for orderly development of pure and adequate water supplies as necessary.
- G. Other state agencies must provide advisory comments on the coordinated plan concerning all applicable state plans, policies, guidelines, and laws. State agencies should review and comment on the plan in regard to their responsibilities: (1) OPM should examine the plan for consideration of state policies (e.g. Plan of Conservation and Development); (2) DEP should advise that the diversions identified exist or can be applied for in the future and that future resource allocations are proper; but there is no pre-approval of diversions; (3) DPUC should advise DOHS that the coordinated plan developed is cost-effective.
- H. RPAs and towns should review and comment on the plan.
- I. The satellite management operation concept should be considered and utilized where appropriate. DPUC rate policy should insure that satellite management is a realistic alternative in water supply areas. Incentives for utilities to engage in satellite management or ownership need to be provided through DPUC rate policies. (see p. 13 of report)
- J. The ultimate goal is to end up with a single management document for each water supply area. The plan should be reviewed and updated, if necessary, every five years. There should be a plan amendment procedure.
- K. Legislation necessary: nature of coordinated plan should be defined; DOHS should be given the authority to standardize, to extent practicable, general format and content of plans and approve/disapprove them based on clear criteria; local government and RPA review of coordinated plan for consistency with zoning and land use planning should be clearly understood; review and comment by other state agencies should be addressed in statute, specifying the state agencies involved and those agency responsibilities related to a coordinated plan review; periodic plan review and updating should be required; and P.A. 84-502 should be amended, if necessary.

INCENTIVES TO ENCOURAGE THE TAKEOVER OR SATELLITE MANAGEMENT OF PROBLEM SMALL WATER COMPANIES

Background

From the outset, the Task Force examined the issue of problem small water companies with particular emphasis on possible takeover by larger, solvent companies. Another procedure investigated was satellite management of problem systems by large utilities with the requisite managerial, technical, and financial resources. Satellite management can be pursued in a number of ways: a) direct service: the small system is

transferred to an existing larger utility which assumes operation, maintenance and administrative responsibilities; b) contract service: the small utility contracts with a large utility for services including emergency and scheduled repair, system operation and maintenance, monitoring and reporting, and administration and billing, and c) support service: the small water system seeks operator training and purchase of equipment and supplier from a large utility on a cooperative basis.

DPUC rate policies should provide appropriate incentives to private utilities to engage in takeovers of small water systems or satellite management arrangements. The subcommittee felt that some financial incentives needed to be provided, within DPUC rate policy, to encourage private large utilities to takeover or aid poorly run small systems.

The following recommendations attempt to provide such incentives. It should be noted that these apply only to private utilities and not municipal water utilities since their rates are not regulated by the DPUC. Any takeover or satellite management activities on their part would be subject to the local political process.

***Recommendations**

The Task Force recommends the following, with each requiring an amendment to CGS § 16-19:

- A. grant the DPUC the authority to encourage the satellite management of small water companies by allowing the regulatory agency to consider satellite management as outside of the rate making process of the company providing the services,
- B. in the case of a takeover of problem small systems by responsible larger utilities, the DPUC should have the authority to award premium rates of return,
- C. equalization of rates, with or without a phase-in, under a satellite ownership arrangement should be expressly permitted under appropriate circumstances.

**OTHER RATE ISSUES: EXPEDITED RATE PROCEEDINGS
ON A LIMITED BASIS**

Current law (§16-19h) gives DPUC the explicit power to reopen water company rate cases, but only to adjust the company's rates to reflect a subsequent DPUC approved increase in another private company's rates for selling water to the first company. Other factors can increase the cost of water, yet are not recoverable in rates without a full rate proceeding. These include increased cost of water purchased from a municipal utility, taxes on water supply land, and increased energy charges.

***Recommendation**

The Task Force recommends that CGS §16-19h be amended to provide for expedited rate proceedings to address increase costs due to tax assessments, energy charges, and purchased water from municipalities.

CGS §16-19h should be amended as follows:

The department of public utility control may reopen proceedings on a proposed rate amendment filed under section 16-19 and amend its final decision on such filing [solely] to adjust the rates of a water company, as defined in section 16-1, to reflect the increased cost of (1) water purchased from another such water company OR FROM A MUNICIPAL UTILITY FURNISHING WATER, if such increased cost results from the approval by the department OR APPROPRIATE BODY of a rate increase for the water company [supplying] OR MUNICIPAL UTILITY FURNISHING such water, (2) TAXES ASSESSED PURSUANT TO SECTION 12-75 OR 12-76 or (3) ENERGY FROM GENERATING FACILITIES.

DOHS AS LEAD STATE AGENCY FOR REGULATION OF PUBLIC DRINKING WATER

Through legislation introduced by the Task Force and passed by the 1984 session of the General Assembly, the Task Force centralized prime responsibility for regulating of water supplies in the Department of Health Services. In subsequent discussions, some Task Force members recommended the Department be reorganized to establish a Bureau of Drinking Water Supplies, which would be responsible for all Department functions regarding drinking water. This reorganization was strongly supported by the Connecticut Water Works Association (CWWA), which agreed to support water assessments in order to finance the activities of the Bureau, should it be created. Proponents of the reorganization argued that water related activities in the DOHS had been allowed to progressively deteriorate before the creation of the Task Force, and, therefore, the water related function within DOHS and its importance and status within the Department's organizational structure should be institutionalized through legislation creating a Bureau of Public Water Supply.

Additional reasons included the need for a strong advocate of drinking water issues among state agencies, centralization of drinking water programs within one agency, and protection from changes in future Department priorities as they might tend to shift from water.

Opponents of the reorganization, led by the DOHS, felt that creating a bureau would not guarantee the results desired by its proponents and that organization in the DOHS was an internal decision best handled through the Commissioner in accordance with CGS §19a-4. Also, DOHS showed its commitment by adding six new positions in this area last year and a major budget option for water supply has been proposed for this year.

Because the Task Force was split on the question of recommending the establishment of the Bureau, no recommendation is made.

The Task Force did agreed that certain statutory water supply responsibilities were in need of amendment to reflect DOHS as lead state agency for regulation of public drinking water.

*Recommendations

It is recommended that the following statutes be amended:

- A. §22a-337(b): This statute gives the DEP Commissioner the authority to negotiate and enter into agreements with other states and the federal government concerning interstate diversions, flood control, river and harbor improvements, and pollution of interstate waters. This law should be amended to include participation of the DOHS when water supply is involved.
- B. 22a-358: This law allows a public water system with excess water reserves to sell the excess to any other public water system, upon DEP approval. This statute should be amended by transferring approval authority from DEP to DOHS.
- C. 22a-355(b): Under this law, the DEP Commissioner requires water companies to file a 5 and 20 year forecast of proposed land sales. Based on the filing the Commissioner designates for acquisition water lands which will contribute to department programs. Utility lands acquired by DEP are subject to DOHS review. This status should be amended by eliminating the filing requirements and instead reference water utility plans required under PA 84-502.

FINANCIAL ISSUES

Agency Costs

The Water Utility Subcommittee examined methods of financing the "Connecticut Plan" and the other recommendations not directly related to the plan.

The DOHS would face the following costs in implementing a Connecticut Plan:

1	Principal Analyst/Engineer	\$ 30,000
2	Senior Analysts/Engineers	52,000
2	Analysts/Engineers	48,000
1	Administrative Assistant	15,000
1	Clerk/Typist	13,000
	Data Processing (one-time only)	100,000
	Other expenses (cars, training, supplies)	30,000
		<hr/>
	Total:	\$288,000

DOHS plays a critical role in the Connecticut Plan for comprehensive regional water supply planning. Delineating regions, setting priorities among the regions, providing organizational and staff support to the WUCC, oversight of any consultant contracts, providing guidance on plan contracts and review criteria, resolving service area boundary disputes, and approving a final plan are the primary DOHS responsibilities. The proposed staffing would allow for the simultaneous development of regional plans and coordination with individual utility plans developed under PA 84-502.

The data processing system is essential to the Washington proposal. At present, all data are handled manually. This includes monthly monitoring data from 700 utilities, enforcement actions, etc. In order to handle the large amount of data that will be needed for this system, a data processing system is needed. This would not in any way duplicate the data processing capabilities and information already at DEP, but would, in addition to

handling DOHS' data needs, give them the ability to access DEP's data. This request for data processing funds is also included in a Department budget option presently being considered by the Office of Policy and Management.

In addition to these costs to DOHS, DOHS would provide pass-through funds for the studies necessary for plan preparation. DOHS estimates a \$200,000 cost for each regional plan. Assuming ten regions, the total cost would be two million dollars.

The DPUC estimates that implementation of the plan would result in the following costs:

2	Senior Utilities Engineers	\$ 56,000
1	Utilities Engineer	24,000
1	Clerk/Typist	13,000
	Other expenses (cars, training, computer time, supplies, etc.)	10,000
		<hr/>
Total:		\$103,000

The role of the DPUC under the Connecticut Plan would be in an advisory capacity. The DPUC staff would review regional water supply plans and verify that cost-effective proposals would be utilized by the utilities in the development and implementation of the coordinated plan and that the impact on customer rates has been considered. The DPUC staff would provide consultation on the above to the Department of Health Services, which would be empowered to provide the final approval and coordinate the implementation of each regional plan. In order to remain impartial and preserve the integrity of the DPUC, the staff member assigned to the advisory role for the regional plan would not be permitted to cross-examine as staff in any hearing before the DPUC of the affected utilities. Thus the need for additional staff. The actual duties would involve visiting site locations for tanks or other structures, attending regional meetings, preparing reports and comments on proposals for the Department of Health Services and providing useful suggestions or advice to water utility personnel.

The DEP estimates are based on the cost of running the water diversion program upon passage of a Connecticut Plan. Under the Connecticut Plan as in the State of Washington, the diversion program provides the mechanism for implementation of plans developed under the coordinated regional planning process through reservation of future supplies, allocation of supplies (permitting) and also provides the process to resolve water use conflicts concerning use of the supplies. The personnel requirement represent the staff needs to manage the total diversion program of which water supply is a part. However, all diversion permits are interrelated. These costs are as follows:

Personnel	\$301,400
Equipment	35,000 (one time expense)
	<hr/>
Total:	\$336,400

The Task Force endorsed the concept of a "shared data base".

This concept involves DEP taking the lead in development of a system of single reporting from utilities to the state for use in existing multi-agency requirements, as well as to provide input into the coordinated regional planning process and management of the data coming out of that process. The proposal is expected to reduce duplication in data collection, reduce time needed for compilation and analysis, and result in more cost-effective water supply/water resources management programs. It would cost:

Personnel	\$ 83,000
Other costs	130,000
	<hr/>
Total:	\$213,000

(Other costs include software. Hardware will be supplied by the Department.)

The Task Force has taken no formal stance on these agency budget estimates for implementation of the Connecticut Plan and related activities, such as the shared data base. They are presented to give an indication of the potential costs involved.

Financing Options

- A. Increased general fund appropriation for the public drinking water-related activities of state agencies could be sought.
- B. A gallonage assessment on the water delivered to each water utility system could raise significant funding. The Connecticut Water Works Association (CWWA) supported the gallonage assessment if it was tied to the creation of a Bureau of Public Water Supply within the DOHS. CWWA envisioned the assessment as supporting all administrative costs of the Bureau, including grants to WUCCs for 50% of the cost of developing the coordinated water system plan for each region. The remaining 50% of the cost of the plans would be paid directly by the water utilities in each WUCC assessed on a gallonage basis.
- C. The creation of a grant and loan program, administered by DOHS or the Connecticut Development Authority (CDA) could be used to encourage the takeover of problem small systems. This program could be funded through a combination of state bonding authority and a dedication of the current gross receipts tax on water utilities. The \$3 million generated from that fund could be used to finance a grant and loan program as follows:
 1. loans: interest free loans of a maximum of \$1 million could be provided for financing capital improvement associated with reconstructing problem small systems by responsible entities which might take them over. If \$2 million a year for 10 years could be used to subsidize interest cost of 10%, it would support a loan pool of approximately \$25 million (this assumes the state will use its bonding authority to provide tax-free debt. This will be loan money, repaid by the utilities).
 2. grants: a partial grant could be available in cases where the takeover of problem systems by a responsible utility results in significantly higher water charge to the customers. The grant would be available to reduce the capital cost.

- D. State bonding could be used to finance the purchase of development rights associated with aquifers necessary for present and future water supply.

WATER SUPPLY ISSUES

INTRODUCTION

The Water Supply Subcommittee focused its work on the following issues:

- A. Means of protection of present and future groundwater supply.
- B. Means of protection of present and future surface water supply.
- C. Water Conservation.

During its work on these topics the Subcommittee came to the conclusion that due to the physical interrelationship of both ground and surface waters and the realization that in various instances the same solution or recommendation could apply to both ground and surface waters, it was decided these two areas would be dealt with together where feasible. Therefore, the following is a combined discussion of proposed means of protection of present and future ground and surface waters.

This report also summarizes the recommendations of the Task Force on the subject of water conservation. The full report of the Subcommittee, describing in greater detail its recommendations on water conservation, is included with this report as Appendix II.

Finally, in 1983 the Water Supply Subcommittee devoted considerable efforts to the preparation of a framework for a comprehensive statewide water supply plan and planning process. An outline of this proposal was forwarded along with other proposals of the Subcommittee in its interim report to the Task Force. The Water Supply Subcommittee delayed further work on this subject due to the interrelationship of this topic to the "Connecticut Plan" approach. This final report of the Task Force contains a discussion with recommendations on this subject.

In addition, in 1983 the Water Supply Subcommittee gave consideration to three other topics: the preparation of water supply plans by water utilities; powers to deal with water supply emergencies; and consideration to the routine use of Class B waters (water into which sewage is discharged) for public water supply purposes.

The Task Force, in its interim report, recommended two pieces of legislation dealing with water supply planning, and these were enacted by the General Assembly. One law requires certain water utilities to submit a plan every three to five years which evaluates the water supply needs in the utility's service area and which proposes a strategy to meet those needs. The second law gives the Commissioner of Health Services broad powers in water supply emergencies due to contamination of water, water supply system failure or water shortage.

The Task Force also concluded that presently there was no need in the state to utilize Class B sources for potable purposes, except in certain emergencies with the approval of the Commissioner of Health Services and with the exception that water utilities are allowed to consider such sources in their future planning. This provision was also included in the 1984 legislation.

It is the feeling of the Task Force that the following recommendations could make a real contribution to the protection and enhancement of this state's present and future water supplies, and that the recommendations are of such a nature that they can be considered on their own, or in concert with the Connecticut Plan approach.

CONTAMINATION PREVENTION PROGRAMS

The development on water supply watersheds or above certain designated groundwater public water supplies is a concern which should be addressed by several changes in existing law.

Controls On Future Land Use

The development on water supply watersheds or above certain designated groundwater public water supplies is a concern which should be addressed by several changes in existing law relating to land use planning.

*Recommendation

The Task Force recommends the following legislation dealing with protection of public water supply sources:

- A. Allow the Department of Health Services (DOHS) to participate in local land use decisions (similar to Sec. 22a-110 of the CAM law, i.e., the ability for the state to submit testimony to a local board, the right to appear as a party at a local hearing and the right to appeal or be a party to an appeal of a municipal decision).
- B. Give DOHS the power to issue cease and desist orders under certain conditions when there is an imminent threat to a water supply from an activity which would adversely impact the quality of water. This would give DOHS powers in the area of water supply similar to those presently possessed by DEP for other areas of environmental protection.
- C. Sec. 8-23 of the Connecticut General Statutes, which describes the provisions regarding a municipality's Plan of Development, already refers to the protection of water supplies. It says that "In preparing such a plan, the commission...may consider the protection of existing and potential public surface and groundwater drinking water supplies..." The word "may" in this statute should be changed to "shall" so that a municipality would be required to consider the protection of existing and potential public water supplies in preparing its Plan of Development.
- D. Sec. 8-2 of the Connecticut General Statutes, which describes the provisions regarding a municipality's zoning regulations, already refers to the protection of water supplies. It says the "zoning regulations may be made with reasonable consideration...for the protection of the existing and potential public surface and ground drinking water supplies..." The word "may" in this statute should be changed to "shall" so that a municipality would be required to consider the protection of existing and potential public water supplies in its zoning regulations.

Acquisition/Protection Programs

The Task Force also considered prevention of water supply contamination as it applies to acquisition and protection of land associated with water supply. The Task Force favored the concept of reserving land for future impoundments for protection of groundwater aquifers, and encouraged a state role in this program.

The water utilities should identify in their respective water supply plans all lands presently owned or needed to be purchased or otherwise controlled for public water supply purposes. It is felt that this will occur as part of implementing P.A. 84-502.

The Task Force also recommended that the DPUC should consider the inclusion of the cost of purchase, ownership or retention of land for future water supply use in the rate base subject to the following:

- A. The land under consideration must be a part of a DOHS-approved water utility plan as a future water supply in accordance with P.A. 84-502.
- B. Purchase, ownership or retention of the land is prudent considering cost availability and other pertinent factors.
- C. The above would include the land necessary for water supply protection, the impoundment area itself, well site, or lands for other appropriate appurtenances such as a tank site.

Although the DPUC feels that it presently has the authority to consider each of these requests for inclusion in the rate base on a case-by-case basis, the Task Force feels that some legislative base is needed, e.g., establishing 50 years as a time frame re "future".

In addition, in order to discourage speculation, it was felt that there should be special restrictions on the proceeds of the sale of the lands earmarked for future use and included in the rate base.

***Recommendation**

Legislation should be enacted to make it clear that DPUC can consider the cost of purchase, ownership or retention of land for future water supply use.

Proposed Groundwater Strategy

Finally, the Task Force addressed the issue of contamination prevention through the development of a comprehensive groundwater strategy.

***Recommendation**

The commissioner of DEP should be directed by statute to prepare a report to the legislature by a specific date regarding options for improved protection of public groundwater supply resources. The report would include maps suitable for adoption for regulatory purposes of the areas in need of protection; and specific recommendations for regulatory and other programs to protect these areas.

A detailed description of this proposal is attached as Appendix I, and is outlined below:

A. Mapping Strategy:

Three general levels of groundwater development and protection have been identified:

- Regionally significant aquifers
- Local public water supply groundwater resources
- Statewide groundwater (includes private wells)

The regionally significant aquifers will require the highest degree of protection because of their potential to supply water to large numbers of people. For this reason the mapping program will focus on these resources.

The proposed mapping program includes:

1. Inventory of all existing data on stream/aquifer characteristics for the 40 regionally significant aquifers which have been identified on a preliminary basis by DEP, and evaluate the level of detailed field work still needed for each.
2. Field work (to include obtaining necessary permissions to access sites, geophysical surveys and drilling).
3. Detailed field mapping.
4. Water quality investigations (to include an inventory of existing water quality data; and water quality sampling and analysis as needed).
5. Analysis of stream flow characteristics.
6. Aquifer analysis.
7. Preparation of Regional Aquifer Map.

The final maps will contain those aquifers which, based on yields, quality, and need, should be protected to ensure they are available for future use.

B. Management Strategy

Under this component of the proposed study, an institutional strategy will be developed to protect the area contributing to aquifers and ensure that the sites identified as potential well fields are available when needed.

This component would not be limited to protection strategies for regionally significant aquifers, but would apply to all three levels of groundwater.

This component of the study would be carried out concurrently with the mapping program, and the relevant elements will be merged with the findings of the hydrogeologic investigations to produce the final mapping.

The proposed management strategy includes:

1. Inventory of existing land uses occurring on the 40 preliminary regional aquifers.

2. Evaluation of future demands for water, and proximity of the source to the need.
3. Determination of which land uses would be regulated.
4. Evaluation of institutional options for protection of the three general levels of groundwaters. The models which will be evaluated include but are not limited to:
 - Tidal Wetland Type permitting program
 - Inland Wetland Type permitting program
 - Coastal Site Plan Type review
 - Expanded zoning
 - Acquisition of needed land area or purchase of development rights
 - Expanded water quality classification system
 - Minor grants to towns to evaluate water supply needs and how they relate to groundwater protection
5. Other options will also be investigated. These include, but are not limited to:
 - Recommendations for minimum protection distances around wells.
 - Delegation of initial investigation of potential commercial sources of pollution to local officials.
 - Development of municipal guidelines for groundwater protection.
 - Development of model aquifer zoning regulations.

**SALE OF WATER UTILITY OWNED LANDS AND
ABANDONMENT OF SOURCES OF PUBLIC WATER SUPPLY**

Water Company Lands

The Task Force found a need to clarify state policy and law on the sale of existing water supply lands and water bodies; and developed several proposals dealing with this issue.

***Recommendation**

The Task Force recommends the following changes in state policy and law on the sale of present water supply lands and water bodies:

- A. Clarify existing law to assure that Class I and II land, under certain circumstances, and with the appropriate reviews, can be changed in classification to either Class II or Class III land. Examples of when it might be appropriate to reclassify would be:
 1. The abandonment of a source which is no longer needed for water supply - present, future or emergency;
 2. A physical change in the watershed boundary.
- B. Consider the following wording for addition to the General Statutes:

1. To Sec. 25-32(b) add: "The commissioner (of DOHS) may reclassify Class I land upon determination that such land no longer meets the criteria established by Subsection (a) of Section 25-37c."
 2. To Sec. 25-32(c) add: "The commissioner (of DOHS) may reclassify Class II land upon determination that such land no longer meets the criteria established by Subsection (b) of Section 25-37c."
- C. The statutes should be modified to allow sale of Class I water company land to another water company for use as Class I watershed land without requiring any change in classification. The Department of Health Services should review any such sale to ensure the use of the land is in accordance with the utility's approved plan (PA 84-502).

It is felt that the matter of guidelines to be used by DPUC, as to how proceeds of the sales of water utility lands should be treated, needs legislative and DPUC consideration. The sale of lands earmarked for future use and included in the rate base has been referred to in the section dealing with Acquisition/Protection Programs.

Abandonment of Sources of Public Water Supply

The Task Force devoted considerable discussion to the issue of abandonment of sources of water supply, and agreed on several proposed changes in current law and practice.

*Recommendation

The statutes concerning abandonment of water sources should be amended to embody the following provisions:

- A. Approval of the abandonment of a source of supply by DOHS should be allowed only if DOHS finds that: 1) the company seeking abandonment will not need the source for present or future supply and 2) the abandonment is consistent with company's approved water supply plan (per P.A. 84-502). A future source of supply should be defined to be that necessary to serve reasonably anticipated service areas for 50 years. DOHS should evaluate emergency needs and should not grant a permit if it determines that continued ownership by the company is necessary to provide for emergency supply for the company. If there is no approved water supply plan pursuant to P.A. 84-502, DOHS should evaluate according to the remaining criteria above.
- B. The Commissioner of Health Services should be empowered to order, prior to the sale of any source or potential source of water supply of a municipal or private utility, that other public or private water utilities which might reasonably be expected to use the source be notified and given a 90-day option to purchase.

Sale would be construed to include other disposition of the property such as land swap. Any option should run concurrently with existing options to local and state government for sale of private water company land (CGS Sec. 16-50d). However, if a water utility gives notice of its desire to purchase the source being offered for sale, then its rights to do so would come before those of local and state government.

The Task Force was unable to agree as to whether an abandonment of water supply use without proposed sale (including interdepartmental transfer in the case of a municipal water department) should also trigger the commissioner's power to order the option.

The Task Force recognizes that water companies are facing increased pressure to sell the lands they do not need for protecting water supply. The Task Force feels the legislature should develop a mechanism, such as a state open space land acquisition program, for preserving certain of these lands.

WATER CONSERVATION

Connecticut Basic Building Code

The Task Force also addressed the issue of water conservation, and made the following recommendation.

*Recommendation

The Ct. Basic Building Code should be amended to include water conservation. The purpose of the proposed amendment is to provide for conservation in buildings by regulating the installation of water using fixtures in new buildings, renovation of existing buildings, and replacement of fixtures in existing structures.

State Facilities

- A. A pilot study of a sample of state-owned facilities should be undertaken to evaluate the feasibility and costs/benefits of retro-fitting water conservation devices; evaluate energy, sewer and water savings versus the cost of installation; and predict payback period.
- B. Develop a plan and implementation schedule, if retro-fit is found to be feasible in pilot study.
- C. Install water saving devices/fixtures during planned renovations of existing state-owned buildings, and in all new state buildings which are constructed.

Planning and Management Actions

- A. Continue to move toward universal metering.
- B. The Department of Health Services should prepare a proposal regarding monitoring and reduction of non-revenue water, and with utilities implement measures to reduce excessive levels.
- C. Incorporate shared leak detection and repair services between larger and smaller systems into the proposed "Connecticut Plan" approach.
- D. Finalize Standardized Safe Yield Methodologies. Implement through Water Supply Plans legislation and attendant regulations.

Public Education/Technical Assistance

- A. Public Education should be the cornerstone of a long-term water conservation program.
- B. State-level efforts should focus on development of curricula for use in schools, and informational displays for public and educational facilities.
- C. Water Utilities should continue the use of bill stuffers to promote efficient use of water and to help eliminate waste.
- D. DEP should continue to provide technical assistance to commercial and industrial water users on methods to reduce water consumption.

- E. The Task Force should endorse the current DEP work regarding conservation-related Best Management Practices.
- F. DEP should continue to sponsor water conservation workshops, as needed.

Short-Term (Emergency) Measures

The state agencies should develop a model emergency Water Conservation Ordinance for use by Municipalities. Utility personnel should work with local officials toward adoption of water conservation ordinances which will fulfill utility needs during water emergencies.

Inspection, Surveillance and Public Education Programs

- A. DEP is in the process of preparing a number of reports for the use of municipalities which would give technical information as to how a town should protect groundwater supply sources from possible contamination from existing or future development through its planning and zoning program, ordinances or DEP delegation of authority. One such report recently published is Protecting Connecticut's Groundwater: A Guide to Groundwater Protection for Local Officials (DEP, Oct. 1984).

Included will be guidance reports for local officials on groundwater monitoring and inspection procedures for both high-risk commercial activities and small hazardous waste generators. There will be two types of public guidance - one for the general public and a more technical one for the municipalities.

- B. DEP is preparing regulations for underground storage (fuel and chemical).
- C. Public Act 83-237 allows DEP to delegate certain program authorities. Presently, regulations are under development to permit this to occur. The Department sees considerable benefits in the delegation of programs for groundwater protection to municipalities and other entities (viz: special districts, water authorities, sewer authorities and regional health offices). Since the assumption of this responsibility is a voluntary choice by these local entities, the result may be an uneven application of these programs on a statewide basis. In rural towns with small budgets and limited staff size, it would most likely be more difficult to protect groundwater at the local level. Inspection, surveillance and possibly enforcement programs at the local level can be implemented for:
 - 1. High-risk commercial activities such as dry cleaners, auto service centers, etc.
 - 2. Small hazardous waste generators.
 - 3. Spot inspections of other industrial facilities.
 - 4. Underground fuel storage.

STATEWIDE WATER SUPPLY PLANNING

- A. In last year's interim report, the Water Supply Subcommittee provided an outline of a detailed statewide water supply plan which is recommended for consideration if a Connecticut Plan Approach is not established by the General Assembly. However, the Subcommittee did not go into depth on all aspects of this statewide water supply plan, since the Connecticut Plan approach is under active consideration by the Water Resources Task Force. If it is determined that a statewide water supply plan and planning process of a comprehensive nature, rather than a generalized overview, should be pursued, it is recommended that the appropriate state agencies do further work in order to arrive at determinations on such issues as participants in plan development, funding, the local role, the relationship of such a plan to a broader water resources plan and the plan adoption process.

- B. If a Connecticut Plan approach should be adopted by the General Assembly, it is recommended that there still be a statewide water supply plan, which would be a policy document containing key water supply principles and an overall strategy as guidance for state agencies and use in the preparation and implementation of the water utility water supply plans and the areawide water supply plans.

- C. It is recommended that the preparation of a comprehensive water resources management plan by the Office of Policy and Management, the Department of Environment Protection and the Department of Health Services, be continued. This plan will include the elements of water supply, waste management, water based recreation, flood management, hydropower, navigation and wetlands habitat. The work which would be done on a statewide water supply plan would be utilized in the preparation of the water supply element of the water resources management plan and, indeed, would probably constitute the element if written as a policy document as outlined in B above.

In addition, the areawide plans, which would be prepared under the Connecticut Plan approach, would also be taken into consideration in the preparation of the water supply element of the water resources management plan.

APPENDICES

APPENDIX I

PROPOSED GROUNDWATER STRATEGY

I. STATEMENT OF NEED, PURPOSE, EXPECTED IMPACTS:

In Connecticut approximately 31.7% of the population depends on groundwater for potable water supply. It is estimated that 440,000 people (14.2% of the state's population) rely on groundwater supplied by community water supplies, while 544,000 people (17.5% of the state's population) rely on private ground water wells. On an average daily basis, community water systems rely on groundwater for 65 million gallons per day.

The highly urbanized and industrialized nature of the state has resulted in numerous instances of well water contamination. The most frequent causes are improper solvent handling and disposal, landfill leachate, leaking underground petroleum storage tanks, improper road salt storage, and most recently, pesticide (EDB) contamination. The following table presents a summary of well contamination incidents in Connecticut:

<u>Type of Well</u>	<u>Solvents</u>	<u>Hydrocarbons</u>	<u>Salt</u>	<u>Landfill Leachate</u>	<u>EDB</u>	<u>Other</u>
Domestic	139	54	37	117	250	33
Commercial/ Industrial	33	17	2	2		3
Public Water Supply	<u>34</u>	<u>7</u>	<u>4</u>	<u>1</u>	<u>55</u>	<u>10</u>
Total	206	78	43	120	305	46

The impairment of close to 800 wells points to a need for a comprehensive groundwater protection program which would encompass both prevention, by addressing new land uses through land use regulation; and an enforcement and monitoring program, including inspection/surveillance and clean-up of existing or potential problems caused by existing land uses. Such programs should involve a multi-tiered approach which recognizes that different degrees of protection may be needed depending upon the nature of the resource and should be accomplished through a state/local partnership.

Direct State Agency influence on future land use has been established by the General Assembly for areas having a high degree of ecological importance which are threatened with extinction due to development. Individual laws have been enacted to offer greater protection to the state's inland wetlands, tidal wetlands, and the coastal area. Key to enactment

of these laws was a general understanding of the land area to be subject to additional regulation. Unlike inland or tidal wetlands and the coastal area, public ground water supply protection areas are not readily mapped. Recommendations with respect to the most appropriate land use regulation model to apply to groundwater are difficult to make at this time since the area involved is not yet clear.

The following proposal identifies the work elements required for development of a comprehensive program that controls land use over groundwaters, including mapping of the areas requiring protection and the evaluation of the range of options for groundwater protection.

Existing DEP staff are involved with many aspects of groundwater management, and have accomplished some of the groundwork which sets the stage for a comprehensive Groundwater Program. However, the majority of staff time is devoted to implementing programs mandated by state and federal legislation. Present efforts to further the groundwater management program are constrained due to a lack of a dedicated budget and staff. This is a major constraint, particularly in our ability to work with individual towns to protect their groundwater resources. Efforts to develop new program concepts of the magnitude being discussed here requires a concentrated effort with specific staff resources.

II. PROPOSED GROUNDWATER STRATEGY

Under this proposal, the Commissioner of DEP would be directed by statute to prepare a report to the legislature by a specific date regarding options for improved protection of public groundwater supply resources. The report would include maps suitable for adoption for regulatory purposes of the areas in need of protection; and specific recommendations for regulatory and other programs to protect these areas.

A. MAPPING STRATEGY:

Three general levels of groundwater development and protection have been identified:

1. Regionally Significant Aquifers
2. Local Public Water Supply Groundwater Resources
3. Statewide groundwater (includes private wells)

It is recognized that different degrees of protection will be needed in Connecticut, depending upon the nature of the resource. The regionally significant aquifers will require the highest degree of protection because of their potential to provide water to large numbers of people. For this reason the mapping program described below will focus on these resources.

DEP has made a preliminary identification of approximately 40 regionally significant aquifers statewide based on existing data.

1. Hydrogeologic Investigations:

Purpose: to estimate potential yields, and determine approximate boundary conditions and locations for the aquifer systems identified in the first cut.

Procedure: Varying degrees of work have already been completed for some of these aquifers. As a result, the first step would be to inventory all existing data on stream/aquifer characteristics for the 40 aquifers, and evaluate the level of detailed field work still needed for each aquifer.

Field Work:

1. Obtain necessary permissions to access sites.
2. Geophysical surveys:(ie. resistivity, seismic) approximately 1 week per aquifer.
3. Drilling: approximately 2-3 test borings per aquifer (actual number of borings will depend on whether or not there are existing test holes).

Detailed Field Mapping:

1. Confirm and refine existing surficial geology mapping based on data obtained through field work.

2. Other Investigations:

Water Quality Investigations:

1. Inventory existing water quality data currently available for each aquifer.

2. Water quality sampling and analysis, to be determined on an as needed basis.

Stream Flow Characteristics:

1. Construct flow duration curves of streams entering and leaving aquifers.

3. Aquifer Analysis:

1. Approximate cone of depression under anisotropic aquifer property conditions.
2. Allow approximations of water pumped from 1. induced infiltration, and 2. groundwater storage.
3. Approximate pumping scenario effects under a multitude of recharge conditions.

4. Preparation of Regional Aquifer Map:

1. Determine and map:
 - a. Areas which contribute to aquifer.
 - b. Locations of potential well fields.

Result: Map of Regionally Significant Aquifer areas.

Some of these areas may be eliminated due to unfavorable water quality conditions, or lack of identified future need for development of the resource. These elements will be factored in during the study process. The final maps will contain those aquifers which based on yields, quality and need should be protected to ensure they are available for future use.

B. Management Strategy:

Purpose: To develop an institutional strategy to protect the areas contributing to aquifers and ensure that the sites identified as potential well fields are available when needed.

This component would not be limited to protection strategies for Regionally Significant Aquifers, but would apply to all three levels of groundwater. The regionally significant aquifer

protection strategies can be implemented quickly because all the necessary information will be available as a result of the proposed study.

The Local and Statewide aquifer protection strategies can be implemented as towns, utilities and others identify their resources.

Procedure: This component of the study will be carried out concurrently with the hydrogeologic investigations described in the previous section, and the relevant elements will be merged with the findings of the hydrogeologic investigations to produce the final mapping.

1. Inventory existing land uses occurring on the 40 preliminary regional aquifers.
2. Evaluate future demands for water, and proximity of the source to the need. (includes analysis of data on existing sources of supply, population projections, and water demand projections.)
3. Determine which land uses would be regulated activities.
4. Evaluate institutional options for protection of three general levels of groundwaters (regionally significant, local, and statewide groundwater conditions). Among the models which will be evaluated are:
 - a. Tidal Wetland Type Permitting Program: Where permits are issued directly by DEP. Conservation principles are strictly followed due to unique value and limited extent of the resource.
 - b. Inland Wetland Type Permitting Program: Where permits are issued by DEP, or authority is delegated to towns. Wetlands impact reviews are mandated; reasonable use and protection of high quality resources is the program emphasis. DEP can revoke a town's permitting authority in case of neglect.
 - c. Coastal Site Plan Type Reviews:

Conducted by municipal zoning commissions as part of normal land use permit process. State policies for development are considered. DEP can intervene on decisions thought to be inconsistent.

- d. Expanded Zoning: Modeled after 1983 Erosion and sedimentation Control statute.
 - e. Acquisition of needed land area, or purchase of development rights.
 - f. Expanded water quality classification system. Assignment to the expanded category could preclude issuance of any discharge permits in these areas, and trigger a high priority for enforcement against existing sources.
 - f. Areas which contribute to a well field could be included as GAA, in existing water quality classification system. Presently only well sites are included, due to the difficulty in determining areas of contribution.
 - g. Minor grants to towns to evaluate their water supply needs and how they relate to groundwater protection.
4. Other options, such as recommendations for minimum protective distances around wells; delegation of initial investigation of potential commercial sources of pollution to local officials; development of municipal guidelines for groundwater protection, and model zoning regulations etc... will also be investigated.

APPENDIX II

POTENTIAL WATER CONSERVATION OPTIONS

The Water Supply Subcommittee established a Water Conservation Committee to (1) put together existing materials on water conservation which were pertinent to Connecticut; and (2) make recommendations regarding what water conservation measures are appropriate under normal conditions, and what would be appropriate under drought conditions.

The following report summarizes existing Water Conservation related activities in Connecticut, and includes recommendations for additional measures for the conservation of water resources.

SUMMARY OF EXISTING WATER CONSERVATION ACTIVITIES/INFORMATION

1. Connecticut Water Works Association Position Paper on Water Conservation.
2. Booklet: You Can Conserve Water. Includes descriptions of water conservation measures and techniques which are easily implemented by the residential user. Distributed free of charge by DEP, upon request.
3. Poster: "Water Conservation Begins at Home". Includes tips on residential water conservation measures. Distributed free of charge by DEP, upon request.
4. DEP-Water Compliance. Provide technical assistance to manufacturing and commercial water users on methods to decrease consumption. Water Conservation has always been stressed as part of Connecticut's discharge permit programs.
5. Sec. 22a-365 of the CGS "Water Diversion Policy Act". Requires submission of a long-term water conservation plan, to be implemented or continued after the issuance of a permit as part of the application process pursuant to Sec. 22a-369 of the statutes. In making a decision on a permit application, the Commissioner of DEP shall consider (in addition to other factors set forth in the Act) conservation as an alternative for meeting water needs.
Sec. 22a-378 (as amended) provides for modification or suspension of a permit during water emergencies and as requested by the Commissioner of DOHS.
6. Public Health Code (Sec. 19-13-B102)
 - (n) Metering of sources
 - (o) plan and conservation measures
 - (s) reduction of unaccounted-for water. Program to reduce water which cannot be accounted for to be submitted to DOHS.

7. Under Sec. 16-11-55 of the regulations of Connecticut State Agencies, the DPUC requires metering of water sold by a utility.
8. Towns are enabled to adopt water conservation ordinances pursuant to Sec. 7-148 of the CGS.
9. Public Service Announcement by Governor William A. O'Neill. Developed and broadcast on television networks statewide during the water shortages of 1980-81. Emphasizes using only what you need, and not wasting water.
10. Connecticut Drought Strategy. Developed during the water shortages of 1980-81. Outlines information needs and agency responsibilities for state response during drought conditions.
11. Outline of a Water Utility Water Conservation/Drought Contingency Plan. Developed by OPM in conjunction with Connecticut Drought Strategy. Sent to utilities serving more than 1000 people with a letter dated April 1, 1981, requesting that such plans be developed and shared with DOHS. Less than 5 such plans have been received.
12. New England River Basin Commission/DEP sponsored workshops; NERBC Water Conservation/Drought Handbooks. NERBC and DEP co-sponsored a series of workshops during the water shortages of 1980-81 which were designed to assist utilities/towns in developing local water conservation/drought contingency plans. Additional workshops will be given on an as-needed basis.
13. Governors Engineering Technical Task Force. Established to study the water shortages in 1980-81. The report to the Governor included recommendations concerning water conservation/contingency planning. The recommendations included development of:
 - Water Supply Status Monitoring System: Reporting forms have been developed and are in use as a result of recommendations by the Governor's Task Force. The forms, designed to provide information needed to assess the severity of water shortages, are required to be completed by water utilities and submitted to the DOHS on a quarterly basis. Completed forms are forwarded, after review, to DEP-NRC for automation under the Water-Use Program. (minor changes may be made to the forms in response to comments received from CWWA).
 - Safe Yield Methodology: A standard methodology for the calculation of safe yield of surface water sources has been developed. Efforts to develop a standard method for calculation of the safe yield of groundwater sources are

currently underway. It is anticipated that once completed use of the standard methods will be addressed through regulations being developed pursuant to P.A. 84-502 "An Act Requiring Water Companies to Prepare Water Supply Plans".

14. Minimum Stream Flow Standards established pursuant to Sec. 26-141 of the CGS, can be modified or suspended during a water supply emergency.
15. P.A. 84-281 "An Act Concerning the Declaration of Drinking Water Supply Emergencies by the Commissioner of Health Services." The Commissioner of Health Services may authorize or order the sale, supply or taking of waters, including class B's; may order temporary interconnections between water systems. DEP may suspend diversion permits at the request of the Commissioner of DOHS.
16. P.A. 84-502 "An Act Requiring Water Companies to Prepare Water Supply Plans". Section 1 (b) (4) requires that plans include contingency procedures for public drinking water supply emergencies.

RECOMMENDATIONS FOR ADDITIONAL WATER CONSERVATION MEASURES:

For discussion purposes, water conservation was broken down into: long-term (non-emergency) measures; and short-term (emergency) measures.

LONG-TERM MEASURES:

The goal in state/utility long-term water conservation programs should center on efficiency of use and elimination of waste. Promotion of long-term conservation efforts should be a combined effort between the state and the water industry.

Amendment of Connecticut Basic Building Code

The Task Force should recommend that the State of Connecticut Basic Building Code be amended to include an article on water conservation (or to add a section on water conservation to Article 17: Plumbing Systems). The purpose of the proposed amendment is to provide for water conservation in buildings by regulating the installation of water using fixtures in new buildings, in renovation of existing buildings and in replacements of fixtures in existing structures.

The State of Connecticut Basic Building Code (1978, effective 9/1/81) is currently scheduled for revision. Code revisions are done by regulation, and anyone can propose a change. The suggested procedure is to send a letter stating the nature of the proposal to the State Building Inspector. All such proposals which are received are kept on file, and are subject to public hearing during the revision process.

Staff of the Codes and Standards Committee have suggested that the Task Force develop specific recommendations which the Codes and Standards Committee could review. A draft amendment and draft transmittal letter are attached for consideration by Task Force members.

Water Conservation in State Facilities

There are approximately 3400 state-owned buildings. The Task Force should consider legislation mandating a pilot study of a sample of state-owned facilities to evaluate the feasibility and costs/benefits of retrofitting water conservation devices. The study should include an evaluation of energy, sewer and water savings versus the cost of installation, and predict the payback period. Staff from DAS-BPW, DEP, and DOHS would conduct the study with the cooperation of staff from the facilities being studied. College Campuses, office buildings and institutions providing their own water are good candidates for water conservation programs, and should be included in the cross-section studied.

If retrofitting state facilities with water conservation devices is found to be feasible and cost effective, a plan and implementation schedule should be developed. The final report should also include recommended standards for municipal buildings.

Water saving devices/fixtures should be installed during planned renovations of existing state-owned buildings, and in all new state buildings which are constructed.

Planning and Management

Continue to move toward universal metering. Metering of sources of supply enables a utility to accurately measure the amount of water delivered to the distribution system and can be used to help determine system efficiency. Metering of deliveries to customers can provide water use information to the utility, such as when and where water is being used in the system and levels of use. This information can be important in planning for new source development, in designing leak detection and repair programs and in evaluating overall efficiency of the system. (Many small systems are unmetered, are unaware of consumption, and as a result, have difficulty in planning for future needs and detecting leaks in the system.)

Utilities and the state should monitor non-revenue water, and implement measures to reduce excessive levels of unaccounted for water. The Department of Health Services should prepare a proposal for achieving implementation of the Public Health Code requirements concerning unaccounted for water.

Shared leak detection and repair services between larger and smaller systems should be incorporated into the proposed "Connecticut Plan" approach.

State agencies and the CWWA should continue to work together to finalize the standardized safe yield methodology. Once the methodologies have been finalized, it is anticipated that the water supply plans legislation and attendant regulations will provide a tool for implementation of use of the standard methods.

Reduce unauthorized hydrant use through public education and installation of locking devices on hydrants. Consideration should be given to installation of sprinklers on hydrants in urban areas where use of hydrants for recreational purposes is a problem.

Public Education/Technical Assistance

Public Education should be the cornerstone of a long-term water conservation program. State level efforts should focus on the development of curricula for use in schools and informational displays for public libraries and other public and educational facilities (such as museums, nature centers, local fairs etc...)

Water Utilities should continue the use of bill stuffers to promote efficient use of water and to help eliminate waste in the system. Particularly, bill inserts which illustrate how to fix leaking faucets, detect and fix leaking toilets.

DEP should continue to provide technical assistance to commercial and industrial water users on methods to reduce water consumption.

The Task Force should support current DEP work regarding Conservation-related Best Management Practices (BMP's) which would be made a condition of new discharge permits and permit renewals. (Permits are renewed every 5 years.) This issue will be addressed through departmental regulations currently being developed for administering state and federal discharge permit programs.

DEP should continue to sponsor water conservation workshops, as needed. (NOTE: DEP and the Farmington River Watershed Association are co-sponsoring a workshop geared at commercial, industrial and institutional water users tentatively scheduled for the spring of 1985).

SHORT-TERM (EMERGENCY) MEASURES

State/utility short-term measures have been addressed through passage of new legislation during the 1984 session and through the work of the Governor's Engineering Technical Task Force.

(See discussion in Summary of Existing Activities/Information)

However, DEP, DOHS, and DPUC should work together to develop a model emergency water conservation ordinance for use by municipalities. While contingency planning is a utility responsibility, local enforcement mechanisms should be available.

Utility personnel should work with local officials toward adoption of water conservation ordinances which will fulfill utility needs during water emergencies. The model ordinance should include: the definition of a water shortage or water emergency; power to declare a shortage or emergency which would include ability to restrict certain activities such as lawn watering, car washing, filling pools, washing windows etc...; penalty provisions/enforcement mechanisms; the duration of the restrictions and any other relevant factors.

11/20/84

DRAFT LETTER

Mr. Leo Belzal, State Building Inspector
294 Colony Street
Meriden, Connecticut 06450

Dear Mr. Belzal:

Subject: Proposed Amendment to the State of Connecticut
Basic Building Code to Add an Article Concerning Water
Conservation or Amend Article 17: Plumbing Systems.

As a result of Special Act 82-28 "An Act Concerning a Study
of State Agency Authority in the Management of Water Resources
for Public Water Supplies", a Water Resources Task Force was
formed to study water supply problems in the state. The
legislation requires an evaluation of measures for the
conservation of water resources.

One of the water conservation measures which is being
recommended is a revision of the State of Connecticut Basic
Building Code to include an Article concerning water conservation
or to amend Article 17: Plumbing Systems to include a section on
water conservation. The proposal is being forwarded to you at
this time for consideration during the revision process.

The proposed amendment would require the installation of
water conserving plumbing fixtures in all new buildings, in
renovation of existing buildings, and in replacement of fixtures
in existing structures. A draft amendment is attached for your
consideration and review by the Codes and Standards Committee.

The technical staffs of the Departments of Environmental
Protection, Health Services and Public Utilities Control stand
ready to assist the Codes and Standards Committee in further
developing and refining this proposal for inclusion in the
upcoming revisions of the Basic Building Code.

This proposal is consistent with the direction many other
states have taken; is consistent with Principle No.4 concerning
water conservation in the Basic National Plumbing Code (BOCA
1984), which states: "Plumbing shall be designed and adjusted to
use the minimum quantity of water consistent with proper
performance and cleaning".

Further, this proposal is consistent with legislative
findings that recognize the waters of Connecticut as a precious,
finite and invaluable resource upon which there is an ever
increasing demand for present, new and competing uses.
Increasing incidences of contamination of our water supplies and
the specter of water shortages point to a need for conservation,
to ensure adequate supplies of water for the people of
Connecticut now and in the future.

In evaluating this proposal, consideration must be given to a delayed effective date to allow depletion of existing inventories of plumbing suppliers in order to minimize impact on the plumbing industry.

If you should have any questions after reviewing this proposal, or require additional information please contact _____. Thank you for your consideration of this matter.

Sincerely,

DRAFT

Proposed Amendment to State of Connecticut
Basic Building Code to add an Article Concerning
Water Conservation
(or Amend Article 17: Plumbing Systems)

- Purpose:** The purpose of this article is to provide for water conservation in buildings.
- Intent:** The provisions of this article shall regulate the installation of water using fixtures for the purposes of eliminating waste and increasing efficiency of water use in new buildings, in renovation of existing buildings, and in replacements of fixtures in existing structures.
- Exemptions:** The provisions of this section shall not apply to a fixture which is being moved from one room in an existing structure to another location in the same structure. These provisions shall not apply to installations which in order to perform a specific function cannot comply with these standards, such as safety showers and aspirator faucets. If it is determined that installation of fixtures which meet the standards outlined below would be detrimental to the operation of an existing sewage system, an exemption may be granted.
- Water Conservation:** In all new construction and in all repair and/or replacement of fixtures, only fixtures not exceeding the following flow rates and/or water usage shall be installed:

Tank type water closets	3.5 gal/flush
Flushometer type water closets	3.0 gal/flush
Tank type urinals	1.5 gal/flush
Flushometer type urinals	1.5 gal/flush
Showerheads	3.0 gal/min.

*In all shower rooms intended for public use, the shower heads are to be serviced by metering self-closing control valves whose cycle is not to exceed 60 seconds.

Lavatory, sink faucets 3.0 gal/min.

*The maximum flow rate for lavatory faucets is measured with both hot and cold water supply fully opened.

Lavatories for public use: Faucets of lavatories located in rest rooms intended for public use shall be of the metering or self-closing type.

_____ shall periodically publish and widely distribute an up-to-date list of fixtures that meet the standards specified in this section, as certified by manufacturers. The _____ may test such fixtures to determine the accuracy of such certification, and shall delete from such list fixtures which are determined to be inaccurately certified.

Examples: Building & Plumbing Code Regulations Requiring
Water-Saving Fixtures in Other States

State	Code	Date	Water Closets			Urinals		Showerheads	Lavatory Sink Faucets
			Tank Type	Flushometer Type	Tank Type	Flushometer Type			
Georgia	Water Cons. Law	1978	3.5				3.5 gpm		
Penn.	DER - Rec. Specs.	1981	3.5	3.0		1.0	2.75	2.75 gpm	
New York	Env. Cons. Law	1980		3.5		1.5	3.0	3.0	
Mass.	Plumbing	1980	3.0	3.5		1.5	3.0		
Virginia (Fairfax County)	Plumbing		3.5	3.0	3.0	3.0	3.0	4.0(1)	
Illinois (Dupage County)	(4) Plumbing	1977	3.5	3.0	Illegal	1.5	3.0(2)	3.0(3)	
California	Health & Safety	1976	3.5						

*All figures are in gallons or gallons per minute.

- (1) Lavatories for Public Use: Faucets of lavatories located in restrooms intended for public use shall be of the metering, or self-closing type.
- (2) In all shower rooms intended for public use, the shower heads are to be serviced by metering self-closing control valves whose cycle is not to exceed 60 seconds.
- (3) The maximum flow rate for lavatory faucets is measured with both hot and cold water supply fully opened when installed for public use. These shall be metering self-closing type.
- (4) DuPage County also has a regulation for water softeners: No residential water softeners may use more than 75 gallons during the entire regeneration cycle and size to cycle no more than three (3) times per week.

Most of the regulations provide for exemptions for safety-related showers and require publication of lists of certified fixtures.

APPENDIX III

AGENCY COST ESTIMATES

The following are cost estimates by DEP for certain activities discussed in the Subcommittee report. The figures do not represent Subcommittee or Task Force action.

1. Ground Water Strategy:

The following are estimates of staff and funding levels necessary to complete the proposed work elements. Existing staff would also provide input in their areas of expertise.

STAFF:

2 Hydrogeologists	\$ 70,000
1 Senior Level staff	25,000
1 Maintainer	10,000
p/t Legal assistance	Contract
p/t Cartographer	7,500
p/t Clerical	<u>6,000</u>
Subtotal	\$118,500
Fringe	<u>43,845</u>
Total Staff Costs	\$162,345

OTHER COSTS:

Contract Drilling	50,000 (100 days @ \$500 per)
Geophysical Survey	10,000
Computer Analysis	<u>10,000</u>

Grand Total	\$232,345	*not including contract for legal work
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Job Responsibilities:

The two hydrogeologists and the maintainer would be necessary to complete the hydrogeologic investigations. The hydrogeologists would be responsible for actual field work, and aquifer analysis. Two field seasons would be required to complete the field investigations. The maintainer would be responsible for obtaining necessary permissions to access the sites.

The cartographer would be responsible for mapping the data obtained through field investigations and final mapping of the regionally significant aquifers.

The senior level staff person would be responsible for the management strategy, which includes evaluation of all options, soliciting input from other departmental staff; and developing final programmatic and policy recommendations for the legislature to consider.

The legal assistant would provide legal review of any regulations, ordinances or special districts which are proposed for the purposes of groundwater protection, and would evaluate any proposed institutional arrangements to ensure that they do not constitute a "taking" of land.

2. Water Conservation Pilot Study

Under the proposed pilot study, 3 to 4 buildings representative of the types of state-owned facilities will be studied, e.g, a college dormitory, an office building, a hospital and a jail. Historical water, sewer and energy use data will be collected for the buildings, actual retrofit of these structures with water-conserving fixtures will be achieved and the results monitored and compared with the historical data (see Appendix II).

One full-time staff coordinator in DEP would be required for six months and is the only new staff position anticipated. This coordinator would work with staff from the Department of Health Services, the Bureau of Public Works of the Department of Administrative Services, and the facility being studied.

The duration of the study is expected to be 18 months, and the costs would be approximately \$50,000. This would be the costs for the staff coordinator and the purchase of the fixtures which must be installed in order to accomplish the study. The time period of 18 months is predicated on four factors: the time necessary to research the fixtures, the time required for purchasing the fixtures (bid process or contract purchase), the time needed to install the fixtures and a period of approximately one year for the study of the impact of the installation of the water-saving devices.

The product of this effort would be a final report on the results of the pilot study and the resultant recommendations concerning the efficacy of retrofitting all state facilities with water-saving fixtures.

APPENDIX IV
PRELIMINARY ASSESSMENT
WATER SUPPLY PROBLEMS IN CONNECTICUT

Purpose

Introduction

Statewide Water Supply Issues

Summary of Major Water Supply Problems by Area: Table 1

Northwest Hills

Greater Danbury Area

Southwestern Coastal Area

South Central Area

Upper Connecticut River Area

Lower Connecticut River Area

Northeastern Area

Southeastern Area

List of Available Printed Information

List of Available Maps

- Figures:
1. Map of General Areas
 2. Population served by Community Supplies
 3. Number of Systems and Percent Population by Town
 4. Population Projections and Present Population served by Town
 5. Public Watersupply Watersheds
 6. Water Utility Service Areas

WATER SUPPLY PROBLEMS IN CONNECTICUT

PURPOSE

This overview of water supply issues affecting Connecticut was prepared by the Water Supplies Section of the Department of Health Services in consultation with the Department of Environmental Protection, the Office of Policy and Management, and the Department of Public Utility Control at the request of the General Assembly's Water Resources Task Force. (S.A. 82-28) This Task Force was charged with formulating recommendations to deal with water supply problems in the state. Several important pieces of legislation were passed in 1984 and recommendations for further legislation are under consideration.

A number of issues are of statewide concern. These are listed below. However, because Connecticut is so diverse, certain issues and problems affect only a portion of the state. Thus, in addition to listing statewide issues, this report discusses the particular issues relevant to different areas of the state. There are no specific boundaries to the areas discussed, but a map showing the general areas considered is provided. Consideration of the similarity of water supply issues and the service areas of existing utilities were among the factors used in defining the general areas. If a formal definition of regions is made in the future, public input will be sought in determining the boundaries.

INTRODUCTION

On a statewide basis, Connecticut is blessed with an abundant supply of water. These water sources in most instances are of a high quality, due in part to the fact that no industrial or sewage discharges are allowed into streams used for water supply. There are, however, significant water supply problems in the state.

There are 700 water utilities in Connecticut. Fifty of these water supply systems are publicly owned by either a municipality or regional authority. The rest, 650 systems, are privately owned. The water is supplied by some 700 well systems and 110 surface water systems and these water systems presently supply 379 million gallons per day to the users.

Out of the 700 water utilities in the state, there are over 600 which are considered small, serving less than a thousand people. The small water utilities are located primarily in suburban and rural areas throughout the state. Due to the large number of utilities, it is difficult for the state to oversee their operations and make sure that they are managed properly. Action is needed to prevent the proliferation of more small systems.

Many small water utilities have significant problems such as lack of financial viability and technical expertise. They also lack the economies of scale of large utilities. There have been many occasions in which small water utilities have been unable or unwilling to cope with problems like the pollution of wells, maintenance and replacement of deteriorated infrastructure and equipment, inadequate pressure, poor

water quality, and even water breakdowns or wells running dry. Such situations create serious hardships for consumers. If a new supply of water is needed, often there is no source nearby which can be substituted for the existing one, and small water utilities are often isolated and unable to physically interconnect with another water system.

STATEWIDE WATER SUPPLY ISSUES

- Small water utilities frequently provide poor service and poor water quality due to inadequate planning, a lack of skilled management, and inadequate financing.
- The infrastructure in old systems and in many small company systems is inadequate. (Twenty percent of water lines in Connecticut are over 80 years old. Under-sized piping and improper construction are typical small company problems.)
- Planning is needed to prevent the proliferation of small utilities.
- Coordination between land use and water supply planning at the local level (where most land use decisions are made) is generally non-existent.
- Costs to all water utilities of land acquisition for new sources and for source protection, of infrastructure rehabilitation, and of treatment to meet health standards are high, and small utilities cannot meet these needs. (65% of Connecticut water utilities report that they have had to defer some aspects of system maintenance.)
- Groundwater contamination is a widespread problem, with a total of 798 wells (111 public, 630 private, 57 commercial/industrial) known to have been contaminated as of September 1984. As more supplies are tested for more contaminants, the number of wells found to be contaminated will increase.
- Protection of existing and future supplies, particularly groundwater, is inadequate.
- Abandonment of small reservoirs and sale of associated lands is a political and resource planning issue.
- The full impacts of agricultural use of pesticides on groundwater are largely unknown. No-till techniques which rely heavily on pesticides are a particular concern.
- More data on the potential yield and location of stratified drift and bedrock aquifers is needed.
- Competition exists between water use for water supply and for instream uses such as recreation and maintenance of a healthy aquatic environment. Both direct surface water withdrawals and groundwater withdrawals from stratified drift aquifers near rivers result in a depletion of stream-flow.
- Competition exists between water companies for use of sources.
- Information on future water needs (demand projections) is lacking for many areas.
- Drought and emergency management water supply plans have been generally lacking and are needed. Legislation passed in 1984 requires utilities to do such planning.

- Calculations of the safe yield of existing supplies must be standardized.
- Information on interconnections (existing and potential) is insufficient.
- Improved utility record keeping and reporting regarding infrastructure, water use, reservoir status, unaccounted for water, and financial data is needed.
- Improved monitoring and trend analysis of water production, water use and water quality is needed.
- Lost and unaccounted for water is excessive in many systems.
- Metering of sources of supply and customers is lacking in many systems.
- DED, DEP, and DOHS, need to work together to assure that economic development is not promoted in areas with insufficient water supply.

	Serious surface water quality concerns	Serious groundwater quality problems	Many unfiltered surface water supplies	Many inadequate small utilities	Numerous infrastructure inadequacies	Planning is critical to prevent proliferation of small utilities	New Sources needed and availability is problematic	Conflicts between instream water use and water supply	Inter-utility coordination problems
Northwest Hills			X		X				
Greater Danbury Area		X		X	X	X	X	X	X
Southwestern		X			X			X	X
Upper CT. River		X	X				X		X
Lower CT. River				X	X	X	X	X	
South Central Area	X	X			X		X	X	X
Northeastern		X		X	X	X		X	
Southeastern		X		X	X	X	X		X

TABLE I: SUMMARY OF MAJOR WATER SUPPLY PROBLEMS BY AREA

Note: This chart is a very generalized summary of problems. It would be misleading to compare areas by summing the number of checks since the degree of seriousness of each category is not equivalent.

NORTHWEST HILLS

Overview

There are no major problems with water supply in the Northwest Hills area.

Despite its generally rural character, more than half the population is served by a number of moderate size public supplies. A couple of municipalities provide service (Torrington, Sharon) and both Bridgeport Hydraulic and Connecticut Water Company, large investor-owned companies, provide service in portions of this area (Norfolk, Thomaston, Lakeville, Salisbury). Many of the systems rely on unfiltered surface water sources (Norfolk, Sharon, Salisbury, Torrington, and Thomaston), but most are either meeting health standards or are making necessary improvements. Groundwater is used extensively and is of generally good quality, with only a few isolated contamination problems. Future sources of supply for this area are likely to be wells with low to moderate yields sufficient to provide for the small anticipated population growth of the area. The potential development of a reservoir system on the Shepaug and the export of water out of the Northwest Hills into the more developed areas to the south may be a future issue.

Quality

- water quality is generally good
- unfiltered surface water sources causing violations of standards are in varied stages of correction
- few, localized groundwater contamination incidents
- possible agricultural (pesticide) problems (especially concern about no-till techniques)

Quantity

- water quantity is generally adequate
- additional groundwater sources of moderate yield are probably available, though more data is needed and locating sources near the population to be served may be difficult in some areas
- insufficient fire flows in water systems, but ponds are available for fire protection.
- potential conflict between use for water supply and instream needs (aquatic life and recreation) if Shepaug River is tapped

Reliability/Planning and Coordination

- reliability and planning are generally adequate due to major well-managed systems or private wells (few small utilities)

- possible future need for public supplies in some areas presently on private wells
- infrastructure inadequacies including old substandard piping in some systems (Cornwall, North Canaan)

GREATER DANBURY AREA

Overview

The area including Danbury and surrounding towns has significant problems with water supply, and problems are likely to increase as the area population grows. The major problems are contamination of groundwater supplies, inadequate supplies to meet future needs, and poor service due to a large number of small inadequate companies.

Although significantly more developed than the Northwest Hills area, approximately the same proportion of the population (60%) is served by public supplies. The number of companies providing this service is more than twice that in the Northwest Hills area. Several large public supplies provide water in the southern portion of this area (Danbury, Newtown, Bethel, Southbury). However, even these utilities have planning and coordination problems. In the northern portions of this area (New Milford, Washington, New Fairfield), there are a large number of small inadequate utilities with quality and service problems and a large number of private wells. There are twenty-five water systems surrounding Lake Candlewood in New Milford alone.

Groundwater is the major source, and pollution is a serious problem. Water quality problems stem primarily from the conflict between water supply and intensive land use. Growth, pollution of groundwater supplies and a lack of major viable available new sources and conflicts over potential future surface water sources make quantity of supply a concern. About 40% of the population is served by private wells, but consideration should be given to planning for the provision of public water in some areas due to groundwater quality problems. The area is expected to experience substantial population growth, further increasing water needs.

Quality

- numerous groundwater contamination problems (Ridgefield, Brookfield, Danbury)
- conflicts between intensive land use and groundwater quality protection
- numerous bacterial contamination problems in small systems due to poor maintenance
- need to ensure that well water quality is not degraded due to induced infiltration of Class B waters through pumping of groundwater next to Housatonic River

Quantity

- high growth area
- need for additional supplies

- conflicts and potential conflicts between water supply use and instream water uses for aquatic life and recreation (Ball Pond, Still, Pootatuck and Pomperaug Rivers)
- most potential aquifers are on small streams where depletion of stream flow is a concern
- potential import of water from Northwest Hills area

Reliability/Planning and Coordination

- many small inadequate systems with poor management resulting in outages and pressure problems
- substandard infrastructure (small pipes) limiting water pressure and volume (in some systems in New Milford, New Fairfield, Sherman, Brookfield, Kent, Redding, Southbury)
- political conflicts surrounding potential import of water (Shepaug River, West Aspetuck)
- political intertown and interstate conflicts
- lack of coordination between towns and utilities
- lack of planning by towns for water service necessary to support growth
- potential need for public supplies in some areas presently served by private wells

SOUTHWESTERN COASTAL AREA

Overview

Water supply management and coordination are the primary issues in the Southwestern Coastal Area.

Most of the population (nearly 90%) of this densely developed area is served by large public water supplies of acceptable quality. These supplies rely on both surface and groundwater. Intensive development is in conflict with groundwater use. Groundwater contamination is a problem in some portions of the area not served by public supplies and several public groundwater supplies (Norwalk, Darien) have been contaminated. Because of the present high density of development, significant population growth in this region is not expected. Construction of a proposed regional pipeline interconnecting supplies in this area with Bridgeport Hydraulic Company water supplies in the south central area, along with improved coordination between utilities, would help to prevent future shortages.

Quality

- numerous groundwater contamination problems in private wells and several public supplies (Norwalk, Darien)
- conflicts between intensive land use and groundwater quality protection
- treatment may be needed for public groundwater supplies
- the few unfiltered surface water sources causing violations of standards are in varied stages of correction (Stamford, New Canaan)
- potential need for public supplies in some areas to replace private wells (now serving 10% of area population) due to groundwater pollution

Quantity

- present supply is adequate if supplemented by regional pipeline
- few additional sources available within the area
- potential conflicts between water supply and instream water use for aquatic life and recreation (Rippowam, Aspetuck, Saugatuck, Norwalk, Farmill and Mill Rivers)

Reliability/Planning and Coordination

- capable utility management exists, but coordination between utilities has been poor

- coordination between the State of Connecticut and New York State concerning water supply protection and apportionment of shared supply
- excessive unaccounted for water (Greenwich)
- need for infrastructure rehabilitation to reduce unaccounted for water (Darien, Greenwich, Stamford)
- tensions between utilities and between towns and utilities particularly concerning interconnections
- need for improved reservoir and water use monitoring and reporting

SOUTH CENTRAL AREA

Overview

Water quality is the primary concern in this heavily urbanized area.

A high percentage of the population is served by public water (about 90%). This area can be subdivided into a southern portion where the South Central Connecticut Regional Water Authority (SCCRWA) provides service to most of the population, and a northern portion where a number of towns have individual municipal supplies (Wallingford, Waterbury, Meriden, Southington, New Britain, Berlin). There are few small water utilities in the south central area. Unfiltered surface water sources are in use in a number of systems (Waterbury, Wallingford, Ansonia-Derby, Southington, SCCRWA, Connecticut Water Company-Naugatuck Division). The intense land use in this area is a concern both with regard to surface water quality (Lake Whitney in the SCCRWA system) and groundwater quality. Major public groundwater supplies have been contaminated in many towns (Wallingford, Meriden, Southington, Cheshire, Plainville, Berlin), and in some areas where private wells are in use known or potential contamination is a concern. In the summer of 1984, coliform bacteria were found in the SCCRWA system at levels were below those posing a health threat. Treatment and other correction measures were implemented to eliminate this problem. While only moderate population growth is expected in this area, obtaining and maintaining unpolluted sources is a critical problem.

Quality

- numerous groundwater contamination problems affecting public and private water supply sources
- conflicts between intensive land use and groundwater quality protection
- conflicts between intensive land use in watersupply watershed and surface water quality protection
- unfiltered surface water sources causing violations of standards are in varied stages of correction
- scattered potential agricultural pollution problems (Cheshire, North Branford)
- need to ensure that well water quality is not degraded due to induced infiltration of Class B water resulting from pumping of groundwater next to Quinnipiac River

Quantity

- potential need for additional supplies or interconnections to replace contaminated public supplies (Southington, Berlin, Meriden) and to serve areas with contaminated private wells as an alternative to treatment

- conflicts between water supply and instream water use for aquatic life and recreation (Mill, West, Branford, and Quinnipiac Rivers)

Reliability/Planning and Coordination

- lack of coordination between utilities
- existing and potential system interconnections provide opportunity regional coordination (Meriden, Wallingford, SCCRWA, Plainville, Bristol, Southington, New Britain)
- excessive unaccounted for water (especially in Meriden, New Britain, Southington)
- political conflicts over development of sources (Bristol/Harwinton)

UPPER CONNECTICUT RIVER AREA

Overview

Pollution of groundwater supplies and obtaining new sources of water are the major water supply issues facing the Upper Connecticut River area.

The upper Connecticut River area is very diverse, including rural agricultural areas, moderate size towns, and densely populated urban areas. A large percentage of the population is served by public water (about 90%). The Metropolitan District Commission (MDC) serves a large portion of the area from surface water supplies of good quality. Connecticut Water Company serves a number of towns in this area with ground and surface supplies of good quality. Unfiltered surface water supplies for are in use in a number of towns (Winsted, New Hartford, Canton, Unionville and Farmington). In the eastern and western portion of this area, intensive agricultural use has impacted the groundwater supplies serving numerous individual homes and small public supplies. The economics and logistics of treating these supplies or replacing them with public supplies of adequate quality is a serious problem. Elsewhere in the area, activities associated with intensive land use have polluted public water supply wells.

Significant population growth is anticipated in the eastern and western portions of this area, and finding adequate pure supplies to serve this expanded population, to replace contaminated sources, and to supplement MDC supplies is a significant issue since the quality of untested and undeveloped groundwater resources is suspect and resource conflicts over instream versus water supply uses are intense where surface water use is proposed (Farmington River).

Quality

- ° pesticide (EDB) contamination of groundwaters in many agricultural areas
- ° wells in agricultural areas potentially face contamination problems
- ° non-agricultural groundwater contamination problems (Manchester, East Granby)
- ° conflicts between intensive land use and groundwater quality protection
- ° unfiltered surface water sources causing violations of standards are in varied stages of correction

Quantity

- ° potential need for pure supplies to replace contaminated public and private wells as an alternative to treatment
- ° need for new supplies to provide for projected growth

- conflicts between proposed water supply use and instream uses (Hockanum, Nepaug, East and West Branches of the Farmington Rivers and Roaring Brook)
- available groundwater sources may be contaminated

Reliability/Planning and Coordination

- existing and potential system interconnections provide opportunity for regional coordination (Farmington, Unionville, Plainville, Avon, Simsbury)
- management problems in a number of systems
- need for public supplies in some areas presently served by private wells
- infrastructure renovation needs due to old substandard piping (especially Suffield, Ellington, South Windsor, Windsor Locks)
- political conflicts over development of sources (Bristol/Harwinton, Farmington River)
- potential need to plan for replacement of individual wells and community supplies polluted with pesticides or other pollutants as an alternative to treatment
- hardship (health and economic) created by pesticide contamination of private wells
- need for assessment of future regional demand in greater Hartford area

LOWER-CONNECTICUT RIVER AREA

Overview

The most important issue facing the Lower Connecticut River area is the need to prevent the proliferation of small water utilities with the associated problems.

This is generally a rural area with about 60% of the area population served by public supplies. Municipal supplies serve individual towns in the northern part of this area (Middletown, Portland, Colchester, Cromwell) and two separate Connecticut Water Company systems serve parts of the southern portion. Numerous small companies provide water to people in the region. Conversion of summer residences to year-round homes has caused water supply problems due to inadequate sized pipes and insufficient supply (particularly in Old Lyme), and contamination of groundwater supplies has been a localized problem. This is an area of expected high population growth, and planning for adequate water supplies is needed.

Quality

- water quality is generally good
- naturally occurring iron and manganese impair groundwater quality in northeastern portion (Colchester, East Hampton, Hebron, Marlborough)
- potential agricultural groundwater pollution problems
- unfiltered surface water supply (Portland)
- salt-water intrusion into wells (Old Lyme and potential elsewhere)
- possible quality problems with aquifer identified for use by Middletown

Quantity

- new sources are needed (Connecticut Water Company, Middletown)
- limited stratified drift aquifer potential
- present and potential exports of water to Quinnipiac River Area by SCCRWA may cause instream water quality problems
- conflicts between water supply and instream water use for aquatic life and recreation (Hammonasset, Menunketesuck, Nepawaug, and Mill Rivers)
- potential reservoir and stream diversion sites identified in the State Conservation and Development Policies Plan possibly already preempted by development

- reduced yields in wells having high concentrations of naturally occurring iron and manganese (northeastern portion of area)

Reliability/Planning and Coordination

- need to plan to avoid proliferation of small systems (especially in Hebron, Marlborough, Colchester, East Hampton, North Guilford, North Madison)
- management and reliability problems with small seasonal systems
- water management to prevent supply shortages due to high seasonal use
- need to plan for expected growth in northeastern portion and for water needs associated with conversion of homes from summer to year-round use
- infrastructure deterioration due to salt water corrosion

NORTHEASTERN AREA

Overview

The major water supply problem in most of the Northeastern area is that there are few viable, well managed water utilities.

About 60% of the area's residents are served by community water supplies, with much of the service provided by numerous small, inadequate utilities which rely on groundwater supplies. While the area is mainly rural, groundwater contamination from both agricultural and industrial sources is a concern. Naturally occurring iron and manganese impair groundwater quality in the southern portion of this area and cause quantity problems due to clogging of wells. Moderate population growth is expected in this area, and planning to provide pure and adequate supplies to the existing and projected population is a problem due to the large number of small utilities. With proper planning and protection, there appear to be adequate groundwater reserves to serve this area.

Quality

- naturally occurring iron and manganese (southern portion of the area)
- possible agricultural (pesticide) problems (especially concern about no-till techniques)
- landfills adjacent to water supply reservoirs
- conflicts between intensive land use and protection of groundwater quality in eastern area (Putnam, Killingly, Plainfield)
- need to ensure that well water quality is not degraded due to induced infiltration of Class B waters resulting from pumping of groundwater adjacent to the Quinebaug and French Rivers
- numerous bacterial contamination problems due to poor management of small systems

Quantity

- abundant groundwater resources are available but quality is a concern
- reduced yields in wells having high concentrations of naturally occurring iron and manganese (southeastern portion of area)
- conflicts between water supply and instream water use for aquatic life and recreation (French, Quinebaug, and Shetucket Rivers)

Reliability/Planning and Coordination

- numerous small utilities (especially in Tolland, Coventry, Plainfield) with inadequate management, infrastructure (old unlined pipes), financing, planning, service

- ° frequent temporary outages and pressure problems associated with small utilities
- ° near absence of well managed utilities capable of providing service in new areas or taking over management of inadequate water systems
- ° many unmetered sources and customer services
- ° no coordination or planning for interconnections or service to new development
- ° poor records of infrastructure (location, age, condition)
- ° potential need for public supplies in some areas presently served by private wells

SOUTHEASTERN AREA

Overview

Groundwater protection, provision of public supplies to replace contaminated private and public wells and the problems associated with numerous small inadequate water companies are the major issues in the Southeastern region.

Much of the population in this area is concentrated in several municipalities which have municipal water service (Groton, New London, Norwich, and Waterford served by New London). A high proportion of the population in this area is served by public supplies (about 90%), with these municipal systems accounting for about half of the population served. There are several other smaller municipal supplies, but most of the rest of the people in this area who are on public water, those outside of the metropolitan areas, rely on small water companies, many of them inadequate. There are 24 water companies in Montville alone. An exception to this is the Southeastern Connecticut Water Authority, which coordinates the management of nine relatively small systems and thereby achieves the economy of scale necessary to provide adequate service. A number of towns and areas are not served by public supplies. Numerous private and small public groundwater supplies have been contaminated due to typical land use related water quality conflicts.

Quality

- numerous groundwater contamination problems (especially in Ledyard, Montville)
- conflicts between intensive land use, siting of community fuel oil distribution systems, landfills and groundwater quality protection
- salt water intrusion is a potential problem in coastal areas
- need to ensure that well water quality is not degraded due to induced infiltration of Class B waters resulting from pumping of groundwater adjacent to the Pawcatuck River
- unfiltered surface water sources (New London, Jewett City)
- possible agricultural pollution problems (Lebanon, Franklin, Bozrah, Salem)

Quantity

- additional supplies needed to provide for growth and to replace contaminated supplies as an alternative to treatment
- limited groundwater potential available and contamination is a concern
- potential conflict between water supply and instream water use (Latimer Brook)

Reliability/Planning and Coordination

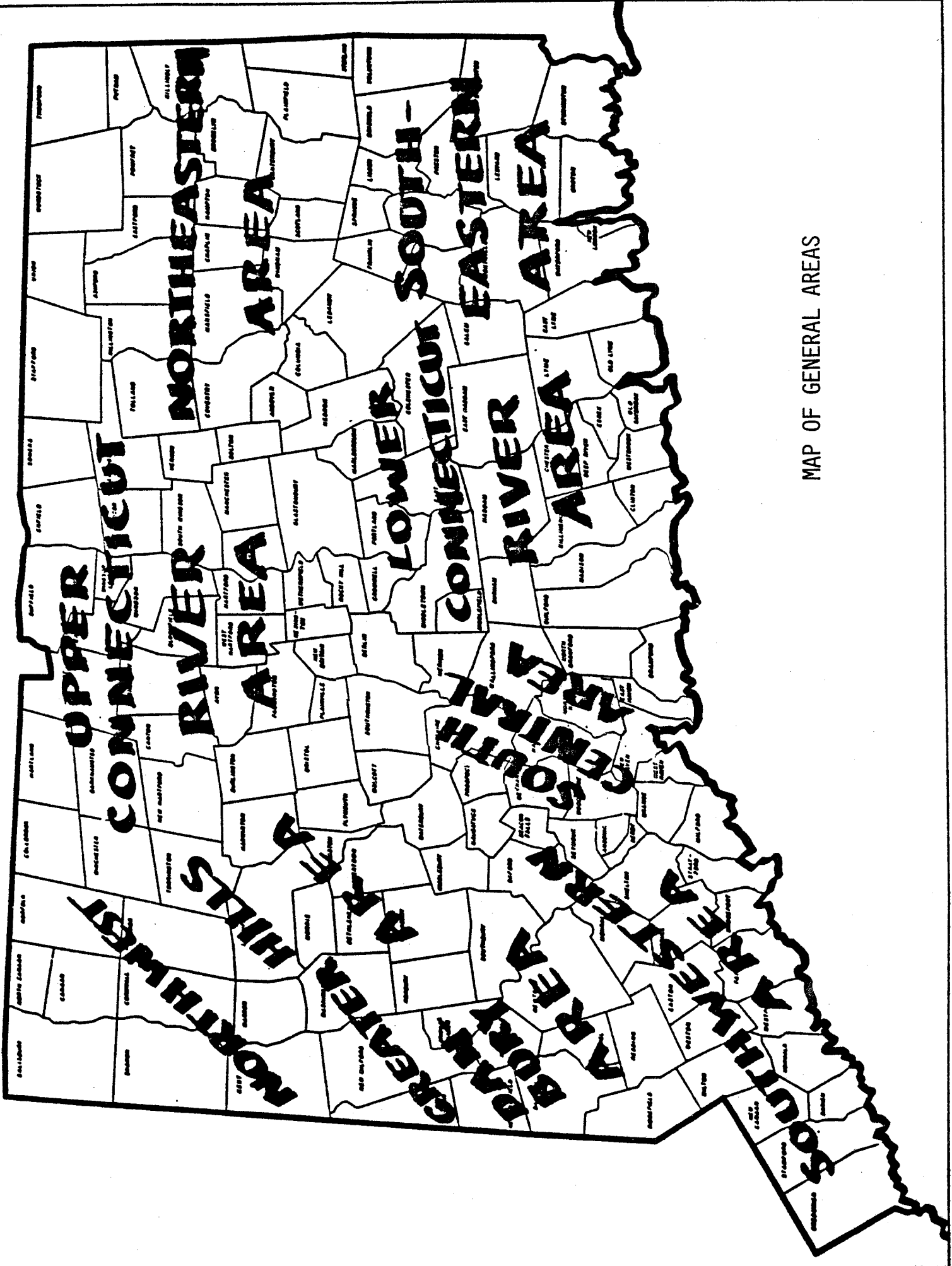
- generally adequate service
- infrastructure problems due in part to salt-water corrosion in coastal areas (especially in Stonington, Groton and New London)
- interstate coordination with Rhode Island
- intertown conflicts (New London-Waterford)
- potential need for public supplies in some areas presently served by private wells

BW/EH/lp (EH-E1)

LIST OF AVAILABLE PRINTED INFORMATION

1. Atlas of the Public Water Supply Sources and Natural Drainage Basins of Connecticut, DEP-NRC, DEP Bulletin No. 4, June 1982
2. A 1980 Survey of Major Water Utilities in Connecticut, DEP-NRC, Water Planning Report No. 6
3. 1981 Public Water Supply Water Use, DEP-NRC, Water Planning Report No. 8
4. Directory of Community Water Supplies in Connecticut, DEP-NRC, August 1984
5. Analyses of Connecticut Public Water Supplies, Eighth Edition, Five Year Average 1971-1975, DOHS
6. Conservation and Development Policies Plan, 1982-1985, OPM and the Continuing Committee on State Planning and Development, 1982
7. Water Quality Standards and Criteria, DEP-WCU, September 9, 1980
8. Safe Drinking Water for Connecticut, (Report on Economic Impact Analysis and Possible Forms of Financial Assistance), OPM-Comprehensive Planning, 1979
9. Water Resources Inventories, USGS & DEP-NRC (Ten Hydrogeologic Data Sections are Published, and Nine of the Water Resources Inventory Sections are Published, one is in press.)
10. List of Contaminated Wells, DEP-WCU, Updated Periodically
11. Table of Water Company-Owned Lands, DEP-NRC, 1977
12. List of Surface Water Sources Violating Standards, DOHS-WSS, 1983
13. Population Projections, OPM, 1982
14. Protecting Connecticut's Groundwater-A Guide for Local Officials, DEP-NRC, October 1984

Note: DEP-NRC = Natural Resources Center, Dept. of Environmental Protection
DEP-WCU = Water Compliance Unit
DOHS-WSS = Water Supplies Section, Dept. of Health Services
OPM = Office of Policy and Management



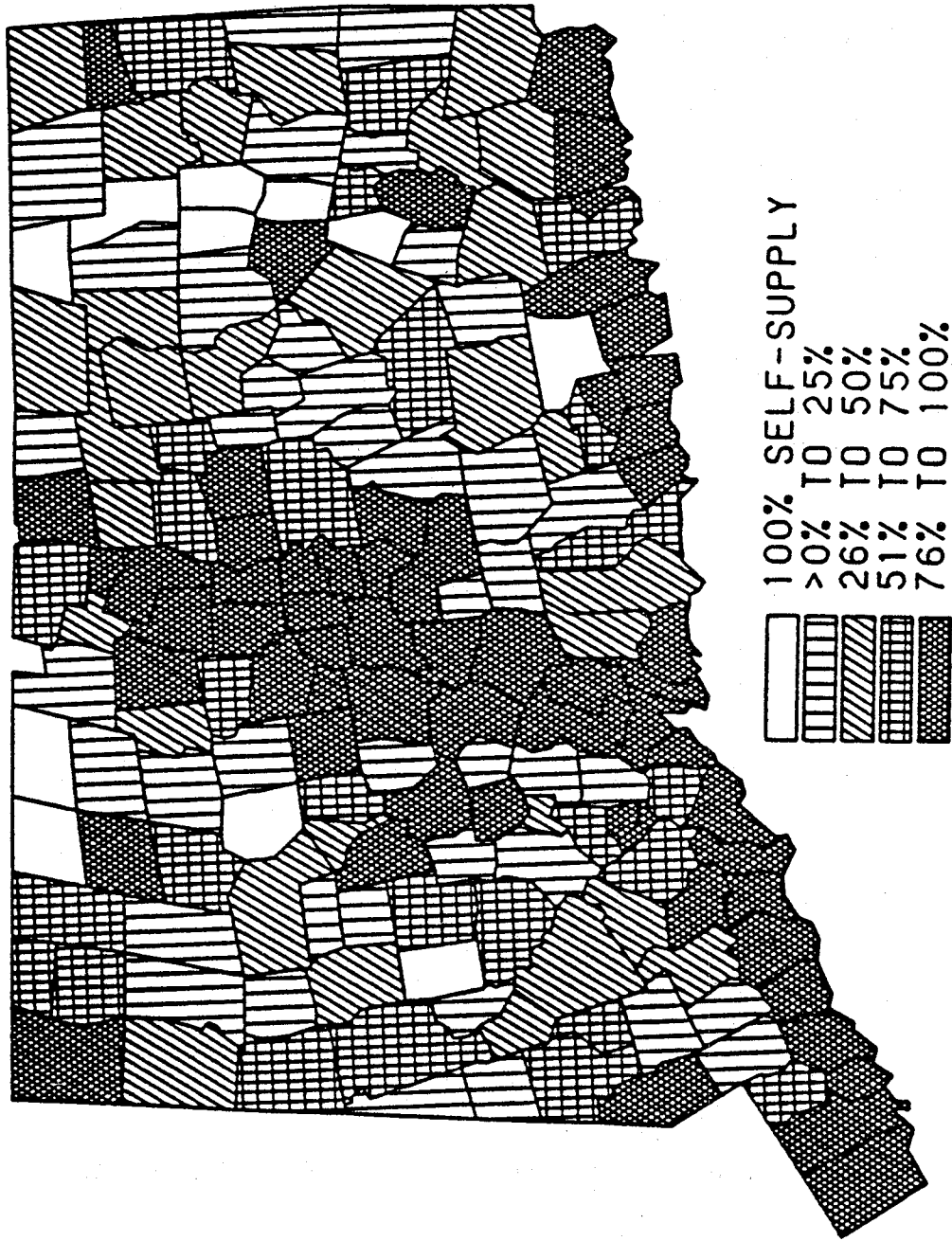
MAP OF GENERAL AREAS

FIGURE 1

LIST OF AVAILABLE MAPS

1. Public Water Supply Water Sources and Drainage Basins, 1982
 - Quadrangle Maps 1:24,000 NRC (Natural Resources Center, DEP)
 - Mylar sheets 1:50,000 NRC
 - 1:125,000 NRC
 - 1:250,000 NRC
2. Public Water Supply Water Sources (Proposed), 1974
 - Mylar sheets 1:24,000 NRC
 - 1:125,000 NRC
3. Water Company Owned Land (tabular data also available), 1977
 - Mylar sheets 1:24,000 OPM
 - 1:50,000 NRC
 - 1:125,000 NRC
4. Public Water Supply Service Areas, 1977 (in-revision by NRC, 1984)
 - Mylar sheets 1:24,000 OPM
 - 1:125,000 OPM
5. Water Franchise Areas, 1971 (in-revision by NRC, 1984)
 - Mylar sheets 1:125,000 OPM
6. Ground Water Availability, 1978
 - Published Map 1:125,000 NRC
7. Water Quality Classifications
 - Mylar sheets 1:50,000 NRC
8. a) Community Water Supply by Drainage Basin, Surface Water Production, 1984
 - b) Community Water Supply by Drainage Basin, Ground Water Production, 1981
 - c) Community Water Supply by Drainage Basin, Surface and Ground Water Production, 1981
 - Computer-printed size is flexible NRC

**POPULATION SERVED BY
COMMUNITY WATER SUPPLIES
1980**



**Population Served by Community Water Supplies is Shown
as Percent of 1980 Census Town Population**

FIGURE 2

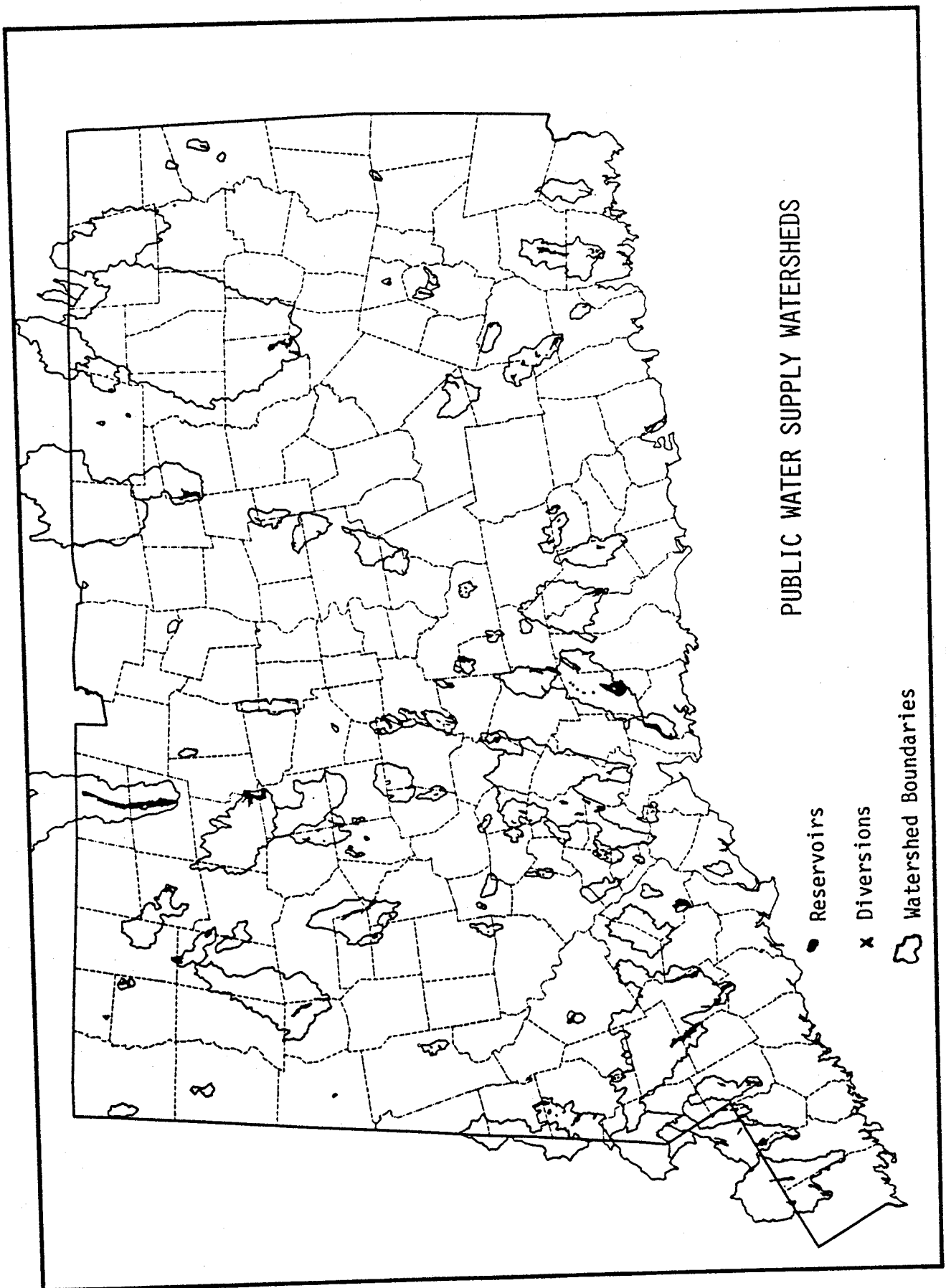
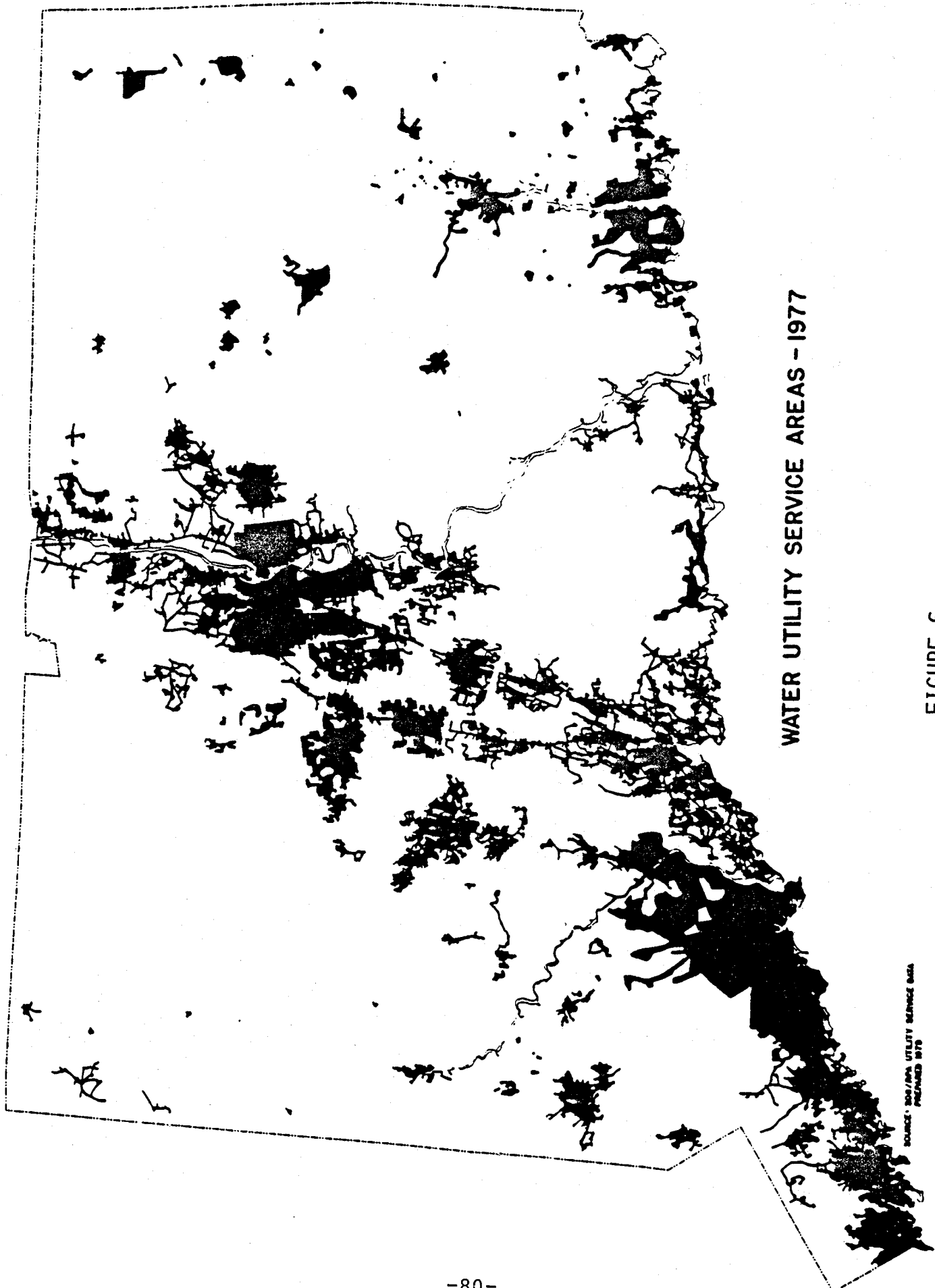


FIGURE 5



WATER UTILITY SERVICE AREAS - 1977

FIGURE 6

SOURCE: MOW/MPA UTILITY SERVICE DATA
PREPARED 1979

Substitute House Bill No. 5592

PUBLIC ACT NO. 84-281

AN ACT CONCERNING THE DECLARATION OF PUBLIC WATER SUPPLY EMERGENCIES BY THE COMMISSIONER OF HEALTH SERVICES.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. (NEW) The commissioner of health services, in consultation with the commissioner of environmental protection and the public utilities control authority, may declare a public drinking water supply emergency upon receipt of information that a public water supply emergency exists or is imminent. Notwithstanding any other provision of the general statutes or regulations adopted thereunder, or special act or municipal ordinance, the commissioner of health services may authorize or order the sale, supply or taking of any waters, including waters into which sewage is discharged, or the temporary interconnection of water mains for the sale or transfer of water among water companies. The public utilities control authority shall determine the terms of the sale of any water sold pursuant to this section if the water companies that are party to the sale cannot determine such terms or if one of such water companies is regulated by the authority. The authorization or order may be implemented prior to such determination. Any authorization or order shall be for an initial period of not more than thirty days but may be extended for additional periods of thirty days up to one hundred fifty days, consistent with the contingency procedures for a public drinking water supply emergency in the plan approved pursuant to house bill 5605 of the current session to the extent the commissioner of health services deems appropriate. Upon request by the commissioner of health services, the commissioner of environmental protection, pursuant to section 22a-378 of the general statutes, as amended by section 3 of this act, shall suspend a permit issued pursuant to section 22a-368 of the general statutes or impose conditions on a permit held pursuant to said section. The time for such suspension or conditions shall be established in accordance with

Substitute House Bill No. 5592

subdivision (1) of subsection (a) of section 22a-378 of the general statutes, as amended by section 3 of this act. As used in section 1 and section 22a-378 of the general statutes, as amended by section 3 of this act, "public drinking water supply emergency" includes the contamination of water, the failure of a water supply system or the shortage of water.

Sec. 2. (NEW) Any person who violates any provision of an authorization or order issued pursuant to section 1 of this act, shall pay a civil fine not to exceed five thousand dollars per day, to be fixed by the superior court, commencing from the date compliance to the authorization or order was required. Each violation shall be a separate and distinct offense and, in the case of a continuing violation, each day's continuance thereof, shall be deemed to be a separate and distinct offense. The attorney general, upon complaint of the commissioner of health services, shall institute a civil action to recover such fine.

Sec. 3. Subsection (a) of section 22a-378 of the general statutes is repealed and the following is substituted in lieu thereof:

(a) If a water supply emergency has been declared by the governor or otherwise according to law, the commissioner shall have the power to: (1) Temporarily suspend a permit for diversion or impose conditions upon permit holders without a hearing for a period of thirty days, which period may be extended once for a similar period. If the commissioner determines that it is necessary to extend a temporary suspension or the conditions imposed upon a permit holder, he shall, upon written request from the permit holder, hold a hearing on such determination within ten days of the extension order; (2) with the approval of the governor, authorize a person or municipality, without hearing and notwithstanding any provisions of sections 22a-365 to 22a-378, inclusive, or the general statutes or any special act to the contrary, to divert such quantities of water as the commissioner deems necessary and proper to ease emergency conditions for a period of thirty days, which period may be extended twice for like

Substitute House Bill No. 5592

periods EXCEPT THAT THE COMMISSIONER SHALL NOT AUTHORIZE A DIVERSION IF SUCH DIVERSION WOULD ADVERSELY IMPACT AN AREA WHERE A PUBLIC DRINKING WATER SUPPLY EMERGENCY HAS BEEN DECLARED PURSUANT TO SECTION 1 OF THIS ACT. In taking such action, the commissioner shall consult with the commissioner of health services and such other state agencies and municipal officials as he deems necessary and advisable.

Sec. 4. This act shall take effect from its passage.

Certified as correct by

Legislative Commissioner.

Clerk of the Senate.

Clerk of the House.

Approved _____, 1984

Governor, State of Connecticut.

Substitute Senate Bill No. 284

PUBLIC ACT NO. 84-330

AN ACT CONCERNING SMALL WATER COMPANIES AND THE RECEIVERSHIP OF WATER COMPANIES.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. Section 16-262 of the general statutes is repealed and the following is substituted in lieu thereof:

(a) As used in this section AND SECTIONS 2 TO 6, INCLUSIVE, OF THIS ACT, "water company" includes every corporation, company, association, joint stock association, partnership, MUNICIPALITY, OTHER ENTITY or person, or lessee thereof, owning, leasing, maintaining, operating, managing or controlling any pond, lake, reservoir, stream, well or distributing plant or system employed for the purpose of supplying water to not less than [twenty-five nor more than one hundred consumers] FIFTEEN SERVICE CONNECTIONS OR TWENTY-FIVE PERSONS NOR MORE THAN TWO HUNDRED FIFTY SERVICE CONNECTIONS OR ONE THOUSAND PERSONS on a regular basis.

(b) No water company may begin the construction or expansion of a [public] COMMUNITY water supply system on or after [March 1, 1982] THE EFFECTIVE DATE OF THIS ACT, without having first obtained a certificate of public convenience and necessity for the construction or expansion from the department of public utility control AND THE DEPARTMENT OF HEALTH SERVICES. An application for a certificate shall be on a form prescribed by the department OF PUBLIC UTILITY CONTROL IN CONSULTATION WITH THE DEPARTMENT OF HEALTH SERVICES and accompanied by a copy of the water company's construction or expansion plans and a fee of one hundred dollars. The [department] DEPARTMENTS shall issue a certificate to an applicant upon determining, to [its] THEIR satisfaction, that (1) NO FEASIBLE INTERCONNECTION WITH AN EXISTING SYSTEM IS AVAILABLE TO THE APPLICANT, (2) the applicant will complete the construction or expansion in accordance with engineering standards established BY REGULATION by the department [for public] OF PUBLIC UTILITY CONTROL FOR COMMUNITY water supply systems, [(2)] (3) the applicant has the financial, managerial and technical resources to operate the proposed water supply system in a reliable and efficient manner and to provide continuous adequate service to consumers served by the system, [and (3)] (4)

Substitute Senate Bill No. 284

the proposed construction or expansion will not result in a duplication of water service in the applicable service area AND (5) THE APPLICANT MEETS ALL FEDERAL AND STATE STANDARDS FOR COMMUNITY WATER SUPPLY. Any construction or expansion with respect to which a certificate is required shall thereafter be built, maintained and operated in conformity with the certificate and any terms, limitations or conditions contained therein.

(c) The department OF PUBLIC UTILITY CONTROL, IN CONSULTATION WITH THE DEPARTMENT OF HEALTH SERVICES, shall [, not later than March 1, 1982,] adopt regulations in accordance with the provisions of chapter 54 to carry out the purposes of this section.

Sec. 2. (NEW) Whenever any water company fails to comply with an order issued pursuant to section 16-11, 25-32, 25-33 or 25-34 of the general statutes concerning the availability or potability of water or the provision of water at adequate volume and pressure, the department of public utility control and the department of health services may, after notice to public and private water companies, municipal utilities furnishing water service, municipalities or other appropriate governmental agencies in the service area of the water company, conduct a hearing in accordance with the provisions of section 4-177 of the general statutes to determine the actions that may be taken and the expenditures that may be required, including the acquisition of the water company by the most suitable public or private entity, to assure the availability and potability of water and the provision of water at adequate volume and pressure to the persons served by the water company.

Sec. 3. (NEW) (a) The department of public utility control, in consultation with the department of health services, upon a determination that the costs of improvements to and the acquisition of the water company are necessary and reasonable, shall order the acquisition of the water company by the most suitable public or private entity. In making such determination, the department shall consider: (1) The geographical proximity of the acquiring entity to the water company, (2) whether the acquiring entity has the financial, managerial and technical resources to operate the water company in a reliable and efficient manner and to provide

Substitute Senate Bill No. 284

continuous, adequate service to the persons served by the company and (3) any other factors the department deems relevant. Such order shall authorize the recovery through rates of all reasonable costs of acquisition and necessary improvements. A public entity acquiring a water company beyond the boundaries of such entity may charge customers served by the acquired company for water service and may, to the extent appropriate, recover through rates all reasonable costs of acquisition and necessary improvements.

(b) Notwithstanding the provisions of any special act, the department of public utility control shall extend the franchise areas of the acquiring water company to the service area of the water company acquired pursuant to this section.

(c) In the case of a public entity acquiring a water company beyond its boundaries, the rates charged the customers of the acquired water company shall be subject to the approval of the department of public utility control, upon petition by such customers.

Sec. 4. (NEW) Any recipient of an order pursuant to section 3 of this act shall make the necessary improvements to assure the availability and potability of water and the provision of water at adequate volume and pressure to the persons served by the water company. The water company shall immediately take the steps necessary for the transfer of the company to the acquiring company, municipal water authority, municipality or other public or private entity.

Sec. 5. (NEW) Compensation for the acquisition of a water company pursuant to section 3 of this act shall be determined by the procedures for determining compensation under section 25-42 of the general statutes or by agreement between the parties, provided the department of public utility control in consultation with the department of health services, after a hearing, approves such agreement.

Sec. 6. (NEW) No proposal for a development using water supplied by a company incorporated on or after the effective date of this act shall be approved by a planning commission or combined planning and zoning commission unless such company has been issued a certificate pursuant to section 16-262m of the general statutes, as amended by section 1 of this act. If a proposal is approved without a certificate, the municipality in which

Substitute Senate Bill No. 284

the planning commission or combined planning and zoning commission is located shall be responsible for the operation of the company in the event that the company at anytime is unable or unwilling to provide adequate service to its consumers.

Sec. 7. Section 16-2621 of the general statutes, as amended by public act 83-542, is amended by adding subsection (e) as follows:

(NEW) (e) The department of public utility control shall determine the value of the assets of a water company at the time of appointment of a receiver and immediately prior to return of the assets to the owner. The claim of the owner of the company shall be limited to the value determined at the time of the appointment of the receiver. The assets shall be returned to the owner after full restitution has been made to the receiver for the value of any improvements to the system and after payment has been made for any appraisal pursuant to this subsection.

Certified as correct by

Legislative Commissioner.

Clerk of the Senate.

Clerk of the House.

Approved _____, 1984

Governor, State of Connecticut.

Substitute House Bill No. 5605

PUBLIC ACT NO. 84-502

AN ACT REQUIRING WATER COMPANIES TO PREPARE WATER SUPPLY PLANS.

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. (NEW) (a) Each water company as defined in section 25-32a of the general statutes and supplying water to one thousand or more persons or two hundred fifty or more consumers and any other water company as defined in section 25-32a of the general statutes requested by the commissioner of health services shall submit a water supply plan to the commissioner of health services for approval with the concurrence of the commissioner of environmental protection. The concurrence of the public utilities control authority shall be required for approval of a plan submitted by a water company regulated by the authority. The commissioner of health services shall consider the comments of the public utilities control authority on any plan which may impact any water company regulated by the authority. The commissioner of health services shall distribute a copy of the plan to the commissioner of environmental protection and the public utilities control authority. A copy of the plan shall be sent to the secretary of the office of policy and management for information and comment. A plan shall be revised at such time as the water company filing the plan or the commissioner of health services determines or at intervals of not less than three years nor more than five years after the date of initial approval.

(b) Any water supply plan submitted pursuant to this section shall evaluate the water supply needs in the service area of the water company submitting the plan and propose a strategy to meet such needs. The plan shall include, but not be limited to: (1) A description of existing water supply systems; (2) an analysis of future water supply demands; (3) an assessment of alternative water supply sources which may include sources receiving sewage; (4) contingency procedures for public drinking water supply emergencies, including emergencies concerning the contamination of water, the failure of a water supply system or the shortage of water; (5) a recommendation for new water system development and (6) such other information as the commissioner of health

Substitute House Bill No. 5605

services, the commissioner of environmental protection or the public utilities control authority deems necessary.

(c) The commissioner of health services, in consultation with the commissioner of environmental protection and the public utilities control authority, shall adopt regulations in accordance with the provisions of chapter 54 of the general statutes. Such regulations shall include, but not be limited to, a process for approval, modification or rejection of plans submitted pursuant to this section and a schedule for submission of the plans.

Sec. 2. The sum of twenty-two thousand nine hundred dollars is appropriated to the department of health services, for the fiscal year ending June 30, 1985, from the sum appropriated to the finance advisory committee under section 1 of special act 84-20, for 1984 acts without appropriations, for the purposes of this act.

Sec. 3. This act shall take effect January 1, 1985.

Certified as correct by

Legislative Commissioner.

Clerk of the Senate.

Clerk of the House.

Approved _____, 1984

Governor, State of Connecticut.