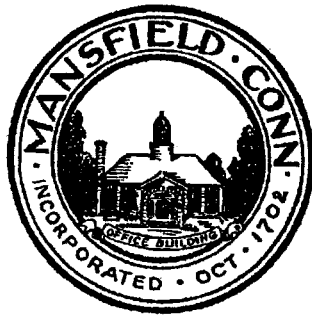


DRAFT

**Four Corners Area
Wastewater Facilities Plan**

for the

Town of Mansfield, Connecticut



January, 2008

Prepared by:

***EARTH TECH
655 Winding Brook Drive, Suite 402
Glastonbury, Connecticut***

J.N. 94294

EarthTech

A Tyco International Ltd. Company

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FOUR CORNERS AREA WASTEWATER FACILITY PLAN

EXECUTIVE SUMMARY

Over the years wastewater disposal difficulties have been reported in the Four Corners area of Mansfield and studies have been prepared in an attempt to resolve these difficulties. The purpose of this Facilities Plan is to study and confirm the need for wastewater collection facilities and as appropriate determine the best means for wastewater disposal in the Four Corners area over the twenty year planning period from 2010 to 2030.

The tasks that were conducted in the study include evaluating the existing conditions in the study area, developing future wastewater flow estimates, investigating alternative wastewater conveyance and disposal options and developing a recommended plan to support existing and anticipated development in the planning area consistent with the Town's Plan of Conservation and Development.

Development within the study area currently relies exclusively on individual subsurface wastewater disposal systems for disposal of sanitary wastes with varying degrees of success. A review of prior studies, regulatory agency records, wetlands maps, soils mapping data, zoning regulations, conservation and development plans, sensitive environmental area data and a field walk through survey was performed as a part of this facilities planning effort. This investigation determined that numerous properties have had, and continue to have, chronic wastewater disposal difficulties due to a combination of density of development, lot size, or site constraint factors. Some of the properties within the study area have lot sizes or configurations that do not allow sufficient room to site a water supply well and a septic tank absorption field in conformance with Connecticut Department of Health technical standards. Other parcels have existing development densities that cannot be supported within the parcel's site constraints. Continued reliance upon onsite subsurface wastewater disposal systems will result in continued exposure of the public to the health hazards associated with exposure to untreated wastewater, degradation of surface waters, severe limitations for potential development, and a failure to provide for tax base growth due to the inability to capitalize on potential commercial and higher density residential economic development opportunities.

To evaluate future wastewater treatment and disposal system needs over the 20 year planning period, historic trends in the study area, available land and other factors affecting residential, commercial, and industrial development, water uses, and population growth, were all considered. Wastewater flows are projected to increase from approximately 47,000 gallons per day to 170,000 gallons per day over the twenty year planning period.

This study then evaluated a number of wastewater treatment and disposal alternatives that are capable of reliably and cost effectively meeting the wastewater disposal needs in the study area. Collection system alternatives considered included traditional gravity sewer collection systems in combination with pumping station(s) and force main(s) as needed, pressure sewers, and vacuum sewers. Community or centralized wastewater treatment alternatives considered included subsurface wastewater disposal systems serving multiple properties or communities, small pre-engineered packaged wastewater treatment facilities, and connection to a centralized wastewater treatment facility such as the University of Connecticut wastewater treatment plant. The most feasible and cost effective methods of wastewater collection and disposal were determined to be a traditional gravity sewer collection system transporting wastewater flows for disposal at the University of Connecticut wastewater treatment plant.

Three collection system alternatives were developed for this study with estimated costs ranging from \$5.10 to \$5.43 million dollars.

The selected plan, which is the lowest cost alternative, includes a gravity sewer collection system serving the Four Corners community sewer service area, a wastewater pumping station, and a force main to convey the wastewater from the pumping station to the existing University of Connecticut wastewater collection and treatment system.

Approval of the project by various municipal and state regulatory and governmental agencies is required.

It will take approximately 26 months from the date of project initiation to design and construct the new facilities.

I. INTRODUCTION

A. FACILITIES PLANNING - PROJECT OVERVIEW

A Facilities Plan is a comprehensive document that identifies current wastewater disposal practices and evaluates the best means for long term wastewater disposal within a planning area. Facilities' planning is the first phase in a three phase process whose goal is to adequately provide for reliable, environmentally responsible, and cost effective wastewater disposal throughout the planning area. The second phase of the process is the preparation of detailed design plans, specifications, and construction documents for the needed facilities identified in the Facilities Plan. The third part of the process is the construction, placement into operation, and maintenance of those facilities.

Over the years wastewater disposal difficulties have been reported in the Four Corners area of Mansfield and studies have been prepared in an attempt to resolve these difficulties. The purpose of this Facilities Plan is to study and confirm the need for wastewater collection facilities and as appropriate determine the best means for wastewater disposal in the Four Corners area.

In accordance with regulatory agency standards, the useful life expectancies for this study have been established as 50 years for pipelines and structures and 20 years for mechanical equipment. The base year, defined as the year that facilities constructed as a result of this planning effort would be expected to be completed, is established as 2010 for this study and the planning period has been established as 20 years or through the year 2030.

B. PREVIOUS STUDIES

Engineering studies have been performed in the past and have addressed various wastewater disposal system needs for the Four Corners area of the Town of Mansfield. These reports have been utilized as applicable within this Facilities Plan. Relevant reports are listed below:

- 201 Facilities Plan Supplementary Study, Town of Mansfield Department of Public Works, 1985.
- University of Connecticut Storrs, Connecticut, Wastewater Facilities Pre-Design Study BI-D-835, Whitman & Howard, Inc., April 1992.

C. FACILITIES PLAN ORGANIZATION

This Facilities Plan has been organized to be compatible with the Facilities Planning guidance document entitled "Construction Grants 1985" (CG-85) published by the United States Environmental Protection Agency (USEPA) and includes CTDEP updates. This guidance document is accepted by the Connecticut Department of Environmental Protection (DEP) as a format to be followed in all Facilities Plans.

A brief description of the chapters contained herein is described below.

Chapter 1 provides background information relative to the facilities planning process, describes the organization of the Plan, and provides a list of previous studies that provide data and information relative to this Plan.

Chapter 2 presents information relative to the current and future water quality objectives for the planning area.

Chapter 3 identifies information on the physical, environmental and demographic conditions that may have a bearing on the conclusions drawn by this Plan.

Chapter 4 establishes the future wastewater flows based upon population projections, anticipated development patterns, and discusses the waste disposal needs of the study area. Flow rates and loadings for the planning period are established.

Chapter 5 details and evaluates the wastewater alternatives available to meet this future needs and identifies those alternatives that warrant further investigation.

Chapter 6 presents the assessment of the direct and indirect environmental impacts associated with any planned construction activities. This would include effects on air quality, noise, traffic, wetland impacts, secondary impacts, surface and groundwater quality and the establishment of mitigating measures, if necessary.

II. WATER QUALITY OBJECTIVES

A. FEDERAL AND STATE REGULATIONS

The enactment of the Federal Clean Water Act in 1972 and its Amendment in 1987 established the basis for control of water pollution in the nation's waterways and for estuaries such as Long Island Sound. Section 303(d) of this Act requires all States to identify those water bodies that do not meet water quality standards. New York and Connecticut have identified Long Island Sound as being water quality limited and, therefore, a priority for development of a total maximum daily load, or TMDL, of pollutants. In the case of Long Island Sound, a TMDL for nitrogen has been established for the entire Sound.

B. STATE WATER QUALITY GOALS

Section 22a-426 of the Connecticut General Statutes further requires the State of Connecticut to adopt standards of water quality for all state waters, both surface and ground waters. These water quality classifications establish the designated uses for all waters and establish goals for water quality improvement. The surface water that is impacted by these regulations, in the case of the Four Corners Area of the Town of Mansfield, is the Cedar Swamp Brook. The existing and proposed water quality classification for the Cedar Swamp Brook is "Class A". Class A surface waters are designated for habitat for fish and other aquatic life and wildlife, potential drinking water supplies, recreation, navigation, and water supply for industry and agriculture.

The State of Connecticut surface water quality standards also provide for the maintenance and protection of water quality in high quality waters and protection and maintenance of existing uses in all cases. Discharges from municipal or industrial wastewater treatment systems to Class A surface waters are prohibited by the State of Connecticut Department of Environmental Water Quality Standards.

C. AVAILABILITY OF FUNDING

The State of Connecticut has a revolving grant/loan program whereby a 20% grant is made available to municipalities for the design and construction of wastewater facilities for removal of pollutants from wastewater. A 30% grant is available for all construction relating to nitrogen removal. A low interest 2% loan is available for the remaining portion of the eligible engineering and construction costs. This funding is available on a priority and eligibility basis, which considers, among other concerns, the impairment of the receiving waterbody caused by the

discharge. The Municipal Facilities Section of DEP Bureau of Water Management administers this funding program.

III. EXISTING CONDITIONS IN THE PLANNING AREA

A. INTRODUCTION

The information contained in this Chapter defines and describes the existing physical conditions and demographics within the planning area. This information provides the basis for the analysis of alternatives in the following chapters, and the assessment of the environmental impacts that will be provided later.

B. PROJECT LOCATION AND PLANNING AREA

The Town of Mansfield encompasses a total area of 45.1 square miles and is located in the eastern part of the state approximately 22 miles east of Hartford in Tolland County. It is bordered to the east by Chaplin, to the south by Windham, to the north by Willington and Ashford, and to the west by Coventry. See Figure 3-1 for a map of the planning area and the relationship of Mansfield to nearby communities.

The study or planning area is defined as the “Four Corners” area of Mansfield. This area is generally identified as the area surrounding the intersection of Storrs Road (State Route 195) and Middle Turnpike (State Route 44) and is located in the northwest corner of Mansfield just east of the University of Connecticut Storrs Campus.

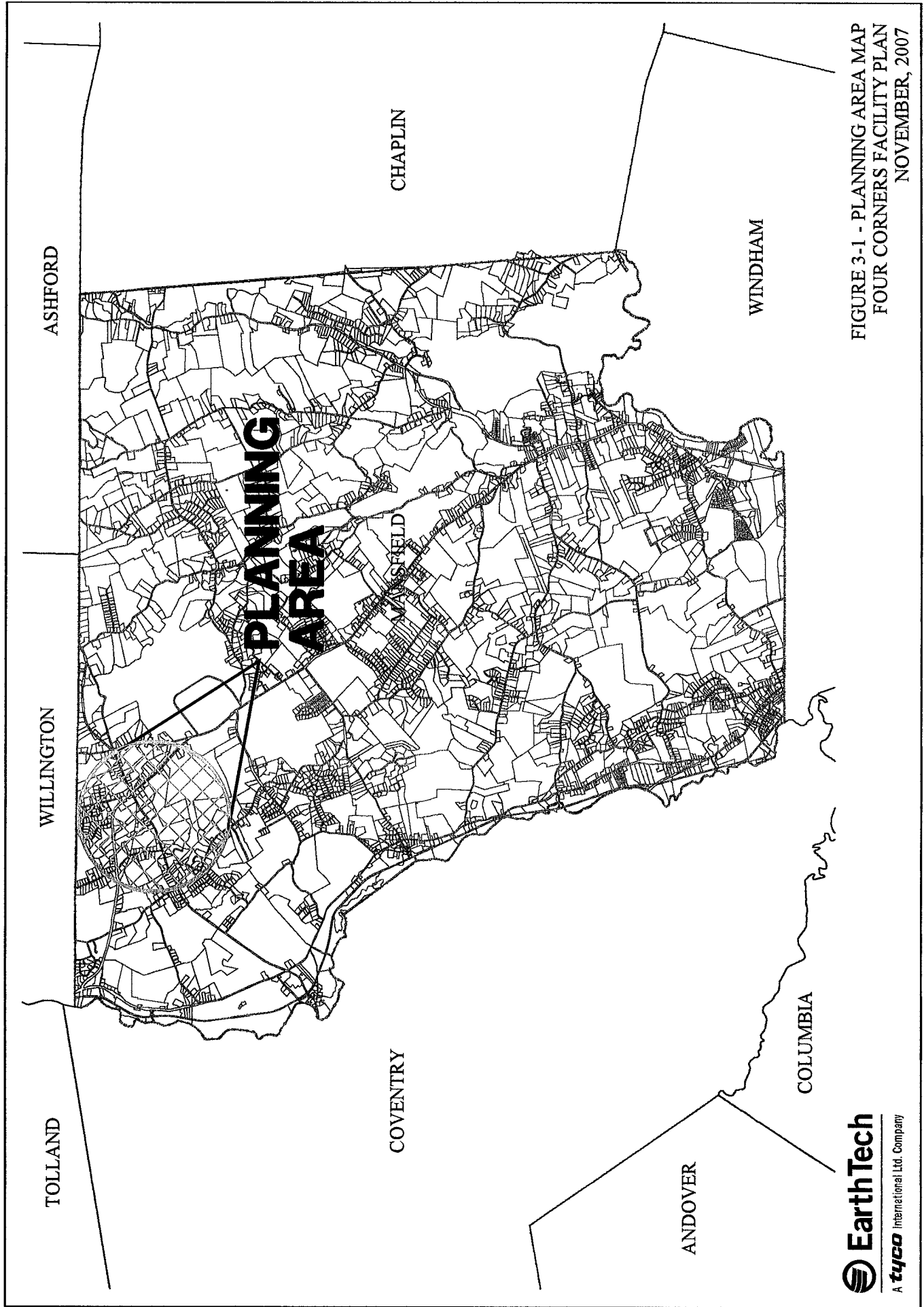


FIGURE 3-1 - PLANNING AREA MAP
FOUR CORNERS FACILITY PLAN
NOVEMBER, 2007

