

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

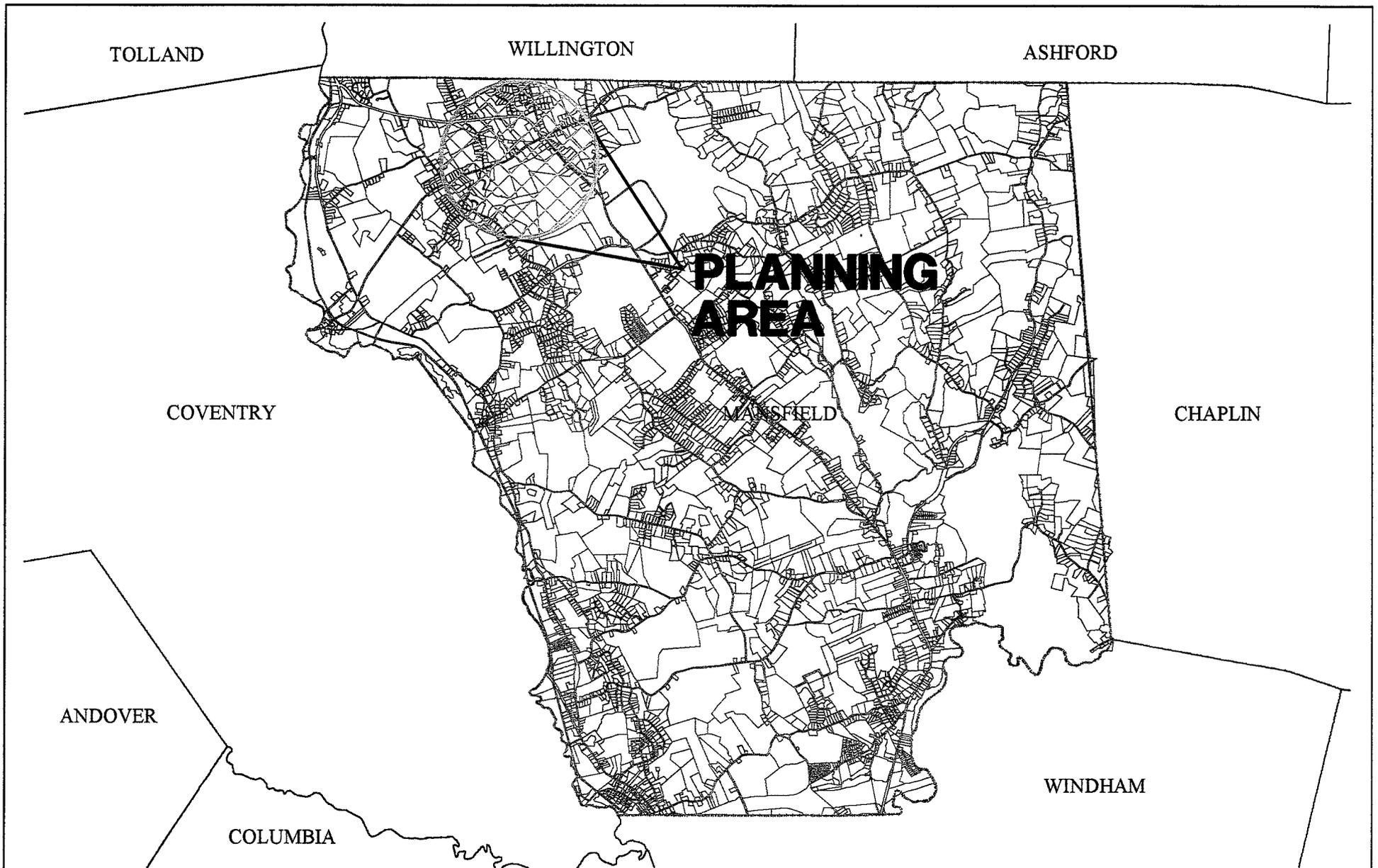
A. INTRODUCTION

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.



C. DEMOGRAPHICS

The Town of Mansfield is located within Tolland County and the Windham Planning Region. The Windham Planning Region comprises the towns of Ashford, Chaplin, Columbia, Coventry, Hampton, Lebanon, Mansfield, Scotland, Willington, and Windham. The Windham Region Council of Governments (WINCOG) is the regional planning authority for the Windham Region. Demographic information has been obtained and compiled from a number of sources including WINCOG, the State of Connecticut Office of Policy and Management (OPM), the Connecticut State Data Center, University of Connecticut, and the Town of Mansfield Office of Community Development. Demographic statistics for the Town of Mansfield are significantly influenced by the University of Connecticut and the Bergin Correctional Institute. The following discussion is a compilation of the data and is provided for the purpose of establishing the general demographic trends in the Town.

From 1990 to 2000, the population growth rate in Mansfield was -1.8 percent per year. This is due in large part to a drop in dormitory occupancy at the University of Connecticut and the closure of the Mansfield Training School. The population growth rate from 2000 to 2010 is projected to be 1.16 percent per year. The projected growth rate from 2010 to 2020 is projected to be 0.46 percent per year.

The age distribution in Mansfield varies from the state due to the inclusion of the University of Connecticut. In Mansfield, 45 percent of its population is between 18 and 24 years of age whereas the state average is 9 percent. As per the 2000 census data, the average household size in Mansfield is 2.4 people and the average family size is 2.92 people. This compares with a State of Connecticut average household size of 2.53 people and an average family size of 3.08 people.

D. LAND USE

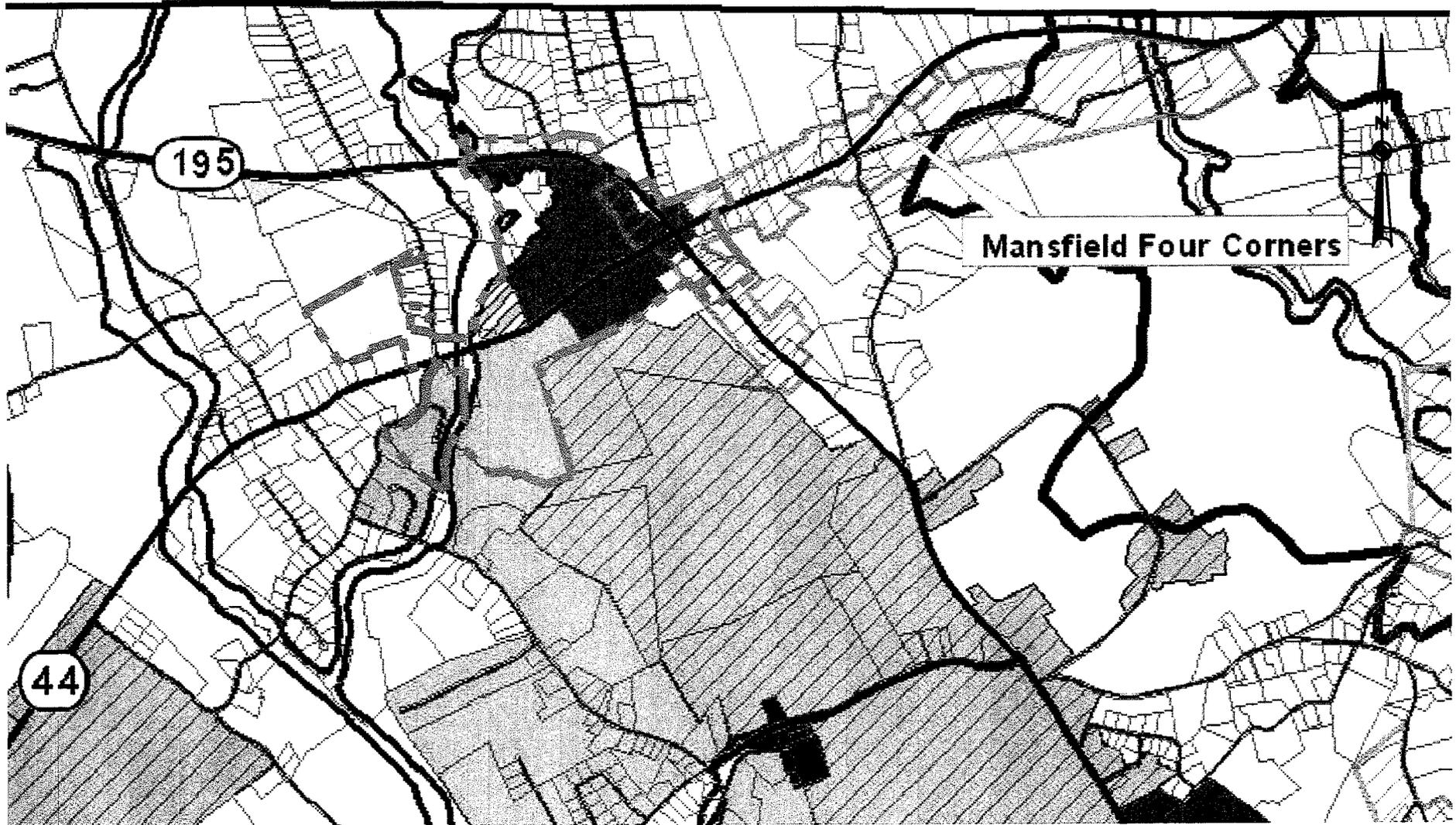
The Mansfield Plan of Conservation and Development, last updated in April 2006, presents the policies and serves as the basis for land planning in Mansfield. The land use map presented in Figure 3-2 illustrates the proposed land use designations in the Four Corners planning area as identified in the 2006 Plan of Conservation and Development. Description of the planned development areas are as follows:

- Flood Hazard Zone: Designated as areas subject to 100 year flooding as shown on the Federal Emergency Management Agency “Flood Insurance Study” and “Floodway” and “Flood Insurance Rate Maps”.
- Low Density Residential: Designated to maintain the rural character of relatively undeveloped areas consistent with natural development constraints.
- Medium to High Density Age Restricted Residential: Designated to increase the types of available housing with emphasis on common interest communities that would primarily serve residents who are age 55 years or older.
- Medium to High Density Institutional/Mixed Use: Designated for institutional land uses such as the University of Connecticut campus.
- Medium to High Density Residential: Designated to increase the types of available housing.
- Planned Business/Mixed Use: Designated for commercial land uses such as retail stores, personal service uses, restaurants, and higher density residential.
- Planned Office/Mixed Use: Designated for office uses such as medical, legal, real estate, financial, engineering and counseling services, and higher density residential.

The majority of the land area within the Four Corners Area is currently developed. However infill development and redevelopment of parcels to more intensive commercial and mixed uses is envisioned by the Mansfield Plan of Conservation and Development and this study.

The Conservation and Development Policies Plan for Connecticut 2005 – 2010 Locational Guide Map for the Town of Mansfield, as prepared by the Connecticut Office of Policy and Management, designates the Four Corners area as a “Growth Area”. Growth areas are defined under the Connecticut Conservation and Development Policies Plan for Connecticut 2005 – 2010 as:

“... lands near Regional Centers or Neighborhood Conservation Areas that provide the opportunity for staged urban expansion generally in conformance with municipal or regional development plans. These lands reflect moderately developed areas with vacant, developable lands, existing or planned water or sewer services, and the potential for future mixed use and intensive development of areawide significance. Growth areas have transportation services or the opportunity to promote public transportation services and patterns of development supportive of energy conservation and air quality programs.”



Mansfield Four Corners

Legend

- Historic villages or hamlets
- Medium to High-Density Institutional/ Mixed-Use
- Low Density Residential
- Medium to High Density Age Restricted Residential
- Medium to High Density Residential
- Planned Business/Mixed Use
- Planned Office/Mixed Use
- Agriculture/Medium to High Density Residential/Open Space
- Neighborhood Business/Mixed Use
- Flood Hazard Zone (Depicted for Reference Purposes)



**FIGURE 3-2 - LAND USE MAP
FOUR CORNERS FACILITY PLAN
SCALE: 1" = 2000' NOVEMBER, 2007**

The majority of the land area within the Four Corners Area is currently developed. However infill development and redevelopment of parcels to more intensive commercial uses is envisioned by the Mansfield Plan of Conservation and Development and this study.

E. TOPOGRAPHY

Connecticut is divided into three general physiographic provinces. The Western Highlands are located along the western side of the state. The Central Lowlands are located throughout the center of the state, and the Eastern Highlands are located along the eastern side of the state.

Mansfield is located in the Eastern Highlands, and is characterized by steep slopes and a more rugged topography. The highlands are underlain by crystalline bedrock and are mostly covered with glacial till.

Ground elevations in the Four Corners study area range from a maximum of approximately 740 feet above sea level in the north campus section of the University of Connecticut to 500 ft above sea level at the Cedar Swamp Brook / Hunting Lodge Road culvert crossing.

F. GEOLOGIC CONDITIONS

The surficial geology in Mansfield Four Corners area includes thick till, till, and wetland soils. Soils in the study area have been classified by the USDA Natural Resources Conservation Service to be in the Canton and Charlton series, Catden and Freetown series, Gloucester series, Hinckley series, Paxton and Montauk series, Ridgebury Leicester and Whitman series, Sudbury series, Sutton series, Timakwa and Natchaug series, Udorthents-Urban land series, and Woodbridge soil classification groups. Soils in all of these groups have been rated as having “very limited” suitability for septic tank absorption fields. The “Very Limited” classification indicates that the soil has one or more features that are unfavorable for the specified use. These limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance costs can be expected.

A plan of Mansfield Four Corners showing soils classifications is shown in Figure 3-3.

G. CLIMATE

Climatological data for the study area is compiled by the National Weather Service and a monitoring station is maintained at Bradley International Airport, which is the closest station to the planning area. Data has been compiled at this monitoring station for over 100 years with the latest compilation and analysis of data completed in 1980.

The average annual precipitation at the monitoring station is 43.15 inches. The least annual precipitation for the period of record was 29.45 inches in 1965 and the most rainfall recorded for a year was 64.55 inches, in 1972.

The annual mean temperature is 49.8 degrees F. Seasonal mean temperatures are 27.3 degrees for winter, 48.1 degrees for spring, 71.1 degrees for summer, and 52.5 degrees for fall.

H. WATER QUALITY AND WATER RESOURCES

There are eight major drainage basins in Connecticut. They include the following:

- Pawcatuck Major Basin
- Southeast Coast Major Basin
- Thames Major Basin
- Connecticut Major Basin
- South Central Coast Major Basin
- Housatonic Major Basin
- Southwest Coast Major Basin
- Hudson Major Basin

Mansfield lies within the Thames Major Basin, which includes the Thames River and extends from northern Connecticut to Long Island Sound.

The study area is primarily located within the Cedar Swamp Brook and the Willimantic River drainage basin. A small portion of the study area is located in the Fenton River and Willamantic Reservoir drainage basin. The Cedar Swamp and an un-named pond located northwest of Middle Turnpike are the most significant water bodies within the study area.

Surface waters and groundwaters are classified by the Department of Environmental Protection based on their current and long term goals for water quality. The water quality classification for the Cedar Swamp brook is Class A. Class A waters are designated as suitable for habitat for fish and other aquatic life and wildlife; potential drinking water supplies; recreation; and water supply for industry and agriculture.

I. AIR QUALITY

The State of Connecticut Department of Environmental Protection, acting under the 1990 Clean Water Act, monitors air quality throughout the State. Classifications of "attainment" or "non-attainment" for six pollutants are designated for regional areas based upon data collected by the DEP. Attainment means that the region is in compliance with the National Ambient Air Quality Standards (NAAQS). The six pollutants are particulate matter, sulfur dioxide, ozone, nitrogen dioxide, carbon monoxide, and lead. Although there are no monitoring stations in Mansfield, there are stations, which detect the pollutants in East Hartford, Middletown and Stafford. The Town of Mansfield currently holds "attainment" status for nitrogen dioxide, lead, sulfur dioxide, carbon monoxide and particulates. Ozone is classified as non-attainment throughout the State. The DEP is currently developing plans to accomplish the task of attainment for all six pollutants.

The implementation of a community wastewater disposal system is expected to have no significant long term effect upon air quality in the State of Connecticut.

J. FLOOD ZONES

Flood insurance studies have been prepared for all communities in the country by the Federal Emergency Management Agency (FEMA). These studies investigate the existence of flood hazards and present the data on a map, which denotes flood zones. These zones are defined as follows:

Table 3-1
FEMA FLOOD HAZARD ZONE CLASSIFICATIONS

Flood Hazard Zone	Description
Zone A	Special flood hazard area inundated by the 100-year flood.
Zone B	Areas between the Special Flood Hazard Area and the 500-year flood plain. These areas may be subject to shallow water flooding in the 100-year interval.
Zone C	Area of minimal flooding.

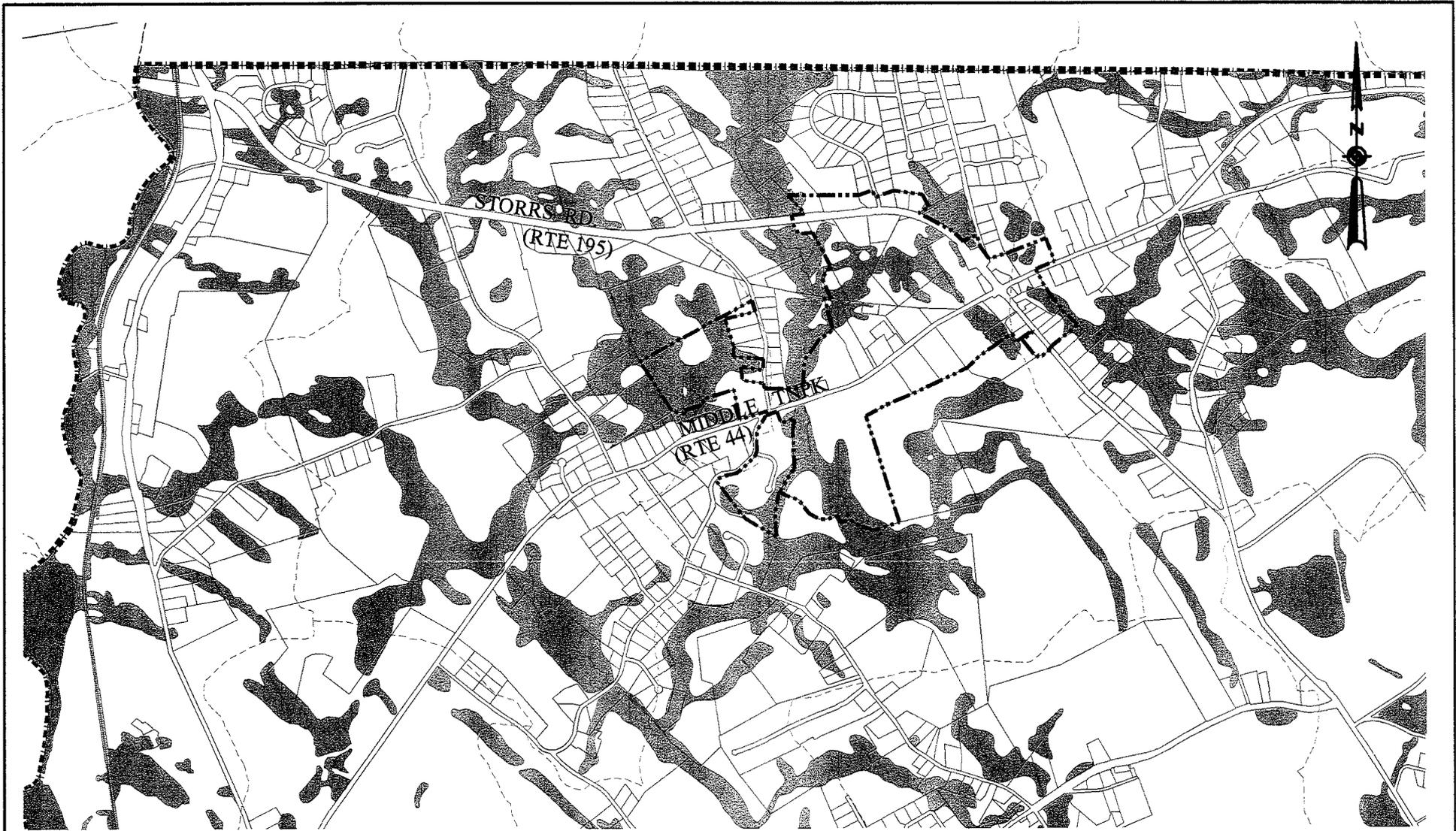
An area generally located along Cedar Swamp Brook and Cedar Swamp is located within Zone A. The remainder of the study area is located in Zone C. Figure 3-4 indicates the flood zone boundaries in the study area.

K. WETLANDS

Mansfield has identified wetland soils within the Town boundaries on an undated map entitled “Inland Wetlands and Watercourses Map”. The map shows the location of designated wetlands (including wetland soils), water and watercourses. Wetland soils are typically identified as alluvial soils, poorly drained or very poorly drained soils. Wetland soils are scattered throughout Mansfield.

Wetland soils prevalent within the study area are the Catden and Freetown series, and to a lesser extent, the Timakwa and Natchaug series. The Catden and Freetown series is designated by a thick 51-inch or more layer of organic muck and is very poorly drained. The Timakwa and Natchaug series is designated by a 24-inch layer of organic muck underlain by fine sandy loam and is very poorly drained.

Figure 3-5 illustrates the wetland locations in the study area of Mansfield.



WETLANDS / WATERCOURSES



DRAINAGE BASIN DIVIDE



STUDY AREA

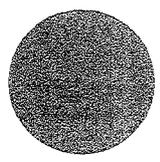
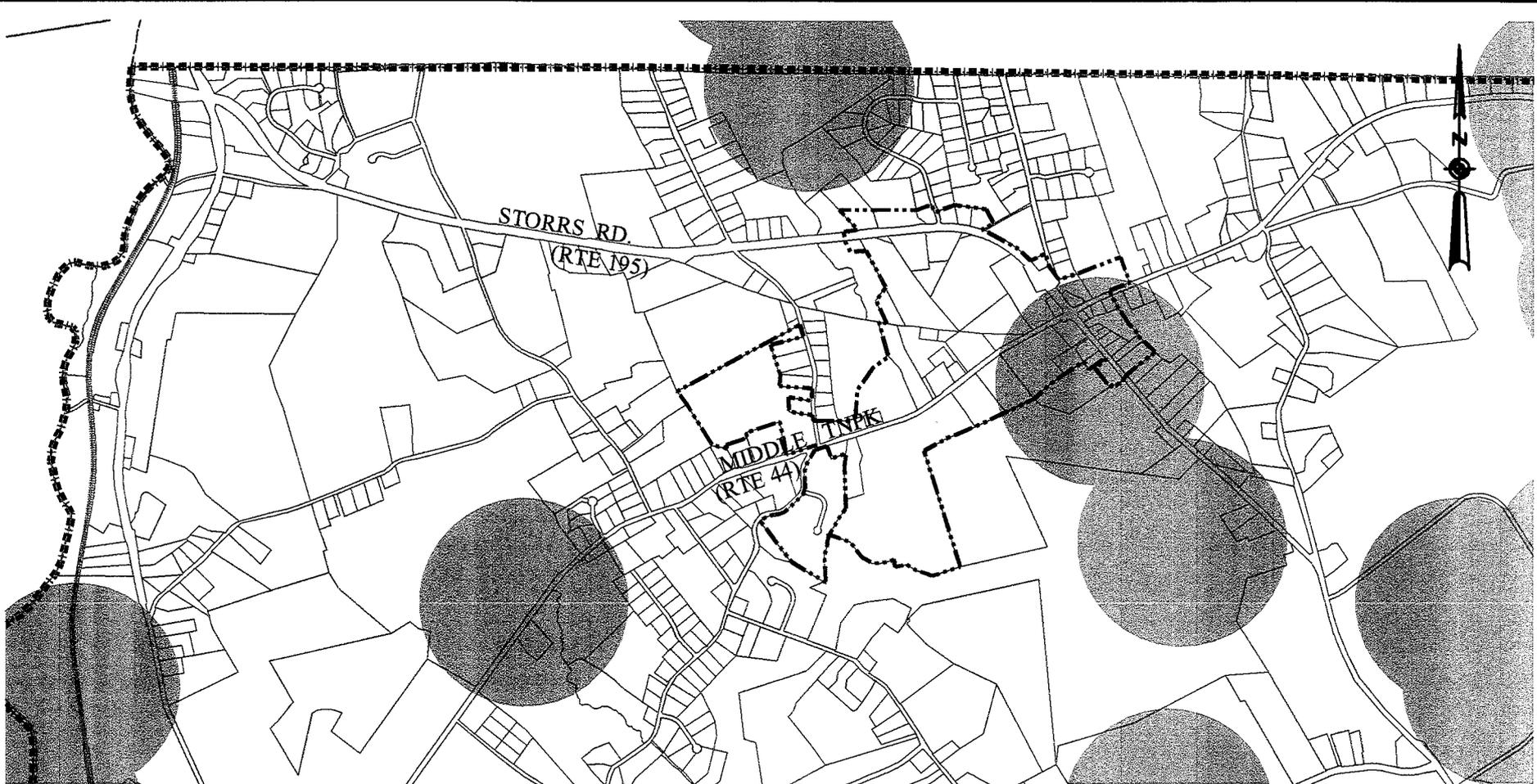
FIGURE 3-5 - WETLANDS AND WATERCOURSES MAP
FOUR CORNERS FACILITY PLAN
SCALE: 1" = 2000' NOVEMBER, 2007

L. ENDANGERED SPECIES AND NATURAL RESOURCES

DEP Natural Resources Center data was reviewed to determine the possibility that endangered species may be located within the Four Corners study area. This information is compiled in the State Natural Diversity Database that is updated regularly regarding critical biological resources in the State. The data has been collected over many years by the Natural Resource Center's Geological and Natural History Survey in cooperation with other DEP units and conservation groups.

Based on a review of the current database, there is one area within the Four Corners study area on the Natural Diversity Database maps that may have endangered species or critical biological resources. This area is generally located on the southwest side of Storrs Road (Rte 195) east of the intersection with Middle Turnpike (Rte. 44) and is indicated on Figure 3-6.

The Natural Resource-s Center at the CTDEP has reviewed the Natural Diversity Data Base map and files for the Four Corners study area and has concluded that there are no known extant populations of Federal or State endangered, threatened, or special concern species located in the project area. Correspondence from CTDEP is included in Appendix C.



GENERAL AREAS OF CONCERN WITH REGARDS TO STATE AND
 FEDERALLY LISTED ENDANGERED, THREATENED, AND SPECIAL
 CONCERN SPECIES AND SIGNIFICANT NATURAL COMMUNITIES
 (Updated December, 2007)



STUDY AREA

FIGURE 3-6 - ENVIRONMENTALLY SENSITIVE AREAS
 FOUR CORNERS FACILITY PLAN
 SCALE: 1" = 2000' NOVEMBER, 2007

M. HISTORIC DISTRICTS AND LANDS OF SIGNIFICANCE

The National Historic Preservation Act defines procedures for consultation and commentary by the Advisory Council on Historic Preservation for all EPA grant actions that will affect a property listed or eligible to be listed on the National Register of Historic Places. To this end, the Connecticut Commission on Culture and Tourism, Historic Preservation & Museum Division was contacted. Those locations in Mansfield that are classified as historic are tabulated in Table 3-2 along with their dates of registry.

TABLE 3-2
TOWN OF MANSFIELD HISTORIC PLACES

NAME	LOCATION	DATE OF REGISTRY
Farwell Barn	Horsebarn Hill Road	01/26/01
Gurleyville Historic District	N. of Mansfield Center off CT 195 at jct. of Gurleyville and Chaffeeville Rds.	10/30/75
Mansfield Center Cemetary	Jct. of Storrs and Cemetary Rds.	07/24/92
Mansfield Center Historic District (Local Historic District)	Vicinity of Storrs, Dodd, Warrenville, and Browns Rds.	02/23/72
Mansfield Hollow Historic District	86-127 Mansfield Hollow Rd.	05/21/79
Mansfield Training School and Hospital (District)	Jct. of CT 32 and CT 44	12/22/87
Spring Hill Historic District (Local Historic District)	Storrs Rd., East Rd., and Beebe Ln.	10/10/79
University of Connecticut Historic District – Connecticut Agricultural School	Roughly CT 195/Storrs Rd. at Eagleville Rd.	01/31/89
Williams Eleazer House	Storrs Rd.	03/11/71

Source: Connecticut National Register of Historic Places, dated June 5, 2007

N. WATER SUPPLY

Potable water is supplied to existing development in the Four Corners area by individual private wells and by eight community water supply systems. Those properties served by community water supply systems are listed in Table 3-3.

Table 3-3
Four Corners Area Community Water Supply Systems

Water Supply System	No. of Units	Approx. No. of Users	System Classification
Club House Apartments	44	115	Small Community Water System
Hunting Lodge Apartments	40	105	Small Community Water System
Jensen's Rolling Hills Mobile Home Park	187	300	Small Community Water System
Kathy John's Restaurant	N/A	25	Transient Non-community Water System
Mansfield Development Company	N/A	30	Non-transient, Non-community Water System
Mansfield Professional Park	4	100	Non-transient, Non-community Water System
Rosals Apartments	21	55	Small Community Water System
Zenny's Restaurant	N/A	25	Transient Non-community Water System

Source: Town of Mansfield Water Supply Plan, May 2002

Groundwater contamination has been documented in the Four Corners area for a number of years primarily due to leaking underground petroleum storage tanks. Affected properties include 607, 611, 625, 632, 643, 650 Middle Turnpike, and 1659, 1646-1650, 1660 Storrs Road. Contamination of drinking water supplies has been handled on a case by case basis, with the Connecticut Department of Environmental Protection requiring the installation of carbon filters or provision of bottled drinking water.

Due to the existence of a number of community water systems and groundwater contamination in the study area the Town of Mansfield Water Supply Plan proposed three potential scenarios for provision of water service to a portion of the study area. The three scenarios are:

1. Establishment of a water system in northern Mansfield by the Town of Mansfield;
2. Provision of water service by the Connecticut Water Company or;
3. Provision of water service to northern Mansfield by the University of Connecticut.

Properties outside of the potential water service area would continue to obtain water from individual on-site wells.

O. SEWAGE DISPOSAL SYSTEMS

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, surficial geology 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. Table 3-4 summarizes the data gathered for this study on a lot by lot basis.

TABLE 3-4 TABULATION OF EXISTING LOT CHARACTERISTICS

Address	Property Use	Lot area less than 1 acre	Lot area occupied by wetland soils	Sewage Disposal Soil Classification	Repaired within past 10 years	Replaced within past 10 years	Failures / Overflows	Property Use Currently Limited by Sewage Disposal Issues	Potential for installation and operation of a Health Code compliant sewage disposal system	Notes
Wilmington Hill Road										
10	Business			Very Limited					Moderate	Residence 20 Zone
15	Residential	X	50%	Very Limited					Very Poor	Small lot size, significant amount of wetlands
Middle Turnpike (Rte 44)										
677	Residential	X		Very Limited					Very Poor	Extremely small lot size
	Vacant Lot			Very Limited					Moderate	
674	Residential	X		Very Limited					Moderate	
668	Residential			Very Limited					Good	
661	Residential		25%	Very Limited	X				Moderate	Repaired in 1999, high groundwater, Prof. Office Zone
656		X		Very Limited					Very Poor	Professional Office Zone
650	Residential		20%	Very Limited				X	Very Poor	Limited capacity due to poor soils, small lot size
644	Dicks Auto	X		Very Limited					Poor	Extremely small lot size
643	Kathy John's			Very Limited					Moderate	Rock outcrop evident, pumped system
632	CVS			Very Limited	X				Good	Repaired in 2001
625	Zenny's Restaurant		10%	Very Limited					Good	7.9 acre lot, Planned Business zone
	Vacant Lot		35%	Very Limited					Very Poor	High groundwater table, percolation test not possible
611	Rosal's Apartments		25%	Very Limited					Poor	21 units, limited area, wetlands
603,605,607	Hair Salon, Wild Scallion Mkt.			Very Limited			X		Poor	1994 failure, backup into building, irregular lot shape
596	Central Bank			Very Limited					Good	
591	A+P Plaza			Very Limited			X	X	Poor	multiple failures, water use restrictions, repaired in 2003, Planned Business Zone
575	Skips Mercury Oil	X		Very Limited	X				Poor	
574	Central Bank			Very Limited					Good	
569	Residential			Very Limited					Good	
555	Residential			Very Limited					Good	
541	Residential			Very Limited					Good	Large lot area
536	Jensen's Rolling Hills			Very Limited	15	3			Poor	high density development, 187 units
527	Residential	X		Very Limited					Moderate	Small lot size
521	Residential	X	50%	Very Limited					Poor	limited lot size, wetlands
520	Residential		95%	Very Limited					Very Poor	
505	Residential		25%	Very Limited					Good	
504	Residential	X	50%	Very Limited					Poor	limited lot size, wetlands
Storrs Road (Rte 195)										
1620	Residential		35%	Very Limited					Moderate	poor topography, wetlands
1621	Residential			Very Limited					Moderate	high groundwater, parcel shape precludes separation dist.
1630	Residential	X	15%	Very Limited					Poor	poor topography, wetlands
1631	Residential	X		Very Limited			X		Poor	1975 overflow, small lot size
1632	Residential	X		Very Limited			X		Poor	2000 repair, surface blowout, limited lot size
1637	Residential	X		Very Limited					Moderate	
1640	Residential	X		Very Limited					Very Poor	old system, very undersized, high GW, small lot size
1645	Residential	X		Very Limited		X			Moderate	replaced 1992
1646	Residential	X		Very Limited					Very Poor	poor topography, limited lot size
1650		X		Very Limited			X	X	Very Poor	septic in poor condition, grease trap pumped weekly
1659	Dunkin Donuts/Gas St.	X		Very Limited				X	Very Poor	capacity restrictions due to lot size
1660	Gas Station	X		Very Limited			X		Very Poor	overflow failure 1975
1717	Riquier Restaurant		50%	Very Limited				X	Poor	water use limitations, extensive wetlands
1722	Fire House	X		Very Limited	X				Moderate	
1733	Shopping Plaza			Very Limited	X				Moderate	repaired in 2003, extensive building
1734	Church	X		Very Limited					Moderate	
1753	Willards Lumber Yard		10%	Very Limited					Moderate	
1768	Church/Office		50%	Very Limited					Moderate	
1775	Residential		85%	Very Limited					Moderate	extensive wetlands
Timber Drive										
9	Residential	X		Very Limited					Moderate	Professional office zone
Professional Park Road										
A	Office		25%	Very Limited					Moderate	wetlands
B	Office	X	10%	Very Limited					Poor	wetlands, awkward parcel shape
C	Office	X		Very Limited					Poor	Small lot, odd shape
D	Office			Very Limited					Poor	Odd shape, could be affected by adjoining properties

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.

IV. FUTURE CONDITIONS

A. INTRODUCTION

To evaluate future wastewater treatment and disposal system needs over the 20 year planning period, historic trends in the study area, the available land for residential, commercial, and industrial development, water use, and population growth, must all be considered.

To effectively project future trends, existing and historical demographic data is reviewed and used. In Chapter 3, applicable information pertaining to the existing conditions that may impact future development within the planning area was established. The information developed in those chapters included such data as wetland and watershed areas unavailable for development, water supply and subsurface disposal limitations, demographic trends, and topographic limitations. This information provides the basis for projecting development, population growth, and wastewater flows, which are then used to establish the future wastewater flows to the alternative wastewater treatment and disposal alternatives.

The following sections describe how future development, population, and wastewater flows were established for the planning period. These projections will be used as the basis for determination of the least cost means to accomplish wastewater treatment and disposal to meet the future needs of the study area.

B. POPULATION PROJECTIONS

Future population trends were estimated for the 20-year planning period extending from the year 2010 (anticipated construction completion date) to the year 2030. Population projections for the Town of Mansfield were provided by three sources, data supplied by the State of Connecticut Office of Policy and Management (OPM), the Connecticut State Data Center, University of Connecticut, and data supplied by the Windham Region Council of Governments. These sources of information were evaluated and compared to determine the most accurate population projections.

Population projections for the Town of Mansfield are presented in Table 4-1.

TABLE 4-1
TOWN OF MANSFIELD POPULATION PROJECTIONS

YEAR	HOUSEHOLD POPULATION	GROUP QUARTERS POPULATION	TOTAL POPULATION
2000	12,723	13,677	26,400
2005	13,124	13,677	26,801
2010	13,356	13,677	27,033
2015	13,435	13,677	27,112
2020	13,463	13,677	27,140
2025	13,576	13,677	27,253
2030	13,740	13,677	27,417

Source: Rodriguez, Orlando, 2007. Mansfield, CT Population Projection from 2010 to 2030 by Age, Ethnicity and Sex Distributions, Connecticut State Data Center, University of Connecticut, Storrs, Connecticut

Projected residential population growth for the Town of Mansfield over the period of 2010 to 2030 is projected to be 384 persons or 0.07 percent per year. Residential growth in the study area over the planning period can be expected to be proportionally greater than the Town as a whole due to expected growth in areas designated by the Mansfield Plan of Conservation and Development for institutional mixed use, planned business mixed use, professional office mixed use, or age restricted residential medium to high density development.

The future growth of commercial development within the study area will be heavily influenced by the development of the University of Connecticut “North Campus” and the completion of the proposed extension of North Hillside Road to Middle Turnpike (Rte 44). The extension of North Hillside Road is intended to serve as a new gateway/entrance to campus and therefore the commercial/mixed use development in the Four Corners area will be even more closely tied to the University of Connecticut community.

Industrial growth within the study area is not expected due to the lack of land with suitable development and zoning characteristics.

C. **PROJECTED WASTEWATER FLOWS**

To forecast the future wastewater flows from the study area, existing dwelling unit occupancy of 2.4 persons per household (2000 census, Mansfield Plan of Conservation and Development) and per capita water use of 74 gallons per capita per day (Connecticut Department of Public Health planning methodology) are used for residential projections. It is expected that per capita water consumption will not increase significantly during the planning period and may, in fact, decrease slightly due to water conservation measures.

Industrial and commercial use forecasts are based on historic data, zoning, the Mansfield Plan of Conservation and Development, and the land area available for development. Details of the future flows are described below.

1. **Residential Flows**

Future residential development within the study area is forecast to occur within areas designated for “medium to high density institutional / mixed use”, “planned business / mixed use”, “planned office / mixed use”, “medium to high density age restricted residential” or “medium to high density residential” by the Mansfield Plan of Conservation and Development. Development densities of up to 8.7 dwelling units per acre are expected in “mixed use” areas. Development densities are expected to be up to 15 dwelling units per acre in “medium to high density residential” areas, similar to proposed development in other areas of Mansfield.

2. **Commercial Flows**

To determine potential new commercial wastewater flows in the study area a review was made of areas within the study area designated as “Planned Business / Mixed Use” and “Planned Office / Mixed Use” by the Mansfield Plan of Conservation and Development. Environmentally sensitive areas such as wetlands, flood hazard zones, or steep slopes were removed from the potentially developable area and estimates of reasonable commercial development in conformance with the applicable zoning regulations were prepared. In accordance with Connecticut Department of Public Health technical standards, a design average wastewater flow of 0.1 gallons per square foot of gross building area per day was utilized for commercial development.

3. **Industrial**

Industrial growth within the study area is not expected due to the lack of land with suitable development and zoning characteristics.

4. Infiltration and Inflow

Infiltration into any new wastewater collection system considered is an additional flow that must be added to future project flows. For this purpose, a rate of 400 gpd/inch-dia./mile of new sewer, as recommended by Guides for the Design of Wastewater Treatment Works (TR-16), prepared by the New England Interstate Water Pollution Control Commission, is used.

Existing and projected average daily wastewater flows from the study area are presented in Table 4-2. Wastewater flow projections are presented for the 20 year and 50 year time periods corresponding to the useful life expectancies of the mechanical equipment and structures/pipelines respectively.

TABLE 4-2 EXISTING AND PROJECTED WASTEWATER FLOWS

Location	Existing Flow (Gallons per Day)	20 Year Flow (Gallons per Day)	50 Year Flow (Gallons per Day)
Storrs Road - northwest of Middle Turnpike	2,666	27,953	65,884
Storrs Road - southeast of Middle Turnpike	1,602	1,814	2,132
Middle Turnpike - northeast of Storrs Road	1,089	8,852	20,496
Middle Turnpike – Storrs Road to Professional Park Road	4,301	25,930	58,374
Middle Turnpike – Southwest of Professional park Road	1,499	40,128	98,071
Professional Park Road	1,450	12,679	29,522
Jensen’s Rolling Hills Mobile Home Park	34,532	35,778	35,778
Estimated Infiltration	N/A	16,295	16,295
Total Flow	47,139	169,429	326,552

V. EVALUATION AND SELECTION OF ALTERNATIVES

A. INTRODUCTION

One of the most important requirements of this Facilities Plan is to investigate alternative means of providing for wastewater disposal in the study area. A number of alternative methods of handling the wastewater flows in the study area have been developed and are described and evaluated in this Chapter. The evaluation considers the ability of the alternative to meet the requirements for environmentally sound and cost effective wastewater disposal.

B. NO ACTION ALTERNATIVE

The “No Action” alternative consists of continued reliance on individual subsurface wastewater disposal systems for wastewater disposal in the study area. As discussed in Chapter 3, the existing development within the study area currently relies upon individual onsite subsurface wastewater disposal systems for wastewater disposal service. Although some of these systems provide adequate and reliable wastewater disposal service, a number of these systems are plagued with repeated failures due to development densities, soils characteristics, water tables or other site characteristics. Some property owners are faced with limitations on the use of their property and excessive operation and maintenance costs due to the need for frequent pump out of their wastewater disposal systems.

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.

C. COMMUNITY BASED WASTEWATER DISPOSAL ALTERNATIVES

Community based wastewater disposal alternatives incorporate a collection system to collect and transport wastewater flows from individual properties to one or more community or centralized wastewater treatment and disposal systems. Collection system alternatives include 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 include 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.

D. COMMUNITY WASTEWATER DISPOSAL SYSTEM SERVICE AREA

In order to evaluate alternatives for community based wastewater collection and disposal systems the area served by such a system must be defined. In determining the geographical extent of a community wastewater disposal system a number of factors including existing development type and density characteristics, topography, soil characteristics, future growth patterns, and consistency with State and local plans of conservation and development must be considered. After consideration of these factors, input from public information meetings, and consultations with Town of Mansfield governing boards and staff, a consensus was reached for the boundaries of a community wastewater service area. Figure 5-1 depicts the boundaries of the sewer service area that the community wastewater disposal system will support. Development outside of the community wastewater service area will continue to rely on individual subsurface wastewater disposal systems for wastewater disposal.

E. COMMUNITY WASTEWATER TREATMENT SYSTEM ALTERNATIVES

As stated above, wastewater treatment and disposal alternatives bring considered under this study include 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 viability of community subsurface wastewater disposal system alternative relies heavily upon the availability of a site with suitable topographic and soils characteristics in close proximity to the community sewer service area. As indicated previously, soils within the study area are listed by the Natural Resources Conservation Service as being very limited for use as septic tank absorption fields. This rating indicates that the successful long term installation and operation of a subsurface wastewater disposal system in these soils will require extensive soil reclamation and expensive installation procedures. The cost of acquisition of a site and preparing it for use for a community wastewater disposal system makes this alternative much less desirable than the other available wastewater treatment and disposal alternatives discussed below.

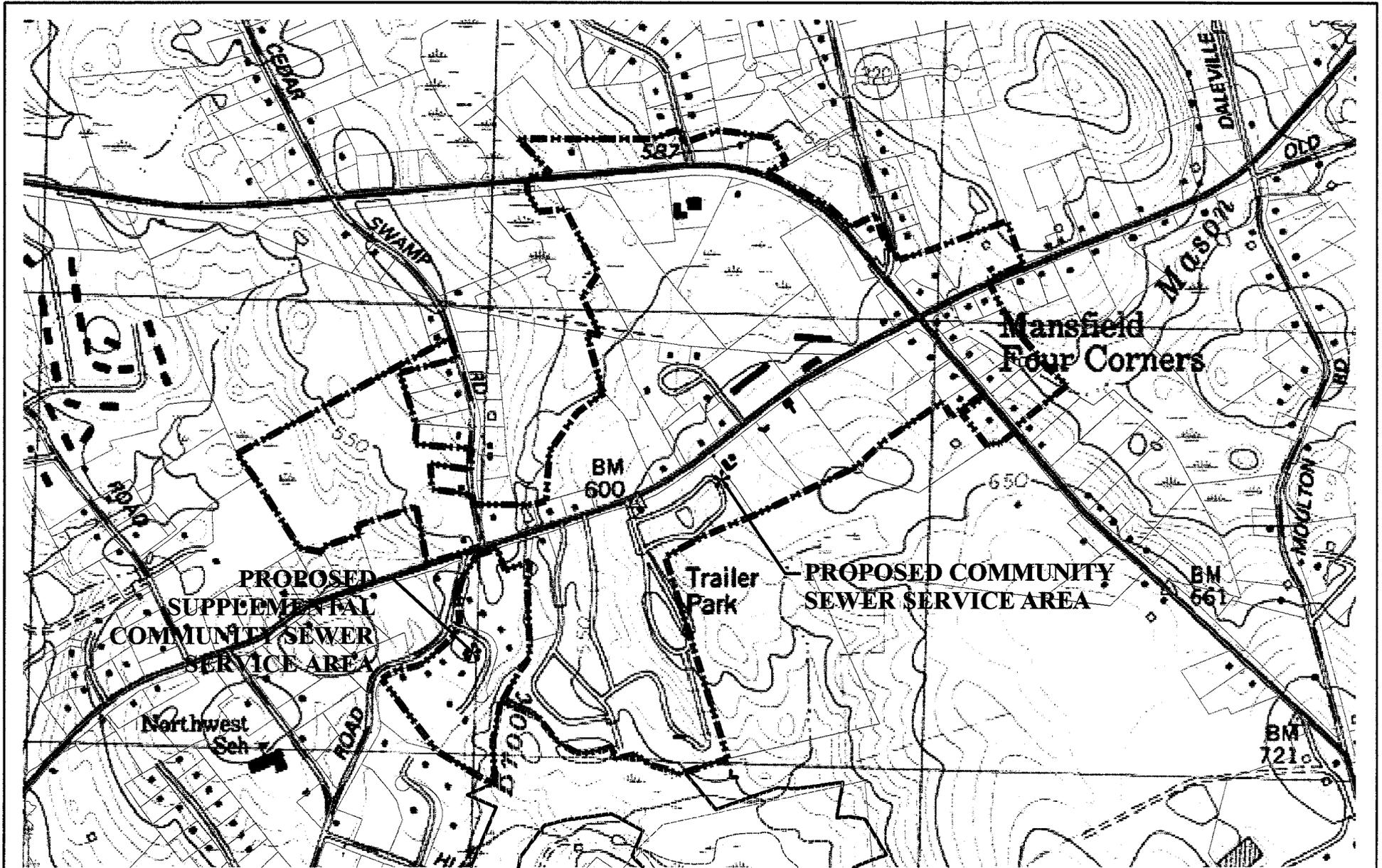


FIGURE 5-1 - COMMUNITY SEWER SERVICE AREA MAP
 FOUR CORNERS FACILITY PLAN
 NOVEMBER, 2007

A second wastewater treatment and disposal alternative that was considered is the construction of a small pre-engineered packaged wastewater treatment facility and disposal to a surface water body. In order for this alternative to be feasible a suitable surface water body must be available. The main water body in the study area is the Cedar Swamp Brook which is classified by the Connecticut Department of Environmental Protection as a “Class A” water body. This classification precludes the permitting of a wastewater treatment facility discharge to the brook making this alternative unfeasible and eliminating it from further consideration.

A third alternative considered is the transport of wastewater flows generated in the study area to the existing wastewater treatment facility owned and operated by University of Connecticut. This facility that provides wastewater treatment for the University of Connecticut campus and surrounding commercial and residential development was last upgraded and expanded in 1995. In planning for this expansion, treatment capacity was reserved for the study area as indicated in Table 5-1 below.

TABLE 5-1
UCONN WWTF RESERVE CAPACITY (Design Year 2020)

Name Of Development	Average Daily Flow (gpd)	Anticipated Connection Point
Four Corners	205,000	WWTF
Jensen’s Rolling Hills Mobile Home Park	30,000	WWTF
Rosal’s Apartments	3,000	WWTF
Total Reserve Capacity	238,000	

Source: Table 6-4, Future Flows From Outside the University, University of Connecticut, Storrs, Connecticut, Wastewater Facilities Pre-Design Study BI-D-835, 1992

The existing reserve capacity will meet the projected wastewater disposal needs of the study area through the 20 year planning period, 2010 to 2030, without the need for modifications to the existing wastewater treatment facility. Implementation of this alternative will require discussions between the Town of Mansfield and the University of Connecticut.

F. COMMUNITY WASTEWATER CONVEYANCE SYSTEM ALTERNATIVES

Alternative wastewater conveyance systems considered in this study include pressure sewers, vacuum sewers and conventional gravity sewer, pumping station and force main systems.

1. Pressure Sewer Systems

Pressure sewer systems consist of grinder type pumping systems serving individual properties that connect to a common small diameter force main conveyance pipe. The grinder pump system is typically a manufactured package consisting of a collection tank that can be installed either in the building basement or buried in the ground adjacent to the building served, a grinder style submersible pump and a pump control and alarm panel. The building service pipe connection is a small diameter pressure rated PVC pipe, typically between 1 and 2 inches in diameter dependant upon the building's wastewater flow rate, with a check valve and curb stop valve to isolate the building service from the service main for repair or removal purposes. The pressure service main is typically a small diameter pressure rated polyvinyl chloride (PVC) or high density polyethylene (HDPE) pipe, typically less than 4 inches in diameter that serves to transport wastewater flows from the individual building services to the wastewater treatment facility. The primary advantage of pressure sewer systems is that the pipes do not rely on gravity flow and can be installed just below frost depth (approximately 5 feet deep), following ground contours and are therefore less expensive to install. The primary disadvantage of pressure sewer systems is maintenance and wear of the grinder pumps and the cost of providing the electrical power for the pumps. In order to be able to use the small diameter piping the grinder pumps are designed to grind or chop the wastewater solids to a particle size less than $\frac{3}{4}$ inch in diameter. The cutters in the pump providing the grinding action are subject to wear and typically require maintenance and replacement at regular intervals. Another disadvantage to this alternative is that during electrical power interruptions wastewater disposal service is unavailable. Pressure sewer systems are typically employed in areas that have hilly topography that would require the use of multiple pumping stations and force mains serving small populations as might occur around a lakefront setting.

2. Vacuum Sewer Systems

Vacuum sewer systems utilize a vacuum valve pit, vacuum mains, and a vacuum station to transport wastewater flows. Wastewater from one or more homes flows by gravity to a

holding tank known as the valve pit. When the wastewater level reaches a certain level, sensors within the holding tank open a vacuum valve that allows the contents of the tank to be sucked into the network of collection piping. The collection piping system can generally be installed just below frost depth resulting in installation economies. There are no manholes with a vacuum system; instead, access can be obtained at each valve pit. The vacuum or draw within the system is created at a vacuum station. Vacuum stations are small buildings that house a large storage tank and a system of vacuum pumps, sewage pumps, controls, and standby electrical generators.

Vacuum sewer systems are limited to a lift of approximately 13 feet. Rolling terrain with small elevation changes can be accommodated, yet steep terrain would require the addition of lift stations like those used for conventional sewer systems. It is generally recommended that there be at least 75 properties per pump station, for the use of a vacuum sewer system to be cost effective. This minimum property requirement tends to make vacuum sewers most conducive for small communities with a relatively high density of properties per acre and relatively flat terrain. Vacuum sewer systems require maintenance by trained technicians to insure proper operation of the vacuum valves and the vacuum stations. Due to a topography range in the study area of over 80 feet, and the relatively low density of development in the study area, vacuum sewers will not be considered further as a cost effective or viable means of wastewater conveyance for the study area.

3. Gravity Sewer Systems

Conventional gravity sewer, pumping station and force main systems are the most commonly employed wastewater conveyance systems in use today. The gravity sewer system is composed of PVC building service connections that are generally 6 inches in diameter, sewer manholes that serve as pipe junction points and provide access to the gravity pipes for maintenance, and gravity sewer pipes. This system of pipes utilizes the force of gravity to transport wastewater throughout the system and therefore must be installed on a sloped basis. The need to provide slopes on the pipes sometimes results in the need to install the piping system at significant depths below the ground surface. Pumping stations and force mains are utilized when there is the need to lift wastewater flows to overcome a topographical feature or to avoid the installation of gravity sewers at significant depths. Pumping stations can have many variations in types of pumps and equipment arrangements but generally contain a wet well to receive the gravity wastewater flows, pumps to lift the flows, and an arrangement of pressure piping, valves, and controls.

Larger pumping stations are also provided with standby electrical generators to provide electrical power in the event of utility power interruption.

A preliminary design of a gravity sewer system for the community sewer service area has been prepared and is included in Figure 5-1.

G. DESCRIPTION OF ALTERNATIVE PUMPING STATION SITES

Two alternative sites were considered for the pumping station required to serve the sewer service area.

The first site, designated Site A, is located on land at the rear of the Jensen's Rolling Hills mobile home park directly adjacent to land owned by the University of Connecticut as indicated on Figure 5-2. Access to this site is envisioned to be via a permanent right of way that would be granted by the property owner from Middle Turnpike along Old Wood Road through the mobile home park to the pumping station site. Existing ground elevation at this location is approximately 546 feet. Utilization of this site for a wastewater pumping station would require land acquisition from the private property owner.

The second site considered, designated Site B, would be located at the southeast corner of the property containing the "Hunting Lodge Apartments" adjacent to the north side of Hunting Lodge Road just west of the Cedar Swamp brook crossing. This site would also be located outside of the flood hazard zone associated with the Cedar Brook at the Hunting Lodge Road crossing. Approximately 1,900 linear feet of 15" diameter gravity sewer would be installed to bring wastewater flows from the Rolling Hills Old Wood Road, across Cedar Swamp Brook and along the rear of the Club House and Hunting Lodge apartments to this location. Access to this site would be directly from Hunting Lodge Road. Existing ground elevation at this location is approximately 508 feet. Utilization of this site for a wastewater pumping station would require land acquisition from the private property owner.

Both sites would need to contain sufficient area to allow for construction of the pumping station, a standby generator set, pumping station power and telecommunication utilities, and a small access driveway. Typical land area requirements for this use are approximately 10,000 square feet or slightly less than one quarter of an acre.

H. DESCRIPTION OF COLLECTION SYSTEM ALTERNATIVES

1. Alternative No. 1

Alternative No. 1 proposes to locate the pumping station at Site A. Gravity sewers would be installed to bring wastewater flows from the community sewer service area to this location. A 2,600 foot long 8 inch diameter force main would be installed through University of Connecticut property to an existing sanitary sewer manhole located at the current end of North Hillside Road. The discharge elevation of the force main would be approximately 652 feet. The proposed route of the force main would avoid the University of Connecticut open space conservation parcel and generally parallel the route of an existing 16-inch diameter water transmission main serving the University of Connecticut campus. The preliminary cost estimate for this alternative is included in Table 5-2 below.

TABLE 5-2 ALTERNATIVE NO. 1 - PRELIMINARY COST ESTIMATE

Item	Quantity	Unit	Unit Price	Amount
8" PVC Gravity Sewer	10,893	L.F.	\$ 80.00	\$ 871,440.00
12" PVC Gravity Sewer	1,397	L.F.	88.00	122,936.00
15" PVC Gravity Sewer	2,450	L.F.	93.00	227,850.00
4' Dia. Sewer Manhole	64	Each	3,500.00	224,000.00
8"x6" Building Connection Wyes	94	Each	200.00	18,800.00
6" PVC Building Lateral Sewer	2,260	L.F.	50.00	113,000.00
8" Dia. Force Main Pipe	2,600	L.F.	70.00	182,000.00
Temporary Trench Pavement	10,947	L.F.	13.00	142,311.00
Permanent Trench Pavement	10,947	L.F.	20.00	218,940.00
Mill and Overlay State Road	11,290	S.Y.	15.00	169,350.00
Traffic Protection	84	Days	360.00	30,240.00
Pumping Station	1	L.S.	1,200,000.00	1,200,000.00
Subtotal - Construction Cost				\$ 3,520,867.00
Contingency			25%	\$ 880,216.75
Administrative, Fiscal, and Technical Services			20%	\$ 704,173.40
Total Project Cost				\$ 5,105,257.15

2. Alternative No. 2

Alternative No. 2 is similar to the previous Alternative except for the proposed route for the force main. Alternative No. 2 proposes to locate the pumping station at Site A. Gravity sewers would be installed to bring wastewater flows to this location. A 5,790 foot long 8 inch diameter force main would be installed along Old Wood Road, Middle Turnpike and along the proposed extension of North Hillside Road to a new sanitary sewer manhole. The force main discharge elevation is estimated to be 658 feet. Implementation of this alternative is dependent upon the completion of North Hillside Road from its current terminus to Middle Turnpike, Route 44.

The preliminary cost estimate for this alternative is included in Table 5-3 below.

TABLE 5-3 ALTERNATIVE NO. 2 - PRELIMINARY COST ESTIMATE

Item	Quantity	Unit	Unit Price	Amount
8" PVC Gravity Sewer	10,893	L.F.	\$ 80.00	\$ 871,440.00
12" PVC Gravity Sewer	1,397	L.F.	88.00	122,936.00
15" PVC Gravity Sewer	2,450	L.F.	93.00	227,850.00
4' Dia. Sewer Manhole	64	Each	3,500.00	224,000.00
8"x6" Building Connection Wyes	94	Each	200.00	18,800.00
6" PVC Building Lateral Sewer	2,260	L.F.	50.00	113,000.00
8" Dia. Force Main Pipe	5,790	L.F.	70.00	405,300.00
Temporary Trench Pavement	10,947	L.F.	13.00	142,311.00
Permanent Trench Pavement	10,947	L.F.	20.00	218,940.00
Mill and Overlay State Road	11,290	S.Y.	15.00	169,350.00
Traffic Protection	84	Days	360.00	30,240.00
Pumping Station	1	L.S.	1,200,000.00	1,200,000.00
Subtotal - Construction Cost				\$ 3,744,167.00
Contingency			25%	\$ 936,041.75
Administrative, Fiscal, and Technical Services			20%	\$ 748,833.40
Total Project Cost				\$ 5,429,042.15

3. Alternative No. 3

This alternative would locate the pumping station at Site B. An additional 836 feet of 15-inch diameter gravity sewer would be required to bring wastewater flows to this location from Old Wood Road in the Rolling Hills mobile home park. This section of gravity sewer would cross Cedar Swamp Brook and run along the rear of the Club House and Hunting Lodge apartment properties to a pumping station located on the north side of Hunting

Lodge Road west of the Cedar Swamp Brook cross culvert. A short 50 foot long force main would connect the new pumping station to the existing 10-inch diameter Birch Road pumping station force main that is installed on the north side of Hunting Lodge Road. The existing Birch Road pumping station, owned and operated by the University of Connecticut, currently pumps wastewater flows from the University of Connecticut Depot Campus to the wastewater treatment facility at the main campus. Both the existing Birch Road pumping station and the proposed pumping station would discharge to what would become a common force main. Improvements required at the Birch Road pumping station in order to accommodate this alternative would include increasing the pump's motor size, increasing the pump's impeller diameter and changing operation of the pumps from constant speed to variable speed to allow for the varying hydraulic conditions.

One advantage of this alternative over alternatives 1 and 2 is that implementation of this alternative will allow for expansion of the wastewater collection system in the future to serve the Club House and Hunting Lodge apartment complexes and the Goodwin Elementary School. This alternative would also allow for the future elimination of existing pumping stations serving the Holinko Estates and Celeron Square residential developments. The preliminary cost estimate for this alternative is included in Table 5-4 below.

TABLE 5-4 ALTERNATIVE NO. 3 - PRELIMINARY COST ESTIMATE

Item	Quantity	Unit	Unit Price	Amount
8" PVC Gravity Sewer	10,893	L.F.	\$ 80.00	\$ 871,440.00
12" PVC Gravity Sewer	1,397	L.F.	88.00	122,936.00
15" PVC Gravity Sewer	3,286	L.F.	93.00	305,598.00
4' Dia. Sewer Manhole	67	Each	3,500.00	234,500.00
8"x6" Building Connection Wyes	94	Each	200.00	18,800.00
6" PVC Building Lateral Sewer	2,260	L.F.	50.00	113,000.00
8" Dia. Force Main Pipe	50	L.F.	70.00	3,500.00
Connection to Existing Force Main	1	L.S.	5,000.00	5,000.00
Temporary Trench Pavement	10,947	L.F.	13.00	142,311.00
Permanent Trench Pavement	10,947	L.F.	20.00	218,940.00
Mill and Overlay State Road	11,290	S.Y.	15.00	169,350.00
Traffic Protection	84	Days	360.00	30,240.00
Cedar Swamp Brook Crossing	1	L.S.	60,000.00	60,000.00
Birch Rd. Pump Sta. Modifications	1	L.S.	200,000.00	200,000.00
Pumping Station	1	L.S.	1,200,000.00	1,200,000.00
Subtotal - Construction Cost				\$ 3,695,615.00
Contingency			25%	\$ 923,903.75
Administrative, Fiscal, and Technical Services			20%	\$ 739,123.00
Total Project Cost				\$ 5,358,641.75

I. ALTERNATIVE EVALUATION

The best alternatives for implementation are selected based upon an evaluation of cost among the viable alternatives and consideration of non-monetary characteristics. Non-monetary factors that are often considered include environmental effects, public acceptance, degree of intergovernmental cooperation required, potential to accommodate future growth scenarios, as well as other factors. Table 5-5 is a summary of the relative advantages and disadvantages of the viable alternatives.

TABLE 5-5 CONSIDERATION OF ALTERNATIVE ADVANTAGES AND DISADVANTAGES

Alternative	Advantages	Disadvantages
<p><u>Alternative Number 1</u></p> <p>Gravity Collection System Pumping Station at Site A Force main discharge to existing manhole at end of North Hillside Road</p>	<ul style="list-style-type: none"> • Lowest capital cost (\$5,105,000) • Least amount of intergovernmental cooperation required • Possible to implement immediately • Avoids construction in UCONN/DEP conservation easement area 	<ul style="list-style-type: none"> • Does not have ability to provide future service for Club House and Hunting Lodge apartments, Goodwin School or elimination of the pumping stations serving Holinko Estates and Celeron Square • Requires easement/property acquisition agreements with Jensen’s and UCONN
<p><u>Alternative Number 2</u></p> <p>Gravity Collection System Pumping Station at Site A Force main discharge to end of sewer in extension of North Hillside Road</p>	<ul style="list-style-type: none"> • Does not require construction of force main in right of way on UCONN property • Avoids construction in UCONN/DEP conservation easement area 	<ul style="list-style-type: none"> • Highest capital cost (\$5,429,000) • Requires easement/property acquisition agreements with Jensen’s and UCONN • Cannot implement until North Hillside Road extension is constructed
<p><u>Alternative Number 3</u></p> <p>Gravity Collection System Pumping Station at Site B Force main connection to existing pipe in Hunting Lodge Road</p>	<ul style="list-style-type: none"> • Able to support future sewer service for Club House and Hunting Lodge apartments, Goodwin School and elimination of the pumping stations serving Holinko Estates and Celeron Square • Possible to implement immediately • Avoids construction in UCONN/DEP conservation easement area 	<ul style="list-style-type: none"> • Second lowest capital cost (\$5,359,000) • Most amount of intergovernmental cooperation required • Requires easement/property acquisition agreements with Jensen’s, Club House Apartments, and Hunting Lodge Apartments • Gravity sewer would need to cross Cedar Swamp Brook

J. SELECTED ALTERNATIVE

Alternative Number 1 has been selected as the preferred alternative due to its ability to serve the community sewer service area, its cost relative to other alternatives, and its ability to be implemented without significant environmental impacts.

Alternative Number 1 includes a gravity sewer collection system serving the Four Corner's area, as indicated in Figure 5-2, a pumping station located at the rear of Jensen's Rolling Hills Mobile Home Park, and a force main conveying wastewater from the pumping station to the existing sanitary sewer system at the current terminus of North Hillside Road. The estimated cost of this alternative is \$5,105,000.

K. PRELIMINARY SCHEDULE FOR IMPLEMENTATION

Implementation of the selected alternative will entail three basic phases after Town approval and funding. These phases include design of the project improvements and preparation of construction documents, tendering those documents and contracting with a contractor to build the project improvements, and finally construction of the project improvements. Figure 5-3 illustrates preliminary project schedule and indicates that implementation of the selected alternative can be expected to take approximately 26 months.

VI. IMPACT OF THE PROPOSED PLAN ON THE ENVIRONMENT

A. GENERAL

The previous chapters evaluated alternatives to provide reliable cost effective wastewater disposal for the Four Corners area of Mansfield. Potential environmental impacts associated with these alternatives were also evaluated during the selection process. The selected plan that is presented in Chapter V was selected based on its technical feasibility while recognizing the environmental impacts of each option. While the selected plan represents an environmentally feasible and acceptable plan, potential impacts have been identified in the implementation of the selected plan. Many of the impacts are due to the construction of the new facilities and will therefore be temporary in nature. These impacts, as well as mitigating strategies, are presented in the following sections.

B. DIRECT IMPACTS

1. Air Quality

Any air quality impacts resulting from the project will be minimal and generally short term in nature. It is expected that dust and engine exhaust emissions from construction activities will have the greatest impact on air quality. The construction contractor will be required to employ dust control measures and to maintain his construction equipment within current EPA exhaust emission criteria in order to mitigate this temporary adverse environmental impact. The pumping station proposed by this project will be designed to minimize odor generation potential and will be provided with odor control equipment.

2. Water Quality

The implementation of a community wastewater collection system in the Four Corners area will have a long term beneficial impact upon the local surface water quality through the elimination of untreated wastewater discharges and their associated bacterial and nutrient loadings.

During construction of the wastewater collection system there is a potential for temporary surface water impacts associated with construction and dewatering activities. Appropriate use of sedimentation and erosion control measures during construction will be employed in order to mitigate these potential adverse impacts.

Potential impacts to groundwater table levels will be mitigated through the use of trench drainage interrupters in areas where the sanitary sewer is proposed to be installed below current groundwater table elevations.

The average daily design wastewater flow is estimated to be 169,429 gallons per day. This volume is equivalent to 0.03 inches of precipitation over the project area. Due to the volume of wastewater being removed from the project area by the proposed wastewater collection system being less than 0.06 percent of the average annual rainfall, no impact to groundwater levels in the project area is anticipated.

3. Ambient Noise Levels

A temporary increase in ambient noise levels may occur during project construction due to construction equipment and trucking operations. Restricting the construction contractor's hours of operation and requiring that the construction equipment and truck's mufflers and exhaust systems be in good working order can effectively mitigate this impact.

The standby electric generator associated with the pumping station included in the proposed project will be a long term noise source. This impact will be effectively mitigated by scheduling generator set exercising during weekday daytime working hours and by employing high quality exhaust mufflers and acoustic generator set enclosures.

4. Traffic

A temporary increase in traffic congestion in the project area due to lane closures associated with construction operations and materials deliveries can be expected during the 12 month construction period. Access for emergency vehicles and school buses will be maintained at all times. Traffic issues will be closely coordinated with public safety and education department officials. Upon completion of construction, no long term traffic impacts are foreseen.

5. Environmentally Sensitive Areas

a. Floodplains

This project consists mainly of sanitary sewer pipelines and subsurface structures such as manholes. No impacts to flood elevations or flood storage capacity are anticipated because these facilities will be constructed underground. Above ground structures, such as pumping stations will be located outside of the established flood hazard zones. Sanitary sewer pipelines and structures located within floodplains will be protected from flooding through the use of watertight construction techniques, such as watertight manhole frames and covers.

b. Wetlands

Wetland soils and watercourses in Mansfield are identified on a map entitled “Designated Inland Wetlands and Watercourses of the Town of Mansfield”. Any activity with 150 feet of a wetland or watercourse which may result in the removal or deposition of material, or any obstruction, construction, alteration or pollution of the wetland or watercourse is subject to regulation by the Mansfield Inland Wetland Agency. The selected plan includes elements that are anticipated to lie within areas regulated by the Inland Wetland Agency. It is recommended that a soil scientist be engaged to evaluate the project site during the design phase and that the findings of this evaluation be incorporated into the design of the selected alternative in order to minimize and mitigate any potential impact upon inland wetland and watercourse areas.

The potential for increased erosion and sedimentation into sensitive areas exists during the construction phase of this project. This will be mitigated by the use of properly selected, installed and maintained erosion control devices that will be the responsibility of the Contractor to maintain and the construction inspector to enforce.

In addition to the recommendations of the soil scientist’s evaluation, the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control (DEP Bulletin 34), as published by the Connecticut Department of Environmental Protection will be used as a basis for all sedimentation and erosion control measures.

c. Aquifers

There are no aquifer protection zones within the project area.

d. Endangered Species

The Natural Resources Center at the Connecticut Department of Environmental Protection has reviewed the Natural Diversity Data Base map and files and has concluded that there are no known extant populations of Federal or State endangered species, or critical biological resources in the project area. Correspondence from the Natural Resources Center at the Connecticut Department of Environmental Protection is included in Appendix C.

d. Coastal Zone Management

The proposed project is not within the Coastal Zone Management Boundary.

e. Wild and Scenic Rivers

There are no Wild and Scenic Rivers within the project area.

f. Prime Agricultural Land

There are no prime agricultural lands within the project area.

g. Historical, Archeological or National Landmarks

The majority of this project will be located within previously disturbed highway right of way lines and within developed land areas. There are no known historical, archeological or National landmarks located within the project area. During the design phase of the project the State Historic Preservation Office will be contacted to assess the potential for archeological resources along the project route, especially in undisturbed off-road areas. If the potential for archeological resources is thought to be high, an archeological investigation will be performed.

6. Socio-Economic Impacts

The estimated cost of the project is \$5,105,000 dollars. Articles II and III of the Town of Mansfield Sewer Use Ordinance address the methods established to apportion the costs of this project among the users. A copy of the Town of Mansfield, Sewer Use Ordinance is included in Appendix B.

7. Substantial Aesthetic or Visual Effects

Except for the proposed pumping station, this project will be constructed entirely underground and will not be visible except for manhole frame and covers. The majority of the proposed project will lie within existing street right of ways. In areas where the proposed sewers are located in off-road right of way areas the ground surface will be restored as much as possible to pre-construction conditions. The pumping station is expected to include the construction of a small building to house electrical equipment and controls. Design of this building will respect the residential nature of its surroundings.

C. INDIRECT IMPACTS

There will be no long term adverse environmental effects on air or water quality due to this project. There will be no change in flood elevations, flood storage, or stream erosion patterns due to this project. This project will not result in the displacement of homes or businesses. This project will reinforce the development patterns envisioned by the State of Connecticut's and Town of Mansfield's plans of conservation and development.

D. RELATIONSHIP OF PROJECT TO APPROVED LAND USE PLANS

The selected plan is consistent with the State of Connecticut, Conservation and Development Policies Plan for Connecticut 2005 – 2010 as prepared by the State of Connecticut, Office of Policy and Management. This project is consistent with the Town of Mansfield Conservation and Development Plan adopted in 2006 and is consistent with comments received from the Mansfield Planning and Zoning Commission.

E. ENERGY CONSIDERATIONS

Energy expenditures for the project fall into two categories, construction and operation. Energy consumption for the construction phase of the project includes the energy consumed in production of the construction materials (e.g. pipe, manholes, bituminous concrete pavement) and the fuel and lubricants utilized by the construction equipment and trucks utilized in the building process. Energy consumption for the operational phase of the project includes energy required for maintenance vehicles and equipment and the electrical energy utilized by the wastewater pumps.

F. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Resources committed to the implementation of the selected plan include the labor and materials necessary to construct the sanitary sewers, force main and pumping station. The project also requires a long term commitment on the part of the Town of Mansfield to provide labor and materials for the proper operation and maintenance of the wastewater collection and conveyance system.

G. UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts are limited to short-term impacts directly related to the construction of the selected plan. Dust and an increase in ambient noise levels will be present during construction operations. Temporary traffic restrictions or detours may be necessary in order to accommodate construction in local streets. Erosion or sedimentation may occur in or adjacent to areas where sewer lines are adjacent to wetlands or surface waters. Excavation may be necessary in or adjacent to

designated wetlands if no feasible routing alternatives exist. All of these adverse impacts can be minimized or mitigated as indicated below.

H. MITIGATION OF ADVERSE ENVIRONMENTAL IMPACTS

Most of the construction related impacts of the selected plan can be mitigated to a significant degree by the use of proper construction techniques and environmental control measures.

Dust can be controlled by the use of dust control measures such as the use of regenerative air sweepers and sprinkler trucks.

Ambient noise level impacts can be minimized by limiting construction hours and employing properly muffled equipment.

Traffic congestion can be minimized through the use of well planned vehicle rerouting, proper construction zone traffic patterns, and public notification of construction periods and locations.

Controls such as anti-tracking pads, hay bales, siltation fence, silt sacks, temporary seeding and mulching can be employed to effectively mitigate erosion and sedimentation impacts. Construction easements through wetland areas should be minimized as much as possible while maintaining sufficient width for safe and efficient construction operations. No equipment or material storage should be located within wetland areas and no fill should be placed in wetland areas and existing ground contours should be maintained. Vegetative clearing should be minimized and land surface restoration should occur as quickly as possible. All stream crossings should be made perpendicular to the stream channel and be made during low stream flow conditions. The stream bed should be restored immediately upon crossing completion.

The impact mitigation measures outlined above will be incorporated in to the project's construction plans and specifications subject to regulatory agency review and approval.

I. LICENSES, PERMITS AND CERTIFICATIONS NEEDED

The following applications will be filed and approval received before the construction of the selected plan is able to proceed:

- Mansfield Town Council – The Town Council will conduct a review of the project, provide comment on the project, and review methods of funding the project.
- Mansfield Planning and Zoning Commission – The project will need to be referred to the Planning and Zoning Commission for a report pursuant to Chapter 126, Section 8-24 of the Connecticut General Statutes.

- Mansfield Inland Wetlands Agency - The Inland Wetlands Agency will review the project and provide an inland wetlands activity permit.
- Mansfield Conservation Commission – The Conservation Commission will make a recommendation to the Inland Wetlands Agency.
- Mansfield Building Department – The Town of Mansfield Building Department will require a building permit for the pumping station construction activities. This permit will be filed with the Building Department.
- Connecticut Department of Environmental Protection – The Connecticut Department of Environmental Protection will need to review and approve this study and any plans and specifications prepared for the selected plan.
- Connecticut Department of Transportation – The Connecticut Department of Transportation will require an Encroachment Permit for work within the State Highway right of ways.

APPENDIX A
REFERENCES

REFERENCES

2004 Annual Report on Air Quality in New England, August 2005, United States Environmental Protection Agency, Region 1 Office of Environmental Measurement and Evaluation, North Chelmsford, MA

2006 Mansfield Plan of Conservation and Development, Effective Date: April 15, 2006, Town of Mansfield

201 Facilities Plan Supplementary Study, 1985, Mansfield Department of Public Works

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University of Connecticut Outlying Parcels Master Plan Final Report, June 2000, JJR Ann Arbor, Michigan

Wastewater Facilities Pre-design Study, April, 1992, Whitman and Howard, Inc.

Water Quality Standards, State of Connecticut, Department of Environmental Protection

Water Quality Standards Database, U.S. Environmental Protection Agency

Wetlands and Watercourses Regulations, The Town of Mansfield, Connecticut, effective date 7-1-99, Town of Mansfield

Zoning Regulations of the Town of Mansfield, Connecticut, Revised to July 25, 2007, Town of Mansfield

APPENDIX B
SEWER USE ORDINANCE

Chapter 159: SEWERS AND WATER

[HISTORY: Adopted by the Town Council of the Town of Mansfield as indicated in article histories. Amendments noted where applicable.]

GENERAL REFERENCES

Authorities — See Ch. 5.
Conservation Commission — See Ch. 11.
Inland Wetlands Agency — See Ch. 40.
Planning and Zoning Commission — See Ch. 67.
Regional Planning Agency — See Ch. 82.
Zoning Board of Appeals — See Ch. 94.
Building construction — See Ch. 107.
Public improvements — See Ch. 143.
Storage tanks — See Ch. 163.
Streets and sidewalks — See Ch. 166.
Town facilities — See Ch. A197.

ARTICLE I Sewer Use [Adopted 2-10-1975, effective 3-10-1975]

§ 159-1. Title.

This article shall be known and may be cited as "Sewer Use Ordinance."

§ 159-2. Definitions and word usage.

A. Unless the context specifically indicates otherwise, the meanings of terms used in this article shall be as follows:

BIOCHEMICAL OXYGEN DEMAND (BOD) — The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedure in five days at 20° C., expressed in milligrams per liter.

BUILDING DRAIN — That part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste and other drainage pipes inside the walls of the building and conveys it to the building sewer, beginning five feet (1.5 meters) outside the inner face of the building wall.

BUILDING SEWER — The extension from the building drain to the public sewer or other place of disposal, also called house connection.

COMBINED SEWER — A sewer intended to receive both wastewater and storm or surface water.

DIRECTOR — The Director of Public Works of the Town of Mansfield or his or her authorized deputy, agent or representative.

EASEMENT — An acquired legal right for the specific use of land owned by others.

FLOATABLE OIL — Oil, fat or grease in a physical state such that it will separate by gravity from wastewater by treatment in an approved pretreatment facility. A wastewater shall be considered free of floatable fat if it is properly pretreated and the wastewater does not interfere with the collection system.

GARBAGE — The animal and vegetable waste resulting from the handling, preparation, cooking and serving of foods.

INDUSTRIAL WASTES — The wastewater from industrial processes, trade or business, as distinct from domestic or sanitary wastes.

NATURAL OUTLET — Any outlet, including storm sewers and combined sewer overflows, into a watercourse, pond, ditch, lake or other body of surface or groundwater.

PERSON — Any individual, firm, company, association, society, corporation or group.

PH — The reciprocal of the logarithm of the hydrogen-ion concentration. The concentration is the weight of hydrogen-ions, in grams, per liter of solution. Neutral water, for example, has a pH value of 7.0 and a hydrogen-ion concentration of 10^{-7} .

PROPERLY SHREDDED GARBAGE — The wastes from the preparation, cooking and dispensing of food that have been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particle greater than 1/2 inch (1.27 centimeters) in any dimension.

PUBLIC SEWER — A common sewer controlled by a governmental agency or public utility.

SANITARY SEWER — A sewer that carries liquid and water-carried wastes from residences, commercial buildings, industrial plants and institutions, together with minor quantities of ground-, storm- and surface waters that are not admitted intentionally.

SEWER — A pipe or conduit that carries wastewater or drainage water.

SLUG — Any discharge of water or wastewater which in concentration of any given constituent or in quantity of flow exceeds for any period of duration longer than 15 minutes more than five times the average twenty-four-hour concentration or flows during normal operation and shall adversely affect the collection system and/or performance of the wastewater treatment works.

STORM DRAIN — (Sometimes termed "storm sewer") A drain or sewer for conveying water, groundwater, subsurface water or unpolluted water from any source.

SUSPENDED SOLIDS — Total suspended matter that either floats on the surface of or is in suspension in water, wastewater or other liquids and that is removable by laboratory filtering as prescribed in Standard Methods for Examination of Water and Wastewater and referred to as nonfilterable residue.

UNPOLLUTED WATER — Water of quality equal to or better than the effluent criteria in effect or water that would not cause violation of receiving water quality standards and would not be benefited by discharge to the sanitary sewers and wastewater treatment facilities provided.

WASTEWATER — The spent water of a community. From the standpoint of source, it may be a combination of the liquid and water-carried wastes from residences, commercial buildings, industrial plants and institutions, together with any groundwater, surface water and stormwater that may be present.

WASTEWATER FACILITIES — The structures, equipment and processes required to collect, carry away and treat domestic and industrial wastes and dispose of the effluent.

WASTEWATER TREATMENT WORKS — An arrangement of devices and structures for treating wastewater, industrial wastes and sludge. Sometimes used as synonymous with "waste treatment plant" or "wastewater treatment plant" or "water pollution control plant."

WATERCOURSE — A natural or artificial channel for the passage of water, either continuously or intermittently.

"Shall" is mandatory; "may" is permissive.

§ 159-3. Use of public sewers required.

- A. It shall be unlawful for any person to place, deposit or permit to be deposited in any unsanitary manner on public or private property within the Town of Mansfield, or in any area under the jurisdiction of said town, any human or animal excrement, garbage or objectionable waste.
- B. It shall be unlawful to discharge to any natural outlet within the Town of Mansfield, or in any area under the jurisdiction of said town, any wastewater or other polluted waters, except where suitable treatment has been provided in accordance with subsequent provisions of this article.
- C. Except as provided in a certain ordinance dated April 5, 1974, entitled, "An Ordinance Regulating Construction of Subsurface Sewage Disposal Systems and Water Supply Wells," Editor's Note: See Art. V, Sewage Disposal Systems and Water Supply Wells, of this chapter, it shall be unlawful to construct or maintain any privy, privy vault, septic tank, cesspool or other facility intended or used for the disposal of wastewater.
- D. The owner(s) of all houses, buildings or properties used for human occupancy, employment, recreation or other purposes, located on property situated within the Town of Mansfield, which property has frontage on any street, alley or right-of-way in which there is now located or may be in the future be located a public sanitary or combined sewer of the town, is hereby required at the owner's (or owners') expense to install suitable toilet facilities therein and to connect such facilities directly with the proper public sewer in accordance with the provisions of this chapter, within 90 days after date of official notice to do so, provided that any part of said public sewer is within 100 feet (30.5 meters) of any part of said frontage line.

§ 159-4. Building sewers and connections.

- A. No person shall uncover, make any connections with or opening into, use, alter or disturb any public sewer or appurtenance unless authorized by the Director. Any person proposing a new discharge into the system or a substantial change in the volume or character of pollutants that are being discharged into the system shall notify the Director at least 45 days prior to the proposed change or connection. **[Amended 2-13-1979, effective 3-10-1979]**
- B. There shall be two classes of building sewer permits: for residential and commercial service and for service to establishments producing industrial wastes. In either case, the owner(s) or his or her agent shall make application on a special form furnished by the town. The permit application shall be supplemented by any plans, specifications or other information considered pertinent in the judgment of the Director. A permit and inspection fee of \$50 for a residential or

commercial building sewer permit and \$100 for an industrial building sewer permit shall be paid to the town at the time the application is filed.

- ⊖ All costs and expenses incidental to the installation and connection of the building sewer shall be borne by the owner(s). The owner(s) shall indemnify the town for any loss or damage that may directly or indirectly be occasioned by the installation of the building sewer.
- D. A separate and independent building sewer shall be provided for every building; except where one building stands upon a lot having no frontage and located at the rear of another building on a lot having frontage and no private sewer is available or can be constructed to the rear building through an adjoining alley, court, yard or driveway, then in such case the front building sewer may be extended to the rear building and the whole considered as one building sewer, but the town does not and will not assume any responsibility for damage caused by or resulting from any such single connection aforementioned.
- E. Old building sewers may be used in connection with new buildings only when they are found, on examination and test by the Director, to meet all requirements of this article.
- F. The size, slope, alignment, materials of construction of a building sewer and the methods to be used in excavating, placing of the pipe, jointing, testing and backfilling the trench shall all conform to the requirements established by the Director. In the absence of such requirements or in amplification thereof, the materials and procedures set forth in appropriate specifications of the ASTM and WPCF Manual of Practice No. 9 shall apply.
- G. Whenever possible, the building sewer shall be brought to the building at an elevation below the basement floor. In all buildings in which any building drain is too low to permit gravity flow to the public sewer, sanitary sewage carried by such building drain shall be lifted by an approved means and discharged to the building sewer.
- H. No person(s) shall make connection of roof downspouts, foundation drains, areaway drains or other sources of surface runoff or groundwater to a building sewer or building drain which in turn is connected directly or indirectly to a public sanitary sewer unless such connection is approved by the Director for purposes of disposal of polluted surface drainage.
- I. The connection of the building sewer into the public sewer shall conform to the requirements of the Director and those procedures set forth in appropriate specifications of the ASTM and the WPCF Manual of Practice No. 9. All such connections shall be made gastight and watertight and verified by testing as required by the Director. Any deviation from the prescribed procedures and materials must be approved by the Director before installation.

The applicant for the building sewer permit shall notify the Director when the building sewer is ready for inspection and connection to the public sewer. The connection and testing shall be made under the supervision of the Director or his or her representative.
- K. All excavations for building sewer installation shall be adequately guarded with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the town.

§ 159-5. Use of public sewers.

- A. No person(s) shall discharge or cause to be discharged any unpolluted waters such as stormwater, groundwater, roof runoff, subsurface drainage or cooling water to any sewer, except stormwater runoff from limited areas, which stormwater may be polluted at times, may be discharged to the sanitary sewer by permission of the Director.
- B. Stormwater other than that exempted under Subsection A and all other unpolluted drainage shall be discharged to such sewers as are specifically designated as combined sewers or storm sewers or to a natural outlet approved by the Director and other regulatory agencies. Unpolluted industrial cooling water or process waters may be discharged, on approval of the Director and the State of Connecticut Department of Environmental Protection, to a storm sewer, combined sewer or natural outlet.
- C. No person(s) shall discharge or cause to be discharged any of the following described waters or wastes to any public sewers:
 - (1) Any gasoline, benzene, naphtha, fuel oil or other flammable or explosive liquid, solid or gas.
 - (2) Any waters containing toxic or poisonous solids, liquids or gases in sufficient quantity, either singly or by interaction with other wastes, to injure or interfere with any waste treatment process, constitute a hazard to humans or animals, create a public nuisance or create any hazard in the receiving waters of the wastewater treatment plant.
 - (3) Any waters or wastes having a pH lower than 5.5 or higher than 9.5 or having any other corrosive property capable of causing damage or hazard to sewer, structures equipment, process or personnel at the wastewater treatment works.
 - (4) Solid or viscous substances in quantities or of such size capable of causing obstruction to the flow in sewers or other interference with the proper operation of the wastewater facilities, such as but not limited to ashes, bones, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, unground garbage, whole blood, paunch manure, hair and fleshings, entrails and paper dishes, cups, milk containers, etc., either whole or ground by garbage

grinders.

D. The following described substances, materials, waters or waste shall be limited in discharges to municipal systems to concentrations or quantities which will not harm either the sewers, wastewater treatment process or equipment, will not have an adverse effect on the receiving stream or will not otherwise endanger lives, limb or public property or constitute a nuisance. The Director may set limitations lower than the limitations established in the regulations below if in his or her opinion such more severe limitations are necessary to meet the above objectives. In forming his or her opinion as to the acceptability, the Director will give consideration to such factors as the quantity of subject waste in relation to flows and velocities in the sewers, materials of construction of the sewers, the wastewater treatment process employed, capacity of the wastewater treatment plant, degree of treatability of the waste in the wastewater treatment plant and other pertinent factors. The limitations or restrictions on materials or characteristics of waste or wastewaters discharged to the sanitary sewer which shall not be violated without approval of the Director are as follows:

- (1) Wastewater having a temperature higher than 150° F. (65° C.).
- (2) Wastewater containing more than 25 milligrams per liter of petroleum oil, nonbiodegradable cutting oils or product of mineral oil origin.
- (3) Wastewater from industrial plants containing floatable oils, fat or grease.
- (4) Any garbage that has not been properly shredded (see § 159-2A, definition of "properly shredded garbage"). Garbage grinders may be connected to sanitary sewers from homes, hotels, institutions, restaurants, hospitals, catering establishments or similar places where garbage originates from the preparation of food in kitchens for the purpose of consumption on the premises or when served by caterers.
- (5) Any waters or wastes containing iron, chromium, copper, zinc and similar objectionable or toxic substances to such degree that any such material received in the composite wastewater at the wastewater treatment works exceeds the limits established by the Director.
- (6) Any waters or wastes containing odor-producing substances exceeding limits which may be established by the Director.
- (7) Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the Director in compliance with applicable state or federal regulations.
- (8) Quantities of flow, concentrations or both which constitute a "slug" as defined herein.
- (9) Waters or wastes containing substances which are not amenable to treatment or reduction by wastewater treatment processes employed or are amenable to treatment only to such degree that the wastewater treatment plant effluent cannot meet the requirements of other agencies having jurisdiction over discharge to the receiving waters.
- (10) Any water or wastes which by interaction with other water or wastes in the public sewer system release obnoxious gases, form suspended solids which interfere with the collection system or create a condition deleterious to structures and treatment processes.

E. Discharges creating nuisances.

- (1) If any waters or wastes are discharged or are proposed to be discharged to the public sewers, which waters or waste contain the substances or possess the characteristics enumerated in Subsection D and which, in the judgment of the Director, may have a deleterious effect upon the wastewater facilities, processes, equipment or receiving waters or which otherwise create a hazard to life or constitute a public nuisance, the Director may:
 - (a) Reject the wastes.
 - (b) Require pretreatment to an acceptable condition for discharge to the public sewers.
 - (c) Require control over the quantities and rate of discharge.
 - (d) Require payment to cover added cost of handling and treating the wastes.
- (2) If the Director permits the pretreatment or equalization of waste flows, the design and installation of the plants and equipment shall be subject to the review and approval of the Director and the State Department of Environmental Protection.

F.

Grease, oil and sand interceptors shall be provided when, in the opinion of the Director, they are necessary for the proper handling of liquid wastes containing floatable oil, grease in excessive amounts, as specified in Subsection D(3), or any flammable wastes, sand or other harmful ingredients. All interceptors shall be of a type and capacity approved by the Director and shall be located as to be readily and easily accessible for cleaning and inspection. In the maintaining of these interceptors, the owner(s) shall be responsible for the proper removal and disposal by appropriate means of the captured material and shall maintain records of the dates and means of disposal which are subject to review by the Director. Any removal and hauling of the collected materials not performed by the owner's (or owners') personnel must be performed by

currently licensed waste disposal firms.

- G. Where pretreatment or flow-equalizing facilities are provided or required for any waters or wastes, they shall be maintained continuously in satisfactory and effective operation by the owner(s) at his or her expense.
- H. When required by the Director, the owner of any property serviced by a building sewer carrying industrial wastes shall install a suitable structure, together with such necessary meters and other appurtenances in the building sewer to facilitate observation, sampling and measurement of the wastes. Such structure, when required, shall be accessibly and safely located and shall be constructed in accordance with plans approved by the Director and the State Department of Environmental Protection. The structure shall be installed by the owner(s) at his or her expense and shall be maintained by him or her so as to be safe and accessible at all times.
- I. All measurements, tests and analysis of the characteristics of waters and wastes to which reference is made in this article shall be determined in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater," published by the American Public Health Association. Sampling methods, location, times, durations and frequencies are to be determined on an individual basis, subject to approval by the Director. All industries discharging into a public sewer shall perform such monitoring of their discharge as the Director and/or other duly authorized employees of the town may reasonably require, including installation, use and maintenance of monitoring equipment, keeping records and reporting the results of such monitoring to the Director. Such records shall be made available upon request by the Director to other agencies having jurisdiction over discharges to the receiving waters. **[Amended 2-13-1979, effective 3-10-1979]**
- J. No statement contained in this section shall be construed as preventing any special agreement or arrangement between the town and any industrial concern whereby an industrial waste of unusual strength or character may be accepted by the town for treatment, provided that such agreements do not contravene any requirements of existing state and federal laws and are compatible with any user charge and industrial cost recovery system in effect. **[Amended 2-13-1979, effective 3-10-1979]**
- K. Prior to discharge or permission to discharge into the Town of Mansfield sewers, the applicant industry shall obtain written approval from the State of Connecticut Department of Environmental Protection, in the form of a permit, allowing the proposed discharge. **[Amended 2-13-1979, effective 3-10-1979]**
- L. Any new discharge from a single source of domestic wastewater in excess of 5,000 gallons per day or cooling waters shall be authorized by a permit from the State of Connecticut Department of Environmental Protection, Director of Water Compliance and Hazardous Substances. **[Amended 2-13-1979, effective 3-10-1979]**

§ 159-6. Tampering with equipment; penalties for offenses. [Amended 1-13-1997, effective 2-10-1997]

No person(s) shall maliciously, willfully or negligently break, damage, destroy, uncover, deface or tamper with any structure, appurtenance or equipment which is a part of the wastewater facilities. Any person or persons violating this article shall be guilty of an infraction.

§ 159-7. Powers and authority of inspectors.

- A. The Director and other employees duly authorized by the Director of the Town of Mansfield and bearing proper credentials and identification are hereby authorized to enter all properties with the authorization of the owner, occupant or person in charge of such property, for the purpose of making inspections, observations, measurements, samplings, testing and procuring other information relevant and necessary towards protecting the community sewer system in accordance with the provisions of this article. Such entries shall not have for its purpose the harassment of any owner or occupant and shall be made in the manner which will cause the least amount of inconvenience to any owner or occupant, consistent with the efficient performance of the duties of the Director. The owner, person in charge or occupant of any such premises, upon presentation by the Director, or his or her authorized agent, of proper identification, shall give the Director, or his or her authorized agent, entry upon such premises and free access to every part thereof necessary for the purpose described in this subsection.
- B. Any owner or occupant or person in charge of such premises or a tenant who refuses such entry on such premises for any of the purposes set forth in this article shall be considered to be in violation of this article and shall be fined upon conviction pursuant to the terms of § 159-9A herein.
- C. The Director or other duly authorized employees are authorized to obtain information concerning industrial processes which have direct bearing on the kind and source of discharge to the wastewater collection system. If the industry establishes to the satisfaction of the Director that any of such information, if disclosed to the public, would likely result in an advantage to a competitor of said industry, the Director may still require such information, but such information shall be disclosed only to the Director or the Water Pollution Control Authority of the Town of Mansfield and to no other persons.
- D. While performing the necessary work on private properties pursuant to this article, the Director or duly authorized employees of the town shall observe all safety rules applicable to the premises established by the company.

§ 159-8. Construal of provisions.

The provisions of this article shall be held to be minimum requirements, adopted for the protection of the public health, safety and general welfare of the Town of Mansfield, and whenever the requirements of this article are at variance with the requirements of any other lawfully adopted rules, regulations or restrictions, such rule, regulation or restriction which imposes the higher standard shall control.

§ 159-9. Penalties for offenses.

- A. Any person found to be violating any provision of this article shall be guilty of an infraction. **[Added 2-13-1979; effective 3-10-1979; 1-13-1997, effective 2-10-1997]**
- B. Any person violating any provision of this article shall be guilty of an infraction for each offense. If such offense continues for more than five days, such continuance shall constitute a new offense for each day it continues to exist thereafter. **[Amended 1-13-1997, effective 2-10-1997]**
- C. Any person violating any of the provisions of this article shall become liable to the town for any expense, loss or damage occasioned the town by reason of such violation. **[Added 2-13-1979; effective 3-10-1979]**

ARTICLE II Assessments and Charges [Adopted 1-12-1976, effective 2-10-1976]

§ 159-10. Title.

This article shall be known and may be cited as "Sewer Assessments and Charges Ordinance."

§ 159-11. Definitions.

As used in this article, the following terms shall have the meanings indicated:

CONSTRUCT A SEWERAGE SYSTEM — To acquire land, easements, rights-of-way or any other real or personal property or any interests therein, plan, construct, reconstruct, equip, extend and enlarge all or any part of a sewerage system.

LATERAL — The sewer pipe from the main sewer in the street to the property line.

LOCAL SEWER — A sewer line, including the main pipe or conduit, manholes and other structures and equipment appurtenant thereto, generally located in a public street and installed to serve properties abutting or having access to said street.

OPERATE A SEWERAGE SYSTEM — To use, equip, re-equip, repair, maintain, supervise, manage, operate and perform any act pertinent to the collection, transportation and disposal of sewage.

OUTLET CHARGE — The charge whereby trunk sewer costs, either present or deferred, are distributed among and collected from properties benefiting from such trunk sewers.

PERSON — Any person, partnership, corporation, association or public agency.

SEWER DISTRICT — An area or tract of land which may be determined by the Water Pollution Control Authority to be a division or part of the total territory that can be drained by a sewer or sewer system.

SEWAGE — Any substance, liquid or solid, which may contaminate, pollute or affect the cleanliness or purity of any water discharged into and conveyed by sewers or intended to be or customarily so discharged and conveyed.

SEWER SYSTEM — Includes the sewer, laterals, house connections, pumping stations, rights-of-way and other structures, land and equipment necessary to provide a complete and efficient system.

SEWERAGE SYSTEM — Any device, equipment, appurtenance, facility and method for collecting, transporting, receiving, treating, disposing of or discharging sewage.

TOWN — The Town of Mansfield or any of its officers or agencies serving in an official capacity.

TRUNK SEWERS — Items of a capital nature, including but not limited to trunk sewers, pumping stations and force mains, which are designed and built so that sewer districts, beyond the immediate district in which said items are built, may be served by future extensions.

WATER POLLUTION CONTROL AUTHORITY — The Water Pollution Control Authority of the Town of Mansfield, which by ordinance adopted 1-8-1979 Editor's Note: See Chapter 5, Authorities, Article I. is the Town Council. **[Amended 1-13-1997, effective 2-10-1997]**

§ 159-12. Construction of sewers by town; assessment of benefits.

- A. Resolution to construct a sewer system. At any time, a member of the Water Pollution Control Authority may introduce at a meeting of said Water Pollution Control Authority a resolution to construct a sewerage system, the costs of which are to be met in whole or in part by assessment of benefits. Said resolution shall state the general character, layout and description of the proposed system. Said resolution may also be initiated by petition of interested property owners.
- B. Preliminary planning and engineering. The Water Pollution Control Authority may at any time proceed in accordance with local and state laws and regulations, with preliminary engineering and planning of any proposed sewerage system; such engineering and planning may also include a determination of the estimated costs of the system and a schedule of estimated assessments of benefits. Prior to proceeding with such preliminary planning and engineering, the Water Pollution Control Authority may hold a public hearing at which affected property owners may be heard concerning the proposed project. Notice of the time, place and purpose of such hearing shall be published at least 10 days before the date thereof in a newspaper having a circulation in the town. Such public hearing, if held, shall be in addition to the public hearing required in Subsection C below.
- C. Public hearing. No resolution authorizing the construction of a sewerage system shall be adopted by the Water Pollution Control Authority until a public hearing has been held thereon, at which time affected property owners of the town shall have an opportunity to be heard concerning the proposed project. Notice of the time, place and purpose of such hearing shall be published at least 10 days before the date thereof in a newspaper having a circulation in the town. Prior to conducting a final public hearing on any sewerage project, the Water Pollution Control Authority shall submit all necessary information regarding the project to the Mansfield Planning and Zoning Commission for a report, pursuant to Chapter 126, Section 8-24 of the Connecticut General Statutes. The Authority may also submit the project to any other local, state or federal agency it deems necessary for a review.
- D. Action by Water Pollution Control Authority on proposed resolution. Not less than 10 nor more than 30 days following the public hearing referred to above, the Water Pollution Control Authority may approve said resolution. Said resolution may be amended prior to passage to reduce the general layout, character and scope of the proposed sewerage system without further notice, publication or hearing; but said resolution shall not be amended to increase the general layout, character or scope of the proposed sewerage system.
- E. Power of assessment. At any time after the Water Pollution Control Authority has acquired or constructed a sewerage system or portion thereof, the Water Pollution Control Authority may apportion and assess the whole or any portion of the cost thereof upon the lands and buildings in the town, which in its judgment, are especially benefited thereby, whether they abut on such sewerage system or not and upon the owners of such land and buildings, according to such rule as such Water Pollution Control Authority adopts, subject to the right of appeal as hereinafter provided. Such benefits shall be made in accordance with the provisions of Section 7-249 of the Connecticut General Statutes, as amended.
- F. Public hearing on proposed assessment. No assessment shall be made until after a public hearing before the Water Pollution Control Authority at which the owner of the property to be assessed shall have an opportunity to be heard concerning the proposed assessment. Notice of the time, place and purpose of such hearing shall be published at least 10 days before the date thereof in a newspaper having a circulation in the town, and a copy of such notice shall be mailed to the owner of any property to be affected thereby at such owner's address as shown in the last completed grand list of the town or at any later address of which the Water Pollution Control Authority may have knowledge. A copy of the proposed assessment shall be on file in the office of the Town Clerk and available for inspection by the public for at least 10 days before the date of such hearing. When the Water Pollution Control Authority has determined the amount of the assessment to be levied, it shall file a copy thereof in the office of Town Clerk and, not later than five days after such filing, shall cause the same to be published in a newspaper having a circulation in the town. Such publication shall state the date on which such assessment was filed and that any appeals from such assessment must be taken within 21 days after such filing.
- G. Appeal. Any person aggrieved by any assessment may appeal to the Superior Court for the judicial district or Tolland County in accordance with Section 7-250 of the General Statutes, as amended. No such appeal shall stay proceedings for the collection of the particular assessment upon which the appeal is predicated, but the appellant shall be reimbursed for any overpayments made if, as a result of such appeal, his or her assessment is reduced.

§ 159-13. Deferment of benefit assessments.

- A. Sewer Districts. The Water Pollution Control Authority may divide the total territory to be benefited by a sewerage system into districts and may levy assessments against the property benefited in each district separately. In assessing benefits against property in any district, the Water Pollution Control Authority may add to the cost of the part of the sewerage system located in the district a proportionate share of the cost of any part of the sewerage system located outside the district but deemed by the Water Pollution Control Authority to be necessary or desirable for the operation of the part of the system within the district. In assessing benefits and apportioning the amount to be raised thereby among the properties benefited, the Water Pollution Control Authority may give consideration to the area, frontage, grand list valuation and to present or permitted use or classification of benefited properties and to any other relevant factor. The Water Pollution Control Authority may make reasonable allowances in the case of properties having a frontage on more than one street and whenever for any reason the particular situation of any property requires an allowance. No assessment shall be made against any property in excess of the special benefit to accrue to such property.

- B. Excess sewer costs. Whenever the Water Pollution Control Authority shall determine that the cost of a sewer or sewerage system will exceed the benefit to the area to be sewerred immediately and directly and when such excess cost is due to increased size or depth of such sewer or to other costs which are necessary or incidental in order that such sewer or the sewer system of which it is a part may be suitable for extension in the future to serve one or more other districts which could naturally drain into or be served by such sewer or sewerage system, the Water Pollution Control Authority shall pay such excess cost and defer the assessment of said excess costs until such time as the benefits shall be more immediate. The Water Pollution Control Authority shall place a caveat on the land records in each instance where the assessments of benefits have been deferred.
- C. Assessment of deferred excess sewer costs. Whenever the Water Pollution Control Authority shall determine that the costs of any sewer for which a layout is pending and for which a benefit assessment is to be made shall include a portion of the cost of a sewer previously built and paid for by the town, said Water Pollution Control Authority shall determine that portion of the previously deferred excess sewer costs of such sewer which will benefit the properties to be served by the sewer presently being laid out and shall include such portion of such deferred costs as a part of the costs of the sewerage system presently being laid out and assessed; subject, however, to the rights of notice, hearing, appeal and the other provisions outlined in § 159-12 herein.

§ 159-14. Establishment of connection charges; in lieu of assessments.

- A. Provision for connection charges in lieu of assessments. Whenever a sanitary sewer has been laid out and constructed by the Water Pollution Control Authority in any district and whenever said Water Pollution Control Authority had or has determined at the time of the completion thereof that the sewer would not be an immediate benefit to any real estate because of its lowness or other topographic feature or because of its distance from a sewer main, or because of its being in an undeveloped condition, or because of its special use such as for a cemetery, or whenever said Water Pollution Control Authority had levied an assessment against a property which is benefited in accordance with its present use, but for which a greater benefit would accrue in case of an increased intensity of use of the sanitary sewer, and that such benefits would not accrue until there is a change in conditions or accessibility, in applicable zoning regulations, in development of the area, in extension of a sewer main, in use or in other conditions, the said Water Pollution Control Authority may defer any assessment of benefits and, in lieu thereof, provide for connection charges for the use of said sanitary sewer.
- B. When connections may be made. In the event that a determination has been made to provide for connection charges in lieu of assessment of benefits, as provided above, connections from such real estate to said sewer shall not be permitted until: the Water Pollution Control Authority has determined that the conditions have altered because of the change in accessibility, zoning, sewer main extension, area, development, use or because of the establishment or dedication of streets, or because of the approval of subdivisions or site plans by the Town Planning and Zoning Commission, or because of some other factor sufficient for normal benefit to accrue to the real estate or any part thereof, and the Water Pollution Control Authority has levied an assessment against such real estate or a sewer connection charge has been paid or voluntary lien executed and recorded as provided hereafter, by or for the owners of the real estate which is to be served by said connection, which payment shall be in lieu of an assessment of such real estate. Where the Water Pollution Control Authority determines it would be fair and equitable to do so, prior to such connection, the owners of such real estate may be allowed to enter into a special agreement providing that the permission granted to connect will not affect the power of the Water Pollution Control Authority to make future sewer layouts and benefit assessments therefor against the property of said owner in the same manner as if the permission to connect had never been granted by the Water Pollution Control Authority and agreeing to credit the said connection charge toward any future assessment, without allowance for interest between the date of payment of the said charge and the date of any future final assessment billed said owner.
- C. Connection charges for sewers constructed pursuant to developer's permit agreement. Whenever a sewer has been built for the Water Pollution Control Authority under a developer's permit agreement and said sewer passes land owned by others, such other person shall not be permitted to connect to said sewer unless:
- (1) Said person first submits satisfactory written proof to the Water Pollution Control Authority that they have paid the developer a normal and equitable charge of the sewer construction costs.
 - (2) Said person first signs an agreement waiving the Water Pollution Control Authority's usual sewer layout and assessment procedures and pays a sanitary sewer connection charge in lieu of assessment.
 - (3) The Water Pollution Control Authority has passed a layout and assessment covering the section in question.
- D. Reimbursement of developers and owners under permit agreements from sanitary sewer connection charges. When the Water Pollution Control Authority is empowered to enter agreements with developers or other property owners for the construction of sewers by and at the expense of such developers or owners, the Water Pollution Control Authority may include in such agreements provisions for reimbursement of said developers or owners from sanitary sewer connection charges collected in lieu of assessments as provided in this section, for the costs of sewers constructed by them in sections of highways on which lands owned by them do not abut, such reimbursement not to exceed the cost of construction within such sections of highways and not to include any portion of the trunk sewer cost and limiting the time within which such reimbursement may occur to such time as the said Water Pollution Control Authority deems expedient for the particular case, but no reimbursements shall be made after 10 years from the date of incorporation of the particular sewer in the public

sewer system. Expiration of the time for reimbursement to the developer shall not release subsequent permittees from paying connection charges in lieu of assessments to the Water Pollution Control Authority.

- F. Procedure for submitting applications. Any owner desiring to make a connection to a sanitary sewer as provided in this section shall make application to the Director of Public Works or his or her authorized agents, submitting such plans and specifications as may be required by said Director of Public Works or his or her authorized agents. Said plans and specifications shall contain information as to the amount of property to be utilized by the proposed buildings and improvements for which such connection is sought and shall state the type and extent of contemplated use of the sewerage system. A copy of such application and the accompanying information shall be submitted to the Water Pollution Control Authority, and such Water Pollution Control Authority shall, upon making a determination that the planned connection and the necessary pipes, pumping facilities, if such are required, and other necessary improvements are in accordance with applicable statutes, regulations and ordinances, approve said application and forthwith levy a connection charge. Payment of such connection charge shall be made prior to issuance of a permit to connect to the sewerage system or may be paid over a period of time established in accordance with a resolution of the Water Pollution Control Authority in each case, which resolution shall specify the terms of payment of principal and interest, provided that where such periodic payments are permitted, no permit to connect to the sewer system shall be issued prior to execution by the owner of the land for which connection is sought of a voluntary lien for recording on the Mansfield Land Records securing the amount of deferred payments, plus interest.
- F. Determination of connection charges. The connection charges provided in this section shall be determined by appropriate action of the Water Pollution Control Authority and shall be based on the values used in assessing benefits against properties in the particular area applied to such part of such real estate as, in the opinion of the Water Pollution Control Authority, is benefited at the time of connection, less a credit for the real estate for which an assessment or connection charge has been paid, such credit to be determined by the Water Pollution Control Authority in accordance with such formula as it finds to be equitable. In establishing or revising such charges the Water Pollution Control Authority may classify the property connected or to be connected with the sewerage system and may give consideration to any factors relating to the kind, quality or extent of use of any such property or classification of property, including the volume of water discharged to the sewerage system, the type or size of building connected with the sewerage system, the number of plumbing fixtures connected with the sewerage system, the number of persons customarily using the property served by the sewerage system, in the case of commercial or industrial property, the average number of employees and guests using the property and the quality and character of the material discharged into the sewerage system. The Water Pollution Control Authority may establish minimum charges for connection with and for the use of a sewerage system.
- C. Public hearing. No charge for connection with or for the use of a sewerage system shall be established or revised until after a public hearing before the Water Pollution Control Authority at which the owner of property against which the charges are to be levied shall have an opportunity to be heard concerning the proposed charges. Notice of the time, place and purpose of such hearing shall be published at least 10 days before the date thereof in a newspaper having a circulation in the town. A copy of the proposed charges shall be on file in the office of the Town Clerk and available for inspection by the public for at least 10 days before the date of such hearing. When the Water Pollution Control Authority has established or revised such charges, it shall file a copy thereof in the office of the Town Clerk and, not later than five days after such filing, shall cause the same to be published in a newspaper having a circulation in the town. Such publication shall state the date on which such charges were filed and the time and manner of paying such charges and shall state that any appeals from such charges must be taken within 21 days after such filing. Any person aggrieved by any charge for connection with or for the use of a sewerage system may appeal to the Superior Court for the county or judicial district wherein the town is located and shall bring any such appeal to a return day of said court not less than 12 or more than 30 days after service thereof. The judgment of the court shall be final.

§ 159-15. Collection of sewer assessments and connection charges.

- A. Assessments due and payable; notice. Upon the completion of any sewer improvement under the supervision of the Water Pollution Control Authority, when said Water Pollution Control Authority is ready to give notice thereof by publication that benefits assessed therefor are due and payable, it shall deliver to the Tax Collector of the Town of Mansfield the description of the properties assessed with the names of the owners and the amounts of such assessments in advance of such publication. It shall be the duty of the Tax Collector, acting under the supervision and regulations of said Water Pollution Control Authority, to prepare bills for said sewer assessments, to collect the same from each of the owners of property so assessed and to deposit the same to the credit of said Water Pollution Control Authority.
- B. Due date of assessment. Assessments shall be due and payable at such time as is fixed by the Water Pollution Control Authority, provided that no assessment shall become due until the work or particular portion thereof for which such assessment was levied has been completed, except that when the work or particular portion thereof for which such assessment was levied is being performed by the Water Pollution Control Authority pursuant to an order of the Department of Environmental Protection, the entire assessment may be made due and payable, provided that the portion of the total work bonded by the Water Pollution Control Authority which directly benefits the particular property has been completed. The Water Pollution Control Authority shall give notice of the date when assessments are due and payable by publication at least twice within a period of 15 days in a newspaper having a circulation in the town. Such notice shall list the streets and

describe the area within which are located any properties against which such assessments are due. No assessment shall be due and payable earlier than 30 days after the first publication of such notice.

- Lien. Any assessment of benefits or any installment thereof not paid within 30 days after the due date shall be delinquent and shall be subject to interest from such due date at the interest rate and in the manner provided by the General Statutes for delinquent property taxes. Each addition of interest shall be collectible as part of such assessment. Whenever any installment of an assessment becomes delinquent, the interest on such delinquent installment shall be as provided hereinbefore or \$5, whichever is greater. Any unpaid assessment and any interest due thereon shall constitute a lien upon the real estate against which the assessment was levied from the date of such levy. Each such lien may be continued, recorded and released in the manner provided by the General Statutes for continuing, recording and releasing property tax liens. Each such lien shall take precedence over all other liens and encumbrances except taxes and may be foreclosed in the same manner as property tax liens. The Tax Collector of the Town of Mansfield may collect such assessments in accordance with any mandatory provision of the General Statutes for the collection of property taxes, and the town may recover any such assessment in a civil action against any person liable therefor.
- D. Installment payment of assessment. The Water Pollution Control Authority may provide for the payment of any assessment in substantially equal annual installments, not exceeding 30, and may provide for interest charges not exceeding the interest rate provided by law for any deferred payments, provided that the last installment of any assessment shall be due not later than one year prior to the date of the last maturity of any bonds or notes issued by the municipality to finance the acquisition or construction of any sewerage system or portion thereof in respect to which the assessment was levied, and provided further that in no event shall such interest charges exceed the rate of interest the municipality is obligated to pay on such bonds or notes. Any person may pay any installment for which he or she is liable at any time prior to the due date thereof, and no interest on any such installment shall be charged beyond the date of such payment. The Water Pollution Control Authority shall cause the Town Clerk to record on the land records a certificate, signed by the Tax Collector or Treasurer of the town, in accordance with the provisions of Section 7-253 of the General Statutes, as amended.
- E. Order to connect. The Water Pollution Control Authority may order the owner of any building to which a sewerage system is available to connect such building with the system. No such order shall be issued until after a public hearing with respect thereto after due notice, in writing, to such property owner. Any owner aggrieved by such an order may, within 21 days, appeal to the Superior Court for Tolland County. Such appeal shall be brought to a return day of said court not less than 12 nor more than 30 days after service thereof. The judgment of the court shall be final. If any owner fails to comply with an order to connect, the Water Pollution Control Authority shall cause the connection to be made and shall assess the expense thereof against such owner.
- F. Delinquent charge for connection or use; lien. Any charge for connection with or for the use of a sewerage system not paid within 30 days of the due date shall thereupon be delinquent and shall bear interest from the due date at the rate and in the manner provided by the General Statutes for delinquent property taxes. Each addition of interest shall be collectible as a part of such connection or use charge. Any such unpaid connection or use charge shall constitute a lien upon the real estate against which such charge was levied from the date it became delinquent. Each such lien may be continued, recorded and released in the manner provided by the General Statutes for continuing, recording and releasing property tax liens. Each such lien shall take precedence over all other liens and encumbrances except taxes and may be foreclosed in the same manner as a lien for property taxes. The Tax Collector is hereby designated as the collector of sewerage system connection and use charges, and such collector may collect such charges in accordance with the provisions of the General Statutes for the collection of property taxes. The town may recover any such charges in a civil action against any person liable therefor.

§ 159-16. Conflicts with other laws; greater restrictions to prevail.

- A. The provisions of this article shall be held to be minimum requirements, adopted for the protection of the public health, safety and general welfare of the Town of Mansfield, and whenever the requirements of this article are at variance with the requirements of any other lawfully adopted rules, regulations or restrictions, such rule, regulation or restriction which imposes the higher standard shall control.

§ 159-17. Penalties for offenses. [Amended 1-13-1997, effective 2-10-1997]

Any person violating any provision of this article shall be guilty of an infraction. If such offense continues for more than five days, such continuance shall constitute a new offense for each day it continues to exist thereafter.

ARTICLE III Method of Apportionment [Adopted 4-12-1976]

§ 159-18. Scope.

In accordance with the provisions of a Mansfield ordinance providing for sewer assessments and connection charges, the Mansfield Water Pollution Control Authority hereby adopts the following rules and methods as a basis for apportionment of the

costs of a sanitary sewer system; which costs are to be shared in a fair and equitable manner among the persons whose properties are benefited by such sewerage system.

9-19. Definitions.

As used in this article, the following terms shall have the meanings indicated:

ADJUSTED FRONT FOOTAGE — The frontage of odd-shaped lots to an average frontage that would be the equivalent to the frontage of a rectangularly shaped lot of the same area and depth as determined by the Town Engineer.

BUILDING LOT — A parcel of land or part thereof, the minimum area and width of which qualifies or would qualify for the issuance of a building permit for a single-family residence under existing zoning regulation. "Building lot" as defined may or may not be a lot of record. A "building lot" may be a part of a larger parcel of land.

GROSS FLOOR AREA — The floor area of buildings used other than as residences and calculated on the basis of outside measurements. Such buildings shall include but not be limited to all commercial, industrial and business buildings and all other buildings used for other nonresidential uses.

§ 159-20. Assessment method.

The cost of any sewer system which is to be shared among the persons whose properties are benefited by such sewer system shall be determined as follows:

- A. Front-foot assessment. The adjusted front footage of properties abutting streets in which sewer lines have been laid shall be computed, and 1/2 of the cost of the local sewers shall be divided by the total number of assessable front feet of properties so benefited.
- B. Unit assessment. One-half of the cost of local sewers shall be divided by the total number of units on the properties benefited, to determine a unit assessment. The unit for the purposes of assessment shall be determined as follows:
 - (1) Property in residential zones improved for residential use shall be assigned one unit for each residential unit thereon. The depth of the property to be assessed shall be limited by the rear lot line; provided, however, that such depth shall not exceed the greater of the depth normally required in the particular zone in which the property lies or a line parallel to the street and 50 feet to the rear of any building in which a residential unit is located.
 - (2) Unimproved property in residential zones abutting streets in which a sewer line has been laid shall be assigned one unit for each existing building lot and one unit for each area of the minimum lot size permitted by the zoning regulations for the zone in which the property is located, depth to be calculated in the same manner as property improved for residential use.
 - (3) Multifamily residential developments in any zone shall be assigned one unit for each residential unit.
 - (4) Business, commercial and industrial uses in any zone, including nonconforming uses, shall be assigned units pursuant to whichever of the following three methods result in the most units:
 - (a) One unit for each 1,500 feet of gross floor area of the buildings figured to the nearest 1/4 unit.
 - (b) A number of units based upon the lot area, which number is to be figured to the nearest 1/4 unit and is to be determined by dividing 20% of the total lot area, in square feet, by 1,500 square feet. In making such determination, lot depth is to be 200 feet from the line of the street in which the sewer has been laid or the rear property line, whichever is less.
 - (5) Uses such as schools, churches, clubs, museums and home occupations are to be treated as commercial uses for the purposes herein.
 - (6) Where a dwelling in a residential zone is so situated on property of an owner so that there is insufficient area owned by the same owner on either side of the lot upon which the dwelling is located to constitute an additional lot for the zone in which the property is located and such area does not constitute a nonconforming lot, such property shall be considered benefited only to the extent of one unit, even though there would be two lots if there were no dwelling or if the dwelling were situated in a different position.
 - (7) For any business, commercial and industrial use, whether nonconforming or not, and for any other nonresidential use in any zone and where buildings are located behind the two-hundred-foot line, the area to which units are assigned shall have as its rear line a line parallel to the street and coterminous with the rearmost portion of the rearmost building thereon, which building has been found to be benefited by the Water Pollution Control Authority.
- C. Outlet charges:
 - (1) Unit basis: In the following cases, an outlet charge shall be determined on the basis of \$400 per unit:

- (a) Property improved for residential use in a residential zone shall be assigned one unit for each residential unit thereon. Improved property shall be deemed to include approved subdivisions, and a unit shall be charged for each approved lot.
 - (b) Unimproved property abutting a street in a residential zone shall be assigned one unit for each existing building lot and one unit for each lot of the minimum size permitted by the zoning regulations or the zone in which the property is located.
 - (c) Multifamily residential developments in any zone shall be assigned one unit for each residential unit.
- (2) Acreage basis: Outlet charges shall be determined on the basis of \$1,400 per acre in the following cases:
- (a) In business, commercial and industrial zones, the area property developed for business, commercial and industrial use or capable of being developed for such use, whether or not a nonconforming use presently exists, shall be used as the basis for determining the outlet charge.
 - (b) In residential zones, the area of property developed for an existing nonconforming business, commercial or industrial uses shall be the basis for determining the outlet charge.
 - (c) For said acreage assessments, the area to be assessed shall extend to the rear lot line; provided, however, that such area shall not exceed the greater of a depth of 200 feet from the street or a line parallel to said street and adjacent to the rearmost portion of the rearmost building located within such assessment area as determined by the Water Pollution Control Authority.
- (3) The outlet charge may be deferred against land reserved or used for public highways or land permanently restricted for use as a public recreation or public open space or land on which a public conservation easement or similar public restriction preventing its use for industrial, business or other nonresidential purpose exists.

§ 159-21. Changes in connection charges.

- A. Wherever an assessment has been deferred and a connection to the sewer system sought in accordance with the provisions of an ordinance providing for sewer assessments and charges, the connection charge shall consist of the unit assessment, front-foot assessment and outlet charge which would have been levied had the property been immediately benefited at the time the sewer was built.
- B. Wherever an assessment has been levied against a property and an increased intensity of use is later sought for said property, a connection charge shall be levied to the persons whose property is additionally benefited, and such charge shall consist of the unit assessment and, if applicable, the outlet charge which would have been levied had the more intense use existed at the time the property was originally assessed, less any assessment or connection or outlet charge previously levied.
- C. Wherever a connection to the sanitary sewer system can be made to a trunk sewer from a property abutting the trunk sewer, making unnecessary the construction for a local sewer, the connection charge shall consist of the outlet charge applicable at the time the connection is sought, if such charge is not paid under the terms of a developer's permit-agreement, and, if the owner cannot show proof that he or she has paid a normal and equitable share of the installation cost, an additional charge determined by the Water Pollution Control Authority to be a normal and equitable share of the installation cost in each case.
- D. If in the opinion of the Water Pollution Control Authority the size, shape, location or use of the property subject to the assessment of benefits and/or connection charge under the provisions hereof do not reflect the extent of the benefit, a factor or percentage or any other reasonable adjustment thereof may be used for determining the benefits which the Water Pollution Control Authority believes measures the extent to which said property is especially benefited.

ARTICLE IV Sewer Use Charges [Adopted 10-11-1977]

§ 159-22. Purpose.

The purpose of this regulation is to establish fair and reasonable charges for use of the Mansfield sewerage system.

§ 159-23. Definitions.

For purpose of this article, the following terms shall have the meanings indicated:

AUTHORITY — The Water Pollution Control Authority of the Town of Mansfield.

BUILDING — Any structure located on property which has been assessed for and/or is connected to the sewerage system.

OPERATION AND MAINTENANCE COSTS — All costs incidental to the complete operation and maintenance of the treatment works, including replacement.

SEWERAGE SYSTEM — The meaning given to it by Section 7-245 of the General Statutes.

§ 159-24. Sewer use charge.

- A. Subject to the public hearing requirements of Section 7-255 of the Connecticut General Statutes, an annual sewer use charge shall be imposed on each building, as defined herein: **[Amended 5-26-1998, effective 6-23-1998]**
- (1) The sewer use charge for each building shall be based on its metered water usage in accordance with the following formula:

$$C_u = \frac{W_u}{W_t} \times C_t - R_t$$

Where:

C_u = The building's sewer use charge for the billing period.

W_u = The building's metered or estimated water consumption for the billing period.

W_t = The water consumption of all buildings connected to the sewer system in question, as determined from meter readings and appropriate engineering estimates.

C_t = The operation and maintenance costs for the sewer system in question for the billing period.

R_t = The revenue collected from an industrial surcharge and any other surcharge for discharging a disproportionate amount of pollutant or nutrient removal.

Water consumption of each building which is served by City of Willimantic Water Department shall be as determined by the City of Willimantic Water Department.

- C. Water consumption of each dwelling unit which is served by a well supply shall be deemed to be equal to the average water consumption of dwelling units which are served by the City of Willimantic Water Department.
- D. Water consumption for each nonresidential building served by well shall be deemed to be that estimated by the Authority. The Authority may require the owner of any nonresidential building served by well to submit a sworn statement of water consumption for the year, such statement to be supported by any available records or other evidence of water consumption. The Authority may require the owner of any nonresidential building served by well to install and maintain a water meter at the sole expense of such owner.
- E. In any instance in which the Authority determines that because the water consumption is greatly disproportionate from the water discharged to the sewerage system, determined in accordance with Subsections B, C and D, and would result in a building bearing more than its proportionate share of the operation and maintenance costs of the sewerage system, the Authority may make an appropriate reduction in the building's water consumption figure.
- F. In any instance in which the Authority determines that the sewer user is producing a discharge into public sewers of any waters or wastes having an average daily flow greater than 2% of the average daily flow of the town, it shall be subject to review and approval of the Authority, which may require the user to construct and maintain, at his or her own expense, a suitable storage and flow control facility to ensure equalization of discharge over a twenty-four-hour period. This facility shall have a capacity of at least 80% of the total normal volume of a twenty-four-hour production period, and the outlet to the sewer shall be equipped with a rate discharge controller or other approved device by the Authority.
- G. In any instance in which the Authority determines that biological oxygen demand (BOD), suspended solids or other pollutant concentrations from a building exceed the range of concentration of these pollutants in normal domestic sewerage, the Commission shall increase the building's sewer use charge by a surcharge computed in accordance with the formula:

$$C_s = [B_c(B-300) + S_c(S-300) + P_c(P-P_n)] V_u$$

Where:

C_s = The building's surcharge for the year for excessive concentrations.

B = The building's concentration of BOD.

Bc = Operation and maintenance cost for treatment of a unit of BOD.

S = The building's concentration of suspended solids.

Sc = Operation and maintenance cost for treatment of a unit of suspended solids.

P = The building's concentration of any pollutant.

Pc = Operation and maintenance cost for treatment of a unit of any pollutant.

Pn = Base level of concentration of any pollutant.

Vu = The building's volume of discharge for the year.

H. In any instance in which the Authority is charged directly by an agency receiving and treating sewage collected in Mansfield for an industrial surcharge based on the discharge on any one user or building, said surcharge shall be added to the bill calculated for this user or building and treated as an industrial surcharge (Rt), as referenced above, subject to the public hearing requirements of C.G.S. § 7-255. **[Amended 5-26-1998, effective 6-23-1998]**

§ 159-25. Payment of charges.

Sewer use charges shall be for the fiscal year July 1 to June 30, and such charges shall be payable in advance on January 1 of each year.

§ 159-26. Liability of owner.

The owner of the property on which a building is located shall be liable for and shall be billed for the payment of sewer charges. Any such owner may request the Water Pollution Control Authority to bill his or her legal representative or the occupant of the building, provided that such representative or occupant authorizes the same, in writing, but no such authorization shall affect the liability of the owner for payment.

§ 159-27. Unpaid charges; collection.

Sewer use charges, together with interest thereon, shall constitute a lien upon the property on which the building is located, and such lien may be foreclosed and such charges and interest may be collected as provided in Section 7-258 of the General Statutes and other applicable statutes.

§ 159-28. Industrial users.

All industrial users who utilize sewerage works constructed under EPA project C090179 01 shall be obligated to make industrial cost recovery payments to the Town of Mansfield in accordance with applicable federal regulations. The Town of Mansfield shall solicit the EPA's review and approval of its proposed cost recovery system prior to or concurrent with the connection of said industry.

ARTICLE V Sewage Disposal Systems and Water Supply Wells [Adopted 3-23-1993, effective 4-21-1992]

§ 159-29. Legislative authority.

This article is enacted pursuant to the provisions of Section 7-194 of the Connecticut General Statutes.

§ 159-30. Permit required.

No person, firm or corporation shall construct, reconstruct, extend, alter or repair any sewage disposal system or water supply within the Town of Mansfield without first obtaining a permit issued by the Director of Health or authorized agent.

§ 159-31. Permit application; fee.

All applications for a permit shall be filed with the Director of Health or authorized agent, on forms provided by the Director of

Health. A fee payable to the Town of Mansfield shall be filed with said application, which fee shall be as follows:

- A. For a sewage system up to 2,000 gallons per day capacity: \$120.
- B. For a sewage system over 2,000 gallons per day capacity: \$150.
- C. For a water supply well: \$35.

§ 159-32. Testing fees.

In addition to the fee set forth in § 159-31, an applicant for a permit shall be charged a fee for conducting required on-site soil tests. The fee for this service shall be as follows:

- A. For two or fewer observation pits: \$45 each; and \$15 for each additional required observation pit, all of which fees shall not exceed \$300 for each lot.
- B. For each percolation test: \$60.

§ 159-33. On-site soil testing fees.

The owner of any property within the Town of Mansfield, or said owner's authorized agent, may request the Director of Health, or authorized agent, to conduct on-site soil tests on such property, notwithstanding that no application for a permit has been filed with the Director of Health concerning such property. The fee for this service shall be as follows:

- A. For two or fewer observation pits: \$45 each; and \$15 for each additional observation pit.
- B. For each percolation test: \$60.

§ 159-34. Penalties for offenses. [Amended 1-13-1997, effective 2-10-1997]

- A. Any person, firm or corporation who violates any provision of this article shall be deemed guilty of an infraction.
- B. Any person, firm or corporation who uses any sewage disposal system or any water supply well which has been constructed, reconstructed, extended, altered or repaired without a permit as required by this article shall be guilty of an infraction for each and every day that such violation continues; provided, however, that such person, firm or corporation has been notified, in writing, by the Director of Health, or authorized agent, that the use of such system or well is in violation of this article.

§ 159-35. Expiration of permit.

Any permit issued pursuant to the provisions of this article shall expire one year after the date that such permit is issued. Unless all work has been completed on such sewage disposal system or on such water supply well within said period of time, a new permit shall be required pursuant to the provisions of this article; in which case the applicant shall comply with all regulations, ordinances and statutes of the State of Connecticut and the Town of Mansfield in effect on the date when such new application is submitted for approval.

§ 159-36. Establishment of new fee structure.

The Town Council may, by resolution, establish a new fee structure.

ARTICLE VI Fats, Oils and Grease Pretreatment [Added 2-26-2007, effective 3-26-2007]

§ 159-37. Purpose.

The purpose of this article is to outline the wastewater pretreatment requirements for food preparation establishments and other commercial facilities that discharge fats, oils, and grease in their wastewater flow. All new and existing facilities that generate and discharge fats, oils, and grease (FOG) in their wastewater flow shall install, operate, and maintain a FOG pretreatment system. The requirements of this article shall supplement and be in addition to the requirements of the Town's Sewers and Water nance.

§ 159-38. Definitions.

As used in this article, the following terms shall have the meanings indicated:

CONTACT PERSON — The individual responsible for overseeing daily operation of the food preparation establishment and who is responsible for overseeing the food preparation establishment's compliance with the FOG pretreatment program.

FATS, OILS AND GREASE (FOG) — Animal and plant-derived substances that may solidify or become viscous between the temperatures of 32° F. and 150° F. (0° C. to 65° C.), and that separate from wastewater by gravity; any edible substance identified as grease per the most current EPA method as listed in 40 CFR 136.3.

FOG INTERCEPTOR — A passive tank installed outside a building and designed to remove fats, oils, and grease from flowing wastewater while allowing wastewater to flow through it, and as further defined herein.

FOG PRETREATMENT SYSTEM — Properly installed and operated FOG interceptors and FOG recovery units as approved by the Mansfield Water Pollution Control Authority.

FOG RECOVERY UNIT — All active indoor mechanical systems designed to remove fats, oils, and grease by physical separation from flowing wastewater, as further defined herein.

FOOD PREPARATION ESTABLISHMENTS — Class III and Class IV food service establishments and any other facility determined by the Mansfield Water Pollution Control Authority to discharge FOG above the set limits in Section 5(b)(2) of the Department of Environmental Protection's General Permit for the Discharge of Wastewater Associated with Food Preparation Establishments. These facilities shall include but not be limited to restaurants, hotel kitchens, hospital kitchens, school kitchens, bars, factory cafeterias, and clubs. Class III and Class IV food service establishments shall be as defined under Section 19-13-B42 of the State of Connecticut Public Health Code.

NONRENDERABLE FATS, OILS AND GREASE — Food-grade grease that has become contaminated with sewage, detergents, or other constituents that make it unacceptable for rendering.

NOTIFICATION OF APPROVED ALTERNATE FOG PRETREATMENT SYSTEM — Written notification from the Mansfield Water Pollution Control Authority for authorization to install and/or operate an alternate FOG pretreatment system.

RENDERABLE FATS, OILS AND GREASE — Material that can be recovered and sent to renderers for recycling into various usable products. Renderable grease is created from spent products collected at the source, such as frying oils and grease from restaurants. This material is also called "yellow grease."

RENDERABLE FATS, OILS AND GREASE CONTAINER — A closed, leakproof container for the collection and storage of food-grade fats, oils, and grease.

REGIONAL FOG DISPOSAL FACILITY — A facility for the collection and disposal of nonrenderable FOG approved by the Connecticut Department of Environmental Protection.

TOWN'S AGENT — The authorized representative of the Town of Mansfield.

§ 159-39. Required systems; application to install pretreatment system; responsibility for costs.

- A. FOG pretreatment systems shall be provided for:
- (1) All new and existing food preparation establishments, including restaurants, cafeterias, diners, and similar nonindustrial facilities using food preparation processes that have the potential to generate FOG in wastewater at concentrations in excess of the limits defined in this article.
 - (2) New and existing facilities which, in the opinion of the Mansfield Water Pollution Control Authority, require FOG pretreatment systems for the proper handling of wastewater containing fats, oils, or grease, except that such FOG pretreatment systems shall not be required for private living quarters or dwelling units.
- B. All new food preparation establishments which generate and discharge wastewater containing fats, oils, and grease and which will require a FOG pretreatment system, as determined by the Mansfield Water Pollution Control Authority, shall include the design and specifications for the FOG pretreatment system as part of the sewer connection application as described in the Mansfield Sewers and Water Ordinance.
- C. All existing food preparation establishments which generate, and discharge wastewater containing fats, oils, and grease, and which require a new FOG pretreatment system, as determined by the Mansfield Water Pollution Control Authority, shall submit an application for the installation of a new FOG pretreatment system within 18 months of adoption of this article. The application shall be in accordance with Mansfield's Sewers and Water Ordinance. The approved FOG pretreatment system shall be installed within two years of adoption of this article.
- D. Existing food preparation establishments which generate, and discharge wastewater containing fats, oils, and grease, and which have an existing noncomplying FOG pretreatment system, may, as determined by the Mansfield Water Pollution Control Authority, operate the existing FOG pretreatment system. Such facilities shall submit an application for an alternate FOG pretreatment system as described in § 159-42C. Such application shall be submitted within 12 months of adoption of this article.
- E. All costs and related expenses associated with the installation and connection of the FOG interceptor(s) or alternate FOG

pretreatment system(s) shall be borne by the food preparation establishment. The food preparation establishment shall indemnify the Town of Mansfield and its agents from any loss or damage that may directly or indirectly occur due to the installation of the FOG pretreatment system.

§ 159-40. Discharge limits.

No facility shall discharge or cause to be discharged any wastewater with a FOG concentration in excess of 100 milligrams per liter, as determined by the currently approved test for total recoverable fats and grease listed in 40 CFR 136.3, or in concentrations or in quantities which will harm either the sewers, or water pollution control facility, as determined by the Mansfield Water Pollution Control Authority.

§ 159-41. Pretreatment system requirements.

- A. An application for the design and installation of a FOG pretreatment system shall be subject to review and approval by the Mansfield Water Pollution Control Authority per the Town's Sewers and Water Ordinance, and subject to the requirements of all other applicable codes, ordinances, and laws.
- B. Except as provided by § 159-42, the wastewater generated from food preparation establishments shall be treated to remove FOG using a FOG interceptor.
- C. Every structure at the subject facility shall be constructed, operated, and maintained in a manner to ensure that the discharge of food preparation wastewater is directed solely to the FOG interceptor, or alternate FOG pretreatment system. No valve or bypass piping that could prevent the discharge of food preparation wastewater from entering appropriate pretreatment equipment shall be present.
- D. The contact person at each food preparation establishment shall notify the Mansfield Water Pollution Control Authority when the FOG pretreatment system is ready for inspection and connection to the public sewer. The connection and testing shall be made under the supervision of the plumbing inspector and/or the Town's agent.
- E. All applicable local plumbing/building codes shall be followed during the installation of the FOG pretreatment system.
- F. FOG interceptor requirements.
 - (1) The FOG interceptor shall be installed on a separate building sewer servicing kitchen flows and shall only be connected to those fixtures or drains which can allow fats, oils, and grease to be discharged into the sewer. This shall include:
 - (a) Pot sinks;
 - (b) Prerinse sinks, or dishwashers without prerinse sinks;
 - (c) Any sink into which fats, oils, or grease may be introduced;
 - (d) Soup kettles or similar devices;
 - (e) Wok stations;
 - (f) Floor drains or sinks into which kettles may be drained;
 - (g) Automatic hood wash units;
 - (h) Dishwashers without prerinse sinks; and
 - (i) Any other fixtures or drains that can allow fats, oils, and grease to be discharged into the sewer.
 - (2) No pipe carrying any wastewater other than from those listed in the subsection above shall be connected to the FOG interceptor.
 - (3) No food grinder shall discharge to the FOG interceptor.
 - (4) The FOG interceptor shall be located so as to maintain the separating distances from well water supplies set forth in Section 19-13-B51d of the Public Health Code.
 - (5) The following minimum separating distances shall be maintained between the FOG interceptor and the items listed below:
 - (a) Property line: 10 feet.
 - (b) Building served (no footing drains): 15 feet.
 - (c) Groundwater-intercepting drains, footing drains and storm drainage systems: 25 feet.
 - (d) Open watercourse: 50 feet.

- (6) The FOG interceptor shall have a retention time of at least 24 hours at the maximum daily flow based on water meter records or other calculation methods as approved by the Mansfield Water Pollution Control Authority. The FOG interceptor minimum capacity shall be 1,000 gallons. FOG interceptors shall have a minimum of two compartments. The two compartments shall be separated by a baffle that extends from the bottom of the FOG interceptor to a minimum of five inches above the static water level. An opening in the baffle shall be located at mid-water level. The size of the opening shall be at least eight inches in diameter but not have an area exceeding 180 square inches.
- (7) The FOG interceptor shall be watertight and constructed of precast concrete or other durable material.
- (8) FOG interceptors constructed of precast concrete shall meet the following requirements:
 - (a) The exterior of the FOG interceptor, including the exterior top and bottom and extension to grade manholes, shall be coated with a waterproof sealant.
 - (b) All concrete FOG interceptors shall be fabricated using minimum 4,000-psi concrete per ASTM standards with 4% to 7% air entrainment.
 - (c) All structural seams shall be grouted with nonshrinking cement or similar material and coated with a waterproof sealant.
 - (d) Voids between the FOG interceptor walls and inlet and outlet piping shall be grouted with nonshrinking cement and coated with a waterproof sealant.
- (9) All nonconcrete septic tanks must be approved for use by the Mansfield Water Pollution Control Authority.
- (10) The FOG interceptor shall be accessible for convenient inspection and maintenance. No structures shall be placed directly upon or over the FOG interceptor.
- (11) The FOG interceptor shall be installed on a level stable base that has been mechanically compacted with a minimum of six inches of crushed stone to prevent uneven settling.
- (12) Select backfill shall be placed and compacted around the FOG interceptor in a manner to prevent damage to the tank and to prevent movement caused by frost action.
- (13) The outlet discharge line from the FOG interceptor shall be directly connected to the municipal sanitary sewer.
- (14) The FOG interceptor shall have a minimum liquid depth of 36 inches.
- (15) Separate clean-outs shall be provided on the inlet and outlet piping.
- (16) The FOG interceptor shall have separate manholes with extensions to grade, above the inlet and outlet piping. FOG interceptors installed in areas subject to traffic shall have manhole extensions to grade with ductile iron frames and round manhole covers. The word "SEWER" shall be cast into the manholes covers. FOG interceptors installed outside areas subject to traffic may have concrete risers with lids either having a minimum weight of 59 pounds or shall be provided with a lock system to prevent unauthorized entrance. All manholes and extensions to grade providing accesses to the FOG interceptor shall be at least 17 inches in diameter.
- (17) Inlet and outlet piping shall have a minimum diameter of four inches and be constructed of Schedule 40 PVC meeting ASTM 1785 with solvent weld couplings.
- (18) The inlet and outlet shall each utilize a tee-pipe on the interior of the FOG interceptor. No caps or plugs shall be installed on the tee-pipes. The inlet and outlet shall be located at the center line of the FOG interceptor and at least 12 inches above the maximum groundwater elevation. The inlet tee shall extend to within 12 inches of the bottom of the FOG interceptor. The inlet invert elevation shall be at least three inches above the invert elevation of the outlet but not greater than four inches. The outlet tee-pipe shall extend no closer than 12 inches to the bottom of the FOG interceptor and the diameter of this tee-pipe shall be a minimum of four inches.
- (19) The diameter of the outlet discharge line shall be at least the size of the inlet pipe and in no event less than four inches.
- (20) When necessary due to installation concerns, testing for leakage will be performed using either a vacuum test or water-pressure test.
 - (a) Vacuum test: Seal the empty tank and apply a vacuum to two inches of mercury. The tank is approved if 90% of the vacuum is held for two minutes.
 - (b) Water pressure test: Seal the tank, fill with water, and let stand for 24 hours. Refill the tank. The tank is approved if the water level is held for one hour.

§ 159-42. Alternate pretreatment system.

- A. When it is not practical for the food preparation establishment to install an outdoor in-ground FOG interceptor per § 159-41,

an alternate FOG pretreatment system may be utilized upon approval by the Mansfield Water Pollution Control Authority and upon receiving a notification of approved alternative FOG pretreatment system. Approval of the system shall be based on demonstrated (proven) removal efficiencies and reliability of operation. The Mansfield Water Pollution Control Authority will approve these systems on a case-by-case basis. The contact person may be required to furnish the manufacturer's analytical data demonstrating that FOG discharge concentrations do not exceed the limits established in this article.

- B. Alternate FOG pretreatment systems shall consist of a FOG recovery unit meeting the requirements of Subsection D below, unless there are special circumstances that preclude such installation, as approved by the Mansfield Water Pollution Control Authority, and in accordance with Subsection E.
- C. Alternate FOG pretreatment systems shall meet the requirements of § 159-41A through E and § 159-41F(2) and (3) and shall be installed immediately downstream of each of the fixtures and drains listed in § 159-41F(1).
- D. Alternate FOG pretreatment system requirements.
 - (1) FOG recovery units shall be sized to properly pretreat the measured or calculated flows using methods approved by the Mansfield Water Pollution Control Authority.
 - (2) FOG recovery units shall be constructed of corrosion-resistant material such as stainless steel or plastic.
 - (3) Solids shall be intercepted and separated from the effluent flow using a strainer mechanism that is integral to the unit.
 - (4) FOG recovery units shall operate using a skimming device, automatic draw-off, or other mechanical means to automatically remove separated FOG. This skimming device shall be controlled using a timer, FOG sensor, or other means of automatic operation. FOG recovery units operated by timer shall be set to operate no less than once per day.
 - (5) FOG recovery units shall be included with an internal or external flow control device.
 - (6) FOG recovery units shall be located to permit frequent access for maintenance and inspection.
- E. Other alternate FOG pretreatment systems.
 - (1) Other alternate FOG pretreatment systems that do not meet the requirements of § 159-41F or § 159-42D may be considered for approval by the Mansfield Water Pollution Control Authority on a case-by-case basis. The application shall include:
 - (a) Documented evidence that the alternate FOG pretreatment system will not discharge FOG concentrations that exceed the discharge limits per § 159-40.
 - (b) Plans and specifications for the proposed system, including plans and profile of system installation, manufacturer's literature, documentation of performance and any other information detailing the alternate system.
 - (c) A written operation and maintenance plan, which shall include the schedule for cleaning and maintenance, copies of maintenance log forms, a list of spare parts to be maintained at the subject facility, and a list of contacts for the manufacturer and supplier. Following receipt of written notification of approved alternate FOG pretreatment system from the Mansfield Water Pollution Control Authority, the operation and maintenance plan shall be maintained on the premises. The plan shall be made available for inspection on demand by the Town's agent.
 - (d) A written FOG minimization plan, which shall include procedures for all food preparation establishment employees to minimize FOG entering the wastewater collection system.
 - (e) Description of a FOG pretreatment training program for food preparation establishment employees in minimization procedures.
 - (2) A notification of approved alternate FOG pretreatment system may be granted for a duration not to exceed three years, with extensions, when demonstrated to the satisfaction of the Mansfield Water Pollution Control Authority that the alternate FOG pretreatment system, operation and maintenance plan, FOG minimization plan and FOG pretreatment training program are adequate to maintain the FOG concentration in the wastewater discharge below the limits set in § 159-40.

§ 159-43. Equipment maintenance.

- A. The FOG pretreatment system shall be maintained continuously in satisfactory and effective operation, at the food preparation establishment's expense.
- B. The contact person shall be responsible for the proper removal and disposal, by appropriate means, of the collected material removed from the FOG pretreatment system.
- C. A record of all FOG pretreatment system maintenance activities shall be maintained on the premises for a minimum of five years.
- D. The contact person shall ensure that the FOG interceptor is inspected when pumped to ensure that all fittings and fixtures inside the interceptor are in good condition and functioning properly. The depth of grease inside the tank shall be measured

and recorded in the maintenance log during every inspection along with any deficiencies and the identity of the inspector.

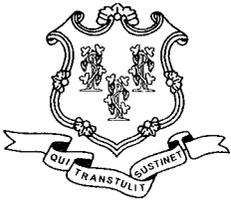
- E. The contact person shall determine the frequency at which its FOG interceptor(s) shall be pumped according to the following criteria:
- (1) The FOG interceptor shall be completely cleaned by a licensed waste hauler when 25% of the operating depth of the FOG interceptor is occupied by grease and settled solids, or a minimum of once every three months, whichever is more frequent.
 - (2) If the contact person can provide data demonstrating that less frequent cleaning of the FOG interceptor will not result in a grease level in excess of 25% of the operating depth of the FOG interceptor, the Mansfield Water Pollution Control Authority may allow less frequent cleaning. The contact person shall provide data, including pumping receipts, for four consecutive cleanings of the FOG interceptor, complete with a report from the FOG hauler indicating the grease level at each cleaning, and the FOG interceptor maintenance log.
 - (3) A maintenance log shall be maintained on the premises and shall include the following information: dates of all activities, volume pumped, grease depth, hauler's name, location of the waste disposal, means of disposal for all material removed from the FOG interceptor, and the name of the individual recording the information. The maintenance log and waste hauler's receipts shall be made available to the Town's agent for inspection on demand. Interceptor cleaning and inspection records shall be maintained on file a minimum of five years.
- F. All removal and hauling of the collected materials must be performed by state-approved waste disposal firms. Pumped material shall be disposed of at a regional FOG disposal facility. Pumping shall include the complete removal of all contents, including floating materials, wastewater and settled sludge. Decanting back into the FOG interceptor shall not be permitted. FOG interceptor cleaning shall include scraping excessive solids from the wall, floors, baffles and all piping.
- G. The contact person shall be responsible for the cost and scheduling of all installation and maintenance of FOG pretreatment system components. Installation and maintenance required by the Town's agent shall be completed within the time limits as given below:

Violation	Days from Inspection to Correct Violation
Equipment not registered	30
Installation violations (outdoor and indoor)	90
Operational violations	30

§ 159-44. FOG minimization.

- A. The contact person shall make every practical effort to reduce the amount of FOG contributed to the sewer system.
- B. Renderable fats, oils, and grease shall not be disposed of, in any sewer or FOG interceptor. All renderable fats, oils, and grease shall be stored in a separate, covered, leakproof, renderable FOG container, stored out of reach of vermin, and collected by a renderer.
- C. Small quantities of FOG scraped or removed from pots, pans, dishes and utensils shall be directed to the municipal solid waste stream for disposal.

APPENDIX C
CT DEP NATURAL DIVERSITY DATABASE CORRESPONDENCE



STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION



January 4, 2008

Received

JAN 09 2008

Earth Tech, Inc.
Glastonbury, CT

Mr. Richard Berlandy
Earth Tech, Inc.
655 Winding Brook Drive
Glastonbury, CT 06033

Re: Mansfield Four Corners Facility Plan,
Mansfield

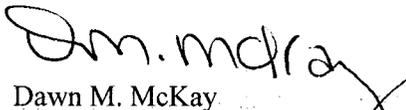
Dear Mr. Berlandy:

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for the proposed sewers and wastewater pumping station at the above address in Mansfield, Connecticut. According to our information there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur at the site in question.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Natural Resources Center's Geological and Natural History Survey and cooperating units of DEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact me if you have further questions at 424-3592. Thank you for consulting the Natural Diversity Data Base. Also be advised that this is a preliminary review and not a final determination. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEP for the proposed site.

Sincerely,


Dawn M. McKay
Biologist/Environmental Analyst

DMM/blm