Appendix A

October 29, 1999 Certificate of the Secretary of the Executive Office of Environmental Affairs (EOEA)

NW

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
100 Cambridge Street, Boston, MA 02202

ARGEO PAUL CELLUCCI
GOVERNOR

TRUDY COXE
SECRETARY

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April 10, 1998

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS
ESTABLISHING A SPECIAL PROCEDURE
FOR A MAJOR AND COMPLICATED PROJECT

PROJECT NAME	: Comprehensive Wastewater Management Planning Study
PROJECT LOCATION	: Chatham
EOEA NUMBER	: 11510
PROJECT PROPONENT	: Town of Chatham
DATE NOTICED IN MONITOR	: March 11, 1998

Pursuant to the Massachusetts Environmental Policy Act (G. L. c. 30, ss. 61-62H) and Sections 11.04 and 11.06 of the MEPA regulations (301 CMR 11.00), I hereby determine that this project **requires** the preparation of an Environmental Impact Report (EIR). Furthermore, pursuant to Section 11.12 of the MEPA Regulations, I hereby establish a special procedure for review of the required EIR.

This project has been determined to be a Development of Regional Impact by the Cape Cod Commission (CCC) and will be reviewed jointly by the MEPA office and the CCC pursuant to the Memorandum of Understanding between my office and the CCC.

A special procedure is appropriate in this case because the Town can save both time and money through a process that focuses the problems and solutions more effectively than the standard MEPA review. The following procedure is based on discussions with the Town and its engineering consultants as well as the Department of Environmental Protection (DEP) and the CCC. It provides for a phased review, during which the scope for future phases will be determined based in large part on the results of the preceding phase. Consequently, I am not issuing a detailed

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The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

March 23, 1998

Secretary Trudy Coxe
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

ATTN: MEPA Unit

RE: Comprehensive Wastewater Management Planning Study, Chatham, EOEA# 11510, MHC #RC21171.

Dear Secretary Coxe:

Staff of the Massachusetts Historical Commission have reviewed the Environmental Notification Form for the proposed project referenced above.

The town of Chatham contains a high density of known archaeological sites. More than 50 sites, including several that contain human burials, are listed in MHC's Inventory of Historical and Archaeological Resources of the Commonwealth. The majority of land in the Town of Chatham has never been systematically surveyed for archaeological resources. Additional as yet unidentified sites may also be present.

MHC requests the opportunity to review preliminary plans as early as possible in the planning of this project in order to determine the need for an archaeological survey. Further consultation with the MHC will provide a forum to explore ways to avoid, minimize, or mitigate effects to significant historic or archaeological resources that are identified in project impact areas.

These comments are offered in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), M.G.L. chapter 9, sections 26-27C, as amended by Chapter 254 of the Acts of 1988 (950 CMR 71.00), and MEPA. If you have any questions, please feel free to call Eric Johnson of my staff.

Sincerely,

Brona Simon

Brona Simon
State Archaeologist
Deputy State Historic Preservation Officer
Massachusetts Historical Commission

xc: Nathan C. Weeks, Stearns & Wheeler, Inc.
William G. Redfield, Chatham Water and Sewer Departments
Chatham Historical Commission
Ron Lyberger, DEP
DEP/SERO
Cape Cod Commission

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scope for all phases of the EIR at this time. This Certificate contains the scope for the Phase I report and a general description of the elements of the Phase II report and the Draft EIR.

SPECIAL PROCEDURE

The EIR process will consist of the filing of four documents: Phase I, Needs Analysis; Phase II, Screening of Alternatives; Phase III, Draft Environmental Impact Report/Facilities Plan; and Phase IV, Final Environmental Impact Report/Facilities Plan. Each filing will thoroughly examine the issues associated with its respective Phase and will contain a proposed scope for the succeeding Phase document. Each succeeding Phase document will build on the information developed in the prior document.

Each document will be distributed and reviewed according to the review procedures identified in Section 11.08 and 11.09 of the MEPA Regulations, review Procedures for Draft and Final EIRs, including a 30 day public comment period and 7 days for the Secretary to issue a decision on adequacy.

The Town has established the Comprehensive Wastewater Management Plan Citizen's Advisory Committee to assist in development and review of the wastewater plan. This committee is broad based and representative of various areas of the community and could serve as a Citizens Advisory Committee as allowed in the MEPA Regulations if it chooses to be so appointed.

Changes to this process may be made, if necessary and appropriate, by agreement between the Town, the Secretary, and participating agencies. Such changes might include additional or interim filings or extensions of comment periods. Any proposed change will be noticed in the *Environmental Monitor* and may be subject to a 20 day comment period.

PHASE I, NEEDS ANALYSIS

The needs analysis should identify existing wastewater problems, their causes, and the geographic area over which they occur. The analysis should be based on as much empirical data as

March 31, 1998

Trudy Coxe, Secretary
Exec. Office of Environmental Affairs
Attention: MEPA Unit
100 Cambridge Street, 20th Floor
Boston, MA 02202

Re: Chatham
Wastewater Mgmt. Plan
EOEA #11510

Dear Ms. Coxe:

The Bureau of Resource Protection (BRP) of the Department of Environmental Protection, in conjunction with the Southeast Regional Office (SERO), has reviewed the ENF for the Town of Chatham's Comprehensive Wastewater Management Planning Study. We have worked with the town as they have developed the scope of work for the proposed planning, and concur with the scope and the proposal to conduct a concurrent EIR under the MEPA process and a DRI under the Cape Cod Commission's review procedures. As has been the case with other planning efforts on the Cape, we believe that this will be an effective and efficient way to jointly carry out the necessary reviews. We would like to point out that the scope will almost certainly need to be adjusted at certain points in the planning effort as particualar issues arise, and the special procedure should allow this to occur.

If you have any questions concerning these comments, please contact Ron Lyberger of my staff.

Sincerely,

Glenn Haas, Director
Div. of Watershed Mgmt.

Citizen's Advisory Committee
Comprehensive Wastewater Management Planning Study
Town of Chatham

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March 30, 1998

Ms. Trudy Coxe, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street, 20th Floor
Boston, Massachusetts 02202

Attention: Richard Foster/MEPA Unit

RE: Environmental Notification Form Scope of Work for Chatham Comprehensive Wastewater Management Planning Study

Dear Secretary Coxe:

The Chatham Comprehensive Wastewater Management Planning Study Citizen's Advisory Committee (CAC) respectfully submits comments for the record regarding the scope of work included in the Environmental Notification Form (ENF) for the above referenced project.

The CAC consists of representatives of Chatham neighborhoods and other stakeholder groups, appointed by the Chatham Board of Selectmen. The CAC will provide guidance to the project as it progresses, and will advise the consultants, the Board of Selectmen, and the Technical Advisory Committee.

The Chatham Comprehensive Wastewater Management Planning Study CAC supports the Scope of Work outlined in the ENF which was presented on March 19, 1998 at a public hearing in Chatham. Planning for our town's future wastewater needs is of critical importance. It is essential that a cost-effective, environmentally sensitive solution be identified that will protect our fragile natural resources and the economy that depends on them. We hope the Executive Office of Environmental Affairs, Massachusetts Environmental Policy Act Unit and Cape Cod Commission will find in favor of the Scope of Work as presented.

We appreciate the opportunity to comment, and look forward to the completion of this study so that we may begin implementing the recommendations.

Sincerely,

Fred Jensen KB

Fred Jensen, Chairman
Chatham Wastewater CAC

cc: Sara Korjeff/Cape Cod Commission
Reginald Nickerson/Chatham Board of Selectmen
Nathan Weeks/Stearns & Wheler

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
100 CAMBRIDGE STREET, BOSTON, MA 02202
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MAR 27 1998
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MEMORANDUM

To: R. J. Lyman, Director, MEPA Unit
From: Margaret M. Brady, Director, MCZM
Date: March 27, 1998
Re: EOEA # 11510 Comprehensive Wastewater Management Planning Study; Chatham

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The Massachusetts Coastal Zone Management (MCZM) Office has completed its review of the above-referenced Environmental Notification Form (ENF), noticed in the Environmental Monitor dated 11 March 1998. Because of the complicated nature of this project, the state Department of Environmental Protection (DEP) has requested that the Town of Chatham complete a comprehensive evaluation of project alternatives be conducted through a Wastewater Management Planning Study and Environmental Impact Report (EIR). This project will be a joint review by the Executive of Environmental Affairs MEPA Unit and the Cape Cod Commission. The proposed project is a study, there is no facility or construction planned at this time. MCZM supports such a process for this project.

The Town of Chatham is currently facing some unique challenges relative to wastewater treatment and disposal. The town has a year-round population of approximately 7,000, but during the summer season, the population increases almost four-fold to about 25,000. This increase in population places a serious strain on the many on-site wastewater disposal systems which are used extensively throughout Chatham. In addition, the Town of Chatham has an existing wastewater treatment facility with discharge flows at 150,000 gallons per day (GPD).

The Town is beginning to address the wastewater treatment and disposal problem by completing this comprehensive wastewater management planning study. Over the years, many studies have been completed for the town on this issue, however, there continues to be unresolved concerns about certain environmental impacts from wastewater, specifically as the impacts relate to nutrients in estuarine and coastal waters. The intent of this study is to guide the Town toward meeting its current and future wastewater treatment and disposal needs, utilizing both the existing central collection system/wastewater treatment plant and on-site treatment system as appropriate.

This study will result in the following submittals:

* a Needs Assessment Report that will identify the existing and future wastewater needs of the Town;
* a Screening Analysis Report that will identify and screen alternative solutions to meet the Town's needs;
* a Draft Wastewater Management Plan and EIR that will provide a detailed evaluation of the feasible alternative solutions; and
* a Final Wastewater Management Plan and EIR that will identify a recommended plan for cost-effective and environmentally sound solutions for the Town's wastewater needs.

The proposed activity may be able to benefit from EO 385 Planning for Growth. The Town may wish to contact EOEA in this regard.

MCZM supports the Town's efforts to address the Town's current and future wastewater treatment and disposal needs. MCZM will continue to work with the state DEP and the Town throughout this project, in particular on issues related to critical nutrient loading to the marine/estuarine waters of Chatham.

The proposed project may be subject to MCZM federal consistency review. For further information on this process, please contact Jane W. Mead, MCZM Project Review Coordinator, at 617-727-9530 x.418.

MMB/rgz

cc: Truman Henson and Steve McKenna,
MCZM Cape & Islands Regional Coordinators
Nathan C. Weeks, Stearns & Wheler, LLC,
PO Box 975, Hyannis MA 02601
William G. Redfield, Chatham Water & Sewer Department
127 Old Harbor Road, Chatham MA 02633
Fred Jensen, Chatham CAC
Terence Hayes, Chatham Health Department,
261 George Ryder Road, Chatham MA 02633
Ron Lyberger, DEP-BRP Boston
John O'Brien DEP-SERO
Sarah Korjeff, Cape Cod Commission
Lynn Sherwood, DMF, 50-A Portside Drive, Pocasset MA 02559
John Lipman, EOEA

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March 27, 1998

Secretary Trudy Coxe
Massachusetts Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

Attention: Dick Foster, MEPA Unit

EOEA #11510
CCC #ENF98004

Dear Secretary Coxe:

The proposed Chatham Comprehensive Wastewater Management Planning Study is being reviewed jointly by the Executive Office of Environmental Affairs (EOEA) - MEPA Unit, and by the Cape Cod Commission (Commission) as a Development of Regional Impact (DRI) in accordance with the Memorandum of Understanding between the Commission and EOEA. An Environmental Notification Form was received by the Commission on March 2, 1998. A joint public hearing/scoping session with EOEA and the Commission was held on Thursday, March 19, 1998 in the Chatham Town Hall.

The proposed project will develop a Comprehensive Wastewater Management Plan for the town. Because the project is a study, no specific facility or construction project has been identified at this time. The applicant has requested "Special Provisions for Major and Complicated Projects" from MEPA to allow the project review to be conducted in four phases. Each phase will include the preparation of a report and will be submitted to and reviewed by DEP, the MEPA Unit, and the Commission. Along with each report, the applicant will submit a proposed scope for the following phase of the study.

The ENF includes a draft scope of services for the study. The project will identify the existing and future wastewater needs of the town, identify and screen alternative solutions to meet the town's needs, provide a detailed evaluation of the feasible alternative solutions, and present a recommended plan for cost-effective and environmentally sound solutions to the town's wastewater needs. A Commission subcommittee has reviewed the proposed scope and believes that it is well developed and that it addresses the variety of issue areas covered in the Regional Policy Plan. The subcommittee has the following additional comments:

WATER RESOURCES

The proposed scope addresses potential impacts to groundwater, surface waters, and marine waters. By including an evaluation of embayments in the wastewater management study, the town can reduce or prevent negative impacts to these areas which are most nitrogen-sensitive, and which are important to the town's economy.

The scope for the examination of water resources should be enhanced to take better advantage of existing studies and to insure that adequate funding is available for this and future components of this study. The coastal embayment watershed delineations included in the Commission's Regional Policy Plan Water Resources Classification Map II have been refined for the Stage Harbor and Ryder Cove/Bassing Harbor systems by the inclusion of subwatershed delineations based on flushing study information. Since the scope does not contain provision for the collection of new water table information, alteration of these subwatersheds under Section 301.7 of the scope would only be based on an alternative interpretation of existing data. It is suggested that funds would be better expended evaluating the hydrogeologic connections,

transient flushing characteristics, and water quality in Bucks Creek and Cockle Cove, which are the systems most likely to be impacted by effluent discharge from the town's Wastewater Treatment Facility.

Similarly, Section 301.3.1 describes nitrogen loading calculations to be done for the areas within the Wellhead Protection Areas/Zone IIs. These calculations were previously completed in Commission's Monomoy Capacity Study (1996). While it certainly is advisable to review this Study's findings, it is suggested that funds to repeat the calculations would be better spent on other analyses.

Funding concerns are also raised by the inclusion in the scope of an evaluation of deep well injection for disposal of wastewater effluent. During the review of the this method in the Town of Barnstable Facilities Plan, the potential costs of defining the flow paths of contaminants discharged from this type of well, the advanced level of treatment required, and uncertainty of impacts were identified as being problematic. In the complex geology of Chatham, these costs would be likely to be even higher.

The Commission's water resources and planning staff are available to discuss the findings of the Commission's Monomoy Capacity Study and Pleasant Bay Nitrogen Loading Study, and other projects related to Chatham and its Facilities Plan and provide technical assistance as needed throughout the course of the project.

LAND USE/GROWTH MANAGEMENT

The proposed scope will address the potential impact of various wastewater facilities on the town's growth policy, acknowledging year-round growth projections, seasonal population change, and visitor estimates. Coordination with the town's long range planning committee is also essential to insure that the Comprehensive Plan and the Comprehensive Wastewater Planning Study are consistent and complimentary in achieving the town's goals.

The Commission's Monomoy Capacity Study build out projections will be useful in gauging future growth potential and in identifying Problem Areas and Potential Problem Areas for further analysis. As recommended in the Monomoy study, changes to town bylaws and regulations may be necessary to address resource protection concerns and to insure that future development is consistent with the town's identified goals. The study should give adequate attention to the development of such modifications to compliment any proposed facility plan.

COMMUNITY CHARACTER/HISTORIC PRESERVATION

Potential impacts on the town's character are discussed in the project description, but are not specifically addressed in the proposed scope. Resources in Chatham's Historic Business District and in other areas considered for historic district designation in the town's draft Comprehensive plan may be more impacted by some wastewater technologies than others. Further site specific analysis of historic and archaeological impacts may be required depending upon the sites and types of facilities proposed.

TRANSPORTATION

When specific sites are considered for potential future facilities, they should be evaluated to limit impacts to residential, scenic or historic areas from increased truck or auto trips. At all alternative locations, an evaluation of the access and routing should be performed to ensure that the adjacent road system can accommodate any proposed increased traffic.

NATURAL RESOURCES

The impact of existing and potential wastewater facilities on environmentally sensitive areas will be addressed during the review process. In addition to identifying those resources which may be impacted by water quality changes due to wastewater, the EIR should also address the

natural resource value of potential facility sites. As the review process proceeds, more site-specific analysis may be necessary.

The scope of services for Chatham's Comprehensive Wastewater Management Planning Study is comprehensive and addresses the majority of concerns that can be anticipated prior to the collection of detailed information within the Town. The existence of both a Citizens Advisory Committee and a Technical Advisory Committee should insure that the project is well-coordinated with the town's goals. The above-mentioned issues should be addressed in the scope of services and the scope of the EIR. Once specific sites and facilities are identified, the Commission will review the proposals for consistency with the 1996 Regional Policy Plan goals and Minimum Performance Standards.

The Commission appreciates being involved at this early stage in the project development. Thank you for the opportunity to comment.

Sincerely,

Don Fox for David Ernst

David Ernst
Subcommittee Chair

cc. William Redfield, Technical Advisory Committee
Margaret Swanson, DRI Liaison
Nathan Weeks, Stearns and Wheler
George Heufelder, County Health Department
John O'Brien, DEP/SERO
Ron Lyberger, DEP/BRP
Bruce Rosinoff, US EPA
Rick Zeroka, MA CZM
L. Sherwood, Division of Marine Fisheries
Ben Pearson, Cape Cod National Seashore
Commission Subcommittee members

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Executive Office of Environmental Affairs
100 Cambridge Street, Boston, MA 02202

ARGEO PAUL CELLUCCI
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JANE SWIFT
LIEUTENANT GOVERNOR

BOB DURAND
SECRETARY

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October 29, 1999

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE SPECIAL PROCEDURE: PHASE I, NEEDS ANALYSIS

PROJECT NAME	: Comprehensive Wastewater Management Planning Study
PROJECT MUNICIPALITY	: Chatham
PROJECT WATERSHED	: Cape Cod
EOEA NUMBER	: 11510
PROJECT PROPONENT	: Town of Chatham
DATE NOTICED IN MONITOR	: September 8, 1999

As Secretary of Environmental Affairs, I hereby determine that the Phase I, Needs Analysis report submitted on this project **adequately and properly complies** with the Massachusetts Environmental Policy Act (G. L. c. 30, ss. 61-62H) and with its implementing regulations (301 CMR 11.00).

This project involves the development of a comprehensive wastewater management plan/facilities plan for the Town of Chatham. The environmental review of the project, under MEPA, has been defined in a Special Procedure, established by agreement between the Town and my office. This Special Procedure envisions the filing of four documents: Phase I, Needs Analysis; Phase II, Screening of Alternatives; Phase III, Draft EIR/Facilities Plan; and Phase IV, Final EIR/Facilities Plan. The current document is Phase I of that Special Procedure.

The purpose of the Phase I, Needs Analysis portion of the study is to identify existing and potential wastewater problems, their causes, and the geographic area over which they occur. Additionally, the Phase I report was intended to identify measures to reduce wastewater flows and to present a draft scope for the Phase II, Screening of Alternatives report. I find that the current document has done a good job of reaching those objectives. The report describes the issues the Town faces in managing nitrogen; establishes nitrogen loading and critical nitrogen loading values for each of the Town's embayments; lists the embayments that currently exceed proposed nitrogen loading limits or will do so under future conditions; reviews water supply

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issues; establishes wastewater areas of concern; reviews available data on freshwater ponds and lakes; and articulates the results of "No Action."

I have reviewed the proposed scope of work for the Phase II document and I have no additional issues to add, except as stated below, regarding Executive Order 385. I do expect, however, that the Phase II document will contain detailed responses to the issues raised in the attached comment letters. I specifically refer the proponent to the comment letter of the Cape Cod Commission, and the response by the CAC, as providing the framework for continued data gathering and evaluation efforts. Additionally, I suggest coordination with the Massachusetts Historical Commission prior to final selection of sites for wastewater facilities.

Executive Order 385, Planning for Growth, requires state and local agencies to engage in proactive and coordinated planning oriented towards both resource protection and sustainable economic development. For reasons both of environmental protection and fiscal prudence, investments in public infrastructure should be carefully targeted for those areas that have been identified as appropriate for denser development, thereby relieving development pressures on open space, agricultural lands, and other valuable resources. The Phase II document should report on the current status of comprehensive land use planning in the Town, and discuss the consistency of this project with local land use and open space goals.

October 29, 1999
Date

Bob Durand
Bob Durand

Comments received :

Department of Environmental Protection
Department of Environmental Management
Massachusetts Historical Commission
Cape Cod Commission
Chatham Citizens Advisory Committee
Kelley, Paul
Ecker, Deborah

REC'D OCT 29 1999

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

ARGEO PAUL CELLUCCI
Governor

JANE SWIFT
Lieutenant Governor

BOB DURAND
Secretary

LAUREN A. LISS
Commissioner

October 22, 1999

Bob Durand, Secretary
Executive Office of Environmental Affairs
Attention: MEPA Office
Dick Foster, EOEA #11510
100 Cambridge Street, 20th Floor
Boston, MA 02202

Re: Chatham
Comprehensive Wastewater
Management Plan-Phase 1
Needs Assessment Report

Dear Mr. Durand:

The Bureau of Resource Protection (BRP) of the Department of Environmental Protection (DEP), in conjunction with the Southeast Regional Office (SERO), has reviewed the Phase 1 Needs Assessment Report for the Town of Chatham's Comprehensive Wastewater Management Plan (CWMP). The Department concurs with the findings and analyses of the report, and have no further comments regarding the scope of the work proposed for Phase 2 of the CWMP. We look forward to continuing to work closely with the town and their consultants and the Cape Cod Commission as the planning proceeds. If you have any questions regarding these comments, please contact Ron Lyberger of my staff.

Sincerely,

Glenn Haas, Director
Division of Watershed Management

Cc: William Redfield, Town of Chatham-Water and Sewer Department
Nate Weeks, Stearns & Wheler
Ed Eichner, Cape Cod Commission
Sharon Stone, DEP-SERO
Dave DeLorenzo, DEP-SERO
Bob Fagan, DEP-SERO
Brian Dudley, DEP-SERO
John O'Brien, DEP-SERO

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Jane Swift
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Bob Durand
SECRETARY

Peter C. Webber
COMMISSIONER

September 27, 1999

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Secretary Robert Durand
Executive Office of Environmental Affairs
Attn: MEPA Unit
100 Cambridge Street – 20th Floor
Boston, MA 02202

Re: Town of Chatham, Final Needs Assessment Report, Wastewater Management Planning Study, EOEA #11501

Dear Secretary Durand:

I am writing to correct a statement regarding the Massachusetts Ocean Sanctuaries Act (MGL c.132A §13-16 and 18 and 302 CMR 5.00) in the Report for the Chatham project noted above. The discussion on page 3-6, *D. Effluent Discharge at an Ocean Outfall* refers to a variance from the Act. A variance is only available to communities that have an existing municipal wastewater discharge to an ocean sanctuary. Because Chatham has no existing discharge, it would not be eligible to apply for a variance. In addition, new wastewater discharges into the Cape Cod Ocean Sanctuary or the Cape and Islands Ocean Sanctuary not permitted under the Act or variance provisions.

Please let me know if you have any questions on this issue.

Sincerely,

M G Gildesgame

Mike Gildesgame, Director
Office of Water Resources and
DEM Ocean Sanctuaries Coordinator

Cc: Coastal Zone Management
Stearns & Wheeler

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The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

October 1, 1999

Secretary Bob Durand
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, MA 02202

ATTN: MEPA Unit

RE: Comprehensive Wastewater Management Plan, Chatham, EOEA #11510, MHC #RC.21117

Dear Secretary Durand:

Staff of the Massachusetts Historical Commission have reviewed the Needs Assessment Report for the above-referenced project, which summarizes existing conditions and needs regarding wastewater in the town of Chatham. MHC understands that the next phase of study (Development and Screening of Alternatives) will involve the selection of potential sites for wastewater facilities. MHC requests that the scope of the Development and Screening of Alternatives include further consultation with the MHC during the selection of potential wastewater facility sites in order to assess potential effects to significant historic or archaeological resources, include consideration of these potential effects in the site selection process, and determine the need for an archaeological survey.

These comments are offered in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR 800), M.G.L. Chapter 9, sections 26-27C, as amended by Chapter 254 of the Acts of 1988 (950 CMR 71.00), and MEPA. If you have any questions, please feel free to call Eric Johnson of my staff.

Sincerely,

Brona Simon

Brona Simon
State Archaeologist
Deputy State Historic Preservation Officer
Massachusetts Historical Commission

xc: Nathan C. Weeks, Stearns & Wheeler, Inc.
William G. Redfield, Chatham Water and Sewer Department
DEP, Southeast Regional Office
Ron Lyberger, DEP, BRP
Steve Hallem, DEP, BRP
Cape Cod Commission
Chatham Historical Commission

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OF

October 5, 1999

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OCT 14 1999
MEPA

Mr. Robert A. Durand, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street, 20th floor
Boston, MA 02202

Attn: Richard Foster - MEPA Unit

RE: Town of Chatham
Chatham Comprehensive Wastewater Management Planning Study
Needs Assessment Report Comment Letter
EOEA # 11501, CCC# ENF98004

Dear Secretary Durand:

The proposed project entitled, the Chatham Comprehensive Wastewater Management Planning Study, is being reviewed by the Executive Office of Environmental Affairs MEPA Unit, as an Environmental Impact Report (EIR) pursuant to the Massachusetts Environmental Policy Act ("MEPA", G.L. c.30, secs. 61, 62-62H) and the Cape Cod Commission (CCC) as a Development of Regional Impact (DRI) pursuant to Section 12(i) and 13(b) of the Cape Cod Commission Act in accordance with the Memorandum of Understanding (MOU) between the CCC and MEPA. The CCC subcommittee commented March 27, 1998 regarding the scope of the project in the Environmental Notification Form (ENF). A CCC subcommittee held a Public Hearing on Thursday, September 23, 1999 to gather public comment on the Needs Assessment phase of the EIR process. The EIR process has been broken into four phases; I Needs Assessment, II Alternative Solutions and Screening Analysis, III Draft EIR / Facilities Plan, and IV Final EIR / Facilities Plan. The study is currently near the end of Phase I Needs Assessment.

Description of Study:

The subcommittee has reviewed the Needs Assessment Report prepared for the Town of Chatham by Stearns and Wheler, LLC under the town's Comprehensive Wastewater Management Planning Study. This Assessment Report has been prepared to identify areas of wastewater concerns, including ponds, drinking water supplies, and coastal embayments

impacted by wastewater disposal, areas of shallow groundwater, and areas with slow percolation rates. Once the appropriate areas of concern have been identified, the next phase of the study will review alternatives to address the concerns in these areas. The subcommittee's comments below generally focus on the inclusion of ponds as areas of concern, questions about methods used in the analysis of coastal embayments, and additional review of water supply estimates.

Fresh Water Ponds:

The subcommittee is concerned that not enough information has been collected to either include or exclude freshwater ponds as areas of concern. The Needs Assessment report states that ponds are not areas of concern due to consensus that they have good water quality and uses data collected during the mid-1970's (included in Appendix C of the Stearns and Wheler report) to support this statement. Significant land use changes have occurred in Chatham in the intervening 20 years and it is likely these changes have altered the ecosystem function of these ponds. In addition, the data presented in Appendix C does show depressed dissolved oxygen conditions in bottom waters, which are a primary indicator of excessive nutrient loads, in Emery Pond, White Pond, Stillwater Pond, and Schoolhouse Pond. Although the data in Appendix C is incomplete, these readings suggest that additional dissolved oxygen profiles should be collected on Chatham ponds, prior to fall turnover, in order to assess whether they should be considered areas of concern. If these profiles are not collected prior to turnover, the subcommittee recommends that all the ponds be considered as areas of concern in subsequent phases of the study or until additional data suggests exclusion of specific ponds.

Coastal Embayments:

Coastal embayments surrounding the town are identified as areas of concern in the Needs Assessment. Stearns and Wheler utilized findings from the Cape Cod Commission's Pleasant Bay Nitrogen Loading Assessment (1998) for the subembayments on the north side of Chatham, refined the analyses completed during the Stage Harbor Management Plan, and developed new information for Taylors Pond/Mill Creek and Sulphur Springs/Bucks Creek. These analyses included tidal flushing, determination of critical nitrogen loading limits, evaluation of existing and future nitrogen loads from existing watersheds, and comparison of loads to limits to assist in identification of areas for alternatives analysis.

Nitrogen Loading:

The continuum of impacts of nitrogen loading in coastal embayments is difficult to clearly define because of the uncertainties associated with the multitude of factors influencing the impacts. Groundwater flow times and paths, watershed delineations, ecosystem functions, nitrogen recycling, wastewater flows, and tidal changes are among the factors that effect whether a coastal

embayment will suffer the impacts of eutrophication. The Commission's Cape Cod Coastal Embayment Report (1988) reviewed some of these factors and recommended a preferred approach to evaluating the potential impacts, as well as data to be collected in support of this approach. The approach relies on an evaluation of four nitrogen limits that span the continuum of impacts from relatively unimpacted to clearly impacted. These limits are nitrogen additions to background concentrations from 0.05 to 0.2 parts per million (ppm) or 0.35 to 0.5 ppm assuming the general 0.3 ppm background concentration found along the southern coast of Cape Cod. Stearns and Wheler has generally used this approach in the analyses completed for the Needs Assessment, but some of the specific data used suggest that additional sensitivity evaluation of the findings should be considered. In addition, the subsequent alternatives analysis report should include a better description of the likely impacts associated with these different nitrogen loading. Commission staff are available to assist the town in this effort.

In the area of nitrogen loading, Stearns and Wheler used 1997 water use data for properties served by town water to estimate wastewater flows and used factors from the Commission's nitrogen loading technical bulletin (CCC, 1992) to estimate other nitrogen loads (i.e., lawns, runoff, and precipitation) for Stage Harbor, Taylors Pond/Mill Creek, and Sulphur Springs/Bucks Creek watersheds. Pleasant Bay nitrogen loads were based on the Commission's nitrogen loading report (CCC, 1998), which estimates wastewater based on the technical bulletin method of reviewing year-round occupancy and estimates of seasonal occupancy. The staff reviewed selected watershed calculations contained in Appendix F and G and have some concerns about discrepancies between watershed areas and parcel areas used in the calculations and nitrogen loads falling on the embayment surfaces. The subcommittee recommends that staff discuss these calculation differences with Stearns and Wheler and that revised findings be presented, in the alternatives analysis phase.

Water quality data has been gathered in the Stage Harbor system under a volunteer monitoring program directed by the town. It is recommended that this data be presented, reviewed and compared to the nitrogen loading estimates developed by Stearns and Wheler in the alternatives analysis phase and the subsequent findings be incorporated into the development of alternatives during the next phase of the Planning Study.

Tidal Flushing Data:

In the area of collecting tidal flushing data, Commission staff prefer the collection of bathymetric data sufficient to resolve 2 ft contours, tidal data for the whole lunar cycle (~ one month) in order to resolve tidal constituents and capture the highest high tide and lowest low tide, and local residence time calculations based on flow across basin boundaries in a two-dimensional hydrodynamic model and mean tide volumes. The Pleasant Bay and Stage Harbor tidal modeling efforts approximate these preferences, but the Taylors Pond/Mill Creek and Sulphur Springs/Bucks Creek efforts are more limited.

Based on the letter report in Appendix G, one tide gauge was located in each creek system and tidal data was collected for approximately one week. Since tidal data was collected for only one week, the entire lunar cycle of the tides is not accounted for and it is unclear how much higher or lower the high or low tides might be in the other parts of the cycle. The location of the tidal gauge in Sulfur Springs also suggests that the complete impact of tidal dampening is not accounted for in this system. Both of these sets of data would impact the flushing times and, thus, the critical nitrogen load calculations. It is recommended that an assessment of the likely variability introduced by these factors be accounted for in the critical nitrogen loads for these systems. In addition, it appears that the calculations of the critical loads for Stage Harbor, Taylors Pond/Mill Creek, and Sulphur Springs/Bucks Creek need to be revised. The Cape Cod Commission staff's calculations of the critical loads are different than those presented by Stearns and Wheler. Staff has reviewed these differences with Stearns and Wheler staff and modified critical loads have been calculated. The subcommittee recommends that these revised critical loads be incorporated into and explained in the alternatives analysis phase of the project.

Determining Ultimate Coastal Discharge:

It is also recommended that the water quality and flow information collected at Cockle Creek be reviewed and compared to the flows and loads coming from the town's treatment plant. If this information does not agree with projections, additional analysis should be gathered to assess the ultimate coastal discharge of the flows and nitrogen loads from the treatment plant.

Coastal Resources:

The alternatives analysis report should also include an assessment of the quality of the resources within the coastal waters based on what is known about their functions. This assessment should include review of shellfish stocks, potential shellfish habitats, and use by swimmers, boaters, and fishermen. This information should assist the town in reviewing the nitrogen loading targets during the alternatives analysis.

Future Water Demand:

Finally, in the area of water supply, 1994 to 1997 data has been reviewed for average daily demand (ADD) and maximum daily demand (MDD) and compared to pumping capacity of existing wells. Stearns and Wheler's analysis indicates that additional capacity will be needed to meet projected MDD at buildout. MDD at buildout was calculated by Stearns and Wheler as a multiple or "peaking factor" based on comparing 1997 MDD to ADD data. It is recommended that 1998 and available 1999 data be included in the water supply review. Since there is a general upward trend in both ADD and MDD calculations and 1997 data is the highest recorded, incorporation of more recent data may indicate more rapid increases that should be accounted for in assessment of future water supply capacity and the need to protect future water supply areas.

Summary and Conclusions:

In summary, the subcommittee recommends that the following changes be made and that the results be included in the next phase of the project (Phase II Alternative Solutions and Screening Analysis):

1) Freshwater ponds should be included as areas of concern until sufficient data has been collected to exclude individual ponds. It is recommended that dissolved oxygen profiles collected during July and/or August should be sufficient to include or exclude individual ponds.
2) A sensitivity analysis of tidal dynamics and critical loads in the Taylors Pond/Mill Creek, and Sulphur Springs/Bucks Creek should be undertaken.
3) Stearns and Wheler should discuss nitrogen loading and critical nitrogen loading calculations with Commission staff and revised results should be included in the analysis of alternatives.
4) Water quality data collected in the Stage Harbor system should be presented, reviewed, and compared to the revised watershed nitrogen loading estimates developed by Stearns and Wheler. Subsequent findings be incorporated into the development of alternatives.
5) Phase II should include an assessment of the quality and function of resources within coastal waters, including review of shellfish stocks, potential shellfish habitats, and use by swimmers, boaters, and fishermen.
6) Further comparison of water quality and flow between Cockle Cove and the town's treatment plant should be presented and included the alternatives analysis.
7) Additional review of water demand should occur by incorporating data from 1998 and any available information from 1999 to provide a more accurate projection of future water demands. In addition, this more recent data should be reviewed to gauge whether the watershed nitrogen loading assessments, which are based on 1997 water use data, should also be updated.

Sincerely,

David H. Ernst
Chair, EIR Review Subcommittee

cc: Margaret Swanson, Chatham Town Planner
William Redfield Director of Chatham D.P.W.
Fred Jensen, Chair, Chatham Wastewater CAC
Nate Weeks, Stearns & Wheler Project Engineer

Chatham Comprehensive Wastewater Management Planning Study

Citizens Advisory Committee
C/o Chatham Water and Sewer Department
127 Old Harbor Road, Chatham, MA 02633

RECEIVED
OCT 18 1999
MEPA

October 18, 1999

Mr. Robert A. Durand, Secretary
Executive Office of Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02202

Re: Comprehensive Wastewater Management Planning Study
Town of Chatham
Phase I Report: Needs Assessment
EOEA # 11501, CCC #ENF98004

Attn: Richard Foster, MEPA Unit

Dear Secretary Durand:

The Town of Chatham is undertaking a **Comprehensive Wastewater Management Planning Study** to provide a strategy for wastewater treatment and disposal for the next 20 years. As you know, Chatham has unique natural resources and natural beauty, and one of the goals of this Study is to protect these resources while providing a year-round economic base for many of our residents.

The members of the Citizen's Advisory Committee (CAC) were appointed by the Town to advise the Selectmen on the Study, provide citizen input and communicate information about the Study and its recommendations to Town residents and organizations. A full list of the membership and ex-officio participants is attached. The former represent all of the geographic areas of the Town and the latter various organizations with an interest in the project. We have met frequently with the Study's consultants from Stearns & Wheler and with the members of the Technical Advisory Committee (TAC), who represent key Town Departments (see the attached list).

The "Needs Assessment Report" was submitted to the CAC for review and comment and was the subject of a Joint Cape Cod Commission/MEPA Public Hearing on September 23, 1999. CAC members participated in the Public Hearing, listened to public comments and remarks by the Cape Cod Commission staff, then discussed these issues at two subsequent CAC meetings.

In general, we believe that "The Needs Assessment Report" provides a good framework for the next phase of work, the evaluation of alternative solutions. The report describes the issues the Town faces in managing nitrogen; establishes nitrogen loading and critical nitrogen loading values for each of the Town's embayments; lists the embayments that currently exceed proposed nitrogen loading limits or will do so under future conditions; reviews water supply issues; establishes wastewater areas of concern

(AOC); reviews available data on freshwater ponds and lakes; and articulates the results of "No Action."

CAC members were pleased by general reactions to the Study's conclusions as expressed at the Public Hearing. All citizens who commented at the meeting supported the goals of the study, and many urged more sampling and validation studies and more stringent controls on nitrogen discharge even in advance of the final Study recommendations.

Members of the CAC have endorsed the following comments on the Phase I Study:

1. **The CAC supports the Town's efforts to verify the data that is the basis for the flushing analysis.** Stearns & Wheler used a set of numbers provided by an earlier study to make the flushing calculations that resulted in establishing Areas of Concern. The consultants have indicated that they are not yet completely satisfied about certain discrepancies concerning the data. It is crucial to the accuracy and credibility of the Study that this issue be resolved to the satisfaction of the Town, the Cape Cod Commission and the community. If a third-party review of the data is called for, we endorse such a step.

2. **The CAC endorses the continued, phased implementation of the Town's Coastal Water Quality Monitoring Program.** Over time, the results of this program will permit Chatham to validate the findings of the Management Study. While the study is being completed and alternative solutions analyzed and discussed, these studies, conducted on a parallel track, will help build a valuable water quality database that will permit fine-tuning of solutions. In the interim, the Town will release the raw data through August of this year, as soon as Chatham receives it, since there is intense interest in Chatham in these figures. The full year analysis, however, will not be available until the end of this year, but this information will be incorporated in the Management Study as appropriate. It is our understanding that Town officials are committed to a thorough discussion of all of the issues associated with the monitoring. We are on record supporting the financial commitment the Town has made to this effort, and we also commend and thank the citizen volunteers and Friends of Chatham Waterways for their efforts.

3. **The CAC supports the Study plan to target the 300-foot area around Town freshwater ponds as a critical area for control of phosphorus loading**. It is too late in this season to collect data on the ponds since Fall turnover has already occurred. We suggest that the plan to target the 300-foot area be carried forward to the next phase of work while the Town plans and implements a sampling program to obtain dissolved oxygen profiles next summer. We will urge Selectmen to approve additional funds for this effort. This recommendation is in accord with the Scope of Work already approved by your office and the Cape Cod Commission and permits data collection to continue.

4. **The CAC has discussed comments made by the Cape Cod Commission on the report with the consultants and TAC members. In brief, we make the following comments on the CCC Proposals:**

- We understand that the Town and its consultants will review a sensitivity analysis of tidal dynamics and critical loads in the Taylor Pond/Mill Creek and Sulphur Springs/Bucks Creek. The outcome of this work will be reflected in the next phase report. AC
- Data on Stage Harbor from the Water Quality Monitoring Project will be reviewed and analyzed and compared to any new information that results from the review of the flushing analysis (see comment one above). AC & S&W priority
- In an effort to respond to the Commission's concerns about the need for further assessment of the quality and function of resources within coastal waters, the consultants will conduct a survey of available information on fish stocks and resources and other pertinent subjects for inclusion in the next phase. TOWN
- In response to Commission concerns about water quality and flow between Cockle Cove and the Town's treatment plant, the consultants will review water monitoring data currently being collected once a month and analyze the data set with respect to water flow and quality coming from the treatment plant and watershed. This information will be presented in the next phase of the report. AC
- In response to Commission concerns about water demand data, the consultants will include all available data from 1998 and 1999 (likely to be trends in pumpage) in an analysis for the next phase of the report.

The goal of the Citizen's Advisory Committee is to build consensus at each step in this process for an effective and affordable approach to managing our wastewater disposal needs. We believe that these comments support that goal.

Thank you for the opportunity to submit these comments. We look forward to receiving your Certificate on the Needs Assessment Study.

Very truly yours,

Fred Jensen

Fred Jensen, Chairman
For the Citizen's Advisory Committee

Cc: David H. Ernst, Cape Cod Commission
Selectmen, Town of Chatham
Chatham Town Manager
Chatham Board of Health
William Redfield, TAC Chairman

DATE: September 14, 1999

RE: Comprehensive Wastewater Management Plan
Citizens Advisory Committee (CAC)

The Following are Members of the CAC

	Areas Represented
Dede Lovett 122 Champlain Road Chatham, MA 02633 945-9031 Winter Address Mrs. Robert S. Lovett, II PO Box 3657 Greenville, DE 19807	Sears Point Area
Herbert F. Bernard 48 Tilipi Run Chatham, MA 02633 December-April 14 Steeple Trail Wayland, MA 01778 508-358-6660	Morris Island, Stage Island & Little Beach Area
Kevin J. Mikita 110 Round Cove Round Chatham, MA 02633 945-0613	North Chatham
Charles F. Pollard 1 Park Street New Canaan, CT 06840 203-966- Summer Address 54 Henshaw Drive Chatham, MA 02633 945-4665	Sewered Area
John V. Payson PO Box 270 West Chatham, MA 02669	At Large

John Randall 80 Round Cove Road Chatham, MA 02633 945-6162	At Large
Robert E. DePatie 525 Shore Road Chatham, MA 02633 945-7746	At Large
David P. MacAdam 52 School Street Chatham, MA 02633 945-9694	Old Village
Fred Jensen, Chairman CAC 110 Lake Shore Drive Chatham, MA 02633 945-3076 Fax: 945-3035	Central Chatham
Scott Tappan 259 Stage Neck Road Chatham, MA 02633 945-2279	Stage Neck
Philip A. Christophe 86 Meadowview Road South West Chatham, MA 02669 945-2670	West Chatham

Winter Address after Jan:

3450 Gulf Shore Boulevard
Naples, FL 34103
941-434-9753

<u>Ex Official Members</u>

Christopher Diego Chatham Bars Inn 297 Shore Road Chatham, MA 02633 945-6700	Chamber of Commerce

Tim Linnell PO Box 581 South Chatham, MA 02659	Shellfish Advisory Committee
Patricia Siewert 399 Cedar Street Chatham, MA 02633 945-3133	Friends of Chatham Waterways
William F. Schweizer 45 Medicine Bow Chatham, MA 02633 945-1051	Chatham Conservation Foundation
James Scott Sachemas Way Chatham, MA 02633 945-9108	Water & Sewer Advisory Committee

cd:cacmembers

Technical Advisory Committee(TAC)

William G. Redfield, P.E. 945-5150	Manager Water & Sewer Dept
Dr. Robert Duncanson 945-5188	Laboratory Director
Margaret Swanson 945-5168	Director of Planning & Development
Terry Hayes 945-5165	Health Agent
Theodore L. Keon 945-5185	Coastal Resources Director
Kristin Andres 945-5160 (Building Dept)	Chatham Conservation Commission

27 Young's Farm Lane
PO Box 1428
West Chatham, MA 02669

Cape Cod Commission
c/o Mr. Fred Jensen, Chairman
Comprehensive Wastewater Management
Citizens Advisory Committee
110 Lake Shore Drive
PO Box 861
West Chatham, MA 02669

September 23, 1999

Gentlemen:

The Final Needs Assessment Report for the Comprehensive Wastewater Management Planning Study dated August 1999 represents is a significant effort on the part of the Town, aimed at defining a solution for the Town's wastewater treatment and disposal for the next twenty years. It represents a cohesive compilation of data from many report sources and the judgment of the Town's operational staff and interested citizens. It is an important beginning to what is likely to be Chatham's and the Cape's biggest challenge for the twenty first century, water quality,- for drinking, recreation and maintenance of its estuaries and embayments.

However, a paper exercise is not enough. The study needs to go further. No needs evaluation is possible without data to validate the nitrogen loading assumptions made in the Final Report. In my letter of June 8, 1999, I noted the importance of validation data. The response to my concern was that we only had some data, it has not been evaluated, and it would take several years of data before any correlation between calculated and actual nitrogen loading could be made(see appendix M,page 15.).

That response was inadequate. Much can be done with preliminary data. In fact, at a presentation last night , Brian Howes from the Center for Marine Sciences and Technology, U of MA. with six months of data collected by the members of the Friends of Chatham Waterways unequivocally stated that Oyster Pond, Little Mill Pond, and Mill Pond were being affected by nitrogen, "large" algae blooms and as high as 4X reduction from normal in dissolved oxygen. He further stated that of the sixty areas that his lab was monitoring on the Cape the Stage Harbor

areas were among the most affected. The problem is significant enough to effect seed clam kill, scallop kill, eel grass reduction and even fish kill. The ramification of these finding is enormous.

These validation data suggest, contrary to the Final Report findings, that parts of Stage Harbor, if not the harbor proper maybe currently areas of concern. It was calculated that the flushing of the harbor would mitigate the nitrogen effects in the harbor and its subembayments but that does not appear to be the case at least for the period of April through September. This conflict needs to be explained.

The data further call into question the validity of the Final Report nitrogen loading calculations for Stage Harbor subembayments and perhaps the other areas of concern throughout the Town, as well. These preliminary test data need to be publicly analyzed and debated as soon as possible. It affects the very fabric of the Final Report.

It is clear to me that a well planned, town wide analytical program needs to be funded and implemented as a next step in the process. In my opinion it would now be nearly impossible to design solutions based on the final report as it stands. A validation study is now a must . I also believe that close oversight of the testing program by a citizens scientific and environmentalist panel is required as well in order to keep the citizens informed as the process moves along.

Yours truly,

Paul R. Kelley

Paul R. Kelley

Concerns About Buildout Projections in the *Final Needs Assessment Report*
Chatham's Comprehensive Wastewater Management Planning Study

Chatham's consultants, Stearns & Wheler, are estimating wastewater volume primarily by starting with the town's existing water consumption and projecting this by the estimated buildout of new bedrooms. My understanding of their methodology is that based on assumptions about buildout, they arrive at estimates of future water consumption and from this they make the calculation that 90% will become wastewater. Their subsequent calculations for arriving at nitrogen levels of wastewater flows are more complex and not within the scope of my comments.

In May I submitted several pages of questions and comments about Stearns & Wheler's buildout projections. Although presented in the form of questions, my comments all suggested that their buildout projections inadequately considered recent evidence of far greater buildout than they assumed. (See attached Memo "Questions Addressed to the Consultants.")

Among my criticisms of Stearns & Wheler's buildout projections were the following comments:

They did not use data from the Cape Cod Commission's December 1998 report about growth in retirement households;

They inappropriately assumed that new residential construction would be of 3-bedroom houses;

They used the Commission's early 1990s figures for the average number of new housing units per year instead of getting updated information from the town's building department;

They based projections solely on undeveloped properties without consideration of tear-downs and alterations to existing properties, all tending towards increases in numbers of bedrooms;

They did not calculate trends in making their projections.

Stearns & Wheler replied politely to these questions and comments and made no changes to their buildout estimates.

In rereading the *Assessment Needs* report, there is another area about which I have questions: the varying numbers provided about existing average, daily gallons-per-day of water use and the projected future numbers:

On Table 5-14, following page 5-49 the 1997 average annual millions of gallon per day is shown as 1.01.

On page 6-14 a table showing existing demand (but without any year provided) reports average annual gallons per day of 0.94.

This is a small difference, but because it is the basis for projected wastewater it would be desirable not to have ambiguity.

Projected gallonage is then calculated on the assumption that "any new property...is assumed to be built out with a three-bedroom house...[and] any existing property with an existing one or two-bedroom house is assumed to have an additional bedroom at buildout...[and] any property with three or more existing bedrooms...is assumed to have no additional bedrooms." (p. 6-13)

Although the consultants' conclude with a specific projection of 8,462 new bedrooms, the figures associated with the stated assumptions are not fully provided. On more than one occasion the consultants' report having made adjustments to current data after discussions with the Technical Advisory Committee but do not state just what these are.

> Example: "The [GIS] mapping was reviewed with the Town Planner, Tax Assessor, and Water Quality Laboratory Director to identify properties that could not be developed to this potential due to wetlands, road frontage limitations, and other site specific conditions." (p.6-6)

No figures are given for the number, or percentage, of such properties the Technical Advisory Committee determined could not be developed.

It may be that I am troubled as much, if not more, by the way Stearns & Wheler present their calculations than by their final projections. Tables sometimes lack dates and are without definitions for obtuse abbreviations. Information is often presented in a way that makes it more complicated than necessary to understand. For example it would be helpful if alternative approaches to estimated buildout were organized so figures could be compared within one table.

Rather than concluding with a specific buildout of 8,462 new bedrooms, it would seem more reasonable for Stearns & Wheler to have presented their projections in ranges. They could have projected a low and high range of buildout bedrooms based on low and high estimates of unbuildable lots, of bedrooms taken out by the Land Bank, and even of numbers of bedrooms per house. Chatham residents tend to have local knowledge of these issues and would be able to apply their judgments to the final estimates.

It may be that Stearns & Wheler's estimated 50% increase in average gallons of water consumed per day, at 2020 buildout, is entirely reasonable. Unfortunately if it is not correct, the link between this figure and the estimated volume of wastewater will make it difficult for any amount of subsequent work to produce a good plan. In conclusion, it is my request that before approving this estimate, it would be helpful if the Citizens Advisory Committee were to probe the assumptions behind this figure. Town residents need assurance that this estimate makes sense for Chatham's model wastewater management for the next 20 years.

September 22, 1999

Deborah S. Ecker

Memo to: Fred Jensen, Chairman, Chatham Citizens Advisory Committee, Comprehensive Wastewater Management Planning Study
From: Deborah Ecker, 70 Sears Point Road, Chatham (945-0515)
Date: May 28, 1999
Re: Questions addressed to the consultants about the "Draft: Needs Assessment Report for Comprehensive Wastewater Management Planning Study," April 1999"

This memo is in response to your suggestion that I take a hard look at the assumptions used in the "Needs Assessment Study." Although there is a great deal that is of interest in this report, I can only be useful in focusing on the population projections. As you know, these are of particular importance because they lead directly to water needs projections. The consultants then estimate the volume of Chatham's waste water by the simple calculation of 90% of water usage.

Because this report was done almost ten years after the 1990 U.S. Census, and because even the census cannot capture the numbers of seasonal residents and visitors, the projections on which the consultants base their population projections are those calculated by the Cape Cod Commission in *The Monomoy Capacity Study* (1996) for property build-out. The Report describes this as "The most comprehensive approach to projecting Chatham's year round population." (Report 6-8) This means that the assumptions used in the Commission's build out analysis and in the consultants' application of these figures to population estimates must be carefully scrutinized.

The consultants state that "An updated buildout analysis was performed as part of this Needs Assessment." (Report.6-6) In their update, the consultants reduced the Commission's estimates for residential properties and they change the basis on which commercial and industrial properties are reported so that the difference in the consultants' projections from the Commissions' are obscured and not documented. I have questions about this and also about the consultants' apparent nonconsideration of recent local data and of trend analysis.

Because of the importance of the *Monomoy Capacity Study* as the basis for the Report's population forecasts, my research began with a review of this study's work. My questions are not about the Commission's research but about how the consultants applied the Commission's data to the Report's population projections.

In the page references below, "Study" refers to *The Monomoy Capacity Study* and "Report" to the "*Draft: Needs Assessment Report.*"

I. *The Monomoy Capacity Study*

1. "Census data on seasonal housing confirms the trend toward year-round use of housing units. In almost all cases, the percentage of seasonal units has gradually decreased over the past four decades. (Study p.5)

"Based on the residential build out analyses, a year-round population projection for each town at build out is included..." The population projection is derived from the estimated number of residential units at build out, assuming that the percentage of year-round housing and the average number of people per year-round residential unit remains the same as that reported in the 1990 census." (Study p.15)

"The percentage of seasonally-occupied units in each town is derived from the 1990 U.S.Census, which identified the number of units vacant as of April 1 that were being held "for seasonal, recreational, or occasional use....The 1990 percentage of such units within the town's entire housing stock was applied to the 1995 estimated housing stock to derive the starting number of seasonal units." (Study p.132)

Questions: What assumptions do the consultants use in their estimates of seasonally vs. year-round occupied units? What are their estimates of seasonally occupied residences? Have they fully considered the increase in the number of retirees moving into town?

Did the consultants look at the December,1998 study by the Commission, *Understanding Cape Cod's Retirement Sector: An Economic Report?*

The following are some statements from this report on Cape Cod's retirement sector which apply to projecting a trend in Chatham for the share of seasonal homes vs. those with year-round occupancy:

> "At the 1997 'Cape Cod 2020' Conference, speakers projected that retirement, particularly by the baby boomers, would be one of the biggest forces for change on Cape Cod. The tens of thousands of second--home owners (11% of the Cape's economic base), many of whom are baby boomers, will be leading candidates to retire on the Cape in the coming years."
>
> "Cape Cod's population has grown at a more rapid rate than that of any other county in Massachusetts...The Cape and Islands have been the only counties in Massachusetts to have more people moving in than moving out. Cape residents over 65 years of age increased an estimated 14.6% from 1990 to 1997, far surpassing the statement average of 5.8% growth."
>
> "A large number of retirees on Cape Cod started on the path to relocating to the region by purchasing a vacation home during their working years...This trend is demonstrated by a 1998 Truro Non-Resident Taxpayer Association Survey of 90 vacation homeowners. The survey found that between one-third and two-thirds of vacation homeowners might sometime move to Truro full-time."]

2. "Scenarios for all three future years assume that future housing growth in each town will have the same split between seasonal and year-round occupancy as exists in the town today....In addition, a second scenario for the year 2015 reduces the percentage of seasonally occupied units by 50 percent in order to estimate the impact of a significant shift from seasonal to year-round occupancy." (Study p.132)

Questions: The Commission holds constant the shares of seasonal vs. year-round occupied housing until they apply a one time adjustment fact of 50 percent to the final year, 2015. Is this the way the consultants handle this issue in the Report?

Would the consultants consider modifying the Commission's build-out by using figures the Commission provides on Chatham's seasonal housing? These would allow for an adjustment in population numbers prior to 2015 which would be more accurate for the interim years. Chatham's seasonal housing:

1960 68.9% 1970 56.8% 1980 46.7% 1990 43.6%

Percentages of change:

60-70 -17.6% 70-80 -17.8% 80-90 -6.6%

Average decennial percentage of change 60-90 -14%]

The Commission gives many reasons for making an adjustment for the reduction in seasonal occupation and the lengthening of year-round.

"Though not recognizable in census data, a related trend has been the extended time in which 'seasonal' units are occupied. In the recent past, the seasonal period was considered to be two to three months long. Now it is considered closer to six months in length, taking into account the many holiday weekends in fall and spring in which seasonal housing units are used." (Study p.6)

3. "For this analysis, seasonal units are assumed to be occupied for four months of the year, and are assumed to have 3 occupants." (Study p.6)

Question: Have the consultants used this assumption of three occupants per seasonal unit? If yes, it is far too low and must be corrected. Many of us can report first hand on neighborhood rental properties with two and three family occupancies. Rental contracts routinely state anywhere from 6-12. The consultants should be able easily to confirm this with local realtors.

4. "Average annual residential and commercial/industrial growth rates for the study were derived from census data for the period 1985 to 1994. These growth rates are projected in the future in the fiscal and other analyses to estimate the amount of growth that will occur each year in each town, and thus to determine when certain resource capacity or financial limits may be reached." (Study p.6)

"The annual residential growth rate for each town represents the median number of housing units constructed in that town during the ten year period 1985 to 1994. The median number was chosen, rather than the average, in order to soften the extreme low and high development years experienced in this period. In the future development scenarios, the average annual growth in residential units in the Monomoy towns is assumed as [Chatham at 59 new units per year]. These represent overall residential units, a portion of which are assumed to be seasonal." (Study pp6-7)

Questions: The census data for 1985 and 1994 are estimates only. Can the consultants justify using these instead of growth rates based on the decennial census?

Did the consultants adopt this Commission number of 59 new units per year? If so, could they instead get more recent figures from Chatham building permits? Wouldn't producing a figure based on a trend be more useful in making a projection?

How do the consultants reconcile the number of 59 new units per year with their observation (Report 6-2) that between 1970 and 1987 there were "over 2000 new dwellings were constructed, a 52 percent increase during that seventeen year period"? This works out to an annual average of 117.6 houses -- twice the number the Commission uses and the consultants appear to have adopted.

In preparing research on Chatham's economy, I collected figures on Chatham's building construction for 1994. These clearly show the importance in Chatham of residential additions and remodelling as a factor when estimating population and water consumption. The number of new 1-family residences were reported as 43; additions to residential properties were 295 (excluding garages and carports). Could the consultants update these figures to get more recent indicators for their population/water consumption projections?

5. "The build out analysis looks specifically at zoning, not at market conditions. It is thus a measure of development potential, not demand, and does not address other factors which affect development potential...." (Study p.8)

Question: Would the consultants please look at what is happening to the Chatham real estate market? Looking only at zoning would not adequately take into account the current practice of developers' response to "market conditions" by building large, multi-bedroomed houses, even on small lots.

6. "The residential database was developed to show all developable parcels within the residential zones which are not used commercially (with the few exceptions described earlier.) There is little expectation for further multi-family development in the region, so the build out analysis for residential development assumes primarily single family unit development." (Study p.15)

Questions: Are the recently built multi-family units included in the consultants' projections or do they use the Capacity Study as their unmodified source? Recently, two multi-dwelling units were constructed by Chris Wise as congregate housing, and one by another developer, in North Chatham, as assisted living. Perhaps there are others. Do the developers think this could meanr more multi-unit use of residentially zoned property?

6. Existing and build out totals residential, commercial, and industrial properties, and percentages of change (Figure III-4, Study p.16)

	Commercial	Industrial	Commercial/ Residential	Multiple Housing	Single Fam. Residences
Existing	899399	134598	468	33	5593
Buildout	1551404	1832830	692	33	8047
Amt.Change	652005	1698232	224	0	2454
Percent Change	72%	1262%	48%	0%	44%

Note: Commercial and industrial figures represent square feet. Residential figures represent dwelling units.

Questions: What were the reasons for the differences in the buildout figures in the Report from these? Residential figures are lower; commercial and industrial are changed from square feet to properties so no comparison can be made. These changes are not explained.

Why are the percentages of change so much lower for industrial properties when the Consultants are making their estimates for water demand? ("Town Wide Average Annual Water Flows (Demand)," (Report 6-13) Presumably they are based on the Commission's build out estimates. Is this because the consultants assume that only one-third of the industrially zoned land will be developed? Is this reasonable?

II. Needs Assessment Report

1. "An updated buildout analysis was performed as part of this Need Assessment." (Report 6-6)

Question: What are their findings besides their "Summary of Land Use Buildout?" (Report 6-6) They outline the steps they took but provide no statements as to their findings from the update process. An example of this vagueness: "Land purchase by the Land Bank was considered over the next 20 years." (Report 6-7)

2. "The following table summarizes the total number of properties that will result at the buildout conditions...."

Questions: What are their reasons for the difference in a lower buildout for residential properties than *The Monomoy Capacity Study*? The Report shows 7758 residential properties at build out; the Study 8047.

The buildout in the Report presents commercial and industrial properties in terms of "properties." *The Monomoy Capacity Study* presented these properties in terms of square footage. Why did the consultants make this change? Presumably the Commission had good reasons for the way they did their build-out. What is the significance on Chatham's population and water projections the way the consultants did it?

relative to assumptions used in *The Monomoy Capacity Study*? For example, questions about

1) Seasonal occupancy of residences
2) Numbers of residents estimated for seasonal residences
3) Evidence of recent building permits for both new residences and alterations (generally expansions) of existing residences; impact of market on residential construction
4) Construction of multi-unit residential properties
5) Differences between the Commission's and the consultants' projections for total buildout

3. The MISER report "stated that Chatham had reached a peak year-round population of 6,579 in the year 1990 and projected a decline in population to 6068 by the year 2010." (Report 6-7) The consultants wisely rejected this source of population estimation which was apparently based on reported deaths exceeding reported births, illustrating the folly of choosing the wrong data and of not observing trends.

Question: Did the consultants consider that they too put the weight of their study on fixed numbers instead of data that could show trends? The weight of their population projections is based on existing zoning modified by the as yet not published, nor approved, Comprehensive Long Range Plan.

4. "The Monomoy Capacity Study is the most current and complete evaluation done to date, and their population projections for the year 2015 are utilized in this Needs Assessment Report. To reach the design year of 2020, the CCC trend was adopted and continued over this five-year period to reach the year 2020 year-round (census) population of 7903. This population is reduced by ten percent to estimate the minimum month population." (Report 6-8)

Questions. What is the connection between this population projection, said to have been adopted from the Commission report and the Consultants' changes to buildout projections?

Would the consultants explain more fully the ten percent reduction "to estimate the minimum month population"?

Would the consultants take another look at the Commission's population projections in consideration of the questions raised above such as the issues of seasonal use, occupancy, recent market evidence, building permits, etc.?

5. The consultants projected water demand based on their buildout analysis. "Additional future water flows were developed for the four major land uses....Residential flows were calculated using the number of additional bedrooms which would exist at buildout. Bedroom numbers were developed in the following manner:

> Any new property created by a subdivision of a previously developed or vacant property is assumed to be builtout with a three-bedroom house.
>
> Any existing property with an existing one or two bedroom house is assumed to have an additional bedroom at buildout ...
>
> Any subdivided property with three or more existing bedrooms (prior to the subdivision) is assumed to increase only the number of additional three bedroom homes added to the additional properties created during the subdivision."

Questions: Where did the consultants get their assumption that new houses would be built with three-bedrooms? There are large numbers of large numbered-bedroom houses being built in Chatham. The estimate for the numbers of bedrooms must be reworked.

These are critical estimates in the Needs Assessment. This residential population research must be carefully undertaken with every effort made to get the fullest, most recent, most accurate data.

6. "The buildout analysis projected 8,158 new bedrooms would be created in Chatham. These bedrooms are then multiplied by 50 gpd per bedroom equaling an additional 410,000 gpd of new water demand." (Report 6-12)

Questions. Did the consultants base their 50 gpd entirely on the town's water flow experience? If so, is the information the consultants included about the Commission's and DEM's water consumption data irrelevant?

III. Other

1. "Since the 1988 ["Growth Policy Plan"] was developed, Chatham has successfully achieved their initial goals in growth management." (Report 6-3)

Questions. What is the source of this judgmental conclusion? Does the CAC agree with this? If not, it should be omitted. For example, has there been "Land acquisition each year for conservation and resource protection?" (Report 6-2)

2. "In that time [between 1970 and 1987] over 2,000 new dwellings were constructed, a 52 percent increase during that seventeen year period. The majority of that growth was in the seasonal population and retired year-round residents...." (Report 6-2)

Question. Did the consultants who worked on the buildout, population, and water consumption projections consider this Chatham history reported in the opening paragraphs of the Report's "Future Conditions"? Perhaps they have, but their documentation does not show it.