

**PROJECT SCOPE AND WORK PLAN
COMPREHENSIVE WASTEWATER MANAGEMENT PLANNING PROJECT
AND ENVIRONMENTAL IMPACT REPORT
CHATHAM, MASSACHUSETTS**

INTRODUCTION

The Project Scope of Services was developed by the Wastewater Management Planning Citizens Advisory Committee (CAC) of the Town of Chatham (Town) as a detailed guide for the Town's wastewater planning effort. The Project Scope of Services was also developed as a description of engineering services to be provided by Stearns & Wheeler Environmental Engineers & Scientists (S&W) to the Town during the planning period.

The Project Scope of Services is divided into the following major sections:

- Phase 100 - Project Administration and Support
- Phase 200 - Scoping and Environmental Notification Form Filing
- Phase 300 - Needs Assessment
- Phase 400 - Development and Screening of Alternatives
- Phase 500 - Detailed Evaluation of Screened Alternatives

On the following pages, each of these major sections is introduced with a brief overview and then developed in detail.

The Comprehensive Wastewater Management Planning Project will result in five major submittals to the state and regional regulatory and management agencies for review and comment. These submittals include:

- ENF/DRI Documents
- Needs Assessment Report
- Supplemental Needs Assessment Report
- Draft Wastewater Management Plan and Environmental Impact Report
- Final Wastewater Management Plan and Environmental Impact Report

PHASE 100 - PROJECT ADMINISTRATION AND SUPPORT

OVERVIEW:

Project administration and support will be provided throughout the entire planning period. This work will include providing Project Management services, Coordination with Other Town Planning Activities, and providing Public Participation Support.

Task 101 - Project Management

101.1 Project Administration. Provide continuous project administration on a daily basis to manage Town's input from the Technical Advisory Committee (TAC), Citizens Advisory Committee (CAC), residents, and Board of Selectmen. In addition, the project will be managed to develop consensus of involved parties, including the DEP, MEPA Unit, and Cape Cod Commission. Develop budget information and time schedules for the project team for completing project tasks. Maintain records of background information, project management information, resources used for the project, report figures, environmental information, and public participation information, including agendas and presentation materials.

101.2 Project Work Plan. Prepare and submit to the Town within 30 days from the notice to proceed, an overall project work plan and project schedule detailing work activities, the sequence of events, key milestone dates, anticipated starting and completion dates, and the personnel allocations for work elements within the Scope of Services for each phase. The work plan shall also include proposed meeting dates and identify when input and/or information will be required by the TAC and CAC. Updates to the work plan and the project schedule shall be submitted within 15 days of the agreed upon revision period.

101.3 Monthly Invoices. Prepare and submit monthly invoices with supporting data to provide Town with information including:

- listing of personnel, including hours, rates, and expenses charged by each task
- total budget costs for each task
- budgeted costs utilized for current billing period for each task
- total budget costs used to date for current billing period for each task
- remaining budgeted cost for each task
- percent of work completed for each task
- overall budget status and percent of work completed for each phase.

101.4 Monthly Progress Report. Prepare and submit written monthly progress reports noting variations in the project budget and/or schedule and suggest corrective actions that should be taken. These project reports shall be submitted with the monthly invoices. The progress report will include:

- work completed for invoice period for which payment is being requested
- work scheduled for next billing period
- items or tasks requiring input from Town to complete tasks scheduled for the next billing period
- problems or issues that would impact project schedule or project budget.
- suggest possible changes in the progression of work to account for changed

conditions

recommendations for redirecting the Town's resources, if required.

101.5 Technical Reviews. Provide periodic technical reviews of work products in accordance with Stearns & Wheler's stated quality assurance/quality control policies. Project deliverables prepared by Stearns & Wheler's personnel and subconsultants shall be reviewed for consistency with project standards developed prior to the submittal to Town. Stearns & Wheler shall meet with members of the TAC or CAC to obtain input on consultant team performance.

101.6 Project Communication Records. Stearns & Wheler shall maintain project communication records, written or documented from telephone conversations and project meetings. These records shall include communications with, interested citizen groups, federal and state agencies, Cape Cod Commission, Barnstable County Health Department, and other municipalities and/or individuals with interest in this project.

101.7 Review Meetings. Stearns & Wheler shall prepare for and attend meetings as required during the review and approval process for the Environmental Notification Form (ENF), Environmental Impact Report (EIR), and Development of Regional Impact (DRI). Stearns & Wheler shall prepare a written summary of the meeting discussions and submit the summary to the TAC.

Task 102 - Coordination with Other Town Planning Activities

102.1 Coordinating with Town Groups. Stearns & Wheler shall coordinate wastewater planning activities with the activities and recommendations of other ongoing Town committees including the Long Range Planning Committee, the Stage Harbor Management Plan Implementation Committee, and the Pleasant Bay Resource Management Plan Committee.

102.2 Coordination Meetings. As directed by the TAC, Stearns & Wheler shall periodically meet with Town committees to discuss the progress of the project to present specific recommendations and receive comments. Prior to meetings with other Town committees, prepare meeting agenda and discuss with the Town's TAC. The level of effort to complete this task is based on attendance by the Stearns & Wheler's project manager and a project engineer at six 2-hour meetings during the preparation of the Town's Comprehensive Wastewater Management Plan.

Task 103 - Public Participation Support

103.1 Meetings and Workshops. Prepare agendas, attend meeting/workshops, and prepare and distribute brief written summaries of meetings/workshops with the following groups:

103.1.1 Monthly meetings with the TAC for the purpose of reporting progress, budget review, discussing alternatives, and deciding actions;

103.1.2 Coordinate the scheduling of and prepare materials for presentation at six (6) CAC meetings to be held throughout the project period. Material to be presented at each meeting shall be coordinated with the TAC and the designated CAC chairman.

103.1.3 Four (4) public meetings and one (1) formal public hearing with the Board of Selectmen. The public hearing shall be held following publication of the Draft CWMP / EIR (Task 502.6). The four (4) public meetings shall be held in accordance with the following schedule:

- Following completion of Environmental Notification Form (ENF) and Detailed Scope of Services (Task 202)
- Following completion of Draft Needs Assessment Report (Task 302.8)
- Following completion of Draft Alternatives Screening Analysis Report (Task 402.5)
- Following completion of Draft Wastewater Management Planning Alternatives Analysis Report (Task 501.5).

103.1.4 Conduct two 2-hour educational workshops for the CAC, early within Phase 100, for the purpose of presenting to CAC members an introduction of the basics of wastewater treatment and disposal, alternative collection systems, on-site technologies, and Title 5 Regulations.

103.2 Public Meetings. Prepare for and attend three (3) additional public meetings, some of which may be Town Meetings.

103.2.1 Prepare handouts and presentation materials for use by the TAC/CAC in preparing a warrant article or in making a presentation.

103.2.2 Attend meetings to provide technical support to address public concerns and issues raised at the meeting.

103.2.3 Following each meeting, prepare and submit a written summary for discussion at the next regularly scheduled TAC/CAC meeting, describing comments received and recommending actions to address comments and issues raised.

103.3 Assist the CAC with public education and involvement activities, including:

103.3.1 Preparation of Fact Sheets for distribution by Town.

103.3.2 Preparation of 3 public service announcements or equivalent effort.

103.3.3 Preparation for and Attendance at 3 live call-in radio events or equivalent effort.

103.3.4 Preparation of informational video or equivalent effort.

103.4 Revisions. Revise the Public Participation Program throughout the Project to reflect changes and submit revisions for review and approval by the CAC.

PHASE 200 - SCOPING AND ENVIRONMENTAL NOTIFICATION FORM FILING

OVERVIEW:

This Phase will consist of Collection and Review of available existing data on wastewater disposal conditions with Chatham. Next a detailed Scope of Services will be developed, and scoping sessions will be held with the Town, MADEP, CZM, CCC, and MEPA. Following this an ENF will be prepared and filed with MEPA, and the scope of Services will be modified as required by the Secretary of EOEAA' decision.

Task 201 - Data Collection And Review

201.1 Review and compile data available on existing wastewater treatment and disposal conditions from past studies and reports.

201.2 Review and compile available data on water consumption from the Chatham Water Department's billings and municipal well pumping records.

201.3 Mapping. Obtain and compile available base mapping for the purposes of presenting existing conditions (topographic, property limits, streets, physical features, environmental resources, etc.) and proposed alternatives.

201.3.1 Town shall provide Stearns & Wheler with planimetric and

topographic map coverage in AutoCad ver. 10 DXF format or its equivalent.

201.3.2 The project base map, and all overlays used during the study, shall be prepared and delivered to the Town by electronic format compatible for subsequent use in the Town's chosen GIS.

201.4 Obtain land use and zoning plans along with zoning regulations available from Town and review existing land uses, zoning delineations, and zoning regulations for impacts on future water consumption and wastewater disposal practices.

201.5 Obtain and review previous studies and available information on local and regional population and economic growth projections, noting both year-round and seasonal variations which reflect the growth issues uniquely associated with Chatham.

Task 202 - Development of Detailed Scope of Services and Preparation of the ENF and DRI

202.1 Prepare and apply to the CCC for a joint DRI/EIR review agreement.

202.2 Prepare ENF based upon the preliminary Scope as presented in Exhibit SR-A. Submit photo-ready original and six (6) copies to the TAC, distribute additional copies as required under 301 CMR 11.00. The ENF filed shall be suitable for the wastewater planning process, but not for a specific project, and shall include project specific procedures for evaluation and review.

202.3 Prepare for and attend up to three (3) scoping meetings with Town, DEP, MEPA, and CCC to develop a Draft Detailed Scope of Services, based upon this Scope, and to obtain environmental scoping decisions to be addressed during the study.

202.4 Submit 20 copies of the Draft Detailed Scope of Services to Town. Distribute additional copies to the DEP, MEPA, and CCC.

202.5 Incorporate the comments of DEP, MEPA, CCC, and Town (TAC/CAC) into Final Detailed Scope of Services. Prepare and submit to Town photo-ready original and 20 copies of a Final Detailed Scope of Services. Distribute additional copies to the DEP, MEPA, and CCC.

203.6 If necessary, negotiate with Town any modifications to Basic Services (Exhibit SR-A) of this agreement, including adjustment to project fees.

PHASE 300 - NEEDS ASSESSMENT

OVERVIEW:

Following acceptance of the ENF and agreement on the Detailed Scope of Services, work will proceed into this phase. This phase will consist of defining the wastewater treatment and disposal needs of Chatham. Needs will be defined by first describing the existing conditions and then developing future wastewater projections. The comparison of these two tasks will define the Town's wastewater needs. Progress meetings with regulatory and management agencies will be held to discuss technical and policy issues. Progress meetings will be scheduled during the development of the needs assessment prior to reports being finalized and submitted. This phase will result in the preparation of a Needs Assessment Report. This Report will be submitted to the TAC, CAC, DEP, and MEPA for their review and comments.

Task 301 - Description of Existing Conditions

301.1 Verify, update, and refine existing computerized land use maps prepared by the CCC (Town-wide) and by Whitman and Howard (water resource areas) using land use categories established by the CCC and Town's database.

301.2 Summarize existing land use, including presently sewered areas and geographic sub-areas in unsewered portions of the Town.

301.3 Review nitrogen loading analyses by zone of contribution for groundwater (public water supplies), and watersheds/sub-watersheds for fresh surface water resources and marine/estuarine resources. Review watershed delineations for the coastal embayments of Chatham made by the Cape Cod Commission as part of a Cape-wide project.

301.3.1 Public Water Supplies: Based upon the Zone II delineations and existing and future land use, calculate whether the nitrogen loading to the groundwater will exceed the Cape Cod Commission Regional Policy Plan limit of 5 mg/l nitrate nitrogen. In performing this calculation, Stearns & Wheler will use the Cape Cod Commission groundwater model.

301.3.2 Fresh Surface Waters: Review the nitrogen, phosphorus and coliform loadings to fresh surface waters.

301.3.3 Marine/Estuarine Resources: Review the results of the Comprehensive Harbor Management Plan (Stage Harbor Complex) and Ryders Cove/Pleasant Bay analyses. Perform nitrogen loading analysis to the Taylor Pond/Mill Creek area and Buck's Creek and comment on nitrogen loading analysis early in the study to ascertain whether existing or future

nitrogen loading may impact these two areas, and if portions of these watersheds should be considered for wastewater treatment technologies that remove nitrogen. Bathymetric sampling and survey of these two areas shall be performed and tidal flushing calculated. The tidal flushing in combination with recommended nitrogen loading limits developed by the Buzzards Bay Project shall be used to estimate critical nitrogen loadings to the marine/estuarine waters of Chatham. This critical nitrogen loading will be compared with existing and future nitrogen loading from the watersheds including Taylor Pond/Mill Creek area, Buck's Creek area, Stage Harbor Complex and the Pleasant Bay Complex to ascertain whether wastewater treatment technologies that remove nitrogen should be considered for these watersheds.

301.4 Existing Populations. Summarize and update the Town's population growth patterns for year-round, seasonal and visitor populations, noting what impact each of these groups has on the Town's water consumption and wastewater disposal needs. Review published population data and projections, including the Monomoy Capacity Study, which is the most recent report with population data and projections. The data and projections from recent reports shall be summarized collectively to demonstrate the historical trends and differences in projections. Interview knowledgeable groups in the Town, such as the Chamber of Commerce, to estimate visitor population. Compare data to water consumption and water pumpage data.

301.5 Summarize Existing Wastewater Disposal Practices

301.5.1 Areas of the Town shall be segmented by proximity to groundwater, soil conditions, expected wastewater flows, area within 100 feet of wetlands and/or mean high water elevations, availability of land, proximity to water bodies, and other variables which will be used to evaluate the future wastewater treatment and disposal needs of the various parts of Chatham.

301.5.2 Calculate present wastewater volumes being generated, including seasonal variations, quantifying both the annual volumes of wastewater and septage along with the estimated volume of leachate discharged into the groundwater. Volume shall be identified as domestic, commercial (including office), and industrial. Alternative categories may be used upon agreement of the TAC.

301.6 Existing Groundwater Conditions. Develop an assessment of potential impacts to environmental resources.

301.6.1 Based upon existing information, identify areas with groundwater quality problems including contamination by nitrogen, VOC's,

acidity, landfill leachate indicators, solvents and petroleum hydrocarbons and other pollutants.

301.6.2 Discuss environmental resources which could be impacted by existing or future groundwater quality problems.

301.6.3 Identify areas with high groundwater by analyzing Town supplied data.

301.6.4 Summarize the groundwater problems and issues at each identified groundwater quality problem area.

301.6.5 Identify any groundwater data gaps critical to preparing and understanding Town's wastewater needs.

301.7 Existing Environmentally Sensitive Areas. Identify and describe existing environmentally sensitive areas which could be impacted by wastewater disposal practices.

301.7.1 Delineate the zones of contribution of fresh surface, and coastal and estuarine water-bodies in conjunction with task 301.3.

301.7.1.1 Determine the areas of greatest uncertainty in the delineations and list them in terms of potential wastewater input and priority of impacted surface, and coastal and estuarine water bodies.

301.7.1.2 Make recommendations, as necessary, for additional data collection for those areas lacking sufficient information to make defensible delineations.

301.7.2 Characterize and discuss the extent of problems in ponds and other freshwater bodies, including wetlands, relevant to wastewater impacts on water quality resulting in degradation and/or contamination.

301.7.2.1 Describe the uses and importance of surface water bodies in the Town.

301.7.2.2 Identify and summarize surface water quality problems resulting from wastewater disposal, including bacterial contamination, eutrophication, toxics, and low dissolved oxygen. Areas to be reviewed include, but are not limited to,: Goose Pond, Emery Pond, Schoolhouse Pond, White Pond, Lovers Lake, Perch Pond, Stillwater Pond, and Cranberry Lane Pond.

301.7.2.3 Summarize the water quality issues and problems for each identified surface water quality area.

301.7.3 Characterize and discuss the extent of problems in coastal embayments and estuaries relevant to wastewater impacts on water quality resulting in degradation and/or contamination.

301.7.3.1 Identify the uses, and discuss the importance, of coastal and estuarine waterbodies to the economic viability of the Town and as a valuable natural environment for fisheries and wildlife.

301.7.3.2 Identify coastal areas closed to shell fishing due to poor water quality.

301.7.3.3 Identify and summarize water quality problems caused by wastewater disposal in coastal and estuarine waterbodies, including bacterial contamination, eutrophication, toxics, and low dissolved oxygen. Areas to be reviewed include, but are not limited to, Stage Harbor/Mill Pond/Oyster Pond complex, Sulphur Springs/Bucks Creek, Taylors Pond/Mill Creek, Ryders Cove, Crows Pond, Chatham Harbor/Pleasant Bay Complex, Muddy Creek, Frost Fish Creek.

301.7.3.4 Summarize the water quality issues and problems for each identified coastal embayment and estuarine water quality area.

301.7.4 Identify protected areas and the regulations which govern these areas.

301.8 Existing Geologic Conditions. Describe existing geologic conditions, from existing published information, focusing on how these conditions could affect wastewater disposal from on-site, centralized, and decentralized treatment facilities.

301.8.1 Evaluate soil suitability for wastewater disposal options for on-site, decentralized, and centralized treatment systems.

301.8.2 Discuss considerations and effect of soil and groundwater conditions on construction costs for subsurface facilities.

301.9 Existing Water Supplies. Summarize information on existing and future sources of public community and non-community water supplies. Characterize the extent of

seasonal and year-round use and reliability as it relates to potential impacts resulting wastewater disposal.

301.9.1 Update and summarize Town's future water supply demand, including seasonal variations.

301.9.2 Summarize the extent of demand and withdrawals from each source.

301.9.3 Summarize the ability of existing wells to meet the projected water supply need.

301.10 Regulatory Issues. Summarize State and Federal regulatory constraints as they relate to existing and alternative wastewater and sludge treatment and disposal methods.

301.10.1 Consult with appropriate State agencies to identify current and proposed regulations.

301.10.1.1 Discuss the Massachusetts Ocean Sanctuaries Act, Massachusetts Surface Water Quality Standards, and State designated Areas of Critical Environmental Concern as they relate to wastewater disposal.

301.10.1.2 Discuss the Massachusetts State Environmental Code, Title 5.

301.10.1.3 Discuss pertinent wetlands regulations.

301.10.2 Consult with USEPA, Corps of Engineers, FEMA, and other Federal Agencies, as appropriate.

301.11 Existing Centralized Wastewater System.

301.11.1 Describe existing wastewater treatment plant.

301.11.1.1 Summarize existing wastewater flows and loadings, including seasonal variations. Categorize wastewater flows and loadings for residential, commercial, industrial, institutional, infiltration and inflow, septage, and trap grease.

301.11.1.2 Summarize current studies, plans, designs and chemical analyses concerning septage and trap grease treatment, odor control, and the available redundancy for disposal of sludge, septage,

grease, scum, grit, and screenings. List current and future problems, volumetric limitations and planned solutions, based upon existing conditions.

301.11.1.3 Evaluate performance, condition, and operation of existing treatment facilities.

301.11.1.4 Evaluate overall existing plant performance, including biological and nitrogen control.

301.11.1.5 Evaluate hydraulic capacity of existing treatment plant components, including existing effluent discharge beds.

301.11.1.6 Assess performance, condition, and operation of individual plant components.

301.11.1.7 Identify O & M methods to optimize existing facilities.

301.11.1.8 Summarize existing studies and designs for sludge treatment. List current and future problems and potential solutions identified in these reports.

301.11.2 Describe existing wastewater collection systems, including sewers, pump stations, and force mains.

301.11.2.1 Summarize previous reports, designs, and recommendations of prior Wastewater Facilities Plans.

301.11.2.2 Summarize information on existing sewers.

- Tabulate age, pipe size and material, design life, design capacity, existing flows, and overflows based on available information.
- Determine the hydraulic capacity of the interceptor sewers and major trunk sewers.
- Review current operation and maintenance practices.

301.11.2.3 Summarize information on existing pump stations and force mains.

- Tabulate information on the pump station and force main systems, including location, design capacity, existing flows, pump controls, alarm systems, O & M costs, age, design life, and available capacity.
- Review and develop recommendations on current O & M practices, including odor control.

301.11.2.4 Summarize available information concerning infiltration / inflow (I/I) and exfiltration from the collection system.

- List primary impact areas of I/I and exfiltration.
- Summarize the impact of I/I and exfiltration on the capacity of the sewers, pump stations, and Treatment Facility.

301.11.2.5 Summarize required repairs or modifications to the existing wastewater collection system previously identified.

Task 302 - Development of Future Wastewater Projections and Needs

302.1 Compile and review available data on future projections of population, water consumption, and wastewater disposal volumes for Chatham, addressing year-round residential, seasonal residential, and visitor populations, as well as retail and commercial components. Update and revise as necessary in consultation with local and regional (CCC) officials.

302.1.1 Prepare a computerized land use map showing ultimate and maximum build-out of lands in Town using present zoning delineations and regulations.

302.1.2 Prepare tables summarizing land use and population at build-out both Town-wide and by water quality problem areas.

302.1.3 Calculate wastewater volumes to be generated at build-out both Town-wide and by water quality problem areas. Volumes shall be identified as domestic, commercial (including office), and industrial. Alternative categories may be used upon agreement of the TAC. Estimates of future weekend population wastewater flow shall be developed.

302.1.4 Projections of marine pump-out volumes shall be made by 5-year increments thirty years into the future, taking into account the Town's efforts at establishing "No-Discharge Zones" in critical waterbodies.

302.1.5 Provide estimates of future projections for weekend populations and associated wastewater disposal volumes.

302.2 Coordination with Town Agencies and Plans. Discuss future projections and their implications with the Board of Selectmen, TAC/CAC, the Long Range Planning Committee, and the Cape Cod Commission citing any differences with the Town's stated Growth Policy Plan and long-term growth objectives.

302.3 Areas Needing Corrective Action. Identify and prioritize areas of Town in need of any corrective actions for proper wastewater treatment and disposal due to existing and/or projected wastewater flows.

302.4 No Action Alternative.

302.4.1 Identify areas of Town (Non-problem Areas) where the DEP goal of full compliance described in 310 CMR 15.404 (1) can be achieved and where sensitive environmental receptors will not be impacted. Include anticipated costs to property Towns of upgrading their individual, on-site systems to comply with the latest revision of Title 5.

302.4.2 Indicate where "raised systems" would be required in order to comply with depth to groundwater requirements.

302.4.3 Describe alternative on-site systems as contained in 310 CMR 15.000 which would be required for DEP approval of on-site systems in the non-problem areas.

302.4.4 Identify Problem Areas of Town where full compliance cannot be achieved and describe actions required under 310 CMR 15.404(2) and 15.405 for approval of upgraded Title 5 systems, discussing the physical feasibility as well as the economic feasibility of upgrade costs. The economic feasibility shall focus on the anticipated restricted or loss of business activities (fewer seats in restaurants or closed rooming establishments) which would result if no upgrade approval is given.

302.4.5 Identify problem areas of Town where existing non-

conforming systems cannot comply with 310 CMR 15.404 and 15.405(1) and where either a tight tank or a variance, as described in 310 CMR 15.410 through 15.415, or some means other than individual, on-site systems will be required.

302.4.6 Identify areas of Town where the continued use of on-site systems, even though in compliance with Title 5, will result in impacts to environmentally sensitive receptors.

302.5 Identify and summarize environmental issues and known water quality problem areas in Chatham as follows:

302.5.1 Groundwater resources;

302.5.2 Ponds and Surface waters; and

302.5.3 Coastal and Estuarine waters.

302.6 Facility Issues. Identify and summarize facility issues, siting requirements, advantages and disadvantages for the following wastewater treatment and disposal options:

302.6.1 Individual, On-Site Treatment Systems;

302.6.2 Decentralized and/or Group/Cluster Treatment Systems treating flows less than 10,000 gpd (Title 5 regulated);

302.6.3 Decentralized and/or Group/Cluster Treatment Systems treating flows greater than 10,000 gpd (non-title 5 Systems); and

302.6.4 Centralized Collection and Conventional Treatment Systems.

302.7 Economic, Institutional and Regulatory Issues. Identify and summarize economic, institutional, and regulatory issues and problem areas with respect to the implementation of any proposed wastewater management facilities plan, including:

302.7.1 Town Growth Policy;

302.7.2 Residential/Commercial Redevelopment;

302.7.3 Economic Development;

- 302.7.4 Zoning;
- 302.7.5 Regulatory Compliance and/or Variance;
- 302.7.6 User Charges/Fiscal Resources;
- 302.7.7 Open Spaces and Natural Resources; and
- 302.7.8 Sewer Use Regulations

302.8 Submittal of Draft Report (Local Review). Prepare and submit to the Town one (1) unbound set of reproducible originals along with twenty (20) copies of a Draft Wastewater Management Planning Needs Assessment Report, summarizing findings and conclusions. The draft report shall document the existing wastewater treatment and disposal conditions within the Town of Chatham, and shall outline the future wastewater treatment and disposal needs for the 20-year planning period.

302.9 Review Comments. Review written comments received from the TAC, CAC, and the Board of Selectmen and meet with the TAC/CAC to resolve comments received.

302.10 Public Meeting. Prepare for and conduct a Public Comment Meeting for the purpose of discussing the Draft Wastewater Management Planning Needs assessment Report and receiving public comment. Public comments received shall be recorded and noted or addressed in a written Public Comments Summary, twenty (20) copies of which shall be submitted to the Town.

302.11 Submittal of Draft Report (Regulatory Review). Following submittal by Town of the Draft Wastewater Management Planning Needs Assessment Report and Public Comments Summary to the CCC, DEP and MEPA Unit, meet with CCC, DEP, MEPA, and TAC representatives to discuss and resolve comments on the draft report.

302.12 Final Needs Assessment Report. Prepare and submit to the Town one (1) unbound set of reproducible originals along with twenty (20) copies of a Final Wastewater Management Planning Needs Assessment Report, revised to incorporate comments as agreed upon with the TAC, CAC, CCC, DEP, and MEPA Unit. Include an appendix to the report containing public comments received.

302.13 Additional Information. Determine and summarize additional information needs to address comments received and to continue the next phase of the project.

302.13.1 Any informational needs, including a refined draft scope for the next phase, shall be submitted in a letter report to the Town for submittal

to the DEP and/or MEPA Unit.

302.13.2 Additional study costs shall be presented in the letter report, with negotiations conducted with the Town to determine revisions that may be needed to the scope of services and engineering agreement.

PHASE 400 - DEVELOPMENT AND SCREENING OF ALTERNATIVES

OVERVIEW:

This phase will identify and develop potential alternative wastewater management technologies and plans for the Problem Areas (s) in Chatham. Potential alternative technologies and plans will be screened using a matrix evaluation methodology and criteria acceptable to the Town, DEP, CCC, and the MEPA Unit. The result of this phase will be a group of feasible alternative wastewater management plans which will be further evaluated in more detail in the next phase.

Progress meeting will be scheduled and held with regulatory and management agencies and the Town during this phase to discuss technical and policy issues. This phase will culminate in the preparation of a Screening Analysis Report to be submitted to the CAC, DEP, CCC, and MEPA for review and comment.

Task 401 - Identification and Development of Alternatives

A list of conventional technologies and innovative and alternative treatment technologies (whether or not they are permitted under MADEP Title 5 or other MADEP regulations) will be developed with the CAC and TAC. Upon acceptance of the list of technologies, screening of these alternatives for the Problem Area(s) and Potential Problem Area(s) of Chatham shall be performed.

401.1 Delineation of Problem Areas. Delineate problem area(s) of Town where individual, on-site systems cannot conform with current Title 5 regulations or cannot provide adequate protection to sensitive environmental receptors. Prepare a summary spreadsheet.

401.1.1 Identify existing non-conforming systems and describe modifications required to make them conforming. Include in problem areas any "raised septic system" which pose potential safety or aesthetic problems to the surrounding area.

401.1.2 Describe variances and/or regulatory modifications to current Title 5 regulations which would be required in order for these systems to receive DEP approval.

401.1.3 Describe the expected long-term environmental impacts associated with continued use of individual, on-site systems in these non-conforming, problem areas. Local conditions for each of the Problem Areas and Potential Problem Areas shall be developed. Information on physical site conditions, demographics, wastewater generation, environmental impacts, and existing on-site systems shall be included.

401.2 Decentralized Treatment and Disposal Alternatives. For identified problem areas of the Town, identify and develop decentralized treatment and disposal alternative plans (including screening of sites), including:

401.2.1 Alternative systems, as defined in 310 CMR 15.282, for remedial use of either individual or group/cluster systems. Flow reduction measures, such as composting toilets, and grey water disposal systems, shall also be considered as part of these treatment and disposal alternatives;

401.2.2 Group/Cluster disposal systems located on public lands, in public rights-of-way, and/or on private lands with public access;

401.2.3 Multiple, package biological secondary and/or advanced wastewater treatment systems located on public lands; and

401.2.4 Combinations of any of the above alternative technologies.

401.3 Centralized Treatment and Disposal Alternatives. For problem areas of Town with flows greater than 10,000 gpd where potential economies of scale exist, identify and develop centralized conventional treatment and disposal alternative plans, including:

401.3.1. Wastewater treatment and effluent disposal on common site;

401.3.2. Wastewater treatment and effluent disposal on separate sites;

401.3.3 Effluent disposal to surface water;

401.3.4 Effluent recycling, deep well injection, and/or other groundwater discharge technologies shall be considered in all alternatives.

401.4 Collection System Alternatives. Identify and develop collection system alternative technologies for centralized and decentralized alternatives, considering as appropriate:

401.4.1 Pressure sewers - Septic tank and Effluent Pump (STEP) type;

- 401.4.2 Pressure sewers - Grinder Pump (GP) type;
- 401.4.3 Vacuum systems;
- 401.4.4 Small Diameter Gravity sewers (SDGS);
- 401.4.5 Conventional collection and pumping systems; and
- 401.4.6 Trenchless Technologies.

401.5 Residuals Disposal Alternatives. Identify ultimate alternative disposal plans for residuals in an environmentally acceptable manner for all alternatives, including:

- 401.5.1 Septage only;
- 401.5.2 Septage and Treatment Plant Residuals;
- 401.5.3 Treatment Plant Residuals only; and
- 401.5.4 Develop redundancy requirements for all residual disposal alternatives.

401.6 Flow and Loading Reduction Measures. Identify flow and load reduction measures, including:

- 401.6.1 Pricing policies for future water and wastewater services;
- 401.6.2 Plumbing code enforcement of low flush toilets;
- 401.6.3 Installation of composting toilets, including incentives and public convenience stations;
- 401.6.4 Water reuse and recycling of large volume users;
- 401.6.5 Segregation of greywater; and
- 401.6.6 Inflow/Infiltration reduction of the existing collection system.

Task 402 - Screening of Alternatives

402.1 Develop an evaluation matrix screening methodology to screen the various alternative locations and technologies for wastewater treatment and disposal, including residuals disposal. The Matrix will include the following factors:

- environmental factors
- legal, administrative, and financial criteria
- relative costs (+/- 25 percent) on an annual cost basis
- potential energy use
- flexibility to handle peak flows during tourist seasons
- effluent quality
- the need for special regulatory requirements or modifications to existing Town policies or regulations
- the potential for odors
- land requirements
- anticipated public acceptance
- ease for implementation
- potential for promoting additional water consumption
- anticipated maintenance requirements
- complexity of operation.

402.2 Discuss with the TAC/CAC and modify as necessary the evaluations matrix screening methodology prior to submitting the proposed methodology to the DEP and MEPA Unit for approval.

402.3 Screen the identified alternative technologies using the agreed upon evaluation matrix methodology and present to the TAC/CAC three (3) alternatives for further evaluation, in addition to the No Action alternative.

402.3.1 Systems judged to be not cost-effective shall be eliminated.

402.3.2 Up to 10 alternative plans may require additional study, including combinations of:

- on-site - individual (including composting toilets)
- decentralized - group/cluster treatment
- decentralized - package wastewater treatment

- centralized - conventional wastewater treatment
- collection systems - alternative sewers
- collection systems - conventional sewers
- solids handling and disposal - septage only
- solids handling and disposal - septage and treatment plant residuals
- solids handling and disposal - treatment plant residuals only.

402.4 Discuss screening of alternative technologies and plans with the TAC/CAC and select alternative plans to receive more detailed evaluation.

402.5 Prepare and submit to the Town one (1) unbound set of reproducible originals along with twenty (20) copies of a Draft Alternatives Screening Analysis Report, summarizing all findings and conclusions. The draft report shall document the methodology used to screen the identified alternative plans and shall fully describe the alternatives which will receive more detailed analysis in the next phase.

402.5.1 Prepare report sized figures of screened alternative plans, conceptually depicting the various alternatives on GIS base mapping.

402.5.2 Develop numbering system for combinations of alternative plans for subsequent use in detail evaluation phase.

402.6 Review written comments received from the TAC, CAC, and the Board of Selectmen and meet with the TAC/CAC to resolve comments received.

402.7 Prepare for and conduct a Public Comment Meeting for the purpose of discussing the Draft Alternatives Screening Analysis Report and receiving public comment. Public comments received shall be recorded and noted or addressed in a written Public Comments Summary, twenty (20) copies of which shall be submitted to the Town.

402.8 Following submittal by the Town of the Draft Alternatives Screening Analysis Report and Public Comments Summary to the CCC, DEP and to the MEPA Unit, Meet with CCC, DEP, and MEPA representatives to discuss and resolve comments on the draft report.

402.9 Prepare and submit to the Town one (1) unbound set of reproducible originals along with twenty (20) copies of a Final Alternatives Screening Analysis Report, revised to incorporate comments as agreed upon with the TAC, CAC, CCC, DEP, and MEPA Unit, and including an appendix containing public comments received.

402.10 Determine and summarize any additional information needs, if necessary, to

address comments received and to continue the next phase of the CWMP.

402.10.1 Any informational needs, including a refined draft scope for the next phase, shall be submitted in a letter report to the Town for submittal to the DEP and/or MEPA Unit.

402.10.2 Additional study costs shall be presented in the letter report, with negotiations conducted with the Town to determine revisions that may be needed to the Scope of Services and Engineering Agreement.

PHASE 500 - DETAILED EVALUATION OF ALTERNATIVES AND RECOMMENDED PLAN

OVERVIEW:

This phase will provide a detailed evaluation of the screened alternative technologies and plans for cost benefit and environmental analysis. The alternative wastewater technologies and plans will be evaluated using a matrix evaluation methodology and criteria acceptable to the Town, DEP, CCC, and the MEPA Unit. The result of this phase will be a recommended plan for the future wastewater treatment and disposal facilities within the Town.

Progress meetings will be scheduled and held with regulatory and management agencies and the Town during this phase to discuss technical and policy issues. This phase will culminate in the preparation of a Draft Comprehensive Wastewater Management Plan and Environmental Impact Report to be submitted to the CAC, DEP, CCC, and MEPA for review and comments. After the comment period, the Report will be revised to address the comments received, and the Final Comprehensive Wastewater Management Plan and Environmental Impact Report will be prepared and submitted to the CAC, DEP, CCC, and MEPA Unit.

Task 501 - Detailed Evaluation of Screened Alternatives

501.1 Develop layouts and quantities of screened alternative plans, showing locations, system components for collection, treatment, effluent disposal, and solids handling.

501.2 Perform an analyses of screened alternative plans, including:

501.2.1 Technical/Environmental impacts, including appropriate geohydrologic considerations;

- 501.2.2 Comparative costs (capital, Operation and Maintenance, and energy);
- 501.2.3 Capital financing (input provided by the Town);
- 501.2.4 Secondary non-monetary impacts on resources and utilities;
- 501.2.5 Impact on user fees and tax base (input provided by the Town);
- 501.2.6 Impacts on town's growth management strategy (input provided by the Town);
- 501.2.7 Implementability (input provided by TAC/CAC); and
- 501.2.8 Reliability of system operations.

501.3 Update the evaluation matrix used in Phase 400 screening with the detailed information developed from the above analysis.

501.4 Discuss the evaluation matrix and alternatives analysis with the TAC/CAC, modifying as needed prior to preparing a written Wastewater Management Planning Alternative Analysis Report.

501.5 Prepare and submit to the Town one (1) unbound set of reproducible originals along with twenty (20) copies of a Wastewater Management Planning Alternatives Analysis Report, summarizing the cost-effectiveness analysis and matrix evaluation. The report shall document the findings of the detailed evaluations of alternative plans and shall fully describe the alternative wastewater management plan(s) considered for recommended approval.

501.6 Review written comments received from the TAC, CAC, and Board of Selectmen and meet with the TAC/CAC to resolve comments received.

501.7 Prepare for and conduct a Public Comment Meeting for the purpose of discussing the Wastewater Management Planning Alternatives Analysis Report and receiving public comment. Public comments received shall be recorded and noted or addressed in a written Public Comments Summary, twenty (20) copies of which shall be submitted to the Town.

501.8 Following submittal by the Town of the Wastewater Management Planning Alternatives Analysis Report and Public Comments Summary to the CCC, DEP, and MEPA, meet with Town, CCC, DEP, and MEPA representatives to discuss and resolve comments on the draft report.

501.9 Following resolution of comments, meet with the TAC, CAC and the Board of Selectmen to select the Recommended Plan.

Task 502 - Development of the Recommended Plan

502.1 Prepare a detailed description of the recommended plan for the future wastewater treatment and disposal of all wastewater discharged within the Town of Chatham, including:

- 502.1.1 Estimated and defined wastewater flows and loads;
- 502.1.2 Recommended treatment processes and expected performance;
- 502.1.3 Proposed facility and system component layouts;
- 502.1.4 Recommended effluent disposal methods;
- 502.1.5 Recommended residual disposal plan, as appropriate for septage, scum and grease, grit, screenings, and sludge;
- 502.1.6 Detailed capital cost estimate (+/- 10% level of accuracy);
- 502.1.7 Detailed Operation and Maintenance cost estimates;
- 502.1.8 Recommendations for future monitoring and enforcement programs;
- 502.1.9 Descriptions of legal/management/institutional issues and associated costs;
- 502.1.10 Description of financing and user charge recommendations, including possible state funding assistance; and
- 502.1.11 Description of management issues including public and private Township and operations responsibilities.

502.2 Prepare a brief description of additional recommended facilities, such as:

- 502.2.1 Additional marine pump-out facilities to service the needs of commercial and recreational boaters;

502.2.2 Additional public toilets to serve the needs of Chatham’s daily visitors, including recommendations as to type (water conserving, composting, or other) and location.

502.3 Prepare a detailed description of the recommended additions and modifications to existing and proposed local regulations, including:

502.3.1 Obtaining input and assisting the Town with recommended modifications (if necessary for wastewater management) of:

- zoning by-laws
- wetlands protection by-laws
- Board of Health regulations
- Town Local Comprehensive Plan
- Town charter and by-laws
- sewer connection policy
- sewer use regulations.

502.3.2 Septage and grease trap management;

502.3.3 Institutional coordination; and

502.3.4 Permits and licenses.

502.4 Assist the Town with modifications or variances to MADEP Title 5 regulations and/or design standards.

502.5 Develop Project Implementation Schedule for the recommended plan including:

502.5.1 Assisting the Town with identifying major implementation milestones.

502.5.2 Assisting the Town with institutional requirements.

502.5.3 Assisting the Town with implementation steps, including ranking of recommended capital projects and development of the scope of services for the design and construction services phases; and

502.5.4 Determining financing requirements.

502.6 Prepare and submit to the Town one (1) unbound set of reproducible originals along with twenty (20) copies of a Final Comprehensive Wastewater Management Plan/Environmental Impact Report, revised to incorporate comments as agreed upon with the TAC, CAC, CCC, DEP, and MEPA, including an appendix containing public comments received.

502.7 The final plan shall represent a joint Comprehensive Wastewater Management Plan/Environmental Impact Report document which shall satisfy requirements of the Town, DEP, MEPA, and CCC.

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