

**AGENDA**  
**MANSFIELD PLANNING AND ZONING COMMISSION**  
Regular Meeting, Monday, July 19, 2010, 7:00 p.m.  
Council Chambers, Audrey P. Beck Municipal Building

**Minutes**

7/6/10; 7/13/10 Field Trip

**Scheduled Business**

**Zoning Agent's Report**

- A. Enforcement Update
- B. DeBoer Property, Storrs Rd
- C. Current Projects Update
- D. Other

**Old Business**

1. **Request to authorize overhead utility lines over conservation easement area dedicated in association with the Hawthorne Park Subdivision, PZC File # 1177**  
Memos from Director of Planning, Assistant Town Engineer/Wetlands Agent
2. **Draft Revisions to the Zoning Map, Zoning and Subdivision Regulations, PZC File 907-33**
  - a. Rezoning of Industrial Park Zone and Associated Regulation Revisions
  - b. Aquifer and Public Water Supply Protection Regulations
  - c. Invasive Plant Species Regulations
3. **Draft Revisions to the Zoning Regulations Definitions of Family and Boarding House; Political Signs, PZC File 907-32**
4. **Other**

**New Business**

1. **8-24 Referral from Regional School District 19, Proposed Athletic Facility Renovation Project**  
Memo from Director of Planning
2. **Request to delay construction of overflow parking until Spring 2011, Twin Ponds Farm Stand, 483 Browns Road, PZC File #1292**  
Memo from Director of Planning
3. **Report of the Willimantic River Study**
4. **Other**

**Reports from Officers and Committees**

1. Chairman's Report
2. Regional Planning Commission
3. Regulatory Review Committee (meetings to resume in August)
4. Other

**Communications and Bills**

1. 6/29/10 Coventry Notice of Proposed Regulation Revisions re: Design Guidelines
2. 7/6/10 UConn Notice of Water Supply/Drought Advisory
3. UConn Landfill, Long-Term Monitoring Report
4. 2009 Water Quality Report
5. Summer 2010 CFPZA Newsletter
6. Other

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## DRAFT MINUTES

### MANSFIELD PLANNING AND ZONING COMMISSION

Regular Meeting, Tuesday, July 6, 2010

Council Chamber, Audrey P. Beck Municipal Building

Members present: R. Favretti (Chairman), M. Beal, K. Holt, B. Pociask, P. Plante, B. Ryan,  
Members absent: J. Goodwin, R. Hall, G. Lewis  
Alternates present: K. Rawn  
Alternates absent: F. Loxsom, V. Stearns  
Staff Present: Gregory J. Padick, Director of Planning

Chairman Favretti called the meeting to order at 7:24 p.m. and appointed Rawn to act in members' absence.

#### Minutes:

6-21-10-Pociask MOVED, Ryan seconded, to approve the 6/21/10 minutes as written. MOTION PASSED with all in favor except Plante who disqualified himself. Beal noted that he listened to the recording of the meeting.

#### Zoning Agent's Report:

Noted.

Holt MOVED, Plante seconded, to add to the agenda under the Zoning Agent's report, a 6-30-10 letter from Carl and Elaine David. MOTION PASSED UNANIMOUSLY.

Hirsch reviewed the request and the existing regulations as they pertain to real estate signs. After discussion, it was decided to not allow special permission as requested by the Mr. & Mrs. David.

Holt MOVED, Plante seconded, to refer the subject to the Regulatory Review Committee for review. MOTION PASSED UNANIMOUSLY.

#### Old Business:

##### **1. Draft Revisions to the Zoning Map, Zoning and Subdivision Regulations, PZC File 907-33**

- a. Rezoning of Industrial Park Zone and Associated Regulation Revisions
- b. Aquifer and Public Water Supply Protection Regulations
- c. Invasive Plant Species Regulations

The consensus of the Commission was to prepare approval motions for Items b and c for the next meeting, and Holt volunteered to work on them with staff. Members discussed the concerns raised by the public and other town committees regarding the draft proposal for the rezoning of the Industrial Park Zone in the Pleasant Valley Road area. Several items specifically discussed were: agricultural zones mixed with residential uses; Town resources being able to support additional housing; school capacity to handle additional students; availability of water and sewers; the amount of tax money that can be derived from various zones and proposals; and figures given during the Public Hearing by the Agriculture Committee. Members present felt that discussion should be continued when more members of the Commission are in attendance. Padick agreed to provide data on the number of students generated by multi-family housing in Mansfield, and the average amount of taxes paid by those residents.

##### **2. Draft Revisions to the Zoning Regulations Definitions of Family and Boarding House; Political Signs, PZC File 907-32**

Holt agreed to work on a motion with staff that revises the political sign regulations. Beal agreed to work on a motion with staff regarding the zoning definition of family and boarding house.

##### **3. Request to authorize overhead utility lines over conservation easement area dedicated in association with the Hawthorne Park Subdivision, PZC File # 1177**

Item was tabled pending 7/13/10 Field Trip at 1 p.m.

**Reports of Officers and Committees:**

Plante noted that, with the approval of funds at the Town Meeting, plans can move ahead for hiring engineers for the Four Corners water supply and sewer systems.

**Communications and Bills:**

Noted.

**Adjournment:**

Chairman Favretti declared the meeting adjourned at 8:38 p.m.

Respectfully submitted,

Katherine Holt, Secretary

## MINUTES

MANSFIELD INLAND WETLAND AGENCY/PLANNING AND ZONING COMMISSION  
FIELD TRIP  
Special Meeting  
Tuesday, July 13, 2010

Members present: R. Favretti, M. Beal, K. Rawn, K. Holt, P. Plante  
Staff present: G. Meitzler (Wetlands Agent, Assistant Town Engineer),  
G. Padick (Director of Planning)

The field trip began at 1:10 p.m.

1. BAKER PROPERTY, 109 Thornbush Road, IWA File #1459  
Members were met by S. Baker and F. Raiola, Deputy Fire Marshal. Plans for house alterations were briefly reviewed. Site and neighborhood characteristics were observed. No decisions were made.
2. HAWTHORNE PARK SUBDIVISION, Hawthorne Lane, PZC File #1177  
Members were met by W. Hawthorne and two other neighboring property owners. Alternative routes for new overhead electrical power lines were observed. Site and neighborhood characteristics were observed. No decisions were made.

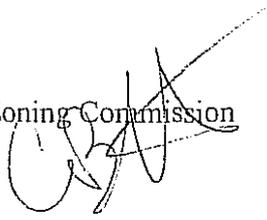
The field trip ended at approximately 2:00 p.m.

Respectfully submitted,

K. Holt, Secretary

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To: Town Council/Planning & Zoning Commission  
 From: Curt Hirsch, Zoning Agent  
 Date: July 7, 2010



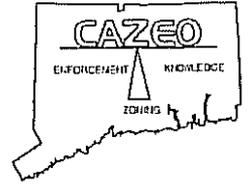
Re: *Monthly Report of Zoning Enforcement Activity*  
*For the month of June, 2010*

Activity	This month	Last month	Same month last year	This fiscal year to date	Last fiscal year to date
Zoning Permits issued	12	17	18	143	144
Certificates of Compliance issued	14	11	21	112	147
Site inspections	56	45	58	519	556
Complaints received from the Public	6	3	9	42	61
Complaints requiring inspection	5	3	6	33	37
Potential/Actual violations found	3	2	3	49	57
Enforcement letters	15	11	10	134	124
Notices to issue ZBA forms	0	2	3	9	9
Notices of Zoning Violations issued	2	0	1	36	56
Zoning Citations issued	0	0	2	47	16

Zoning permits issued this month for single family homes = 0, multi-fm = 0  
 2009/2010 YEAR END fiscal year total: s-fm = 13, multi-fm = 8  
 2008/2009 ..... 16, ..... 0  
 2007/2008 ..... 15, ..... 11  
 2006/2007 ..... 47 ..... 3  
 2005/2006 ..... 47 ..... 21



# Town of Mansfield



CURT B. HIRSCH  
ZONING AGENT  
HIRSCHCB@MANSFIELDCT.ORG

AUDREY P. BECK BUILDING  
4 SOUTH EAGLEVILLE ROAD  
MANSFIELD, CT 06268-2599  
(860) 429-3341

To: Planning & Zoning Commission  
From: Curt Hirsch, Zoning Agent  
Date: July 8, 2010

Re: Current Projects Update

Windwood Acres, Storrs Rd.: The common driveway construction has been completed and is fully stabilization. The first of six lots is under development.

Beacon Hill Estates: 9 homes have received CO's, one is under construction. 13 lots remain vacant.

Fellows Estates, Monticello Rd.: 6 of the 8 lots are completed and occupied.

Pine Grove Estates, Adeline Pl.: All eleven lots have been developed and occupied.

Mulwood East, Wormwood Hill Rd.: 3 of the 5 lots are built and occupied.

Mulwood West, Mulberry La.: All four lots remain vacant.

Freedom Green: Zoning Permits have been issued for 28 of the proposed 36 units in Phase 4-C. 15 of these units are now occupied. This is the final phase of a project approved by the PZC in 1980.

Paideia: There is still a partial Stop Work Order in place from the Building and Zoning Offices. Limited work was authorized and the PZC and Building Office have authorized completion of the stage.

Gibbs Oil, Stafford Rd.: A Zoning Permit has been issued but no work has started. The PZC extended the mandatory 'start' date until 10/1/11. The Building Permit however has expired and will need to be re-issued before any work may proceed.

There are eleven single-family houses under some stage of construction as of today. Two of these however have been idle for three years.

**TOWN OF MANSFIELD**  
**OFFICE OF PLANNING AND DEVELOPMENT**

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GREGORY J. PADICK, DIRECTOR OF PLANNING

Memo to: Mansfield Planning and Zoning Commission  
From: Gregory Padick, Director of Planning  
Date: July 15, 2010  
Re: Proposed Overhead Utility Line, Hawthorne Lane Conservation Easement Area  
PZC File #1177



In the June 19<sup>th</sup> meeting packet, a 6/8/10 letter from Hawthorne Lane residents, a 5/7/10 letter from CL&P and related maps and photographs were distributed. PZC approval has been requested for a potential CL&P overhead utility line crossing of a portion of a conservation easement area approved in 2001 in association with the Hawthorne Park Subdivision off of Bassetts Bridge Road. This approval is being sought so that CL&P can incorporate an alternative route for new utility transmission lines associated with the Interstate Reliability Project. The current CL&P route to the north of existing lines would necessitate significant tree removal closer to existing homes. The proposed alternative route to the south of existing lines would still require some tree removal but would have less impact for the residents. The proposed new route will not require any structures within the Conservation easement area. A colored map depicting the proposed route is included in the July 19<sup>th</sup> meeting packet.

Section II of the subject Conservation Easement, prohibits tree cutting in a conservation easement area without prior written approval from the Planning and Zoning Commission. At issue is whether the proposal will “interfere with or have an adverse impact on the natural scenic, ecological and open space values being protected within the Conservation Easement Area”. My review indicates that the proposal will significantly reduce visual and potential noise impacts for neighboring residents off of Hawthorne Lane. This alternative utility line location essentially shifts the location of new lines from the northerly side of existing lines to the southerly side. From an environmental impact perspective, the two alternatives will have similar impacts on wetlands. The subject conservation easement area that will need to be crossed and periodically cleared of trees and vegetation that might interfere with the utilities, does contain wetland areas but these wetlands do not appear significant or materially different than wetlands that would need to be cleared for the northern route. The attached letter from the Assistant Town Engineer indicates concurrence with this assessment.

This issue has been referred to the Conservation Commission, which will be meeting on July 21<sup>st</sup>, and staff is in the process of sending information to two abutters on Bassetts Bridge Road. No action should be taken at the July 19<sup>th</sup> meeting. Hopefully, comments from the Conservation Commission and Bassetts Bridge Road abutters will be received prior to the August 2<sup>nd</sup> meeting.

Memorandum:

July 14, 2010

To: Planning & Zoning Commission

From: Grant Meitzler, Assistant Town Engineer

Re: Hawthorne Lane - Northeast Utilities Easement Relocation

plan reference: 1-28-2010, Draft map

This proposal requests permission to include a 0.35 acre area of conservation easement in an exchange of land to place the power lines farther from the houses on Hawthorne Lane.

The above referenced draft map shows specific pole removal and installation of new poles with proposed clearing limits along the new right of way locations. The existing and the new easement lines are shown.

It is my understanding that the relocation will result in release of a portion of the present power line easement and acquisition of new easement overhead across the end of Hawthorne Lane and a 0.35 acre portion of a conservation easement area adjacent to Hawthorne Lane. The area of easement to be released in front of four houses at the ear of Hawthorne Lane scales as approximately 2.5 acres.

The wetland boundaries have been mapped in the area of the power lines. Pole locations are located outside of wetland areas. The closest pole scales as approximately 50' from the edge of wetlands - and is on Conn. Light & Power Co. land west of the Hawthorne Lane properties.

I see little different environmentally in the areas involved with this trade.

**DRAFT MOTION: PZC Proposed Regulation Revisions Re: Aquifer Protection & Invasive Species**

\_\_\_\_\_ MOVED, \_\_\_\_\_ seconded, to approve, effective August 15, 2010, revisions to:

- A. Article V and VI of the Zoning Regulations and Sections 5, 6, 7 and 13 of the Subdivision Regulations to clarify and strengthen existing submission and approval criteria regarding aquifer and public water supply well protection, and
- B. Article V, VI, and X of the Zoning Regulations and Section 8 of the Subdivision Regulations to specify that invasive plant species identified by the State Department of Environmental Protection Agency shall not be used.

The subject Zoning Regulation revisions, which are attached, were presented as 4/14/10 drafts at a June 7, 2010 Public Hearing.

In approving these Zoning and Subdivision Regulation revisions, the Planning and Zoning Commission has reviewed and considered all Public Hearing testimony and communications including reports from the WINCOG Regional Planning Commission, Mansfield's Director of Planning, Mansfield's Conservation Commission and the Mansfield Town Attorney. The regulation amendments referenced above are adopted pursuant to the provisions and authority contained in Chapters 124 and 126 of the Connecticut General Statutes, including Section 8-2, which grants the Commission the following:

- the authority to regulate the location and use of buildings, structures and land for trade, industry, residence or other purposes;
- the mandate to consider the Plan of Conservation and Development prepared under Section 8-23;
- the mandate to promote health and the general welfare and to facilitate the adequate provision for water, sewerage and other public requirements;
- the mandate to give reasonable consideration as to the character of the district and its peculiar suitability for particular uses and with a view to conserving the value of buildings and encouraging the most appropriate use of land throughout such municipality;
- the authority that reasonable consideration be given for the protection of potential public surface and ground drinking water supplies;

The subject regulation revisions have been adopted because they promote most-if not all of these statutory goals. Furthermore, the Commission has adopted the subject regulation revisions for the following reasons:

1. The subject regulation revisions help implement goals, objectives and recommendations contained in Mansfield's 2006 Plan of Conservation and Development and are fully consistent with recommendations contained in State and Regional land use plans.
2. The subject regulation revisions promote goals and objectives contained in Article I of the Zoning Regulations and are consistent with the approval considerations contained in Article XIII Section D of the Zoning Regulations.
3. The revisions are acceptably worded and suitably coordinated with related Zoning and Subdivision provisions. The proposed wording has been found legally acceptable to the Town Attorney
4. The revisions clarify and strengthen existing policies regarding the protection of aquifers and existing and potential public water wells.
5. The revisions clarify and strengthen existing policies regarding invasive plant species. The regulations will now uniformly refer to the State Department of Environmental Protection Agency listing of invasive plant species.

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April 14, 2010 DRAFT

Proposed Revisions to the Zoning and Subdivisions Regulations;  
Aquifer and Public Water Supply Well Protection

(New provisions are underlined or otherwise indicated)

(Deletions are bracketed or otherwise indicated)

(Explanatory Notes are provided to assist with an understanding of the proposed revisions. These notes are not part of the proposed zoning revision)

**A. Proposed Zoning Regulation Revisions:**

1. Revise Article V, Section A.3. as follows:

a. Revise subsection d.10 to read as follows:

Watercourses, swamps and other water related features, specifically including, regulated inland wetlands, flood hazard areas, state designated channel encroachment lines and identified aquifers on the site or [adjacent to] within 500 feet of the site. For more information on flood hazard areas see Article X, Section E and Article IV (definition of flood hazard area). For more information on aquifer areas see Article VI, Section B.4.m.

b. Revise subsection d.12 to read as follows:

Waste disposal and water supply facilities, including the locations and findings of all test pits, borings and percolation tests, and the location of public drinking water wells within 500 feet of the site.

c. Revise subsection g to read as follows:

**Other information:** Dependent on the nature of the proposal, the Commission shall have the right to require additional detailed information if it finds the information is necessary to review the application and determine compliance with applicable regulations and performance standards. Such information may include but shall not be limited to: traffic impact analysis, including specific information on how construction traffic will be regulated, routed and monitored; aquifer, watershed and flooding data; drainage calculations and documentation of necessary drainage rights or easements; environmental and neighborhood impact analysis; erosion and sedimentation control plans, future plans for adjacent land under the control of the subject applicant or owner; information on homeowner or property-owner associations; maintenance provisions; estimates of site improvements costs, and bonding agreements.

2. Revise Article V, Section A.5.d. to read as follows:

The proposal has made safe and suitable provisions for water supply, waste disposal, flood control, fire and police protection, the protection of the natural environment, including air quality and surface and groundwater quality and the protection of existing aquifers and existing and potential public water supplies, cemeteries, historic structures and other features of historic value;

3. Revise Article V, Section B.3.g. to read as follows:

**Other information:** Dependent on the nature of the proposal, the Commission shall have the right to require additional detailed information if it finds the information is necessary to review the application and determine compliance with applicable regulations and performance standards. Such information, which through other provisions of these regulations may be required for particular uses, may include but shall not be limited to: architectural plans of all proposed buildings, structures and signs, including exterior elevations, floor plans, perspective drawings and information on the nature and color of building

**Proposed Revisions to the Zoning and Subdivisions Regulations;**  
**Aquifer and Public Water Supply Well Protection**

materials; traffic studies; aquifer, watershed and flooding data; drainage calculations and documentation of necessary drainage rights or easements; environmental and neighborhood impact analysis; erosion and sedimentation control plans; future plans for adjacent land under the control of the subject applicant or owner; information on homeowner or property owner associations; maintenance provisions; estimates of site improvement costs and bonding agreements.

4. Revise Article VI, Section B.4.m. to read as follows:

**Aquifer Areas** - To prevent or minimize detrimental effects on the groundwater quality within aquifer areas, which are existing or potential sources of [large] significant quantities of potable water, land use activities on or within 500 feet of identified aquifer areas must be carefully reviewed and appropriately regulated. Accordingly, the following requirements shall apply to all land use activities on or within [primary or secondary recharge areas] 500 feet of aquifer areas as identified in Mansfield's Plan of Conservation and Development, Mansfield's Water Supply Plan, an October, 1979 map entitled GROUNDWATER RECHARGE AREAS, prepared by the Connecticut Area-wide Waste Treatment Management Planning Board, sheets 40, 41, 55 and 56, (on file in the Mansfield Planning Office and the Town Clerk's Office), [as may be modified by new] and any additional information obtained from the State Department of Environmental Protection, [the Tolland County Soil and Water Conservation District,] federal agencies or on-site investigation [meeting the standards of the U.S. Geological Survey].

1. No commercial or industrial land use and no residential land use involving three or more dwelling units, which utilizes an on-site waste disposal system, shall be permitted unless it can be demonstrated to the satisfaction of the Planning and Zoning Commission that the waste disposal system discharges will not contaminate aquifer recharge areas. As deemed [necessary] appropriate, the proposed land use shall be referred to the Mansfield Health Officer, the Mansfield Conservation Commission and the State Departments of Health and Environmental Protection for review comments. A written report from the owner-developer's sanitary engineer and/or geologist or other qualified professional, detailing the system design, the physical characteristics of the area, existing land uses in the area, and potential short-term and cumulative impacts on identified aquifer areas, shall be submitted to the Commission.
2. No underground fuel or chemical storage tanks shall be permitted, except after review and approval of the Mansfield Building Inspector and Fire Marshal. Where Planning and Zoning Commission approval is required for the subject use, all underground storage tanks must also be approved by the Commission. All such tanks and pipe connections shall be designed and constructed to prevent accidental contamination of groundwater. All storage tank facilities shall be designed and installed in conformance with [the] all applicable provisions of [Section 29-62 of] the State Statutes and regulations, and the standards of Underwriters Laboratories, Inc. and the National Fire Prevention Association. [The recommended standards contained in the November 1979 report of the Area Waste Treatment Management Planning Board entitled: A GUIDE TO GROUNDWATER AND AQUIFER PROTECTION (copy on file in the Mansfield Planning Office) shall also be considered.]
3. All agricultural operations must employ best management practices, as recommended by the State Department of Environmental Protection and the USDA Natural Resources Conservation Service [Tolland County Soil and Water Conservation District], for the application of manure, fertilizer or pesticides and the management of animal wastes.
4. No road salt storage and loading facilities shall be permitted except after review and approval of the State Department of Environmental Protection. Where authorized, adequate measures must be taken to prevent groundwater contamination and to detect potential contamination problems.

Proposed Revisions to the Zoning and Subdivisions Regulations;  
Aquifer and Public Water Supply Well Protection

5. All commercial, industrial or multi-family developments and other land uses with cumulatively more than 1/2 acre of impervious surface shall incorporate best management practices for storm water [management] controls in accordance with State Department of Environmental Protection Best Management Guidelines, [such as oil/water separators and infiltration structures] and shall prohibit or restrict the use of salts and chemicals for ice removal in order to minimize the risks of ground water contamination. A storm water management plan detailing proposed provisions shall be submitted for Commission approval.
6. All land uses involving the maintenance of lawns, fields and landscaped areas shall incorporate-rate landscape management plans regarding the use of fertilizers, pesticides, and other organic or chemical applications to minimize the risks of groundwater contamination. A landscape management plan detailing proposed provisions shall be submitted for Commission approval.

**B. Proposed Subdivision Regulation Revisions:**

1. Revise Section 5.2 to add a new subsection h. to read as follows (existing subsection h - m to be re-lettered i - n):
  - a. Aquifer areas and public drinking water wells on or within 500 feet of a site.
2. Revise Section 6.5 as follows:
  - a. Add a new subsection h to read as follows (existing subsection h - s to be re-lettered i - t):
    - h. Aquifer areas and public drinking water wells on or within 500 feet of a site.
  - b. Revise existing subsection i.5 (to be re-lettered 6.5.j.5) to read as follows:
    5. Soil delineations and symbols as per the current U.S.D.A. Natural Resources Conservation Service Soil Survey for Tolland County. Prime farmland soils and stratified drift aquifer areas shall be [delineated] specifically identified and clearly labeled.
3. Revise Section 7.1 Subsections b and c to read as follows:
  - b. The protection of existing and potential public water supply wells and ground water and surface water quality through appropriate design and installation of sanitary systems, drainage facilities, and other site improvements;
  - c. The protection and enhancement of natural and manmade features, including aquifer areas, agricultural lands, hilltops or ridges, expanses of valley floors and features along existing roadways and scenic views and vistas on and adjacent to the subdivision site;
4. Revise Section 7.2 a and b to read as follows:
  - a. Property boundaries, site topography soil types, natural and manmade features and scenic views and vistas should be delineated: (see provisions of 6.5.b through [i]j);
  - b. Significant natural and manmade features, including aquifer areas, agricultural lands, hilltops or ridges, expanses of valley floors and features along existing roadways and scenic views and vistas and adjacent to the subdivision site, and scenic views and vistas and appropriate buffer areas should be incorporated into proposed open space areas.

**Proposed Revisions to the Zoning and Subdivisions Regulations;  
Aquifer and Public Water Supply Well Protection**

5. Revise Section 7.4.a.5 to read as follows:

5. The site's location with respect to the Willimantic Reservoir Watershed, existing public water supply wellfields or [stratified drift] aquifer areas that may serve as future public water supply wellfields;

6. Revise Section 7.6.a. to read as follows:

a. The Commission determines that a reduction or waiver will help protect significant natural and manmade features, including aquifer areas, agricultural lands, hilltops or ridges, expanses of valley floors and features along existing roadways and/or scenic views and vistas;

7. Revise 13.1.4.b. to read as follows:

b. Protecting and conserving natural and manmade features, including aquifer areas, agricultural lands, hilltops or ridges, expanses of valley floors and features along existing roadways, and/or scenic views and vistas;

Explanatory note: The proposed revisions are designed to clarify and strengthen existing policies regarding aquifer and public water supply well protection.

April 14, 2010 Draft

Proposed Revisions to Mansfield’s Zoning & Subdivision Regulations  
Re: Invasive Plant Species

(New provisions are underlined or otherwise indicated)

(Deletions are bracketed or otherwise indicated)

(Explanatory Notes are provided to assist with an understanding of the proposed revisions. These notes are not part of the proposed zoning revisions.)

**A. Proposed Zoning Regulation Revisions:**

1. Revise Article V, Section A.3.d.15 to read as follows:

Existing and proposed fencing, walls, screening, buffer and landscaped areas, including the location, size and type of significant existing vegetation and unique or special landscape elements; historic features; and the location, size and type of proposed trees and/or shrubs. Plants identified in the current State Department of Environmental Protection Agency listing of invasive species shall not be used. Areas to remain as natural or undisturbed and areas to be protected through the use of conservation easements shall be identified on the site plan.

2. Revise Article VI, Section B.4.q.1 to read as follows:

**General** - All land use activities and particularly structures, parking areas and outdoor storage areas associated with commercial, industrial, or multi-family residence uses, shall include strategically placed landscape and buffer areas, which shall be designed to protect and preserve property values; to provide privacy from visual intrusion, light, dirt and noise; to prevent the erosion of soil and to provide water recharge areas; to promote pedestrian and vehicular safety; and to enhance the environmental quality and attractiveness of Mansfield.

Except where alternative uses, such as parking areas, are provided for in other sections of these regulations, all required setback areas shall either be attractively landscaped with lawns trees and shrubs or, where appropriate, left in a sightly and well kept natural state. Landscape plans submitted in conjunction with a land use application shall identify, by type, size, height and placement, all proposed landscaping and all existing landscape features to be retained. Plants identified in the current State Department of Environmental Protection Agency listing of invasive species shall not be used. All submitted landscape plans must be adequate to meet the intended aesthetic, buffer and environmental purposes. Particular attention should be given to parking and loading areas, outside storage areas and shadow patterns with respect to south wall and rooftop solar access. See Article X, Section D.16 for supplemental interior parking lot landscaping requirements and Article X, Section S for architectural and design standards.

3. Revise Article X, Section D.18 b. to read as follows:

Interior landscape areas shall contain a mix of trees, shrubs, ground covers and other plantings. At a minimum, one deciduous shade tree at least two (2) inches in caliper, shall be planted for each ten (10) parking spaces. Trees and shrubs placed within five (5) feet of paved areas shall be of a variety capable of withstanding salt damage. Plants identified in the current State Department of Environmental Protection Agency listing of invasive species shall not be used.

4. Revise Article X, Section R.4.b to read as follows:

Where appropriate, integrate existing mature vegetation into the design [and avoid the use of invasive species.] Incorporate a variety of plant species into the design and avoid monocultures. Where appropriate, integrate existing mature vegetation into the design and avoid the use of invasive species. Incorporate a variety of plant species into the design and avoid monocultures. Plants identified in the current State Department of Environmental Protection Agency listing of invasive species shall not be used.

**B. Proposed Subdivision Regulations Revisions:**

1. Revise Section 8.10 subsections e and g to read as follows:

- e. All new street trees shall be selected by the project landscape architect based on site characteristics, street design, or architecture and tree durability. Where appropriate based on site and neighborhood characteristics, native tree species should be considered. Plants identified in the current State Department of Environmental Protection Agency listing of invasive species shall not be used.
  
- g. The following list is provided as a guide for selecting durable, quality street trees. However, the Commission encourages consideration of additional trees of equivalent quality (see subsection e above). [It is recommended that street tree species that may be invasive (based on the current listing by the University of Connecticut Center for Conservation and Biodiversity) not be used.]

Explanatory Note:

The proposed revisions are designed to clarify and strengthen existing policies regarding invasive plant species. The regulations all uniformly refer to the State Department of Environmental protection Agency listing of invasive plant species.

**DRAFT MOTION: PZC Proposed Regulation revisions regarding definitions of Family and Boarding House**

\_\_\_\_\_ MOVED, \_\_\_\_\_ seconded, to approve, effective August 15, 2010, revisions to Article IV Sections B.7 and B.25. of the Zoning Regulations regarding the definitions of Boarding House and Family. The revisions to the definition of Family, which had not been amended since 1972, are comprehensive and include criteria for five distinct groups that would qualify as a family for zoning occupancy purposes. These revisions update and refine provisions regarding blood relations, incorporate new provisions that authorize “functional families”, incorporate new provisions that authorize living arrangements that qualify as “reasonable accommodation” and reduce the number of unrelated individuals who automatically qualify as a family from four (4) to three (3). The revision to the definition of Boarding House is needed to be consistent with the new definition of Family. The subject Zoning Regulation revisions, which are attached, were presented as 4/8/10 drafts at May 3, 2010 and June 7, 2010 Public Hearings. As a minor correction in category 5 of the definition of family, “pursuant” has been changed to “pursuit”.

In approving these Zoning Regulation revisions, the Planning and Zoning Commission has reviewed and considered all Public Hearing testimony and communications including reports from the WINCOG Regional Planning Commission, Mansfield’s Director of Planning and the Mansfield Town Attorney and communications from numerous citizens. The regulation amendments referenced above are adopted pursuant to the provisions and authority contained in Chapter 124 of the Connecticut General Statutes, including Section 8-2, which grants the Commission the following:

- the authority to regulate the location and use of buildings, structures and land for trade, industry, residence or other purposes;
- the mandate to consider the Plan of Conservation and Development prepared under Section 8-23;
- the mandate to promote health and the general welfare and to facilitate the adequate provision for water, sewerage and other public requirements;
- the mandate to give reasonable consideration as to the character of the district and its peculiar suitability for particular uses and with a view to conserving the value of buildings and encouraging the most appropriate use of land throughout such municipality;

The subject regulation revisions have been adopted because they promote these statutory goals. Furthermore, the Commission has adopted the subject regulation revisions for the following reasons:

1. The subject regulation revisions promote goals, objectives and recommendations contained in Mansfield’s 2006 Plan of Conservation and Development. In particular, the revisions will promote policy goal 4: “To strengthen and encourage a sense of neighborhood and community throughout Mansfield”. The revisions also implement a specific action item contained in Mansfield’s 2008 “A Unified Vision Strategic Plan” and the revisions are consistent with state and regional land use plans. The proposed reduction in the number of unrelated individuals that would automatically qualify as a family was recommended by Mansfield’s Community Quality of Life Committee.
2. The subject regulation revisions promote goals and objectives contained in Article I of the Zoning Regulations and are designed to promote the public’s health, welfare and safety. The revisions are consistent with the approval considerations contained in Article XIII Section D of the Zoning Regulations.
3. The subject regulation revisions have been found to be appropriately worded and legally acceptable to the Town Attorney (see 5/3/10 report from Attorney O’Brien).

4. The subject regulation revisions recognize and provide for significant changes that have occurred in family composition since 1972 and are intended to help address significant neighborhood impacts that have occurred in recent years in many of Mansfield's single family residential neighborhoods. The new regulations are designed to:
  - A. promote cohesiveness and reduce negative neighborhood impacts,
  - B. preserve the character of Mansfield's single family neighborhoods and protect property values,
  - C. enhance housing opportunities for families meeting the new definition and
  - D. reduce the increasing number of single family homes that are purchased for the primary purpose of renting to transient persons, primarily college students.

**April 8, 2010 DRAFT**  
**Proposed Revision to the Zoning Regulations:**  
**Definitions of Family and Boarding House**

(New provisions are underlined or otherwise indicated)

(Deletions are bracketed or otherwise indicated)

(Explanatory Notes are provided to assist with an understanding of the proposed revisions. These notes are not part of the proposed zoning revision)

1. Delete in its entirety existing Article IV, Section B.25 Definition of Family.
  25. [Family. One or more persons who live together and maintain a common household, related by blood, marriage, or adoption. A family may also include domestic help and gratuitous guests. In addition, a family may include not more than three persons who are not related by blood, marriage or adoption.]
2. Add a new Article IV, Section B.25 Definition of Family to read as follows:
  25. Family: A person living alone, or any of the following groups living together as a single non-profit housekeeping unit and sharing common living, sleeping, cooking and eating facilities:
    1. Any number of people related by blood, marriage, civil union, adoption, foster care, guardianship or other duly authorized custodial relationship, gratuitous guests, domestic help and not more than one (1) additional unrelated person. (Related by blood shall include only persons having one of the following relationships with another individual(s) residing within the same dwelling unit: parents, grandparents, children, sisters, brothers, grandchildren, stepchildren, first cousins, aunts, uncles, nieces and nephews);
    2. Two (2) unrelated persons and any children related to either of them;
    3. A cumulative total of up to three (3) adult persons. More than three (3) adult persons may qualify as a family pursuant to other categories of this definition;
    4. Persons living together as a functional family as determined by the criteria listed below. For the purpose of enforcing these regulations, it shall be assumed (presumptive evidence) that more than three (3) persons living together, who do not qualify as a family based on categories one or two of this definition, do not constitute a functional family. To qualify as a functional family, the following criteria shall be met:
      - A. The occupants must share the entire dwelling unit and live and cook together as a single housekeeping unit. A unit in which the various occupants act as separate roomers may not be deemed to be occupied by a functional family;
      - B. The group shares expenses for food, rent or ownership costs, utilities and other household expenses;
      - C. The group is permanent and stable. Evidence of such permanency and stability may include:
        1. The presence of minor dependent children regularly residing in the household who are enrolled in local schools;
        2. Members of the household have the same address for purposes of voter's registration, driver's license, motor vehicle registration and filing of taxes;
        3. Members of the household are employed in the area;
        4. The household has been living together as a unit for a year or more whether in the current dwelling unit or other dwelling units;
        5. There is common ownership of furniture and appliances among the members of the household; and
        6. The group is not transient or temporary in nature;

April 8, 2010 DRAFT

Proposed Revision to the Zoning Regulations:  
Definitions of Family and Boarding House

- D. Any other factor reasonably related to whether or not the group is the functional equivalent of a family.
  - E. Occupancy in a dormitory, fraternity, sorority, club, tourist home, emergency shelter, rooming or boarding house, group home or similar group occupancy shall not be construed to be a family. Many of these land uses are defined in Article IV, Section B.
5. Any group protected by the “reasonable accommodation” criteria of the Federal Americans with Disabilities Act or Fair Housing Act in that group members are the functional equivalent of a family sharing and in continued pursuant of their common commitment to rehabilitation or recovery from chronic drug or alcohol addiction or abuse, evidenced by substantial compliance with the following criteria, listed in order of importance:
- A. The residence facility is certified by the Department of Mental Health and Addiction Services as congregate sober housing.
  - B. Collectively, the residents lease the entire residence rather than any particular room.
  - C. Residents may remain indefinitely, but are required to leave the residence if they use drugs or alcohol.
  - D. Residents share equally most household expenses, including rent, a single household budget, most household chores, including cleaning, shopping and cooking, and the work of maintaining the premises.
  - E. Weekly meetings are used to discuss household, financial, logistical or interpersonal issues, and household safety, including fire safety.
  - F. Residents prepare food and eat together on a frequent basis and there is shared food in the refrigerator.
26. Revise Article IV, Section B.7 Definition of Boarding House to read as follows:
- a. **Board House.** A dwelling unit in which more than [four 4] three (3) persons, not a family reside.

Explanatory Note: The proposed revisions to Mansfield’s definition of family update and refine existing provisions, particularly with respect to blood relations; incorporate new provisions that authorize “functional families”; incorporate new provisions that authorize legally recognized living arrangements that qualify as “reasonable accommodation”; and reduce the number of unrelated individuals who automatically qualify as a family from four (4) to three (3). The proposed revisions, which recognize and provide for significant changes that have occurred over the past fifty years in family composition, are designed to preserve the character of Mansfield’s single family residential neighborhoods, protect property values, reduce the increasing number of single family homes that are purchased for the primary purpose of renting to transient persons (primarily college students), enhancing housing opportunities for families meeting the new definition and in general to promote the public health, welfare and safety. All existing single family uses that comply with the existing definition of family, but would not comply with the proposed definition of family, would become non-conforming uses if the new definition is adopted. Legally established non-conforming uses can be continued, regardless of ownership changes, unless there has been a voluntary change in use or a clear intent to abandon rights to the pre-existing non-conforming use. The proposed revisions to Mansfield’s definition of Board House are necessary to be consistent with the proposed definition of family.

DRAFT MOTION: PZC Proposed Regulation revisions regarding Political Signs

\_\_\_\_\_ MOVED, \_\_\_\_\_ seconded, to approve, effective August 15, 2010, revisions to Article X Section C.4.h.4. of the Zoning Regulations regarding political signs. The revisions will replace current standards for political signs with new provisions. The subject Zoning Regulation revisions, which are attached, were presented as 3/10/10 drafts at May 3, 2010 and June 7, 2010 Public Hearings.

In approving these Zoning Regulation revisions, the Planning and Zoning Commission has reviewed and considered all Public Hearing testimony and communications including reports from the WINCOG Regional Planning Commission, Mansfield's Director of Planning, Mansfield's Town Manager and the Mansfield Town Attorney. The regulation amendments referenced above are adopted pursuant to the provisions and authority contained in Chapter 124 of the Connecticut General Statutes, including Section 8-2, which grants the Commission the following:

- the authority to regulate the location and use of buildings, structures and land for trade, industry, residence or other purposes;
- the mandate to promote health and the general welfare and to give reasonable consideration as to the character of the district and its peculiar suitability for particular uses and with a view to conserving the value of buildings and encouraging the most appropriate use of land throughout such municipality;

The subject regulation revisions have been adopted because they promote these statutory goals. Furthermore, the Commission has adopted the subject regulation revisions for the following reasons:

1. The subject regulation revisions are consistent with recommendations contained in local, state and regional land use plans.
2. The subject regulation revisions promote goals and objectives contained in Article I of the Zoning Regulations and are consistent with the approval considerations contained in Article XIII Section D of the Zoning Regulations.
3. The proposed revisions have been found to be appropriately worded and legally acceptable to the Town Attorney
4. The revisions address concerns raised by the American Civil Liberties Union of Connecticut regarding the regulation of political signs on private property.

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## March 10, 2010 DRAFT

### **Proposed Revisions to Article X, Section C.4.h.4 of Mansfield's Zoning Regulations Regarding Political Signs**

#### **Proposed Zoning Regulation Revisions**

Revise Article X, Section C.4.h.4 as follows:

1. Delete existing provisions.
2. Add the following new provisions:

4. Political Signs

Subject to obtaining property owner approval, political signs on private property are authorized. Political signs also are authorized along street rights-of-way abutting private property subject to obtaining the abutting property owners approval. All political signs must be in compliance with the traffic safety criteria of Section C.7. of this Article.

Political signs shall not be located on public property or street rights-of-way abutting public property. To help reduce neighborhood impact and to help preserve Mansfield's scenic character, it is recommended that political signs be limited in size and number, be non-illuminated and be displayed for a limited period of time.

#### Explanatory Note:

The proposed Zoning Regulation amendment would eliminate current standards for political signs on private property which include restrictions on the number, size and period of time for display and limit the nature of a political sign. The proposed amendment retains an existing provision that prohibits political signs on public property but does authorize political signs along street rights-of-way provided abutting private property owners have granted permission. The proposed provision includes generic recommendations for political signs which are advisory and not mandatory. These recommendations are included to help reduce neighborhood impact and potential litter problems and to help preserve Mansfield's scenic character.

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**TOWN OF MANSFIELD  
OFFICE OF PLANNING AND DEVELOPMENT**

GREGORY J. PADICK, DIRECTOR OF PLANNING

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Memo to: Mansfield Planning and Zoning Commission  
From: Gregory Padick, Director of Planning  
Date: July 15, 2010  
Re: 8-24 Referral: Regional School District 19 Proposed Athletic Facility Renovation Project



The attached letter from Regional School District 19 Superintendent Silva refers for Planning and Zoning consideration a proposed athletic facility renovation project that will be presented at a regional referendum this fall. The referral has been made pursuant to section 8-24 of the State Statutes. The subject project involves replacement of an existing outdoor track, a new inner multi-purpose field, tennis court resurfacing and associated site work. All work will be in currently developed areas that were approved by the Planning and Zoning Commission. This referral essentially seeks comments regarding whether the project is consistent with Mansfield's Plan of Conservation and Development. In the subject case, the project is clearly consistent with Mansfield's Plan. The following resolution, prepared by Regional School District 19's Bond Counsel is considered appropriate and approval is recommended.

**RESOLUTION OF THE PLANNING AND ZONING COMMISSION  
OF THE TOWN OF MANSFIELD, CONNECTICUT**

RESOLVED,

- (a) That the following project, which has been referred to this Commission by Regional School District Number 19, is approved by the Commission solely for purposes of Section 8-24 of the General Statutes of Connecticut, Revision of 1958, as amended:

Renovations and improvements to various athletic facilities of the District at E.O. Smith High School, contemplated to include renovation of the onsite athletic track, inner game field and exterior tennis/basketball courts, installation of a synthetic athletic field and installation of light fixture stanchions and related conduits and wiring, and which may include bleacher installation and related improvements.

- (b) That this resolution is for approval of conceptual plans only. The project is subject to and shall comply with all applicable zoning, site plan, subdivision, inland wetland and other laws, regulations and permit approvals, and this resolution shall not be a determination that the project is in compliance with any such applicable laws, regulations or permit approvals.
- (c) That the Commission report its approval of this project, for purposes of Section 8-24 of the General Statutes, by sending a certified copy of this resolution to Regional School District Number 19.

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**REGIONAL SCHOOL DISTRICT #19**  
**EDWIN O. SMITH HIGH SCHOOL**  
Ashford, Mansfield and Willington, CT

1235 Storrs Road  
Storrs, CT 06268-2287  
860-487-1862  
Fax: 860-429-0085

Bruce W. Silva  
Superintendent

July 9, 2010

Dr. Rudy Favretti  
Planning and Zoning Commission  
4 South Eagleville Road  
Storrs, CT 06268

Dear Dr. Favretti:

Regional School District 19 hereby files a Section 8-24 referral to the Planning and Zoning Commission for a new 'athletic facility renovation project' on the grounds of E.O. Smith High School.

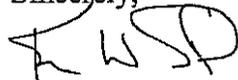
The scope of the project will be limited to the replacement of the existing 6-lane (track with the addition of an 8 lane straight), tennis courts and the inner game field. A new synthetic field will replace the grass turf. The project will also include the replacement of fencing and some walkways. Bleachers will be included in the project as an "alternate bid." A site plan map is attached depicting proposed improvements.

The district will hold a public hearing on August 3<sup>rd</sup> at 7:00 p.m. at the E.O. Smith High School Library Media Center. The board has set a tentative date of Tuesday, September 28, 2010 to hold regional referendum to authorize the bonding for the \$2,167,000 needed for the project. If approved, construction would begin in the spring of 2011.

I will plan to attend the July 19<sup>th</sup> meeting to answer any questions the Commission may have about the project.

A copy of the anticipated bond resolution and bond counsel recommended Planning and Zoning Commission 8-24 resolution are attached for your consideration.

Sincerely,



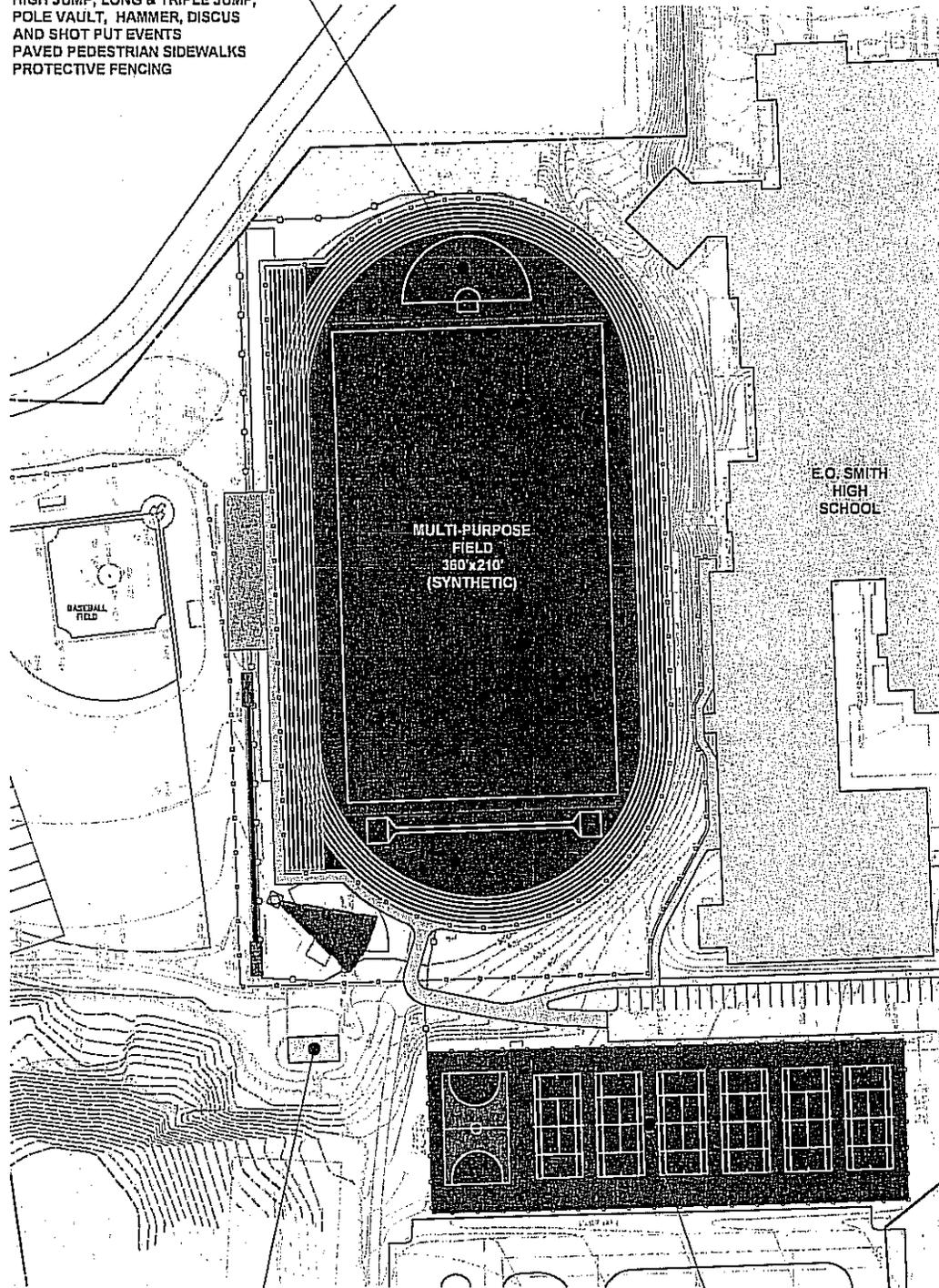
Bruce W. Silva  
Superintendent

BWS/lcb  
enc.

**RECONSTRUCTED 400M TRACK  
WITH 360'X210' SYNTHETIC**

**FIELD:**

- 8 LANE SPRINT SECTION,
- 8 LANE AROUND
- HIGH JUMP, LONG & TRIPLE JUMP,
- POLE VAULT, HAMMER, DISCUS
- AND SHOT PUT EVENTS
- PAVED PEDESTRIAN SIDEWALKS
- PROTECTIVE FENCING



EXISTING STORAGE  
BUILDING TO REMAIN

**RECONSTRUCT EXISTING  
TENNIS AND BASKETBALL  
COURTS:**

- (6) TENNIS COURTS
- (1) BASKETBALL COURT
- CHAIN LINK FENCING
- NEW STANDARDS & COURT NETS

**MASTER PLAN: IMPROVEMENTS TO ATHLETIC FACILITIES**

**E.O. SMITH HIGH SCHOOL  
REGIONAL SCHOOL DISTRICT 19.**

**MILONE & MACBROOM.**

1235 STORRS ROAD  
STORRS, CONNECTICUT

JUNE 6, 2010

Engineering,  
Landscape Architecture  
and Environmental Science  
95 Ledy Street  
Cheshire, Connecticut 06024  
(860) 513-0111 Fax: (860) 513-0119  
www.milone-macbroom.com



## **Bond Counsel Requirements:**

- A. PLANNING AND ZONING COMMISSION - Proposed project must be referred to the Planning and Zoning Commission of town where project is located for approval or a report (unless project is solely purchase of movable equipment). If practical, Planning and Zoning Commission should act on referral before public hearing is held. Action by the Commission must be by majority vote of all of its members, not just a majority of those present and voting. C.G.S. Sections 8-24; 8-22.

### Documents:

1. Copy of \_\_/\_\_/2010 Mansfield Planning and Zoning Commission minutes showing action taken.\*
2. Town Clerk's Certificate as to minutes.\*
  - Copy of 2010 regular meeting schedule
  - Copy of Meeting notice/agenda as posted

## **Project Scope:**

RESOLVED, That the officers of the Board of Education and the Superintendent are authorized to cause a district meeting to be called for the purpose of conducting a public hearing at E.O. Smith High School, 1235 Storrs Road in Mansfield, Connecticut on Tuesday, August 3, 2010 at 7:00 P.M. with respect to the following recommendations of the Board, which recommendations are hereby adopted:

1. That \$ 2,167,000 be appropriated for costs of renovations and improvements to various athletic facilities of the District at E.O. Smith High School, contemplated to include renovation of the onsite athletic track, inner game field and exterior tennis/basketball courts, installation of a synthetic athletic field and installation of light fixture stanchions and related conduits and wiring, and which may include, to the extent of available funds, bleacher installation; for costs of related materials, equipment and improvements; and for costs of the financing of the project. The Regional School District 19 Building Committee is authorized to determine the scope and particulars of the project. The Regional School District 19 Building Committee is further authorized to reduce or modify the project scope, including without limitation the elimination of project components as necessary or desirable to complete the project within the appropriated amount, and the entire appropriation may be expended on the project as so reduced or modified. The appropriation may be spent for design, construction and installation costs, related improvements, repairs, equipment and materials, engineering and consultant fees, administrative costs, printing, legal fees, net interest on borrowings and other financing costs, and other expenses related to the project.

## **Suggested 824 Motion and Other Needed Documents**

RESOLUTION OF THE PLANNING AND ZONING COMMISSION  
OF THE TOWN OF MANSFIELD, CONNECTICUT

RESOLVED,

(a) That the following project, which has been referred to this Commission by Regional School District Number 19, is approved by the Commission solely for purposes of Section 8-24 of the General Statutes of Connecticut, Revision of 1958, as amended:

Renovations and improvements to various athletic facilities of the District at E.O. Smith High School, contemplated to include renovation of the onsite athletic track, inner game field and exterior tennis/basketball courts, installation of a synthetic athletic field and installation of light fixture stanchions and related conduits and wiring, and which may include bleacher installation and related improvements.

(b) That this resolution is for approval of conceptual plans only. The project is subject to and shall comply with all applicable zoning, site plan, subdivision, inland wetland and other laws, regulations and permit approvals, and this resolution shall not be a determination that the project is in compliance with any such applicable laws, regulations or permit approvals.

(c) That the Commission report its approval of this project, for purposes of Section 8-24 of the General Statutes, by sending a certified copy of this resolution to Regional School District Number 19.

TOWN CLERK: CERTIFICATE AS TO PLANNING AND  
ZONING COMMISSION MINUTES

I, Mary Stanton, Town Clerk of the Town of Mansfield, Connecticut, hereby certify as follows:

1. Attached hereto is a true and complete copy of that portion of the minutes of the meeting of the Planning and Zoning Commission of the Town of Mansfield, Connecticut held on \_\_\_\_\_, 2010, pertaining to the introduction, discussion and action on resolution approving, pursuant to Section 8-24 of the General Statutes, the E.O. Smith High School Athletic Facilities Improvements Project.

2. The Planning and Zoning Commission consists of nine (9) members and three (3) alternates, a quorum of the Commission consists of five (5) members, and the number of members present and voting on each resolution constitutes a quorum. The members present and voting on each resolution were duly elected or appointed members of the Commission (or such members' alternates, if applicable).

3. The minimum number of affirmative votes required to adopt each resolution was five (5), and at least that number of members voted affirmatively on each resolution, as indicated in the minutes. The entire meeting exclusive of executive sessions was open to the public and no one was excluded from the portion of the meeting pertaining to the consideration and adoption of each resolution.

4. The minutes are duly recorded in the records of the Town and were filed with the Town Clerk within 7 days of the meeting. The vote of each member present was reduced to writing and made available for public inspection within 48 hours after the meeting, exclusive of any Saturday, Sunday or legal holiday, and also recorded in the minutes. The minutes were available for public inspection, and were posted as applicable on the Town's or the Commission's Internet web site, if available, within 7 days after such meeting.

5. Notice of the meeting was mailed at least one week prior to the meeting by first class mail, where practicable, to every person who had filed a written request for such notice.

6. The meeting was (check one):

\_\_\_ a. A regular meeting, held at a date, time and place designated in the schedule of regular meetings filed in the office of the Town Clerk and posted as applicable on the Town's or the Commission's Internet web site, if available, 30 days prior to the meeting and on or before January 31, 2010. The agenda of the meeting included the business concerning each resolution. The agenda was available to the public and was filed not less than 24 hours before the meeting at the Commission's regular office or, if

there is no such regular office, at the office of the Town Clerk and posted as applicable on the Town's or the Commission's Internet web site, if available.

- \_\_\_ b. A special meeting, and notice of the date, time, place and the business concerning each resolution was posted in the office of the Town Clerk and posted as applicable on the Town's or the Commission's Internet web site, if available, at least 24 hours before the meeting. Written notice of the special meeting was delivered to the usual place of abode of each member of the Commission so that it was received prior to the meeting, except where such delivery was properly waived under the provisions of Section 1-225 of the General Statutes.

7. In determining the time within which or by when any notice, agenda or other information was given, made available, posted or filed as certified in paragraphs 4 through 6 above, there was excluded Saturdays, Sundays, legal holidays and any day on which the office of the Town Clerk or the office of the Commission, as applicable, was closed.

8. All provisions of the Freedom of Information Act (C.G.S. Sections 1-200 to 1-241) as amended and all regulations adopted by the Commission for the conduct of its meetings which were in full force and effect on the date of the meeting referred to in the attached minutes were complied with in connection with the meeting.

**9. Attached hereto are true and complete copies of the following:**

- a. Schedule of dates, times and places for holding regular meetings of the Commission as filed with the Town Clerk and posted as applicable on the Town's or the Commission's Internet web site, if available, by January 31, 2010.
- b. Notice and agenda for the meeting referred to in the attached minutes.

Signed and sealed at Mansfield, Connecticut, this \_\_\_\_\_ day of \_\_\_\_\_, 2010.

[SEAL]

---

Town Clerk  
Town of Mansfield

**TOWN OF MANSFIELD  
OFFICE OF PLANNING AND DEVELOPMENT**

---

GREGORY J. PADICK, DIRECTOR OF PLANNING

Memo to: Mansfield Planning and Zoning Commission  
From: Gregory Padick, Director of Planning  
Date: April 29, 2010  
Re: Request to delay construction of overflow parking, Twin Farms Stand, 483 Browns Rd, Enviro Enterprises, LLC o/a, File #1292



The attached 7/9/10 letter from project engineer, W. Wentworth, seeks PZC authorization to postpone until May 1, 2011 the construction of an overflow parking area for the subject farm stand. Condition #8 of the 5/17/10 PZC approval of this project requires all site work to be completed before the issuance of a Certificate of Compliance.

I have reviewed this request with the Zoning Agent and Assistant Town Engineer and we do not object to the subject request provided the property owner appropriately monitors vehicular traffic and parking to help prevent parking along Browns Road and other potential traffic safety problems. It is noted that condition #1 of the 7/9/10 approval does not authorize hayrides, sleigh rides, corn mazes or other activities without prior PZC approval and condition #5 requires "careful monitoring" of traffic and parking. As noted in Mr. Wentworth's letter, the farm stand will not be in full operation until next year but some limited operation is planned by the end of this summer.

The following motion has been drafted for the PZC's consideration:

**"That condition #8 of the PZC's approval of the Twin Ponds Farm Stand at 483 Brown Road be amended to authorize a postponement of the overflow parking area until May 1, 2011. All other approved site improvements shall be completed before the issuance of a Certificate of Compliance. The property owner shall be responsible for monitoring traffic and parking to help prevent parking along Browns Road and other potential safety problems."**

## WENTWORTH CIVIL ENGINEERS, LLC

177 West Town St.  
Lebanon, CT 06249  
Tel. (860) 642-7255  
Fax. (860) 642-4794

July 9, 2010

Mr. Gregory J. Padick  
Director of Planning  
Town of Mansfield  
4 South Eagleville Road  
Mansfield, CT 06268

Re. Overflow Parking  
Twin Ponds Farm Stand  
483 Browns Road  
Storrs, CT 06268

Dear Greg:

I am writing to you on behalf of my client, Enviro Enterprises, LLC in regards to the above referenced Special Permit.

Mr. Kielbania is anticipating an opening date for the farmstand to be near the end of August, which is much later than he had originally anticipated. There is much work still to be done in order to be able to open by the end of this summer. As a result of this delay, the stand will be operating at about 50% of its intended potential capacity. Also, there is always a delay in building a customer base with this type of operation.

Therefore, I would like to request PZC authorization to delay construction of the overflow parking area until May 1, 2011. The 10 parking spaces in the upper gravel parking lot meet the minimums required by the zoning regulations and are anticipated to easily meet the needs of the customer base this autumn after the August opening of the stand. Mr. Kielbania could then have the overflow parking area installed next spring.

Please contact me if you have any comments or questions. Thank you for your attention to this matter.

Sincerely,

Wesley J. Wentworth  
P.E., Soil Scientist

**REPORT OF THE  
WILLIMANTIC RIVER STUDY**

**AN ANALYSIS OF THE IMPACT OF THE  
UNIVERSITY OF CONNECTICUT WATER SUPPLY WELLS  
ON THE FISHERIES HABITAT OF THE WILLIMANTIC RIVER**

WILLIMANTIC RIVER WELLFIELD  
MANSFIELD DEPOT, CONNECTICUT

June 17, 2010

MMI #1958-09



*Prepared for:*



University of Connecticut  
Office of Environmental Policy  
31 LeDoyt Road, U-3055  
Storrs, CT 06269

*Prepared by:*

MILONE & MACBROOM, INC.  
99 Realty Drive  
Cheshire, Connecticut 06410  
(203) 271-1773  
www.miloneandmacbroom.com

*In association with:*

Environmental Research & Consulting, Inc.  
126 Bancroft Road  
Kennett Square, PA 19348  
(610) 444-2875

Complete Report available at

[https://www.facilities.uconn.edu/willimantic\\_River\\_Study\\_Final\\_Report.pdf](https://www.facilities.uconn.edu/willimantic_River_Study_Final_Report.pdf)

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## EXECUTIVE SUMMARY

The University of Connecticut (the University) owns and operates two public water supply wellfields known as the Willimantic River Wellfield and the Fenton River Wellfield for provision of public water in the Storrs area of Mansfield, Connecticut. Ongoing concerns over the relationship between wellfield operations and instream flow diminution have led the University to study the two rivers associated with the wellfields. The subject study originated in the November 6, 2006 *Memorandum of Agreement* with the Connecticut Water Planning Council in which the University agreed to conduct a study to determine whether and, if so, how water withdrawals from the Willimantic River Wellfield affect the aquatic habitat of the Willimantic River in the vicinity of the wellfield.

The Willimantic River Wellfield is located upstream (north) of Route 44 and downstream of Merrow Road. The four Willimantic River Wellfield wells are registered with the Connecticut Department of Environmental Protection for a maximum combined withdrawal of 2.3077 millions of gallons per day (3.57 cubic feet per second).

The specific objectives of this study were to:

- Develop relationships between instream flow and habitat in the Willimantic River for selected fish species
- Derive the relation between the magnitude and timing of ground water withdrawals on the stage and flow of water in the Willimantic River from Merrow Road to Mansfield Depot using existing data, new data collection, and mathematical simulation modeling
- Numerically model selected water-management scenarios to optimize water withdrawals while minimizing adverse impacts on river flow and instream habitat

The Willimantic River drainage basin encompasses approximately 225 square miles in Connecticut and a small part of Massachusetts. Discharge in the Willimantic River is affected upstream of the Willimantic River Wellfield by several registered and permitted diversions for public water supply and industry in addition to impoundments utilized for recreation and fire protection. The geology of the watershed in the vicinity of the wellfield was studied in depth by the University and the United States Geological Survey (USGS) in the late 1960s, and further research was performed at the wellfield during the Level A Aquifer Mapping fieldwork performed in the 1990s.

The Instream Flow Incremental Method (IFIM) was used to evaluate the potential effects of reductions in river flow associated with withdrawal of water at the Willimantic River Wellfield on the habitats of representative fish species in the Willimantic River. Target fish species included brook trout, brown trout, fallfish, and common shiner.

Simulation of river hydraulics and aquatic habitat was performed using computer models collectively known as Physical Habitat Simulation (PHABSIM). The hydraulic simulation

**Table ES-1**  
**Percent of Maximum WUA, Discharge, and Persistent**  
**Duration of Common, Critical, Rare, and Extreme Habitat**  
**Thresholds for Target Fish Community**

Habitat Stressor Threshold	Parameter	Result
Common (Upper Subregion)	Habitat (% Max WUA)	44%
	Discharge (cfs)	27
	Persistent Duration (days)	19
Common (Lower Subregion)	Habitat (% Max WUA)	34% to 49%
	Discharge (cfs)	19
	Persistent Duration (days)	19
Critical	Habitat (% Max WUA)	28%
	Discharge (cfs)	15
	Persistent Duration (days)	13
Rare	Habitat (% Max WUA)	24%
	Discharge (cfs)	12
	Persistent Duration (days)	12
Extreme	Habitat (% Max WUA)	19%
	Discharge (cfs)	7.8
	Persistent Duration (days)	7

Note: cfs = cubic feet per second

The recommendations of this study are aimed at reducing demand through the use of conservation measures rather than setting specific production cutbacks. The results of the UCUT analyses were tied to the draft drought response plan of the University of Connecticut Water Supply Emergency Contingency Plan as shown in Table ES-2. The time lapse between each trigger level was found historically to be approximately four to six days. Future efforts will formally link these trigger thresholds to appropriate response and recovery guidelines.

used to assist with data collection and were installed in one monitoring well and in four of the piezometers.

The drawdown of ground water due to the Willimantic River wells can cause the ground water table in the vicinity of the Willimantic River to fall below the river water surface and, in some locations, the riverbed. In these cases, water will infiltrate from the riverbed into the ground water system (i.e., induced infiltration). The piezometer and temperature data provided an estimate of the area of influence of the wellfield, which is believed to extend from slightly south of the wellfield and along the stratified drift aquifer to the northwest into Coventry.

The Willimantic River in the vicinity of the Willimantic River Wellfield is a complex system that naturally has gaining and losing reaches due to the surrounding geology. A numerical model was originally constructed using the USGS program MODFLOW-2000 for the vicinity of the Willimantic River Wellfield during the Level A Aquifer Protection Area Study. The Level A model was updated in this study to more precisely model the Willimantic River and its interactions with the underlying aquifer. A pumping test conducted in 1999 and the three monitoring events performed during the hydrogeologic study herein were used to calibrate and verify the updated model.

The updated numerical model was used to simulate the timing and magnitude of pumping on the stage and discharge in the Willimantic River under various management scenarios. First, the four existing production wells and eight theoretical production well locations within the model area were simulated to determine the timing of pumping impacts. The model output suggests that the Willimantic River will have a slightly delayed response to pumping with reductions of discharge in the Willimantic River occurring as soon as nine hours after pumping begins for wells close to the river.

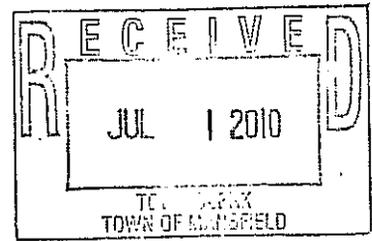
The existing wells and several of the theoretical wells were then simulated under 11 pumping management scenarios to determine if withdrawals can be managed to minimize adverse habitat impacts while meeting water supply demands. The model output for the management scenarios suggests that while there are combinations of wellfield withdrawals that will provide lower impact overall to instream flow through the model area the difference in river flow reduction between the existing wellfield operation and the best modeled condition is a reduction of only 0.31 cubic feet per second. It is believed that water conservation measures are more cost effective than constructing and permitting new water supply wells.

The formal recommendations of this study are divided into Demand-Based Water Conservation recommendations and Supply Management recommendations. Recommendations for Demand-Based Water Conservation include:

1. Incorporate the trigger discharges into the Drought Response Plan. Discharges measured by the USGS at the Merrow Road gaging station will be used to determine when triggers are met. The precise methodology that the University will use to activate and deactivate conservation measures will be determined outside of this study, such as in the proposed

PAGE  
BREAK

Notice of Certain  
Planning and Zoning Matters  
in Neighboring Municipalities



DATE: June 29, 2010

TO: Town Clerks of: Andover Vernon Mansfield  
Tolland Columbia Windham  
Bolton Willington

FROM:  Planning and/or Zoning Commission  Zoning Board of Appeals  
 Inland Wetland Commission

Town of Coventry

Pursuant to P.A. 87-307 which requires zoning, planning, and inland wetland commissions and zoning boards of appeals to notify the clerk of any adjoining municipality of the pendency of an application, petition, request, or plan concerning any project on any site in which:

- 1) Any portion of the property affected by a decision of such board is within five hundred feet of the boundary of the adjoining municipality;
- 2) A significant portion of the traffic to the completed project on the site will use streets within the adjoining municipality to enter or exit the site;
- 3) A significant portion of the sewer or water drainage from the project on site will flow through and significantly impact the drainage or sewerage system within the adjoining municipality; or
- 4) Water run-off from the improved site will impact streets or other municipal or private property within the adjoining municipality.

Notice is to be made by registered mail and mailed within seven days of the date of receipt of the application, petition, request, or plan.

No hearing may be conducted unless the adjoining municipality has received notice required by P.A. 87-307. A representative may appear and be heard at any such hearing.

This letter is to inform you of the pendency of such a project described as follows:

Description of application ~~and location~~ amend zoning regulations to adopt design guidelines for the C, NC, C/A, RD, PO Zones, See attached.

Scheduled hearing: Date: August 23, 2010  
Time: 7:30 p.m.  
Place: 1712 Main Street  
Coventry, CT 06238

Date: 6.24.10

Application #: 10 - 10 ZR

**COVENTRY PLANNING AND ZONING COMMISSION**

**APPLICATION FOR:**

**PETITION FOR CHANGE OF THE ZONING REGULATIONS**

The undersigned hereby petitions that the Zoning Regulations of the Town of Coventry be Changed as Described Below:

AMEND ZONING REGULATIONS TO ADOPT DESIGN  
GUIDELINES FOR THE C, NC, C/A, RD, PD  
ZONES. SEE ATTACHED

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Please attach additional information if necessary)

A fee of \$150.00 and a State fee of \$60.00 is herewith included.

AMOUNT RECEIVED: Ø

DATE RECEIVED: 6.24.10

AGENT: ERIC M. MOTT

APPLICANT: COVENTRY PZC

ADDRESS: TOWN OF COVENTRY  
1712 MAIN ST.

ADDRESS: - SAME -

PHONE: 860 792 4062

PHONE: - SAME -

SIGNATURE: [Signature]

SIGNATURE: [Signature]

DATE: 6.24.10

DATE: 6.24.10

### Section 6.06.03 Design Guidelines

In addition to the standards provided elsewhere in these Regulations, the Commission shall consider, when reviewing site plans and special permit applications for property within the Commercial/Agricultural Zone, the "Coventry Design Guidelines for Commercial Development", developed by the Green Valley Institute and dated \_\_\_\_\_, 2010, in rendering its decision on application for either (i) new construction; (ii) modifications to an existing building that would result in an increase of 25% or more in the surface area of the exterior of the building; or (iii) modifications to an existing structure that would result in an increase of 25% or more in the footprint area of the structure. The foregoing Design Guidelines are hereby incorporated into these Regulations by reference.

### Section 6.07.03 Design Guidelines

In addition to the standards provided elsewhere in these Regulations, the Commission shall consider, when reviewing site plans and special permit applications for property within the Commercial Zone, the "Coventry Design Guidelines for Commercial Development", developed by the Green Valley Institute and dated \_\_\_\_\_, 2010, in rendering its decision on application for either (i) new construction; (ii) modifications to an existing building that would result in an increase of 25% or more in the surface area of the exterior of the building; or (iii) modifications to an existing structure that would result in an increase of 25% or more in the footprint area of the structure. The foregoing Design Guidelines are hereby incorporated into these Regulations by reference.

### Section 6.08.03 Design Guidelines

In addition to the standards provided elsewhere in these Regulations, the Commission shall consider, when reviewing site plans and special permit applications for property within the Rural Development Zone, the "Coventry Design Guidelines for Commercial Development", developed by the Green Valley Institute and dated \_\_\_\_\_, 2010, in rendering its decision on application for either (i) new construction; (ii) modifications to an existing building that would result in an increase of 25% or more in the surface area of the exterior of the building; or (iii) modifications to an existing structure that would result in an increase of 25% or more in the footprint area of the structure. The foregoing Design Guidelines are hereby incorporated into these Regulations by reference.

### Section 6.12.03 Design Guidelines

In addition to the standards provided elsewhere in these Regulations, the Commission shall consider, when reviewing site plans and special permit applications for property within the Neighborhood Commercial Zone, the "Coventry Design Guidelines for Commercial Development", developed by the

Green Valley Institute and dated \_\_\_\_\_, 2010, in rendering is decision on application for either (i) new construction; (ii) modifications to an existing building that would result in an increase of 25% or more in the surface area of the exterior of the building; or (iii) modifications to an existing structure that would result in an increase of 25% or more in the footprint area of the structure. The foregoing Design Guidelines are hereby incorporated into these Regulations by reference.

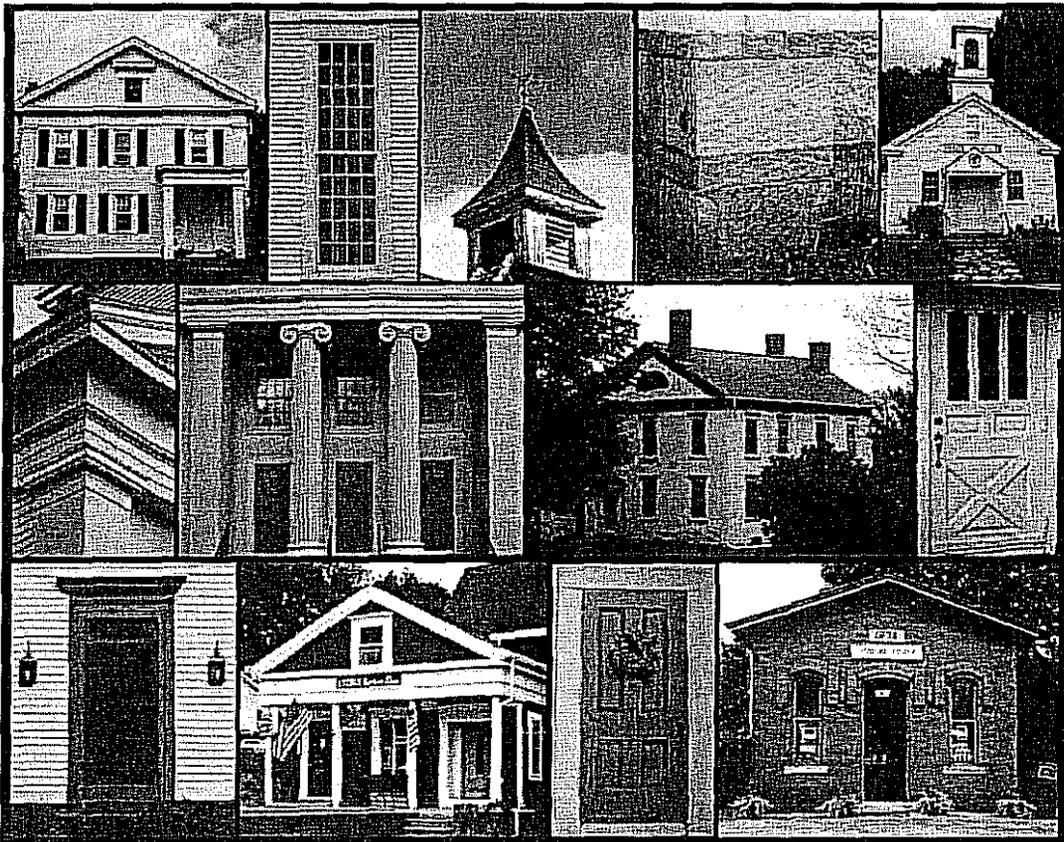
### Section 6.13.03 Design Guidelines

In addition to the standards provided elsewhere in these Regulations, the Commission shall consider, when reviewing site plans and special permit applications for property within the Professional Office Zone, the "Coventry Design Guidelines for Commercial Development", developed by the Green Valley Institute and dated \_\_\_\_\_, 2010, in rendering is decision on application for either (i) new construction; (ii) modifications to an existing building that would result in an increase of 25% or more in the surface area of the exterior of the building; or (iii) modifications to an existing structure that would result in an increase of 25% or more in the footprint area of the structure. The foregoing Design Guidelines are hereby incorporated into these Regulations by reference.

# Coventry Design Guidelines for Commercial Development

\*\*\*DRAFT Draft 2/15/10\*\*\*

Effective xx/xx/2010



*The above images are examples of the rich historic assets found in Coventry, these Design Guidelines encourage development that respects the uniqueness of Coventry's historic character and sense of place.*

## **INTRODUCTION**

*These design guidelines strive to maintain and enhance Coventry's rural character, historic value and scenic charm. They encourage the use of forms and materials that are human in scale and allow expression of Coventry's sense of its small town way of life through commercial development..*

### **Design Review**

Design Review provides a framework for citizens and developers to work toward achieving a better built environment through attention given to fundamental design principles. Design Review is intended to affect how new development can contribute positively to Coventry's rural character. Design guidelines offer a flexible tool—an alternative to prescriptive zoning requirements—and will allow new development to respond better to the distinctive character of its surroundings.

Design Review has three principal objectives:

1. To encourage site planning and architectural design that will enhance the character of the town and ensure that new development sensitively fits into a village image; and
2. To provide flexibility in the application of development standards; and
3. To improve communication and participation among developers, neighbors and the town early in the design and siting of new development.

Design Review is a component of the permit application along with other components, such as environmental review, variances, etc., administered by the Land Use Department. Like these other components, Design Review applications involve public notice and opportunity for comment. Unlike other components, projects subject to Design Review are brought before the Planning and Zoning Commission for its recommendations or to staff through a Preliminary Administrative Design Review. The Planning Commission, together with the decisions on any other components, makes the final decision on Design Review.

### **Context and Design Issues**

The overriding objective of the design guidelines is to ensure that new development and renovation/alterations and additions fit in well with its surroundings. The following design guidelines share this objective, and with an emphasis on siting and design conditions and priorities supported by the community, aim to guide the design of new development in a manner that strengthens the mixed-use commercial thoroughfares. The community has clearly stated its desire to maintain the small town atmosphere and qualities that have historically characterized the Town. However, it was also recognized that new development provides the opportunity for a broader mix of businesses and services, residential units and employment and an expanded tax base. Coventry's Plan of Conservation and Development recommends using tools such as design guidelines to ensure that new development enhances the rural qualities valued by the townspeople and creates a pattern of development that is pedestrian friendly and human-scale, character and function.

# SITE PLANNING



## GENERAL OBJECTIVES

Each property along Coventry's thoroughfares is unique and each needs to be developed with a careful understanding of the site to meet the needs of the proposed business while also improving the visual character, safety and function of the area.

## GENERAL SITE PLANNING GOALS:

- Development that respects the uniqueness of each property and reinforces Coventry's historic character and sense of place, and is welcoming, and
- Creates an attractive, functional and safe environment that is beneficial to business, and
- Encourages walking and cycling to, and within, the area by providing safe, attractive interconnected development, and
- Includes access management to increase public safety and
- Protects abutting residential properties through sensitive site planning, buffering, and architectural designs, and
- Preserves significant natural or cultural features such as wetlands, specimen trees and stone walls, and
- Is organized in such a way to create or enhance a village quality versus lineal strip development, and
- Focuses on the visual character of Coventry, including preservation of historic properties through adaptive reuse.

## GENERAL SITE PLANNING DESIGN STANDARDS:

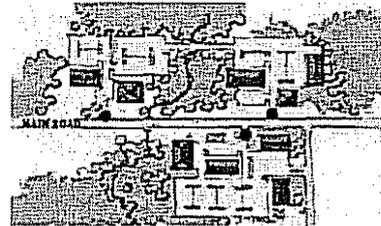
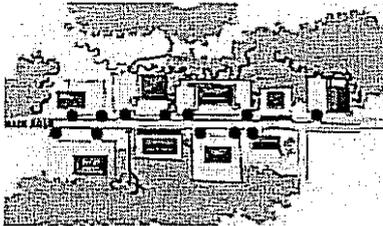
- **Licensed Professions.** All plans for development/redevelopment shall be designed by appropriate licensed professionals (architects, landscape architects, civil engineers, traffic engineers) with the training to address issues of public health, safety and welfare.
- **Relationships to Residential Properties.** The facades of buildings visible from a residential property shall use forms, materials, and details which are residential in nature and appearance. Service areas, parking lots, outdoor storage yards and other similar features shall not be visible from residential properties.
- **Access Management.** Site plans with curb cuts onto arterial road ways shall promote efficient traffic flow and maintain a high level of safety for pedestrians and motorists.
- **Landscaping.** Attractive landscaping is important throughout the site. To enhance the appearance of the thoroughfare special attention shall be give to the space between the roadway and the front of the building, this area shall be attractively landscaped with trees, flowering shrubs, fencing, stone walls and other elements. Existing healthy trees and shrubs shall be preserved or transplanted to another area on the site wherever possible.

## VEHICULAR CIRCULATION

All development will be characterized by safe, user-friendly and efficient traffic flow. Projects will be designed to reduce the number of curb cuts, provide for safe vehicular and pedestrian movement, encourage intra-parcel travel and minimize the number of roadway trips.

### DESIGN STANDARD

- **Curb Cuts Minimized.** Site plans shall be designed to minimize the number of curb cuts onto town and state roads to increase vehicular and pedestrian safety.
- **Shared Access.** Entrances to abutting commercial properties shall be combined whenever possible.
- **Internal Traffic Pattern.** The site plan shall be designed to provide pedestrian safety by separating vehicles from pedestrian areas to the greatest extent possible.
- **Traffic Flow Delineation.** Parking spaces, directional arrows, crosswalks, and other ground markings shall be delineated with pavement paint or other suitable material to ensure safe circulation.
- **Traffic Calming.** The site plan will be designed to discourage speeding within the site and between abutting properties. Calming techniques that can be used include speed tables, raised crosswalks, curvilinear road alignment, on-street parking, street-side plantings, neck-downs and curbed islands.
- **Vehicular Intra-Connections.** Where feasible, connections between parking lots and driveways on abutting properties shall be provided. The site plan design will also anticipate possible future connections to abutting undeveloped properties. Intra-connections shall provide a safe, direct access between adjacent lots in a manner that prevents them from becoming a shortcut between roadways. Cross easements may be required to allow intra-connections.
- **Pedestrian and Bicycle Intra-Connections.** Safe pedestrian and bicycle connections between abutting land uses shall be provided where possible to encourage foot and bicycle traffic and minimize vehicular traffic. The site plan design will also anticipate possible future connections to abutting undeveloped properties.
- **Drive-Throughs.** Drives leading to or from drive-throughs shall minimize conflicts with pedestrian circulation. When there is a conflict with pedestrian circulation, techniques will be used to increase motorist awareness such as signage, lighting, raised crosswalks, changes in paving, or other devices. Drive-through queuing shall not be located in parking areas or other areas which would cause unsafe conditions or congestion.
- **Pedestrian Islands.** For all driveways greater than 32 ft wide, a 5 ft minimum width pedestrian island shall be installed at the crosswalk for pedestrian refuge.
- **Outdoor Storage and Sales Areas.** Areas for any future or potential outdoor storage and sales areas shall be included in the initial site plan design. These areas shall be designed to complement the overall development.
- **Service and Delivery Drives.** For safe pedestrian movement within the site, service and delivery drives shall be separated from internal walkways, parking areas or pedestrian use areas by landscaped islands, grade changes or other devices.



*The illustration on the left shows a typical commercial development pattern, the black dots and wide lines are the entry/exits from parking areas. The illustration on the right has the same buildings, but by planning for access management and shared parking the road is safer with far fewer exit/entry points.*

## PARKING AREAS

Parking lots shall be designed to complement the building, adjacent buildings, the site and the area and not be a dominant visual element. The scale of the parking lot shall be reduced by minimizing the amount of paved surface and parked vehicles visible from the road.

Site plans shall be designed so the parking lots are inviting, pedestrian friendly places by careful attention to internal walkways, landscaping and lighting. Proper planning can ensure that parking lots balance the needs of both the vehicle and the pedestrian.

### DESIGN STANDARDS:

- **Siting.** The majority of the parking area shall be located at the rear or sides of the commercial buildings whenever possible. Where it is unavoidable that parking must be adjacent to a residential zone, the lot shall be sufficiently screened with evergreen trees, earth berms, fences or shrubs. The site plan will be designed with the parking coordinated with building entrances, proper lighting and landscaping.
- **Parking/Building Separation.** Paved surfaces of parking area shall be separated from all buildings by a minimum of an 8' wide landscaped area for every 10' in vertical wall surface.
- **Scale.** To reduce the visible scale of the parking lot, and to reduce the heat island affect, parking areas with more than 19 spaces shall be broken up with landscaped islands and other appropriate features.
- **Landscaping.** Parking lots with 20-39 spaces shall have 10% of the parking lot area as interior landscaped islands. Parking lots with 40 or more spaces, and those exposed to public view, shall have 15% of the lot area landscaped. For this calculation access roads are excluded. Planting islands shall be a minimum of 9' in width, and be planted with hearty and appropriate plant material for parking lot conditions. See the **Landscaping** section of these Design Guidelines.
- **Configuration.** The lots shall be designed to facilitate safe vehicular movement throughout. Single entry parking lots are strongly discouraged, but where unavoidable, space shall be provided to safely turn a vehicle around to avoid backing out.
- **Shared Parking.** Shared parking is strongly encouraged where appropriate, particularly where abutting land uses have differing hours of peak usage. Cross easements may be required to allow shared parking.
- **Snow Storage.** In concert with overall site planning, provisions shall be made for snow storage in the design of all parking areas to avoid conflicts with landscaping, visibility, drainage or pedestrian safety. The area will be noted on the Site Plan.
- **Out-Parcels.** The development of smaller commercial buildings on out-parcels within a large existing parking area is encouraged as a means to break up the scale.



*This parking area uses trees and planted islands to reduce the visual effect of the paved surfaces.*



*The parking area and buildings are separated by a landscaped area.*



*Out parcels are incorporated into the site layout to break up the scale of a large asphalt area and to utilize shared parking.*

## PEDESTRIAN CIRCULATION AND SPACES

Commercial properties shall provide attractive, safe and functional walkways to the main entrance. To create a pedestrian friendly environment, entrances to buildings shall be designed to provide outdoor spaces for a variety of uses, seating/resting, displays and aesthetic enhancement.

### DESIGN STANDARDS:

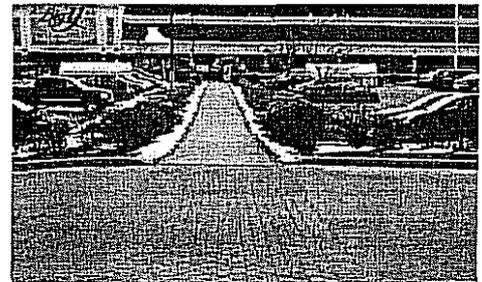
- **Internal Walkways.** Continuous internal walkways/sidewalks shall be provided to each customer entrance.
- **Location.** Walkways shall be located where motorists can anticipate pedestrians and react accordingly. Walkways shall be designed to give the pedestrian a full view of oncoming vehicles, with minimal interference from trees, shrubs and parked cars. Walkways shall avoid drive-through lanes, access and service drives and other high-traffic routes. Traffic control signs, light fixtures, trees or other potential obstacles shall be located far enough from walkways to prevent interference with pedestrian movement.
- **Orientation.** Walkways in parking lots shall be aligned with the main entry or focal point on the building, whenever possible, to assist in wayfinding.
- **Width.** Walkways shall be a minimum of five feet wide to allow two people to pass comfortably. Additional width may be necessary in certain areas such as those with heavy pedestrian traffic or where parked cars could overhang the walkway.
- **Coordination with Landscaping.** Areas adjacent to walkways shall be landscaped with trees, shrubs, benches, flower beds, ground covers, or other such material.
- **Crosswalks.** Where walkways cross vehicular paths, the crosswalks shall be marked by a change in pavement texture, pattern or color to maximize pedestrian safety. The material selected for crosswalks shall be highly durable and low maintenance, and to allow safe bicycle movement across the surface. Raised crosswalks shall be considered at key locations as a traffic calming device and to make crosswalks more visible. Signs may be warranted as determined by the Institute for Traffic Engineers standards.
- **Drainage.** Sheet flow of stormwater across walkways shall be avoided. Stormwater system shall be sized to limit ponding and to provide uninterrupted use of the walkway.
- **Maintenance.** All internal walkways shall be designed to facilitate maintenance by the property owner. The site plan shall coordinate the location of walkways with utilities, plantings, drainage and other site elements that could affect long-term maintenance.
- **Snow Storage.** All walkways shall be designed for ease of snow removal; site plans shall locate snow storage in areas that will not interfere with pedestrian movement, block visibility or cause dangerous conditions from freezing meltwater.
- **Accessibility.** All walkways shall be located, designed and detailed in full compliance with the Americans with Disabilities Act (ADA), as revised.



*Outdoor space for seating creates a pedestrian friendly atmosphere.*



*This walkway is separated from the drive to the right by a wide planted area, the scale of the trees and lighting enhance the site.*



*Internal walkways are an integral component of the site plan. This walk connects pedestrians from the parking to the entrance with a clearly defined crosswalk.*

## SERVICE AREAS

Service areas shall be integrated into the overall site plan. The location shall address the needs of the facility while minimizing traffic or visual conflicts, noise or odors.

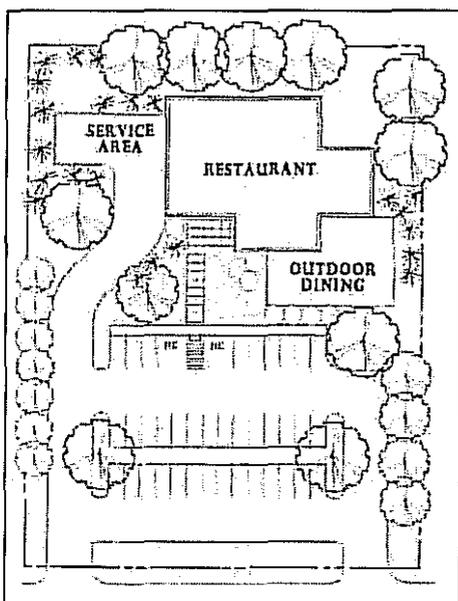
### DESIGN STANDARDS:

- **Locations.** All facilities for service, including waste collection and storage facilities, loading and unloading areas, loading docks, storage facilities, dumpsters, recycling areas, fueling areas and vehicle service and maintenance areas shall be at the side or rear of the principal building. Locations that face public roadways or abutting residential properties shall be avoided. Overhead doors or other vehicle entrances or exits shall not be located on any facade that faces a public street or residential neighborhood.
- **Design.** Service areas shall be sized to fit the specific needs of the building's intended use. The smallest size to meet the building's future needs is encouraged.
- **Screening.** Service areas shall be screened to minimize visibility from public and private streets, main entrances, abutting neighborhoods, public open spaces and walkways. Service areas shall be screened with architectural elements such as walls or fences. Screening a dumpster with a gate is discouraged; however, if required, they shall be designed to prevent sagging and for ease of use. Screening may be further enhanced with evergreen trees, shrubs and earth berms.

The overall material selected for screening shall complement the design of the main structure by repetition of materials, detailing, scale and color. Where chain link fencing is required for safety, it shall be painted or coated in black and landscaped to screen from view.

Architectural screening or fencing shall be protected with granite posts or concrete filled steel bollards that will prevent damage from service vehicles.

- **Service Access.** Service areas shall be sited to accommodate the turning movement of service vehicles.
- **Coordination.** Prior to site plan submission, the applicant shall contact anticipated companies that will be using the service areas for input into the design and siting of service areas and facilities.



*The service area shown on this site plan is well integrated into the overall site plan. Solid fencing and attractive landscaping screen the area from the abutting property, the street and the entry. Service vehicle access is away from pedestrian walks.*



*The service area of this chain restaurant is screened with the same material and landscaping as the building's front.*

## BUFFERS AND SCREENING

Buffers and screening shall be required between residential and commercial properties, as a visual block between public roadways and parking areas, and in certain other situations of inharmonious land uses. Plantings, earth berms, stone walls, grade changes, fences, distance and other means can be used effectively to create the necessary visual separation.

### DESIGN STANDARDS:

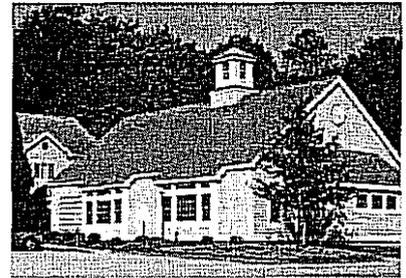
- **Suitability.** The selection of the proper type of buffer shall result from a thorough understanding of site conditions, distances to property lines, intensity of the proposed use and the degree of concern expressed by the Commission and abutting landowners. The requirement of a buffer or screen shall be incorporated into the initial site plan
- **Design.** Buffers and screening shall be an integral part of the site plan and be coordinated with other elements used on the site. Stone walls, plantings, fencing, walls, earth berms, and other screening elements shall be similar in form, scale and appearance to other similar elements on the site.
- **Maintenance.** Buffers shall be maintained in a condition that assures their continued effectiveness. Where plantings do not survive, or are no longer an effective buffer, they shall be replaced to meet the intent of the approved plan. Structural elements shall be maintained in good condition.



*A planted earth berm screens a parking area from residential properties.*



*For now, these white pines screen the parking area from the neighboring property, however as they mature the loss of lower branches will reduce the effectiveness.*



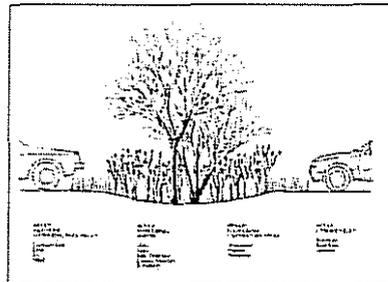
*Preservation of the existing mature trees adds visual interest and forms one layer of the screening from a residential neighborhood.*

## STORMWATER SYSTEMS

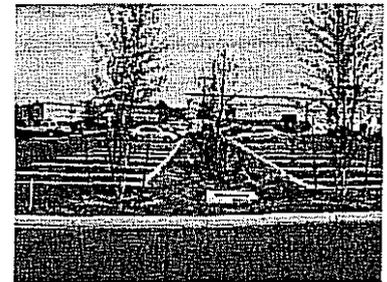
Stormwater systems shall be an integral and attractive component of the landscape. An open stormwater system using Best Management Practices (BMP) is preferred, or if warranted by site conditions a combined open and closed system. A fully closed system is discouraged except in unusual situations. University of Connecticut's CLEAR and NEMO standards shall be used.



*Detention basins can be designed to be an attractive part of the landscape.*



*One BMP technique is to use parking lot islands as mini-detention basins.*



# ARCHITECTURE



## GENERAL OBJECTIVES

Building design shall be influenced by traditional New England examples and shall reinforce a human scaled environment through careful consideration of architectural form, massing, detail, material and color. These design standards establish criteria, but are not intended to dictate building styles.

## GENERAL ARCHITECTURE GOALS:

- Development that provides a positive experience for the motorist driving by and the pedestrian viewing the building up close, and
- Enhances Coventry's rural character, and
- Exhibits a thoughtful consideration of scale, form, orientation, height, setback, massing, materials and architectural features, and
- Provides a permanent, positive addition to the commercial district, constructed of high quality, long lasting materials, and
- Strives to restore and/or reuse older buildings to maintain the character of Coventry, replacement of historic buildings is strongly discouraged

## GENERAL ARCHITECTURE DESIGN STANDARDS :

- **Design.** New buildings shall be designed to fit the individual characteristics of their particular site and be influenced by traditional New England village patterns while meeting the needs of the intended use and users.
- **Human Scale.** Buildings and site elements shall be designed to human scale. The forms, massing and openings of buildings shall be proportional to the size of a human figure.
- **Freestanding Accessory Structures.** The design of freestanding structures (such as ATMs, garages, canopies, storage units, recycling or trash enclosures, cart corrals, and the like) shall coordinate with the primary building through the repetition of form, materials, details and color.



*These historic buildings, former residences, have been converted to commercial uses. The one on the left has leased office spaces, the one on the right is a McDonald's in Freeport, Maine.*

## FACADE DESIGN

All buildings shall have an attractive and human scaled facade to the street, internal drives, parking areas and surrounding neighborhoods. Entrances shall be easy to distinguish and reinforced through site and architectural features and wherever possible, clearly visible from the street.

### DESIGN STANDARDS:

- **Main Entrance Facade.** As the primary and front facade, it shall be designed in a manner to clearly distinguish it from the other facades and to define the customer entry. This facade shall contain some of the following elements to add scale to the entry:
  - canopy
  - covered porch or arcade
  - gables and dormers
  - pilasters
  - display windows
  - outdoor seating area
  - recesses or projections in keeping with the scale of the building
  - peaked roof
  - unique architectural details in keeping with the overall building design
  - other features designed to add scale and visual interest to this facade

All facade elements must relate to each other and the scale of the building and form a harmonious overall design. Main entrance facade shall be designed to accommodate a facade mounted sign per the Signage section of these Design Guidelines.

- **Rear and Side Facades.** All facades facing public roads, residential neighborhoods or abutting properties shall be designed to match or compliment the Main Entrance Facade. Blank facades are prohibited.
- **Offsets.** The maximum length of the plane of any facade is 40'; exterior walls of any building longer than 40' shall have recesses or projections at a minimum depth of 10% of the longer adjacent unbroken wall length and be proportional to the building's height and length. Projections used to break up the length of the building shall extend to the ground.
- **Site Design.** All exterior components, such as signs, lighting, landscaping and other elements shall be in scale with, and complimentary to, the Main Entrance Facade.
- **Fenestrations.** All windows and door openings shall be in scale with the facade; windows should be vertical in orientation. All fenestrations shall be framed with a minimum of 3-1/2" trim. If shutters are used, they must be sized to fit the opening and used for all windows on a given wall.



*These two buildings have clearly defined entries, windows in scale with the architecture and offsets to the facade to visually break up the overall length of the buildings.*



*All four facades of this chain restaurant, including the back shown here, are attractive.*

## **MULTIPLE-BUILDING DEVELOPMENTS**

Developments with multiple buildings shall exhibit a high degree of coordination in site planning, architectural design, site design and site details. All components shall be designed to complement an overall plan.

### **DESIGN STANDARDS:**

- **Master Plan.** A conceptual master plan shall be prepared to show the general location of future buildings, parking lots, vehicular and pedestrian circulation, common open spaces, utilities, service areas, stormwater systems and other components of site development.  
The master plan shall show how traffic, stormwater systems and utilities will be coordinated with adjacent properties.  
The plan shall illustrate the measures that will be taken to preserve significant natural or cultural features such as wetlands, specimen trees or stone walls.  
If to be constructed in phases, the master plan shall show the sequence of development and the steps to be taken to ensure compatibility between proposed and future activities.
- **Building Orientation.** All buildings shall be oriented to create usable, safe and attractive pedestrian spaces, preserve significant site features and minimize the appearance of parking areas.
- **Focal Points.** A limited number of buildings or other elements shall be designed as focal points. These structures shall be visually more prominent, enhanced by height, massing, distinctive architectural treatment, lighting, landscaping, or other distinguishing features.
- **Outdoor Spaces.** The development shall include outdoor use areas such as greens, plazas and courtyards. Buildings may be oriented toward open spaces provided they have a major entrance on the outdoors space as well as secondary entrance(s) oriented to the parking area. Outdoor spaces shall be coordinated with the master plan's pedestrian circulation plan to encourage pedestrian use, with provisions for seating and outdoor activities. Outdoor spaces shall be separated from vehicular traffic with landscaping, grade changes and other site features.
- **Drive-through Facilities.** The building and site plan shall emphasize pedestrian access; vehicular access ways to drive-throughs should be placed on the periphery of the site.
- **Signage Plan.** The master plan shall include a master signage plan detailing how graphics will compliment and unify the proposed development. See the Signage section of these Design Guidelines and Coventry's Zoning Regulations.
- **Lighting Plan.** Site lighting shall be coordinated with all other elements of the site and with the Lighting section of these Design Guidelines and Coventry's Zoning Regulations.
- **Landscape Plan.** All landscape elements shall be coordinated with all other elements of the site and with the Landscape section of these Design Guidelines and Coventry's Zoning Regulations. The landscape plan shall complement proposed buildings, reinforce circulation paths, help define pedestrian use area, highlight entrances, provide shade and add seasonal interest.
- **Architecture.** All buildings, even if constructed in phases, shall be coordinated with the other buildings to unify the entire development.
- **Shared Stormwater Systems.** Wherever appropriate, stormwater systems will be shared by multiple building sites.

## MULTIPLE-BUILDING DEVELOPMENTS



*Similar roof pitches, building materials and awnings, help to unify this multi-building development.*



*By siting the building to reinforce pedestrian circulation pattern along with pedestrian-scale lighting the overall scale of the development has been reduced.*



*The buildings in this large development have been sited to reinforce pedestrian spaces, effectively reducing the scale of the overall development.*



*This multiple building development has recreated the feel of a main street.*



*Olde Mystic Village encourages pedestrian use and enjoyment through well-connected walkways and mature landscaping.*

- **Mechanical and Functional Elements.** All vents, downspouts, flashing, electrical conduits, meters, HVAC equipment, service areas, loading docks, service connections and other functional elements shall be treated as an integral part of the architecture.
  - downspouts and vents shall be incorporated into the facade design through detailing and color
  - meters, utility connections, HVAC equipment and other exterior service elements shall be contained in service closets, behind walls or located out of view from the public

Building elevations presented for review shall show an accurate depiction of the location and treatment of all mechanical and functional elements.

- **Vending Machines.** Any vending machines located on the exterior of the building shall be located or screened so they are not visible from any public street or abutting property.
- **Illustrations.** All elevations of proposed buildings shall be evaluated as part of the design review and shall be consistent with the architecture to be built and accurate in context with the environment.

## **BUILDING MATERIALS**

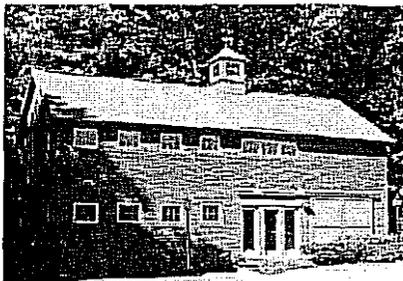
Building materials shall be treated as a significant design element in defining the appearance of the building. The use of materials that give the appearance of New England colonial architecture, as found in Coventry, is strongly encouraged.

### **DESIGN STANDARDS:**

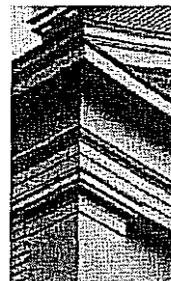
- **Materials.** Traditional, high-quality building materials common to Coventry (for example, clapboards, brick and shingles) shall be used as the primary siding material. Modern materials that have the same visual characteristics are acceptable. In all cases attention must be paid to the detail at corners, trim at openings and whenever there are abutting materials. Long term maintenance requirements shall be a consideration in the selection of all building material.

The following materials are prohibited: highly reflective metal or plastic panels, brushed aluminum, bronzed glass, concrete block, bricks interspersed with random white bricks, T-111, untreated plywood, EIFS (i.e. Dryvit), and similar materials.

- **Colors.** Traditional New England colors are appropriate for all components of the building. All colors shall have low reflectivity. The use of high intensity, highly reflective, chrome, metallic or fluorescent colors or a black primary color, are prohibited. Trim color shall be a color that compliments the building's primary color.
- **Details.** A limited number of material types should be used and all shall be in keeping with the design of the building as a whole.



*Although new, this building's design and choice of materials reflects traditional New England architecture.*



*Coventry's historic architecture has many examples on which to draw inspiration for design and material selection.*

## ROOF LINES

Roof lines shall be designed to provide diversity to the building form and add visual interest. Roof lines should reduce the mass of large buildings, emphasize entrances and provide shelter and shade for pedestrians.

### DESIGN STANDARDS:

- **Pitched Roofs.** Buildings with an 8/12 to 12/12 pitch roof are strongly encouraged. Roof lines with projections shall be designed to create strong shade/shadow patterns.
- **Shapes to be Avoided.** Flat roofs, false mansard roofs, A-frames and other non-traditional roof forms shall not be used as the primary roof line.
- **Materials for Pitched Roofs.** Visible roofing should be composite asphalt shingles or standing-seam non-glare metal. High gloss roofing materials are prohibited. The color of the roofing material shall compliment the color and texture of the building's facade. Stripes and patterns on the roof are prohibited.
- **Roof-Mounted Equipment.** Mechanical and other roof-mounted equipment shall be screened from public view, or grouped in a location where visibility is limited. Where used, screening of the equipment shall be designed as an integral part of the architecture and compliment the buildings mass and appearance.
- **Roof-Mounted Signs.** Are strongly discouraged.



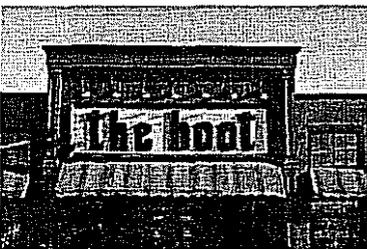
*The roof lines of these three buildings add diversity to the building form, increase visual interest, define the entrances and reduce the scale of the building mass.*

## AWNINGS & CANOPIES

Awnings and canopies can enhance the appearance and function of a building by providing shade, shelter, shadow patterns and visual interest

### DESIGN STANDARDS:

- **Location.** If used, all awnings and canopies shall be an integral part of the design and located directly over doors or windows.
- **Materials.** Awnings and canopies shall not be made of reflective material such as metal or plastic. Their color and style shall compliment the facade of the building.
- **Graphics.** Any graphics on awnings or canopies shall be considered signage, and must meet the sign requirements of these Design Guidelines and Coventry's Zoning Regulations. Backlighting is prohibited.



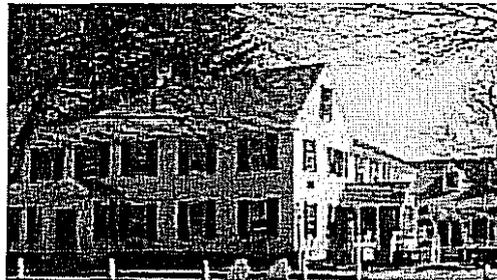
*These awnings coordinate with the overall design of each building's entry facade.*

## RENOVATIONS, ALTERATIONS AND ADDITIONS

All renovations and additions to existing structures shall use the opportunity to add visual interest to the building and to enhance the original structure.

### DESIGN STANDARDS

- **Design.** Where the existing building currently meets the design standards, proposed renovations must be designed to complement the existing building. Where the existing building does not meet design standards, the owner is strongly encouraged to upgrade the building. Plans submitted for approval must show the proposed improvements along with the existing building.
- **Materials.** Where the existing building meets the design standards, additions or renovations shall complement or match the materials, form color and detailing of the original structure. Where the original building does not meet these Design Guidelines, the owner shall demonstrate how the materials used in the renovation will complement the existing structure and bring it more into compliance with these Design Guidelines.
- **Features.** Distinctive architectural features or examples of skilled craftsmanship shall be retained in the renovations.



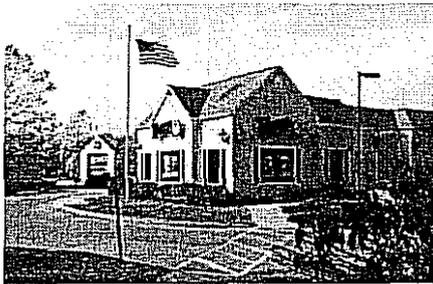
*The repetition of architectural and landscape details help to integrate these additions with an historic building.*

## FRANCHISE ARCHITECTURE

National franchises are a welcome and permitted use in Coventry; however, the design of those buildings must reflect an awareness of New England architectural traditions in their form, detailing and material.

### DESIGN STANDARDS:

- **Franchise Styles.** Architectural forms derived from a style outside of New England are prohibited. New England regional prototypes from national franchises are permitted provided they meet these Design Guidelines. Buildings that are stylized to the point of being a form of advertisement are prohibited.
- **Coordination of Site Features.** All site features and accessory structures must coordinate with the building and meet these Design Guidelines.



*These three franchise buildings reflect New England architectural traditions in their form, detailing and material selections; landscaping and other site features are coordinated.*

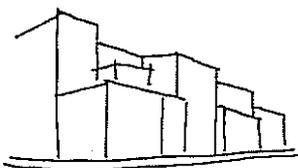
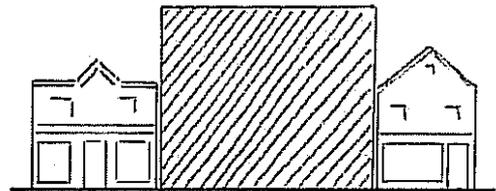
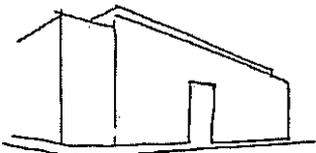
## LARGE SCALE BUILDINGS

Buildings larger than 20,000 square feet shall be designed according to this section of the design standards in addition to the design guidelines as a whole; the building must be designed so that the visual scale and form is consistent with that found in Coventry.

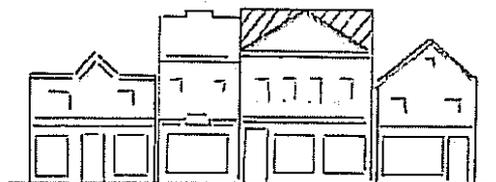
### DESIGN STANDARDS:

- **Design and Massing.** Large buildings shall be designed to break up their mass into smaller visual components through the use of projections, recesses and varied facade treatment as described in these design guidelines.
- **Site Design.** The scale of site features, such as site furniture, trees and the entrances, shall be in keeping with the overall structure.
- **Architectural Details.** Elements shall be incorporated to add interest and human scale, such as colonnades, pilasters, gable ends, canopies, display windows, and light fixtures.
- **Facades and Exterior Walls.** The maximum length of the plane of any facade of a large-scale building is 60'; exterior walls of any building longer than 60' shall have recesses or projections at a minimum depth of 10% of the longer adjacent unbroken wall length and be proportional to the building's height and length. Projections used to break up the length of the building shall extend to the ground. Other techniques to reduce the scale of the structure shall be incorporated, such as strong shadow lines, changes in the roof line, patterns in the surface material and wall openings. All facade elements shall be coordinated with the landscape plan to ensure balance, proportion and continuity. All ground floor facades that face public areas, including streets, shall have display windows, entry areas or other such transparent features.
- **Multiple Tenants in Large Scale Buildings.** Each exterior customer entrance shall meet the design standards set out in Architecture-Facade Design: Main Entrance Facade of these Design Guidelines. The ground floor facade at each customer entrance shall have display windows adjacent to the entrance in a size complimentary to the facade.
- **Amenities.** Large scale buildings shall enhance the pedestrian environment by providing some of the following:
  - patio/seating area
  - pedestrian area with benches
  - outdoor play area
  - water fountain
  - clock tower
  - other focal feature or amenities that enhance the pedestrian experience

Such features will be constructed of materials of the same quality as the building and will be consistent with the overall site plan.



*The two drawings on the bottom show how changing the design and massing of a large building can dramatically alter the perceived scale of the building.*



## LINEAR COMMERCIAL BUILDINGS

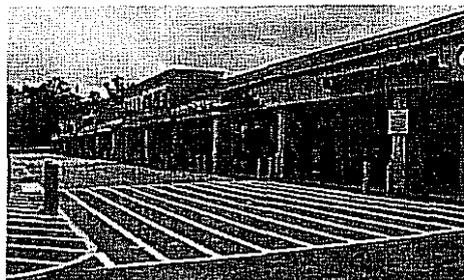
All strip shopping centers, one-story multi-tenant offices and other linear commercial buildings shall be designed with facade and roof line elements that reduce their scale and add architectural interest.

### DESIGN STANDARDS:

- **Design.** All linear commercial buildings shall use techniques to effectively scale down the visual appearance of the building, for example varied roof lines and offsets, open colonnades, and similar features.
- **Entrances.** Pedestrian entrances to each tenant shall be clearly delineated to convey a sense of individuality through the use of architectural detailing, roof line breaks, landscaping and lighting.
- **Roof lines.** Variations in roof lines, detailing and building height shall be included to break up the scale of the building.
- **Focal Points.** Raised roof lines at entry ways, clock towers or other architectural elements shall be included to add visual interest and to help reduce the scale of the building.



*These three developments, although linear in nature, use variations of facades and changes in roof line and varying heights to add architectural interest.*



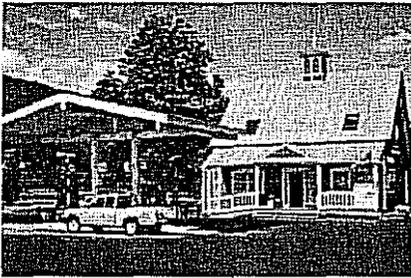
*These strip shopping centers are examples of development that would not meet the design standards for linear buildings.*

## SERVICE AND GAS STATIONS, CONVENIENCE STORES, CAR WASHES AND DRIVE-THROUGHS

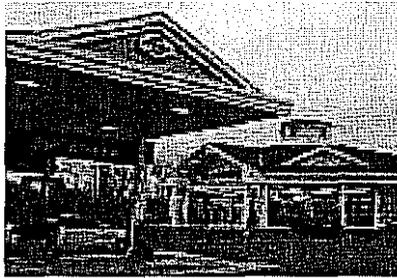
All development of these vehicular focused buildings shall be designed with facade and roof line elements that reduce their scale and add architectural interest.

### DESIGN STANDARDS:

- **Orientation.** To reduce the impact of the vehicular focus, the building structure shall be sited to face the street; all pump islands and canopies shall be located in the rear.
- **Architecture.** All four sides of the building's architecture shall meet these design guidelines; the facade facing the street shall have windows or other fenestration.
- **Canopies.** Service and Gas Station canopies shall be visually compatible with the main structure through consistency in roof pitch, architectural detailing, materials and color. Pitched roofs and fascia trim are preferred for canopies. Bands of bold color on the canopy and backlighting inside the canopy are prohibited. Canopies that are stylized to the point of being a form of advertisement are prohibited. Any graphics on canopies shall be considered signage, and must meet the signage standards of these Design Guidelines and Coventry's Zoning Regulations.
- **Large Openings.** Openings for car washes or service bays must be integrated with the design of the building and sited so they are not directly visible from a public roadway or adjacent residential area.
- **Drive-through Design.** The drive-through shall be visually subordinate to the design of the main building. Windows and canopy shall be compatible with the design of the building; canopy roof line shall be compatible with the building roof line in pitch, fascia trim, material and other architectural detailing. Drive-throughs shall be located at the side or rear of the building and avoid facing any street or residential area.



*These gas station canopies are designed to be visually integrated with the design of the building's roof line.*

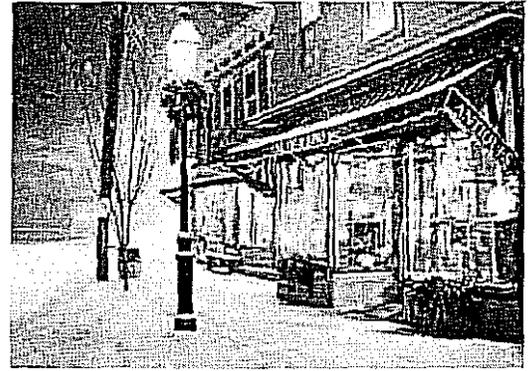


*This canopy is stylized to the point of being a form of advertising and is not consistent with Coventry's canopy design standards.*



*These drive-throughs are located away from the front of the buildings to avoid pedestrian/vehicular conflicts; each canopy is incorporated into the overall design of the building with repeating roof lines, forms and materials.*

# LIGHTING



## GENERAL OBJECTIVES

Lighting for commercial properties shall be designed to provide the minimum level of illumination necessary for security, safety and visual appeal for both pedestrians and motorists. Functional, aesthetic and safety goals shall be met with fixtures that are designed as integral site elements.

## GENERAL LIGHTING GOALS:

- Provides lighting that offers safety to all users of the site, and
- Unifies the environment with the selection of attractive, appropriately scaled fixtures, and
- Does not cause distractions or hazards to motorists and pedestrians, minimizes skyglow, and
- Respects abutting property owners, especially residential uses, by avoiding off-site spillover or glare.

## GENERAL LIGHTING DESIGN STANDARDS:

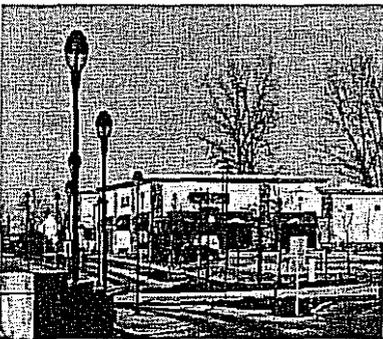
- **Site Plan.** A narrative shall accompany the lighting plan, defining the hierarchy of site lighting and how lighting will be used to provide safety, security and aesthetic effects.
- **Coordinated Design.** The location and design of the lighting system shall compliment adjacent buildings, pedestrian amenities and site elements. Poles and fixtures shall be proportionate to the buildings and spaces.
- **Safety.** Dark spots shall be eliminated by the coordination of the lighting and site elements.
- **Feature Lighting.** Unique building or landscape features may be highlighted if the lighting does not create glare or distractions.
- **Light Pollution.** Lighting shall not cause spillover onto neighboring residential properties or glare on adjacent roadways. Bare bulbs are prohibited.
- **Replacement and Modification.** Any modifications, expansions or replacements to the light systems shall be consistent with the approved site plan and to these Design Guidelines.
- **Energy Saving Devices.** Wherever practicable, lighting devices shall include timers, photo sensors, and other energy saving devices.

## DRIVEWAYS AND PARKING LOTS

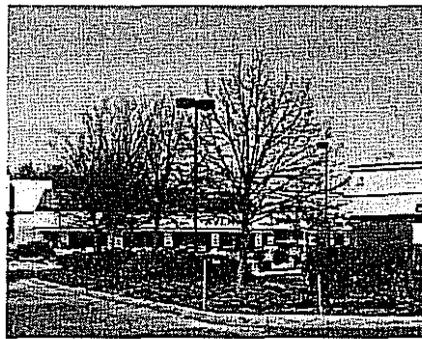
Lighting shall be designed to provide the minimum lighting necessary for traffic and pedestrian safety. Lighting shall not cause glare or avoidable spillover onto adjacent property or an increase in skyglow.

### DESIGN STANDARDS:

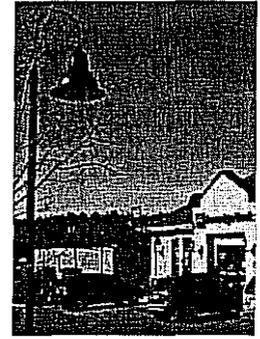
- **Illumination.** Driveway lighting shall illuminate the roadway, with a concentration on intersecting drives or access ways. Parking lot lighting shall provide the minimum necessary for visibility, comfort and safety. All light fixtures shall be selected and aimed to prevent glare, spillover onto adjacent properties and increased skyglow.
- **Illumination Levels.** All illumination shall be within 5% of the levels defined by Illuminating Engineers Society of North America (IESNA) recommendations for road/driveways and parking lots and be in compliance with Coventry's Zoning Regulations.
- **Luminaires.** Metal halide lamps are strongly recommended. In most instances, lamps shall be housed in a luminaire that is classified by IESNA as full cut-off. Decorative fixtures may be used provided they meet the cutoff criteria.
- **Design.** All fixtures shall complement the architecture, landscaping and other elements of the site in terms of form, color and style.
- **Layout.** The alignment and spacing of fixtures shall follow a regular pattern that is coordinated with the layout of the buildings and other site elements. Hierarchy of fixtures shall be used to define major and minor roadways. Light poles shall be located within raised planting areas wherever possible to avoid damage from vehicles and plows; elevated bases are strongly discouraged.
- **Coordination with Landscaping Plan.** The layout of fixtures shall compliment the spacing and rhythm of plantings, especially large shade trees. To avoid future dark areas and deep shadows, the lighting plan shall consider the growth pattern of trees and shrubs.
- **Mounting Height.** Light fixtures in driveways and parking lots shall be in scale with adjacent buildings and the human scale.
- **Adjacencies.** Cut off fixtures shall be used to limit spillover onto adjacent residential properties to less than .5 footcandles at property lines or be in compliance with Coventry's Zoning Regulations.



*These well placed lamps light both the drive and walkway.*



*The height of these fixtures are in proportion to the scale of the buildings, well-placed throughout the parking lot and located within planting beds to minimize damage.*



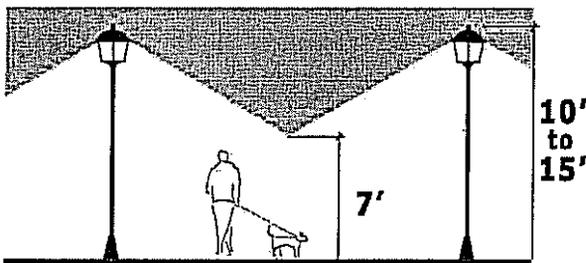
*These pedestrian scale lamps are in proportion to the scale of the building and parking lot.*

## PEDESTRIAN SPACES

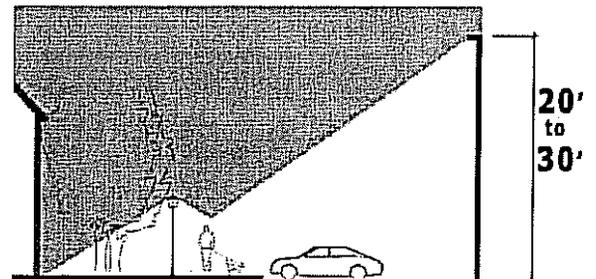
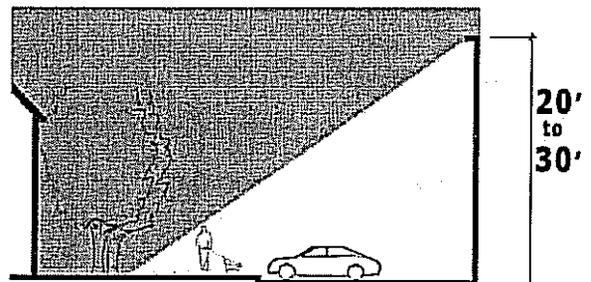
Lighting shall consider users' needs and safety. Light fixtures shall adequately, but not excessively, illuminate not only the space occupied by people, but also the elements within those spaces such as stairs, walls, benches, curbs and landscaping.

### DESIGN STANDARDS:

- **Illumination.** Walkway lighting shall illuminate the walkway with enough peripheral distribution to illuminate the immediate surroundings.
- **Illumination Levels.** All illumination shall be within 5% of the levels defined by IESNA recommendations for pedestrian spaces or be in compliance with Coventry's Zoning Regulations.
- **Luminaires.** Metal halide lamps are strongly recommended. Lamps shall be housed in luminaires that are classified by IESNA as a cutoff distribution. Decorative fixtures may be used provided they meet the cutoff criteria.
- **Design.** All fixtures shall complement the architecture, landscaping and other elements of the site in terms of form, color and style.
- **Layout.** The alignment and spacing of fixtures shall follow a regular pattern that is coordinated with the pedestrian ways and other site elements. Lighting shall be used to highlight significant design elements such as gateways, plazas, major building entrances, and the like.
- **Coordination with Landscaping Plan.** The layout of fixtures shall compliment the spacing and rhythm of plantings, the lighting plan shall consider the growth pattern of trees and shrubs to avoid any future dark areas and deep shadows.
- **Mounting Height.** Light fixtures in pedestrian spaces shall be appropriate for the project and the setting and relate to the human scale. Bollard fixtures and ornamental light poles, up to 15' in height, are encouraged as pedestrian area lighting. Decorative and special lighting shall also relate to the human scale.



*Lighting for pedestrian spaces and walkways shall provide sufficient illumination for safety. Fixture locations shall be determined the overlapping pool of illumination that would be created at the proposed fixture height, style and lamp wattage.*



*In some situations, parking lot lights may be sufficient to illuminate a walkway, the illustration at the top shows insufficient lighting. To light the area behind the trees, lower mounting height is needed.*

## BUILDING FACADES AND OTHER FEATURES

Facade lighting is a way of highlighting special architectural features and attractively landscaped areas.

### DESIGN STANDARDS:

- **Illumination Levels.** Maximum level of illumination on any vertical surface shall not exceed 5.0 footcandles and be in compliance with Coventry's Zoning Regulations.
- **Design.** Lighting of the building facade and other elements shall be part of an overall lighting plan to enhance certain key architectural elements or areas with attractive landscaping.
- **Location.** All fixtures shall be properly sited, aimed, and shielded so that illumination is directed only onto the feature. Lighting fixtures shall not be directed toward adjacent streets, sidewalks or properties. The lighting plan shall demonstrate that the installation will not generate excessive light levels, cause glare, or cause skyglow.
- **Facade Lighting.** Fixtures that are mounted on the facade and designed to wash the face with even light in a downward direction are preferred. Lighting shall avoid spillover onto adjacent areas.
- **Landscape Lighting.** Lighting shall be shielded to direct only onto a selected tree or shrub. Indirect landscape lighting fixtures, uplights and washes, are preferred.
- **Bands of Light.** Neon tubes as lighting fixtures are prohibited on building exteriors. The use of internally illuminated bands of color and/or light is prohibited.

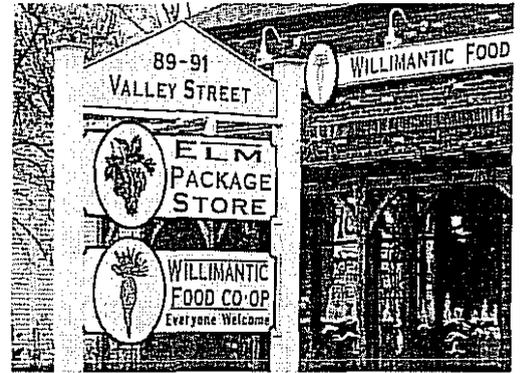
## GAS STATIONS, CONVENIENCE STORES AND DRIVE-THROUGHS

All lighting for these types of development shall provide for user safety without creating glare onto adjacent properties or roadways.

### DESIGN STANDARDS:

- **Illumination Levels for Gas Pumps.** The lighting around gasoline pumps shall provide a higher level of light for the safe and effective use of pumps. All illumination shall be within 5% of the levels defined by IESNA recommendations for gas pump areas and be in compliance with Coventry's Zoning Regulations.
- **Canopy Luminaires.** Recessed luminaires with flat or regressed lenses shall be used in canopies. The cut off angle shall not exceed 85 degrees above the vertical to make the light source invisible to passing motorists.
- **Parking Areas.** Areas beyond 20' from canopies or gas pumps shall follow the lighting design standards for parking lots.
- **Fascia.** Light shall not be mounted on the fascia (sides) or top of the canopy; sides and tops of canopy shall not be illuminated.

# SIGNAGE



## GENERAL OBJECTIVES

Signage shall be an integral part of the overall plan and shall be attractive and legible to serve the needs of the business, complement the site and the architecture. All new and replacement signs shall be designed to meet these standards.

## GENERAL SIGNAGE GOALS:

- Provides basic, clear information about commercial businesses with attractive, highly legible signage, and
- Demonstrates forethought in the design, size, placement, and graphic format of all signage, and
- Is compatible and complimentary with the architecture and site design, and
- Reduces visual clutter.

## GENERAL SIGNAGE DESIGN STANDARDS:

- **Signage Plan.** A signage plan shall be developed by design professionals experienced in commercial signage. The signage plan shall be submitted with the site plan for approval and individual signs for tenants, including future tenants, shall be submitted to town staff for approval.
- **Viewpoint.** Each sign shall be designed and located with the intended viewer in mind.
- **Compatibility.** Signs shall be designed to achieve a high level of visual compatibility with the building(s) and its surroundings through the use of similar detailing, form, color, lighting and material.
- **Design.** The shape of the sign shall complement the architectural features on the building. Simple geometric shapes are preferred for all signage. Signs shall be trimmed and detailed to complement the building.
- **Lettering Size.** As a general rule, the minimum lettering size for identification signs shall be six inches in height. Smaller letters are generally unreadable from a moving vehicle and may require motorists to slow down to read them which could potentially be a safety hazard.
- **Location.** Facade mounted signs shall be placed to complement the building's architecture. Free-standing signs shall not block motorists' line of sight or create a hazard for pedestrians or bicycles. Roof mounted signs are strongly discouraged.
- **Street Address.** To aid wayfinding and 911 emergency response, the street address shall be incorporated into the primary sign.
- **Directional Signs.** Signs indicating the entry, exit or wayfinding within a site shall complement the overall site design and in an appropriate location and of the minimum size needed to provide direction.
- **Compliance.** All signs shall be in compliance with Coventry's Zoning Regulations

## CONTENT

Signs used to identify a business shall be kept simple and direct in message and content. They shall convey only the most essential information about the business. Motorists should not be distracted by signs containing excessive information.

### DESIGN STANDARDS:

- **Content.** The amount of information contained in a sign is dependent on the distance and travelling speed of the intended viewer.  
Facade and ground signs shall be for identification only and shall contain a maximum of either 30 letters or 7 bits of information. A bit can be a syllable or a symbol.
- **Advertising.** The use of 'sponsor' logos, slogans, or other messages on a sign, where the 'sponsor' is not the occupant or franchiser of the property, is strongly discouraged. If a sign is sponsored, the area of the 'sponsor' name and logo combined shall not exceed 25% of the total face of the sign.
- **Readerboards.** Electronic signs with movable images are strongly discouraged.

## FACADE MOUNTED

Facade mounted signs shall clearly identify the business in a clear and direct manner.

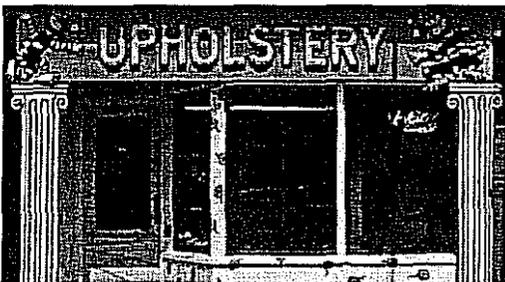
### DESIGN STANDARDS:

- **Design.** Facade mounted signs shall be designed as an integral element of the architecture. The shape and materials of the sign shall compliment the architectural features on the building.
- **Location.** Signs shall be located to enhance the architectural details on the building and shall not obscure any trim or other details. Signs shall be incorporated into the main entrance facade.
- **Hardware.** Signage shall be mounted with concealed hardware, the hardware shall be stainless steel or galvanized to prevent rust and corrosion that could stain or discolor the building.



*These four facade mounted signs clearly identify the name of the business at a glance.*

*Studies have shown that the human brain can register only up to 7 bits of information at a glance.*



*The sign on the bottom left contains 6 bits of information: the two graphic symbols and the syllables in the word upholstery (up · hol · ster · y).*

*The Willard's sign has 8 bits, the names isn't as easy to read at a glance as the other signs.*

## MULTI-TENANT

Multi-tenant properties shall provide legible, attractive signs that help people identify the property without contributing to the visual clutter. Signage shall stress the identity of the place (i.e. Coventry Crossings) and de-emphasize individual tenants.

### DESIGN STANDARDS:

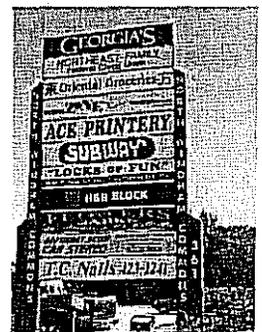
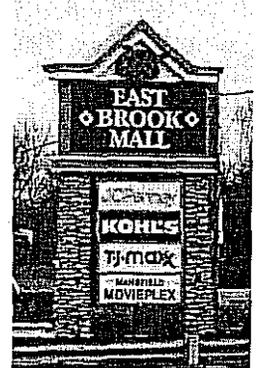
- **Hierarchy of Signs.** A hierarchy of signage shall be established to facilitate wayfinding and minimize visual clutter.
- **Identification Signs.** One identifying sign in a highly visible locations near the main driveway entrance shall be used to convey an overall identity for the property.  
If individual tenants are also listed, the identification sign shall have a clear hierarchy in the display of information. Only the name of the individual tenants shall be displayed, in significantly smaller lettering. Other information such as phone numbers, hours of operation, and slogans are prohibited on the identification sign.
- **Street Address.** The main identification sign for multi-tenant property shall incorporate the street address into the sign to facilitate wayfinding and 911 emergency response.
- **Compatibility.** The design of multi-tenant signs shall be coordinated with the design of the principle building(s) in terms of color, materials, detailing, and style.
- **Color Consistency.** Multi-tenant signs shall conform to a simple color and graphic palette in order to minimize the confusion and clutter of the sign. In general, multi-tenant signs, colors including the individual tenant signage should have no more than 3 colors.
- **Landscaping.** Landscaping surrounding the identification signs shall be consistent with the site landscaping and be incorporated within the landscaping plan.



*This development has an carefully integrated signage plan with a clear hierarchy of information: an identification sign with the development name is located at the entry, signs at each building list the names of the tenants in that building, and each tenant has a sign at their own entrance.*



*These signs stress the identity of the place and de-emphasize individual tenants. The design of each sign is compatible with the building design as well.*



*This multi-tenant sign contains more information than a passing motorist could read; the multiple colors and fonts increase the visual clutter.*

## SIGNAGE LIGHTING

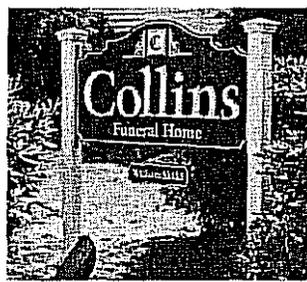
Signage lighting shall be designed as an integral part of the sign design. Lighting shall not create glare that would distract motorists or pedestrians, nor shall the degree of illumination disturb any residential property or contribute to light pollution. Signs with external illumination are preferred. See the Lighting section of these Design Guidelines.

### DESIGN STANDARDS:

- **Light Level.** The illumination level on the vertical surface of externally-lit signs shall be bright enough to provide a noticeable contrast with the surrounding building or landscape without causing undue glare or reflection.
- **Lighting.** The light fixtures of externally-lit signs shall be carefully located, aimed and shielded so that light is directed only onto the face of the sign. Ground-mounted fixtures shall be screened or partially buried to minimize the view of the light source.
- **Light Sources.** Top-mounted lighting fixtures shall be used if they are directed downward in a manner that hides the light source. Uplighting may be used if the fixture can be aimed to prevent spillage beyond the sign.
- **Design.** Light fixtures for externally-lit signs shall be selected to complement the color and design of the sign and the architecture. Concealed light sources are strongly encouraged.
- **Maintenance.** All lighting fixtures shall be selected for ease of maintenance.
- **Internally-lit Signs.** Internally-lit signs are strongly discouraged. If proposed, internally-lit signs shall consist of light lettering and/or symbols set against a dark background to minimize the amount of light emanating from the sign. Internally-lit letters and symbols are preferred over whole panels that are internally-lit. Letters and symbols on panels, combined, shall constitute no more than 40% of the sign's surface area.  
Internally-lit signs shall not act as light fixtures or cause glare on nearby pathways or roadways. Lighting levels shall not exceed 1fc of illumination measured 10' from the base.
- **Compliance.** All signs shall be in compliance with Coventry's Zoning Regulations



*These down lights compliment the color and design of the architecture and are located, aimed and shielded to effectively light the sign.*



*This up-light fixture is carefully located and aimed to illuminate the sign without spilling beyond.*



*Internally-lit signs are discouraged; if proposed, the field area of the sign shall be a dark color with a minimum area of light lettering or symbols.*

## TEMPORARY

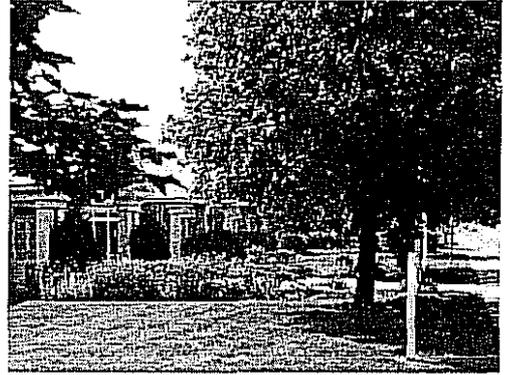
Temporary signs are used to convey specific information, alert the public to special events or announce a new business. The design and placement of temporary signs shall be closely related to existing sign systems, landscape improvements, and the building design to avoid visual clutter.

### DESIGN STANDARDS:

- **Content and Design.** The same standards established for the content and design of permanent signs shall be applied to temporary signage.
- **Location.** Temporary signs shall be installed in locations that do not create a hazard for pedestrians or vehicles.



# LANDSCAPING



## GENERAL OBJECTIVES

Landscaping shall be an integral component of all site plan developments. The applicant shall carefully evaluate the physical characteristics of each site within the development and select the appropriate plant to ensure that all plants will survive and thrive in that location.

## GENERAL LANDSCAPING GOALS:

- Enhances and compliment commercial development through the use of properly selected and placed landscaping, and
- Reinforces wayfinding by emphasizing entrances and circulation patterns, and
- Accentuates buildings, creates a sense of identity and provides a human scale, and
- Increases the attractiveness of parking lots by visually reducing their scale, providing shade and adding seasonal interest, and
- Provides screening from residential properties and for less attractive parts of the site.

## GENERAL DESIGN STANDARDS:

- **Site Plans.** All commercial development projects shall have a landscape plan as part of the site plan prepared by a landscape architect or qualified professional; a licensed landscape architect is required for all sites in excess of 5 acres.

- **Plant Material Selection.** The use of plant materials and landscape elements that require a low degree of maintenance is strongly encouraged. All plantings shall be resistant to insect infestations, drought, disease, roadside salt, urban conditions, auto emissions and be suitable for Coventry's climate.

Plant material shall be selected with consideration to public health and safety. Plants to be avoided include those with poisonous fruits, large thorns, or invasive growth patterns, or trees and shrubs that could provide hiding places along walkways or block the view of moving vehicles.

Selection shall include consideration for multi-seasonal interest, wildlife value, native origination and deer resistance.

A list of recommended plant material for various locations is on the last pages of this section.

- **Coordination with Utilities.** The landscape plan shall illustrate how planting shall be coordinated with the location of underground and above ground utilities and light fixtures. The plan shall include screening for transformers, propane tanks and similar mechanical elements.

- **Design.** Landscape design shall stress simplicity in form and limit the number of species. Shrubs, perennials, annuals, ornamental grasses used along roadways or to define an edge should be planted in masses or 'drifts' that emphasize colors and textures. Plantings shall be massed to soften edges, corners and pavement areas and to integrate the building into the landscape. Plantings shall strike a balance between monoculture (the use of a single species) and too much variety.
- **Boulevard Effect.** Large spreading deciduous trees shall be planted in appropriate locations along town/state roads to define the edge of the travelway, lessen the visual impact of the development, clean the air and add scale to the corridor.
- **Existing Trees and Plants.** Wherever practical, existing or unique or other significant plantings shall be preserved. The landscape plan shall illustrate which vegetation will be preserved and what protective measures will be taken during construction including measures to ensure there is no ground disturbance within the drip edge. Transplanting and reusing trees and other plantings is strongly encouraged.
- **Stone walls.** Any stone walls existing on the site shall be either incorporated into the site plan, or rebuilt and enhanced as part of the landscape plan.
- **Rocks and Ledges.** Large rocks can be used as landscape elements as accents in mass plantings; where used they shall be buried for at least half their depth and incorporated into the overall design theme.
- **Ground Cover.** Live ground cover such as grass and plantings are encouraged for large areas. Extensive use of bark mulch as a substitute for live ground cover is prohibited. Where mulch is used, it shall consist of dark, decomposed shredded bark, with pieces less than 1' in any one dimension.
- **Buffers and Screening.** Plant materials and other landscape elements shall be used to create suitable buffers between residential and commercial properties. The design of buffers shall consider the appearance from both commercial and residential viewpoints. Evergreen planting that are deer resistant are particularly effective for year-round buffering.
- **Root Zone.** Trees and other plant material will be provided sufficient area for root growth.
- **Size at Time of Planting.** Unless otherwise required by site conditions, plant material shall meet the following sizes at the time of installation.

Canopy Trees	2.5" caliper
Flowering Trees	2" caliper
Evergreen Trees	5-7' height
Deciduous Shrubs	24" height
Evergreen Shrubs	18" height
Perennials	2 gallon container
Ornamental Grasses	3 gallon container
Ground Covers	3" container

- **Guarantee Period.** All lawns and plant materials shall be guaranteed for a period of not less than 2 years. The developer shall submit a copy of a guarantee and a contract with the landscape contractor indicating the terms of the guarantee period, or a letter of credit or performance bond.

## LANDSCAPING PARKING LOTS AND DRIVES

Landscaping is necessary in parking lots and drives to improve the visual appearance, reduce the visual scale of parking areas, define edges, provide shade and add seasonal interest.

### DESIGN STANDARDS:

- **Amount of Landscaped Area.** 10-15% of the total area proposed for parking shall be landscaped depending on the size of the parking lot; lots with 40 or more spaces and any lot visible from a public road shall have the higher amount. In general, larger and more visible parking lots shall have more intensive landscaped areas. For this calculation, entry drives are not included.
- **Size of Planted Islands.** Paved areas shall be broken up with plant islands with a minimum width of 5' plus the width of total car overhang if the island abuts a parking stall. Islands can also be used as a vegetative swale for stormwater.
- **Screening.** Parking lots shall be separated from the street by plantings, earth berms, walls and/or other landscape elements to minimize the view of vehicles from streets, roads and drives, while still allowing the public to see the building.
- **Snow Storage.** Landscape material surrounding parking lots and in islands shall be able to tolerate large quantities of snow stored during winter months. The landscaping plan shall integrate with the site plan's area for snow storage.
- **Plant Material Selection.** The branching habit of trees shall be considered in selecting plant material near pedestrian or vehicular areas; all branches below 7' shall be pruned at the time of installation. Trees that may damage automobiles (dripping sap, messy fruit, or hard seeds such as acorns) are discouraged in or around parking lots.
- **Layout.** The landscaping shall integrate with the overall design of the site. Generally trees and other plantings in a linear pattern enhance a drive and reinforce the grid inherent in a parking lot.



*Both large and small parking lots can be greatly enhanced with a coordinated landscaping plan that includes shade trees.*



*Trees in a linear pattern clearly define this drive as an important entry.*



*By selecting landscape materials that are attractive in winter, these entry drives have year-round visual interest.*



## LANDSCAPING NEAR BUILDINGS, ENTRIES AND OTHER LOCATIONS

Landscaping can be used to enhance features of the building and direct a visitor's eye to the entry.

### DESIGN STANDARDS:

- **Coordination with Architecture.** Landscaping shall be carefully selected and located to complement the building elevations without blocking entryways, signs or lighting.
- **Roadside Planting.** Predominately large shade trees shall be selected for roadside planting and planted a minimum of 5' from the road right-of-way. Trees and other landscaping planted at intersections and driveway entries shall preserve an adequate sight triangle as determined by a traffic engineer.
- **Pedestrian Areas.** Trees whose future branching may interfere with pedestrian movement shall be avoided; all branches below 7' shall be pruned at the time of installation. Trees selected for areas with outdoor seating shall avoid messy fruit or excessive leaf litter.
- **Foundation and Wall Planting.** Planted beds are recommended along building edges, foundations and uninterrupted walls. Plantings shall provide either a formal pattern or a naturalistic blend of heights, colors and textures. Plants shall be generally planted in large masses or 'drifts' rather than individual specimens to provide a pleasing effect for both the motorist and pedestrian.

## LANDSCAPE MAINTENANCE

Landscaping plans shall anticipate 3 to 8 years to achieve maturity for shrubs, and a 15-20 year growing period for trees to achieve maturity. Proper maintenance shall be assured so the site continues to improve as the landscaping achieve maturity.

### DESIGN STANDARDS:

- **Maintenance Plan.** A written maintenance plan shall be provided for all landscape elements installed on all commercial sites. The maintenance plan shall include details on initial installation, guarantee period, replacement policy, periodic and seasonal maintenance, special considerations, use of pesticides and fertilizers, irrigation and seasonal displays.
- **Natural Forms.** All plant material shall be allowed to achieve their natural forms without excessive pruning. Shaping evergreen shrubs into tight geometrical forms shall be avoided.
- **Low Maintenance Materials.** The use of plant material and landscape elements that require a low degree of maintenance is strongly encouraged. Planting characteristics to be considered include: draught resistance, salt tolerance, tolerant of urban conditions, and disease and insect resistant.
- **Replacement Planting.** Where plant materials specified on the planting plan do not survive or are damaged, they shall be replaced.

## RECOMMENDED LANDSCAPE PLANT MATERIAL

The plants on this list have been derived from a number of sources and would be appropriate for sites with a hardiness one of 5 or less. The final selection shall consider specific growing requirements (full sun, part shade, etc) and the conditions present at each specific location on the site.

### Street Trees (for planting within 5' of pavement)

		Mature	
		Ht (ft)	W (ft)
<i>Acer buergerianum</i>	Trident Maple	20	30
<i>Acer campestre</i>	Hedge Maple	25	70
<i>Acer rubrum</i> 'Armstrong'	Armstrong Red Maple	60	15
<i>Acer rubrum</i> 'October Glory'	October Glory Maple	50	50
<i>Acer rubrum</i> 'Red Sunset'	Red Sunset Maple	45	35
<i>Acer x fremanii</i> 'Autumn Blaze'	Freeman Maple	55	50
<i>Aesculus flava</i>	Yellow Buckeye	50	40
<i>Aesculus x carnea</i>	Red Horsechestnut	30	30
<i>Carpinus caroliniana</i>	American Hophornbeam	25	20
<i>Cercidiphyllum japonicum</i>	Katsuratree	60	20
<i>Crataegus phaenopyrum</i>	Washington Hawthorn	30	25
<i>Crataegus viridis</i> 'Winter King'	Winter King Hawthorn	20	25
<i>Fraxinus americana</i>	White Ash	50	30
<i>Fraxinus pennsylvanica</i> 'Summit'	Green Ash	50	30
<i>Ginkgo biloba</i>	Ginkgo	50	25
<i>Malus</i> 'Donald Wyman'	Donald Wyman crabapple	20	25
<i>Malus</i> 'Prairiefire'	Prairiefire crabapple	15	15
<i>Pyrus calleryana</i> 'Aristocrat'	Aristocrat Pear	30	12
<i>Quercus coccinea</i>	Scarlet Oak	75	45
<i>Quercus palustris</i>	Pin Oak	60	35
<i>Quercus rubra</i>	Red Oak	60	60
<i>Quercus shumardii</i>	Shumard Oak	60	60
<i>Sophora japonica</i>	Japanese Pagodatree	50	50
<i>Syringa reticulata</i>	Japanese Tree Lilac	30	15
<i>Ulmus americana</i> 'Princeton'	American Elm	60	30
<i>Zelkova serrata</i> 'Green Vase'	Japanese Zelkova	60	50

### Ornamental Trees (for planting away from salt-prone areas, in addition to above)

		Mature	
		Ht (ft)	W (ft)
<i>Acer griseum</i>	Paperbark Maple	25	15
<i>Acer palmatum</i> 'Bloodgood'	Bloodgood Japanese Maple	15	15
<i>Acer saccharum</i>	Sugar Maple	70	60
<i>Acer saccharum</i> 'Green Mountain'	Green Mtn Sugar Maple	60	40
<i>Amelanchier canadensis</i>	Shadblow Serviceberry	20	12
<i>Amelanchier laevis</i>	Allegheny Serviceberry	15	12
<i>Amelanchier x grandiflora</i>	Apple Serviceberry	25	20
<i>Amelanchier x grandiflora</i> 'Autumn Brilliance'	Allegheny Shadblow	20	12
<i>Betula nigra</i> 'Heritage'	Heritage Birch	60	40
<i>Betula jacquemontii</i>	White-Barked Birch	35	15
<i>Betula nigra</i>	River Birch	40	40
<i>Betula papyrifera</i>	Paper Birch	50	30

<i>Cornus florida</i>	Flowering Dogwood	25	25
<i>Cornus kousa</i>	Kousa Dogwood	20	20
<i>Cornus kousa</i> 'Milky Way'	Milky Way Dogwood	20	20
<i>Fagus sylvatica</i>	European Beech	70	55
<i>Magnolia liliiflora</i>	Lily Magnolia	20	20
<i>Magnolia stellata</i>	Star Magnolia	12	12
<i>Nyssa sylvatica</i>	Black Tupelo	30	20
<i>Oxydendrum arboreum</i>	Sourwood	40	20
<i>Prunus cerasifera</i> 'Thundercloud'	Thundercloud	20	20
<i>Quercus alba</i>	White Oak	60	60
<i>Styrax japonicus</i>	Japanese Snowbell	20	20

### Evergreens for Screening and as Ornamental Trees

		Mature	
		Ht (ft)	W (ft)
<i>Abies concolor</i>	White Fir	30	12
<i>Abies fraseri</i>	Fraser Fir	30	20
<i>Gleditsia triacanthos</i>	Common Honeylocust	45	45
<i>Juniperus virginiana</i>	Eastern Redcedar	25	8
<i>Picea abies</i>	Norway Spruce	50	25
<i>Picea glauca</i>	White Spruce	40	10
<i>Picea pungens</i> 'Fat Albert'	Fat Albert Spruce	15	8
<i>Picea pungens</i> 'Glauca'	Glauca Colorado Spruce	40	20
<i>Pinus densiflora</i>	Japanese Red Pine	50	50
<i>Pinus flexilis</i>	Limber Pine	30	15
<i>Pinus koraiensis</i>	Korean Pine	35	60
<i>Pinus nigra</i>	Austrian Pine	50	35
<i>Pinus parviflora</i>	Japanese White Pine	35	35
<i>Pinus rigida</i>	Pitch Pine	50	35
<i>Pinus strobus</i>	Eastern White Pine	60	30
<i>Thuja occidentalis</i>	Eastern Arborvitae	50	10

for full screening, place on center at 60% of mature width

### Flowering and Ornamental Shrubs

		Mature	
		Ht (ft)	W (ft)
<i>Arctostaphylos uva-ursi</i>	Bearberry	0.5	4
<i>Buxus microphylla</i>	Littleleaf Box	3	4
<i>Buxus sempervirens</i>	Common Box	8	8
<i>Ceanothus americanus</i>	New Jersey Tea	3	4
<i>Clethra alnifolia</i>	Summersweet	6	7
<i>Cornus sericea</i>	Redosier Dogwood	6	8
<i>Cotinus coggygria</i>	Common Smoketree	10	10
<i>Cotoneaster dammeri</i>	Bearberry Cotoneaster	2	5
<i>Enkianthus campanulatus</i>	Redvein Enkianthus	6	5
<i>Hamamelis virginiana</i>	Common Witchhazel	15	15
<i>Hydrangea arborescens</i> 'Annabelle'	Annabelle Hydrangea	4	4
<i>Hydrangea macrophylla</i>	Bigleaf Hydrangea	4	4
<i>Hydrangea paniculata</i>	Panicle Hydrangea	10	10
<i>Hydrangea quercifolia</i>	Oakleaf Hydrangea	6	6
<i>Hypericum frondosum</i> 'Sunburst'	Yellow St. John's wort	3	2.5
<i>Ilex glabra</i> 'Densa'	Inkberry	3	3-4

<i>Ilex verticillata</i>	Common Winterberry	8	8
<i>Juniperus chinensis</i> 'Robusta Green'	Robusta Green Juniper	14	6
<i>Juniperus chinensis</i> 'Sargentii Viridis'	Green Sargent Juniper	1	8
<i>Juniperus communis</i> 'Blueberry Delight'	Blueberry Delight Juniper	1.5	6
<i>Juniperus conferta</i>	Shore Juniper	1	8
<i>Juniperus horizontalis</i> 'Bar Harbor'	Creeping Juniper	0.5	8
<i>Juniperus procumbens</i> 'Nana'	Dwarf Japanese Garden Juniper	0.5	6
<i>Kalmia latifolia</i>	Mountain-laurel	5	6
<i>Kalmia latifolia</i> 'Sarah'	Mountain Laurel	6	6
<i>Microbiota decessata</i>	Russian Carpet Juniper	1	10
<i>Myrica pensylvanica</i>	Northern Bayberry	5	8
<i>Physocarpus opulifolius</i> 'Summer Wine'	Summer Wine Ninebark	4	4
<i>Pieris floribunda</i>	Mountain Pieris	3	3
<i>Pieris japonica</i>	Japanese Pieris	5	5
<i>Pieris japonica</i> 'MountainFire'	Mountain Fire Andromeda	6	5
<i>Pinus mugo</i>	Swiss Mountain Pine	3	3
<i>Potentilla fruticosa</i>	Bush Cinquefoil	3	3
<i>Prunus maritima</i>	Beach Plum	6	6
<i>Prunus x cistena</i>	Purpleleaf Sand Cherry	7	5
<i>Rhododendron species</i>	Rhododendron	var	var
<i>Rhus aromatica</i>	Fragrant Sumac	1.5	5
<i>Rhus glabra</i>	Smooth Sumac	5	5
<i>Rosa virginiana</i>	Virginia Rose	5	6
<i>Sambucus nigra</i> 'Black Beauty'	Black Beauty Elderberry	8	8
<i>Sambucus canadensis</i>	American Elder	8	8
<i>Sambucus racemosa</i>	European Red Elder	10	10
<i>Syringa vulgaris</i>	Common Lilac	12	8
<i>Taxus cuspidata</i>	Japanese Yew	4	5
<i>Taxus x media</i>	Anglojap Yew	4	4
<i>Vaccinium angustifolium</i>	Lowbush Blueberry	0.75	2
<i>Vaccinium corymbosum</i>	Highbush Blueberry	6	6
<i>Viburnum trilobum</i>	American Cranberry	8	8
<i>Viburnum dentatum</i>	Arrowwood Viburnum	6	8
<i>Viburnum lantana</i>	Wayfaring Tree	7	7
<i>Viburnum plicatum tomentosum</i>	Doublefile Viburnum	8	9
<i>Viburnum prunifolium</i>	Blackhaw	10	6
<i>Viburnum sargentii</i>	Sargent Viburnum	12	12

## Perennials and Grasses

		Mature	
		Ht (ft)	W (ft)
<i>Artemisia schmidtiana</i> 'Silvermound'	Silvermound Wormwood	1	1
<i>Aster</i> 'Woods's Blue'	Aster	1	1.5
<i>Athyrium felix femina</i> 'Crestata'	Crested Lady Fern	3	2
<i>Coreopsis verticillata</i> 'Moonbeam'	Moonbeam coreopsis	1.5	2.5
<i>Epimedium grandiflorum</i> 'Lilafee'	Lilafee Barrenwort	1	1
<i>Epimedium x rubrum</i>	Reb Barrenwort	1	1.2
<i>Eupatorium dubium</i> 'Little Joe'	Dwarf Joe Pye	3	3
<i>Hemerocallis</i> 'Black Eyed Stella'	Black Eyed Stella daylily	1.5	2
<i>Hemerocallis</i> 'Stella d'Oro'	Stella d'Oro daylily	1	1.5
<i>Lamium maculatum</i> 'Orchard Frost'	Orchard Frost Deadnettle	0.5	1
<i>Lamium maculatum</i> 'Red Nancy'	Red Nancy Deadnettle	0.5	1

<i>Lavendula angustifolia</i> 'Munstead Strain'	Munstead Lavender	1	2
<i>Leucanthemum</i> 'Broadway Lights'	Broadway Lights Shasta Daisy	1.2	1.5
<i>Leucanthemum x superbum</i> 'Snow Lady'	Snow Lady Shasta Daisy	1.2	2
<i>Liatris spicata</i> 'Kobold'	Kobold Gay Feather	2	2.5
<i>Miscanthus sinensis</i> 'Adagio'	Dwarf Maiden Grass	4	4
<i>Pachysandra terminalis</i>	Japanese Pachysandra	0.5	1
<i>Pennisetum alopecuroides</i>	Fountain Grass	3	3
<i>Rudbeckia fulgida</i> var. <i>sullivantii</i> 'Goldstrum'	Black-eye Susan 'Goldstrum'	2	2
<i>Rudbeckia speciosa</i> 'Viette Little Suzy'	Little Suzy Dwarf Bk Eye Susan	1	1.5
<i>Sedum spectabilis</i> 'Autumn Joy'	Autumn Joy Sedum	2	2
<i>Thyme praecox</i> 'Albus'	White Thyme	0.1	1
<i>Thymus praecox</i>	Thyme	0.2	1
<i>Vinca minor</i>	Myrtle	0.5	1

### Wetland Plants for Detention/Retention Basins

Trees:		Mature	
		Ht (ft)	W (ft)
<i>Acer rubrum</i>	Red maple	45	40
<i>Amelanchier canadensis</i>	Shadbush	20	12
<i>Betula nigra</i>	River birch	40	40
<i>Celtis occidentalis</i>	Hackberry	35	20
<i>Chionanthus virginicus</i>	Fringetree	15	15
<i>Magnolia virginiana</i>	Sweetbay	30	20
<i>Nyssa sylvatica</i>	Blackgum	30	20
<i>Quercus bicolor</i>	Swamp white oak	50	50
<i>Quercus palustris</i>	Pin oak	60	35

### Shrubs: (plant in groups of 3-7 of one species)

<i>Andromeda glaucophylla</i>	Bog rosemary	2	2
<i>Aronia arbutifolia</i>	Red chokeberry	8	4
<i>Aronia melanocarpa</i>	Black chokeberry	4	3
<i>Cephalanthus occidentalis</i>	Buttonbush	8	6
<i>Clethra alnifolia</i>	Summersweet	6	7
<i>Cornus racemosa</i>	Grey dogwood	7	11
<i>Cornus sericea</i>	Redosier dogwood	6	8
<i>Ilex glabra</i>	Inkberry	5	5
<i>Ilex verticillata</i>	Winterberry holly	8	8
<i>Lindera benzoin</i>	Spicebush	8	8
<i>Myrica pensylvanica</i>	Bayberry	5	8
<i>Physocarpus opulifolius</i>	Ninebark	6	6
<i>Rhododendron maximum</i>	Rosebay	12	12
<i>Rhododendron viscosum</i>	Swamp azalea	6	6
<i>Salix discolor</i>	Pussy willow	20	18
<i>Sambucus canadensis</i>	Elderberry	8	8
<i>Spiraea tomentosa</i>	Meadowsweet	5	5
<i>Vaccinium angustifolium</i>	Lowbush blueberry	0.75	2
<i>Vaccinium corymbosum</i>	Highbush blueberry	6	6
<i>Viburnum dentatum</i>	Arrowwood	6	8
<i>Viburnum prunifolium</i>	Blackhaw	10	8
<i>Viburnum trilobum</i>	Cranberrybush	8	8

Perennials: (plant in massings for naturalized effect)

<i>Asclepias incarnata</i>	Swamp milkweed	3	1.5
<i>Boltonia asteroides</i>	White doll daisy	1.5	1.5
<i>Caltha palustris</i>	Marsh marigold	1.5	1.5
<i>Chelone glabra</i>	Turtlehead	2	1.5
<i>Eupatorium maculatum</i>	Joe pye weed	5	5
<i>Geranium maculatum</i>	Wild geranium	1	1.5
<i>Iris versicolor</i>	Blue flag iris	3	2
<i>Lobelia cardinalis</i>	Cardinal flower	2	2
<i>Osmunda cinnamomea</i>	Cinnamon fern	2	2
<i>Osmunda regalis</i>	Royal fern	2	2
<i>Physostegia virginiana</i>	Obedient plant	2	2
<i>Tiarella cordifolia</i>	Foamflower	1	1
<i>Verbena hastata</i>	Blue vervain	0.5	2
<i>Veronicastrum virginicum</i>	Culver's root	4	3

**Resources.** The following sources are recommended for additional information on the selection and planting of landscape plants.

*Manual of Woody Landscape Plants: Their Identification, Ornamental Characteristics, Culture, Propagation and Uses.* M. A. Dirr. Champaign, Illinois: Stripes Publishing LLC. 1998.

*Urban Tree Selection Manual.* John Alexopoulos, ASLA Paula Stahl, ASLA Robert Ricard, PhD. University of Connecticut Extension. 2007.

Plant Selection Database of UConn's College of Agriculture and Natural Resources.  
[www.hort.uconn.edu/plants/](http://www.hort.uconn.edu/plants/)

Green Valley Institute's Community Planning Fact Sheets:

#14 *Wetland Plants*

#17 *Selecting Trees For Along Our Streets and Roads*

<http://www.greenvalleyinstitute.org/publications.htm>

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University of Connecticut  
*Administration and Operations Services*

Facilities Operations

July 6, 2010

Dear UConn Water System Users:

As seasonally dry conditions have reduced area streamflows, UConn is issuing this Water Supply/Drought Advisory to enlist your cooperation in conserving water until further notice.

The University's water supply remains adequate to meet current and forecasted system demands and any potential emergency needs such as firefighting. Nevertheless, the University is committed to operating an environmentally sustainable water supply system, and, given current conditions and rainfall forecast, we are asking our students, faculty and staff as well as our water supply systems' off campus municipal, commercial, and residential users to be conscientious of their daily water use and to conserve water voluntarily by:

- Taking shorter showers
- Running dishwashers and clothes washing machines with full loads
- Shutting off water while washing dishes, shaving, brushing teeth, and lathering up to wash hands, rather than running the water continuously
- Avoiding vehicle washing or power-washing homes and other buildings
- Not using water to clean sidewalks, driveways and roads
- Reducing, to the extent possible, the watering of lawns, recreational and athletic fields, gardens, or other landscaped areas (if watering is essential, late-evening hours are best)
- Not using public water to fill residential swimming pools

In issuing this Water Supply/Drought Advisory, we encourage all of our water system users to play their part to help reduce daily demand.

Thank you for your help and we appreciate your cooperation. UConn is actively monitoring conditions and will continue to provide updates as conditions change. For further information about the University's water supply system, conservation activities and updates on conditions, please visit UConn's Facilities Operations website at <http://www.facilities.uconn.edu/wtr-swr.html>.

Sincerely,

Eugene B. Roberts  
Director of Facilities Operations

*An Equal Opportunity Employer*

25 LeDoyt Road Unit 3252  
Storrs, Connecticut 06269-3252

Facsimile: (860) 486-1486

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New England Water Utility Services, Inc  
93 West Main Street  
Clinton, Connecticut 06413-1600

860.669.8636 FAX 860.669.9326



NEW ENGLAND WATER UTILITY SERVICES

### MEMORANDUM

**To:** Eugene Roberts, Director, Office of Facilities Management  
**Date:** July 2, 2010  
**Subject:** UConn Water System Analysis  
**CC:** Thomas Callahan, Tim Tussing, Jason Coite

*The following is an assessment of the University of Connecticut's water supply system as of July 2, 2010. It assesses available supply, demand and environmental conditions, and identifies possible response actions pursuant to the University's Water Supply Emergency Contingency Plan. This Assessment will be updated as necessary to reflect changing conditions.*

#### Supply Status:

- The Willimantic wells have an available supply of 1,350 gallons per minute (gpm), or some 1.94 million gallons per day (mgd). At 1,350 gpm, the Willimantic wells are operating near their modeled sustainable yield (as identified through Level A Mapping), and within the wells' individual and combined registration limits.
- The Fenton River Wells were taken off-line on June 28, 2010. The wells were taken off-line in response to seasonal low flows in the Fenton River. Prior to going off-line, total well production was maintained in conformance with triggers identified in the Fenton River Study, which recommend certain management strategies, including a phased reduction in total wellfield production when river flows drop below 6 cubic feet per second (cfs).

#### Demand/ Margin of Safety:

- System demand is currently averaging approximately 1.00 mgd (1.024 mgd average day during June, 2010), which is consistent with historic demand values. Average daily demand for July is expected to remain at or around this value, based on demand patterns realized over preceding years.
- Projected Water Usage<sup>1</sup>, based on historic data and current trends, is expected to remain below Projected Available Supply<sup>2</sup> with the current system operations.

---

<sup>1</sup> Projected Water Usage is the expected production for the particular time of year for which the assessment is made, and includes any reductions or increases in demand due to historical variation or known significant changes.

Surface Water Flows:

- As of the date of this Assessment, stream flow in the Fenton River (as recorded at USGS gage no. 01121330) is 3.4 cfs and trending downward; stream flow in the Willimantic River (as recorded at USGS gage no. 01119382) is 20 cfs and likewise trending downward. Recent flow values are shown on Figures 1.0 and 2.0. Absent appreciable precipitation, flows can be expected to recede to at or below key thresholds in the near term. At that point, the University would be expected to enter a Stage 1A Water Conservation Alert.

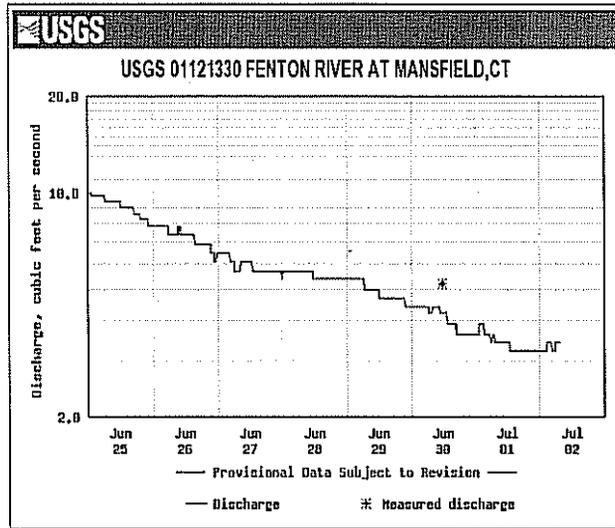


Fig 1.0

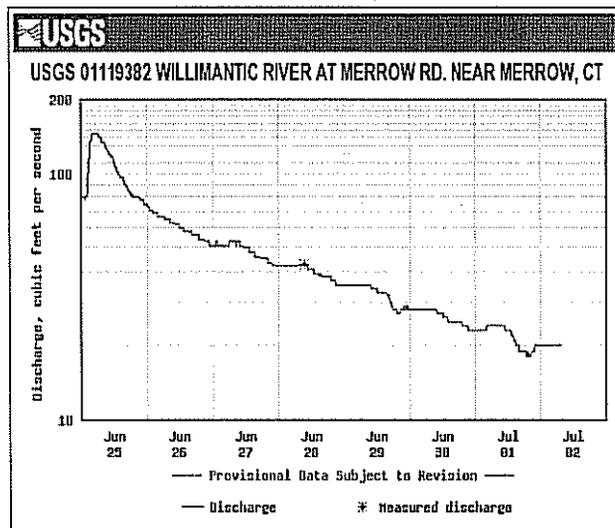


Fig 2.0

<sup>2</sup> Projected Available Supply is the expected capacity of the system's sources operating concurrently, and adjusting for any losses due to well maintenance or repair; transmission or pumping limitations due to depressed groundwater levels at the Willimantic wells; anticipated reductions in Fenton well withdrawal based on flow recession equations developed in the Study Report; or other supply-reducing events.

### Conclusions and Recommendations:

- Projected Available Supply is forecast to be greater than or equal to Projected Water Usage. As a result, the University should continue to have adequate water to serve UConn's water system customers' needs, both on and off-campus.
- Absent appreciable precipitation, flows in the Fenton River and Willimantic River are projected to recede to at or below 3.0 cfs and 19 cfs, respectively, in the near term. Either one of these conditions will trigger a Stage 1A Water Conservation Alert, in accordance with the University's Water Supply Emergency Contingency Plan and Willimantic River Report. These unique triggers are based on environmental considerations, rather than typical water system operations/demand factors.
- A Stage 1 Conservation Alert will require that system users be asked to voluntarily conserve water. With flow triggers anticipated to be hit within the next week, or so, preparations should begin to issue such an Alert and request for water conservation. Additionally, the University should be prepared to contact the Departments of Public Health and Environmental Protection and other state and local agencies, as outlined in the Plan, concerning the initiation of an Alert.
- Following issuance of an Alert, efforts should be made to monitor daily production, storage and consumption to quantify any demand reductions.
- A request for voluntary conservation is the first stage of the University's comprehensive five step emergency contingency plan. The triggers for subsequent steps are based on a combination of operational factors including projected available supply, projected water usage, and tank storage levels.

Additionally, the University's Willimantic River Study recommends the initiation of additional conservation measures, including mandatory conservation, when certain flow-based thresholds are reached in the Willimantic River (Figure 3.0). Because such thresholds are based on both instantaneous flow (e.g., <12 cfs) and low flow duration (e.g., <15 cfs for 13 or more days), close attention should be paid to daily flow in the Willimantic River as well as the persistence of any low flows.

- With the completion of the Willimantic River Study, the University should reassess its Water Supply Emergency Contingency/Drought Response Plan, and revise as necessary, coincident with its ongoing water supply plan update.

Drought Response Stage	Willimantic River at Wellfield Trigger Discharge	Habitat Stressor Threshold	Examples of Conservation Measures
Prepare for implementation of Stage IA	Discharge $\leq$ 27 cfs	Common (Upper Sub-Region)	None / Plan for Stage IA
Stage IA (Two potential triggers)	Discharge < 27 cfs for 19 or more days	Persistent Duration of Common (Upper Sub-Region)	Voluntary: Shorter showers, condensed washing loads, elimination of non-essential consumption, raise thermostats on centrally chilled buildings.
	Discharge < 19 cfs	Common (Lower Sub-Region)	
Stage IB	Discharge < 15 cfs	Critical	
Stage II (Two potential triggers)	Discharge < 15 cfs for 13 or more days	Persistent duration of Critical	Voluntary items above become mandatory, and include (but are not limited to) the following mandatory items: No flushing of hydrants, pipes, or sewer lines; no vehicle fleet washing; no use of water for street sweeping; reduce irrigation by 50%; reduce operation of research equipment cooled with domestic water; import water needed for construction dust control; no pool filling; raise thermostats of centrally chilled buildings.
	Discharge < 12 cfs	Rare	
Stage III (Two potential triggers)	Discharge < 12 cfs for 12 or more days	Persistent duration of Rare	
	Discharge < 7.8 cfs	Extreme	
Stage IV	Discharge < 7.8 cfs for 7 or more days	Persistent duration of Extreme	

Fig. 3.0

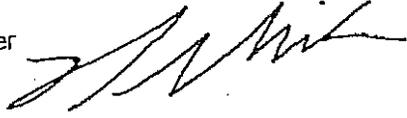


Eastern Highlands Health District

4 South Eagleville Road • Mansfield CT 06268 • Tel: (860) 429-3325 • Fax: (860) 429-3321 • Web: www.EHHD.org

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**Memo**

**To:** Matt Hart, Mansfield Town Manager  
**From:** Robert Miller, Director of Health   
**Date:** 6/9/2010  
**Re:** UConn Landfill Long Term Monitoring Plan, Report dated April 2010

---

Per your request, I have reviewed the above referenced report. The results reported do not suggest an imminent or immediate risk to public health. No material changes in the monitoring program were identified. The results are generally consistent with the historic body of data available for this project. This office will continue to monitor this situation. No action is recommended at this time.

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Haley & Aldrich, Inc.  
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Suite 100  
East Hartford, CT 06108-7303

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HaleyAldrich.com

**HALEY &  
ALDRICH**

27 April 2010

Connecticut Department of Environmental Protection  
Bureau of Water Protection and Land Reuse  
79 Elm Street  
Hartford, Connecticut 06106-5127

Attention: Mark R. Lewis

Subject: Long Term Monitoring Plan  
Spring 2010 Semi-Annual Sampling Round #12  
UConn Landfill  
Storrs, Connecticut

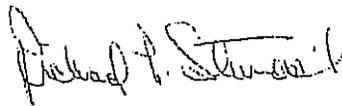
Ladies and Gentlemen:

The following certification is being submitted to the Department of Environmental Protection in accordance with the terms as delineated in the Consent Order No. SRD-101 issued 26 June 1998 for the document specified below:

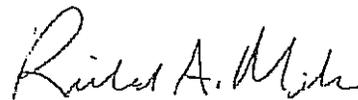
■ Long Term Monitoring Plan  
Spring 2010 Semi-Annual Sampling Round #12  
UConn Landfill  
Storrs, Connecticut

I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachments may be punishable as a criminal offense.

Agreed and accepted as stated above:



Richard P. Standish, P. G., LEP  
Senior Vice President  
Haley & Aldrich, Inc.



Richard A. Miller  
Director,  
Office of Environmental Policy  
University of Connecticut

C: Barry Feldman, UConn

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LONG-TERM MONITORING PLAN  
SPRING 2010 SEMI-ANNUAL SAMPLING ROUND #12  
UCONN LANDFILL  
STORRS, CONNECTICUT



by

Haley & Aldrich, Inc.  
East Hartford, Connecticut

for

University of Connecticut  
Storrs, Connecticut

File No. 91221-660  
April 2010

## 1. INTRODUCTION

This Long Term Monitoring Plan (LTMP) was prepared pursuant to the Consent Order # SRD-101 between the State of Connecticut and the University of Connecticut (UConn) regarding the solid waste disposal area on North Eagleville Road (Landfill and Former Chemical Pits) and the former disposal site in the vicinity of Parking Lot F (F Lot). An Interim Monitoring Program (IMP) was performed in order to monitor shallow ground water, surface water and bedrock groundwater quality in nearby domestic water supply wells until the LTMP required pursuant to paragraph B.4.e of the Consent Order was implemented. In September 2005, the University transitioned from the IMP to the LTMP. As part of this process, samples were collected from both the IMP and LTMP locations for three sampling quarters. These quarters, referred to as "transition rounds" were conducted in September and December 2005 and May 2006. Beginning with the October and November 2006 monitoring quarter, samples were only collected from the LTMP locations.

The objectives of the LTMP are:

- To assess the effectiveness of the remediation
- To monitor groundwater and surface water quality and trends, and
- To act as sentinel wells to protect human health and the environment.

Groundwater, surface water and soil gas samples are being obtained to verify that the new remediation systems are working as planned. The Plan is also designed to protect human health and the environment by evaluating the concentrations of contaminants in groundwater and surface water over time. If increasing concentrations are observed, UConn and the Connecticut Department of Environmental Protection (CTDEP) will reassess the remediation system design, expand the monitoring program, and/or take additional measures to protect human health and the environment, if necessary.

The LTMP includes sampling of media at multiple locations as shown on Figure 1:

- (1) six surface water locations;
- (2) five shallow groundwater monitoring wells;
- (3) five deep bedrock monitoring wells;
- (4) six active domestic wells on Meadowood Road and Separatist Road; and
- (5) four soil gas monitoring locations.

Installation of the landfill cap and leachate interceptor trenches was completed in the spring of 2007. To date, significant changes to the groundwater quality have not been observed. Analytical results continue to be evaluated and reported to the key parties and to the public.

This report documents the sampling round conducted in March 2010, also referred to as Round #12. In a letter to the University dated 16 April 2010, CTDEP approved a reduction in the LTMP sampling frequency from quarterly to semi-annually to be conducted in the spring and fall seasons (Appendix A).

## 2. SCOPE OF PROGRAM

The following paragraphs describe the rationale for each sampling location for the Long Term Monitoring Program based upon the approved Comprehensive Hydrogeologic Investigation and Remedial Action Plan, Addendum No. 2, dated July 2004.

### 2.1 Shallow Groundwater Monitoring Wells

Three shallow wells [B401(MW), B403(MW) & B404(MW)] were constructed in the overburden south, southeast and north of the landfill respectively, and downgradient of the Leachate Interceptor Trenches (LITs) in February and March 2007. These wells function to monitor shallow groundwater quality migrating out of the landfill area and to assess the effectiveness of the landfill cover and LITs.

Two previously existing shallow monitoring wells, MW-3 and MW-4, were reinstalled in August 2007 in the same general area in F Lot however; they were offset several feet from their original locations. They function to monitor shallow groundwater quality downgradient of F Lot.

### 2.2 Deep Groundwater Monitoring Wells

Five bedrock (125 to 300 ft) groundwater monitoring wells are included in the LTMP. Three existing wells, MW-105R, B201R(MW), and B302R(MW) are located south and west of the landfill and former chemical pits. These wells were selected because they are situated in the direction of either suspected historical or known bedrock groundwater flow. Since permanent packer systems for discrete fracture interval sampling are installed in B201R(MW) and MW-105R, two samples are collected from each well. Two former residential water supply wells, located at 156 Hunting Lodge Road and 202 North Eagleville Road, are included in the LTMP because of their locations and construction depths. The University has not received permission to access the well at 156 Hunting Lodge Road therefore; it continues to be excluded from sampling events.

### 2.3 Surface Water Monitoring Locations

Six surface water-monitoring locations (SW-A through SW-F) are selected to assess surface water quality migrating from the landfill, former chemical pits, and F Lot areas SW-A through SW-E are strategically placed at the primary surface waters north (wetland and Cedar Swamp Brook drainage) and south (western tributary of Eagleville Brook drainage) of the landfill and former chemical pits area. SW-F is located downgradient of F Lot on an eastern tributary to Eagleville Brook.

### 2.4 Active Residential Water Supply Wells

Six active residential water supply wells are included in the LTMP:

- 38 Meadowood Road
- 41 Meadowood Road
- 65 Meadowood Road
- 202 Separatist Road
- 206 Separatist Road
- 211 Separatist Road

These residential wells are the closest active bedrock wells to the landfill and former chemical pits in the direction of suspected historical and known groundwater migration pathways in the fractured bedrock aquifer.

## 2.5 Soil Gas Monitoring Locations

Four soil gas-monitoring points B501(GW), B502(GW), B503(GW) and B504(GW) were installed in the east, southeast, southwest and northwest quadrants of the landfill immediately outside the cap perimeter to monitor for potential gas migration away from the landfill. The monitoring points are 4-in. diameter PVC wells extending to depths ranging between 7.5 and 9.5 ft bgs with a slotted screen interval from the surface seal (approximately 2.5 ft bgs) to the depth of completion. The locations are lateral to the leachate interceptor trenches (LITs) where the likelihood of soil gas migration is presumed to be greatest.

## 2.6 Sampling Parameters

During the course of the Hydrogeologic Investigation, a comprehensive suite of analytical methods was selected to determine the nature of the contamination in the Study Area. A wide range of methods were used to ensure that any potential contaminant identified during review of historical records or interviews with knowledgeable personnel would be detected if present. Multiple rounds of groundwater and surface water sampling have shown that the contamination is confined to a few classes of compounds. Monitoring a select number of analytical methods accomplishes the objectives of the LTMP, that is, to assess effectiveness of remediation, monitor groundwater quality and trends and be protective of human health and the environment.

Groundwater and surface water samples were analyzed for the following parameters:

- VOCs by EPA Method 524.2

- Total metals by EPA Method 200 Series

- Total mercury by EPA Method 7470/E245.1

- Other Inorganic Parameters

  - ammonia, nitrate and nitrite, total phosphorus, total dissolved solids, total suspended solids, alkalinity, hardness, chloride, sulfate, chemical oxygen demand, total organic carbon, biological oxygen demand and cyanide

- Field Screening Data

  - turbidity, conductivity, dissolved oxygen, ORP, pH, and temperature

Soil gas monitoring points were analyzed for methane and carbon dioxide using a multiple gas detection meter.

## 2.7 Sampling Frequency

As previously mentioned, to date, significant changes to the groundwater quality have not been observed. This round represents the Spring 2010 sampling and we anticipate fall sampling to occur in or about October 2010.

### 3. SAMPLING PROCEDURES

Sampling procedures and analytical methods for the groundwater monitoring wells and surface water samples were conducted in accordance with the Comprehensive Hydrogeologic Investigation and Remedial Action Plan, Addendum No. 2, dated July 2004.

Sampling procedures for the residential water supply wells were conducted in accordance with procedures previously established by CTDEP and the DPH for the health consultation study completed in 1999. Samples were collected from the water supply system prior to treatment after running the tap for approximately eight minutes.

Samples from the residential water supply wells were analyzed using EPA drinking water methods as noted on the enclosed Table I.

#### 4. SUMMARY OF RESULTS

The analytical results from the March 2010 LTMP round #12 sampling are summarized in Table I. VOC Concentration and Conductivity vs. Time Plots for selected bedrock wells [MW105R, B201R(MW), and B302R(MW)] and selected overburden wells [B401(MW) and B403(MW)] are included in Appendix B. A discussion of the results below is organized by general sample types and locations.

##### 4.1 Shallow Groundwater Monitoring Wells

Samples from monitoring wells B401(MW), B403(MW) and B404(MW) were collected and submitted to Phoenix Environmental Laboratories, Manchester, Connecticut for analysis of VOCs, total metals, and nutrients. Both LITs were in operation at the time of this sampling event.

VOCs 1,4-dichlorobenzene and chlorobenzene were detected in monitoring well B401(MW). VOCs were not detected in samples collected from B403(MW) and B404(MW). Metal concentrations in all samples were below protective criteria. In general, concentrations of selected parameters and compounds appear consistent with previous sampling rounds.

VOCs were not detected in the samples collected from MW-3 or MW-4 and metal concentrations at both locations were below protective criteria.

For quality control purposes, duplicate samples were collected from B403(MW). Results were in general agreement.

##### 4.2 Deep Bedrock Monitoring Wells

Samples from these wells were collected and submitted to Phoenix Environmental Laboratories, Manchester, Connecticut for analysis of VOCs, total metals, and nutrients. VOCs were detected in discrete samples collected from both fracture zones of MW-105R and B201R(MW). Concentrations of 1,2-dichloroethane and benzene exceeded the groundwater protection criteria in samples collected from the deeper fracture zone of MW105R and both fracture zones in B201R(MW). Monitoring wells 202-NERD (unused domestic well at 202 N. Eagleville Road) and B302R-MW which range in depths from 200 to 320 ft do not have a discrete sampling systems installed so, integrated samples were collected. VOCs were not detected above laboratory detection limits in the sample collected from 202-NERD or B302R-MW. Metal and nutrient parameters were within typical groundwater water ranges in all of the bedrock well samples.

For quality control purposes, duplicate samples were collected from B302R-MW. Results were in general agreement.

As mentioned, at the time of this sampling event, the LITs were in operation. However, groundwater quality at MW105R and B201R(MW) appeared to remain unaffected; analytical results were generally consistent with previous sampling events.

#### 4.3 Surface Water Samples

Surface water was present at all six of the monitoring locations during this sampling quarter. The samples were collected and submitted to Phoenix Environmental Laboratories, Manchester, Connecticut for analysis of VOCs, metals and nutrients. VOCs were not detected at any of the locations and metal and nutrient parameters were within typical surface water ranges and consistent with previous sampling rounds.

#### 4.4 Active Residential Domestic Wells

All six active domestic wells were sampled as part of this quarterly event. Four of the six wells did not contain VOCs above the method reporting limits. Trace concentrations of chloroform were detected in the samples collected from 206 and 211 Separatist Road. These results are generally consistent with findings from previous sampling events. No other VOCs were detected above method reporting limits at these locations. In the sample collected from 65 Meadowood Road, copper was detected above surface water protection criteria; however the concentration is below drinking water criteria and is consistent with copper concentrations detected at this location in previous sampling rounds. Metal and nutrient concentrations at all locations were within acceptable drinking water ranges.

#### 4.5 Soil Gas Monitoring

Landfill gas is the natural by-product of the decomposition of solid waste in landfills and is comprised primarily of carbon dioxide and methane. A GEM2000 Landfill Gas Meter was used to sample and analyze methane, carbon dioxide and oxygen content at soil gas monitoring locations B501(GW), B502(GW), B503(GW) and B504(GW). Oxygen concentrations ranged from 0.4% at B502(GW) to 21.2% at B501(GW). Carbon dioxide readings ranged from 0% at B501(GW) to 16.3% at B502(GW). Methane gas readings were 0% for all locations except B502(GW) where it was 14.6%, within the flammable range (5-15%) in air. Sporadic detections of methane have been documented previously from this sampling location. It appears that this may be a seasonal occurrence and is probably not related to gas migration from the landfill. The sampling location is not near any inhabited structures.

PAGE  
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New England Water Utility Services, Inc.  
93 West Main Street  
Clinton, CT 06413-1600

Office: 860.669.8636  
Fax: 860.669.8108



June 24, 2010

Mr. Gregory Padick, Town Planner  
Town of Mansfield  
Audrey P. Beck Municipal Building  
4 South Eagleville Road  
Storrs Mansfield, CT 06268

Re: University of Connecticut Water System  
2009 Consumer Confidence Report

Dear Mr. Padick:

Each year Community Water Systems prepare a Consumer Confidence Report that contains water quality data from water samples collected during the report year, descriptions of drinking water sources, information on source water assessments, and water system contact information, along with other information that might be of interest to consumers. We have included a copy of the 2009 Consumer Confidence Report for your use.

Please feel free to contact me at 860-486-1081 if you have any questions.

Sincerely,

Peter J. Pezanko  
Project Manager for the  
University of Connecticut Water System

CJB/edl  
enc.  
cc: C. J. Bogucki

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University of  
Connecticut

# 2009 Water Quality Report

Main Campus, Storrs (Public Water System ID No. CT 0780021)

Depot Campus, Mansfield (Public Water System ID No. CT 0780011)

## Message to the Consumer

The University is pleased to provide you with the 2009 Water Quality Report of the Main Campus Water System in Storrs and the Depot Campus Water System in Mansfield and to note that there were no water quality or monitoring and reporting violations in either system in 2009.

This report includes a brief overview of your drinking water supply and the results of water quality tests conducted during 2009. This "Consumer Confidence Report" is required by the Federal Safe Drinking Water Act to provide consumers with water quality information on their water supply on an annual basis. We hope this report gives you a better understanding of your water supply.

In 2009, the University continued to contract with New England Water Utility Services, Inc. (NEWUS) to provide professional management, as well as daily and after-hours emergency operation and maintenance of the University's water systems. Under this contract, NEWUS provides a team of certified operations and management staff for the day to day operations of the water systems; meter reading, billing and response to customer inquiries; advising on current and proposed regulatory requirements; and recommending major maintenance and capital improvements.

In addition to providing water quality results for 2009, this report also lists many of the ongoing improvements we are making to our water systems, including:

- Water conservation efforts that have achieved a reduction of 0.25 million gallons per day in the average daily water system demand from 2005 to 2009. This represents a 17 percent decrease over this time period.
- Continuing water system capital investments to improve water service to our customers.
- Comprehensive source protection efforts to ensure the highest quality water for our water system sources.

2009 also saw continued progress toward the completion of an important water source assessment study. The University's consultant continued its study of the Willimantic River where our main wellfield is located. The last step of the field work was completed in 2009 by monitoring the river during a "low flow" period. The final analysis of data and report preparation was completed in June 2010. This information is important in establishing the optimum balance between environmental goals and the University's commitment to provide its students, faculty, staff, visitors, area residents, businesses and municipal facilities the highest quality drinking water possible.

In addition, the University continued in 2009 to actively develop water supply assessments and improvements and utilize more efficient water system operating procedures. This included completion of a system leak detection survey and the repair or replacement of leaking or substandard pipe. As a result of these continuing efforts, water conservation is enhanced, operational flexibility is improved, reliance on the Fenton River is reduced, and innovative plans have been developed to balance environmental concerns while providing for future system needs.

For more information concerning drinking water quality in the University systems, call week days between 8 a.m. and 5 p.m. to the University's Department of Environmental Health and Safety at 860-486-3613, or New England Water Utility Services, Inc.'s project manager at 860-486-1081, or visit our Web site at [www.facilities.uconn.edu](http://www.facilities.uconn.edu).

Sincerely,

**Eugene B. Roberts**

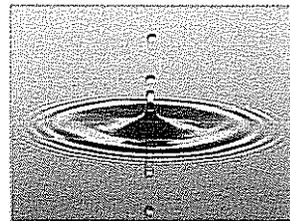
Director of Facility Operations

## Regulatory Oversight

To ensure that tap water is safe to drink, the Federal Environmental Protection Agency (EPA) and the State of Connecticut Department of Public Health (DPH) established regulations that limit the amount of certain contaminants in the water provided by public water systems. Water quality testing is an ongoing process, and the frequency of testing for each parameter varies as prescribed by these drinking water regulations. Due to testing schedules, not all of these tests were required during 2009, but the most recent test data are shown in the table located on page three. Samples from the University's water systems are tested regularly at state-certified laboratories to ensure compliance with state and federal water quality standards. Water samples are collected for water quality analyses from our wells, from entry points into our systems and from sample locations within our distribution system.

## Source Protection

The University is committed to protecting its wells and wellfields, and the Fenton and Willimantic Rivers, which are invaluable water resources.



Pursuant to the Connecticut Environmental Policy Act (CEPA), the University completes detailed Environmental Impact Evaluations for projects based on their size, location, cost or other factors consistent with the Generic Environmental Classification Document for State Agencies. This process, administered through the State Office of Policy and Management, provides numerous state agencies, the town of Mansfield, environmental interests, and interested citizens with an opportunity to review and comment on a project relative to its potential environmental impact. The University also cooperates with Windham Water Works regarding watershed inspections on the Main Campus. This interaction is designed to protect the Fenton River wellfield and the Fenton River, as well as the downstream Willimantic Reservoir.

The University utilizes its aquifer mapping information to better understand the areas of groundwater recharge. This hydraulic evaluation, required by the Department of Environmental Protection (DEP), shows the critical areas of direct recharge that must be protected. The DPH, in conjunction with the DEP, has on record the Source Water Assessment Program (SWAP) report on the Fenton River and Willimantic River wells. This report evaluates potential sources of contamination near our wells. The University's well fields have an Overall Susceptibility Rating of "LOW," the best possible rating. To ensure continued source protection however, the University will remain vigilant in protecting all of its water supply sources in the years to come. For more information regarding the SWAP report, visit the DPH's Web site at [www.ct.gov/dph](http://www.ct.gov/dph).

## System Description

The University owns and operates the Main Campus Water System at Storrs and the Depot Campus Water System in Mansfield. Although the two systems are interconnected, the source of water within each system can vary. The Main Campus receives water from gravel-packed wells located in the Fenton River and Willimantic River wellfields. The Depot Campus receives water only from the Willimantic River wellfield. Our wells do not pump directly from the Fenton and Willimantic Rivers; rather, the wells are located near the rivers and pump groundwater from extensive underground aquifers. As groundwater moves very slowly through the fine sands that make up these aquifers, the water is naturally filtered. The result is water of excellent chemical, physical, and bacteriological quality pumped from each wellfield. The only water treatment added is sodium hydroxide for pH adjustment and corrosion control, and chlorine for disinfection. The University continues to have an ample supply of high quality drinking water to meet the needs of its on-campus and off-campus users. In addition, it has over 7.5 million gallons of water storage capacity to meet all domestic, process, and fire protection needs. Large booster pumps help maintain adequate system pressures, and emergency generator power ensures continued operation during electric power outages.

## Water Quality

As water travels over the land surface and/or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity, including:



- viruses and bacteria, which may come from septic systems, livestock and wildlife;
- salts and metals, which can be natural or may result from stormwater runoff and farming;
- pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff or lawn care;
- organic chemicals, which originate from industrial processes, gas stations, stormwater runoff and septic systems; and
- radioactive substances that can be naturally occurring.

To ensure safe tap water, EPA prescribes limits on these substances in water provided by public water systems. The presence of these contaminants does not mean that there is a health risk. The University complies with EPA and DPH water quality requirements to ensure the quality of the water delivered to consumers. The test results are reflected in the table on page three. There were no water quality violations in the University's systems in 2009.

## Stage 2 Disinfectants and Disinfectants By-products Rule (DBPR)

The Environmental Protection Agency's Stage 2 Disinfectants and Disinfectants By-products Rule (DBPR) requires all water systems to evaluate the potential for producing elevated levels of certain "disinfectant by-products" that have potential adverse health effects. These chemical compounds can be produced by the reaction of disinfecting chemicals with naturally occurring chemical compounds found in the water. Water quality test results over eight consecutive quarterly sampling periods showed that none of the samples contained levels of disinfection by-products in excess of allowable levels. Because of these favorable sample results, both the Depot and Main Campus water systems have been designated as in compliance with the DBPR.

## Educational Information

Consumer Confidence Reports are required to contain public health information for certain contaminants and compounds, even if the levels detected were less than the Maximum Contaminant Levels established for those parameters. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk for infections. These people should seek advice about drinking water from their health care providers. EPA and the Federal Center for Disease Control guidelines on reducing the risk of infection by *Cryptosporidium* and other microbial contaminants are available from EPA's Safe Drinking Water Hotline (800-426-4791).

**CRYPTOSPORIDIUM.** *Cryptosporidium* is a microbial parasite found in surface waters throughout the U.S. Since the University uses groundwater (wells) rather than surface water (reservoirs), the University is not required to test for *Cryptosporidium*.

**COPPER & LEAD.** The University currently meets regulatory requirements for both lead and copper. Lead and copper were tested in 2007 (Depot Campus) and 2008 (Main Campus). None of the samples collected exceeded the Action Levels for lead or copper. Nonetheless, the University believes it is important to provide its customers with the following information regarding lead and copper:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The University's Main Campus and Depot Campus water systems provide high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap water for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water is available from the Safe Drinking Water Hotline or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

Similarly, elevated copper levels can also have health impacts. Copper is an essential nutrient, but like lead, its levels can vary from location to location. Some people who drink water containing copper in excess of the Action Level over a relatively short period of time could experience gastrointestinal distress and may also suffer liver or kidney damage. People with Wilson's disease should consult their personal physician. If you are concerned about elevated copper levels, you may wish to have your water tested. Running your tap for 30 seconds to 2 minutes before using for drinking or cooking will significantly reduce copper levels in the water.

Lead and copper levels will be tested again in 2011 (Main Campus) and 2010 (Depot Campus).

# Water Quality Testing

The table below lists the results of water quality monitoring conducted in 2009. However, DPH allows us to monitor for some contaminants less than once per year because the concentration of the contaminants are not expected to vary much from year to year. Because of this, some of the data, though representative of the water quality, may be more than one year old. If levels were tested prior to 2009, the year is identified in parentheses. Any contaminant/compound detected in the latest round of testing is included in the table. As required by the EPA and the DPH, the University also periodically tests for "unregulated contaminants." Unregulated contaminants are those that do not yet have a drinking water standard set by EPA. The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a standard. The last required samples were collected in July 2009 with all sample results below detection levels. The next required sampling for unregulated contaminants will occur in 2010.

Water Quality Test	Main Campus					Depot Campus			Possible Contaminant Source
	MCL	MCLG	Highest Level Detected	Range of Detections	MCL Exceeded?	Highest Level Detected	Range of Detections	MCL Exceeded?	
Copper (ppm)	AL 1.3	AL 1.3	0.26 (2008)	no sample above AL	No	0.12 (2007)	--	No	Corrosion of household plumbing systems
Lead (ppb)	AL 15	AL 15	1.1 (2008)	no sample above AL	No	9.5 (2007)	--	No	Corrosion of household plumbing systems
Barium (ppm)	2	2	0.012 (2008)	0.0084-0.012	No	ND (2008)	ND	No	Erosion of natural deposits
Chloride (ppm)	250	NA	24 (2008)	19-24	No	24 (2008)	24	No	Erosion of natural deposits
Fluoride (ppm)	4	4	ND (2008)	--	No	ND (2008)	ND	No	Erosion of natural deposits
Nitrate (ppm)	10	10	0.88	0.41-0.88	No	0.88	0.88	No	Runoff from fertilizer use
Nitrite (ppm)	1	1	<0.01	ND	No	ND	ND	No	Runoff from fertilizer use
Sodium (ppm)	NL=28	NA	24 (2008)	23-24	No	28 (2008)	28	No	Erosion of natural deposits
Turbidity (ntu)	TT (5 ntu)	NA	4.33	ND-4.33	No	3	0.1-3	No	Soil runoff, pipe sediment, or precipitation of minerals or metals
Total Coliform Bacteria	presence in >5% of mo. samples	0	0	--	No	0	--	No	Naturally present in the environment
Alpha Emitters (pCi/L)	15	0	0.87 (2006)	ND-0.87	No	2.2 (2006)	ND-2.2	No	Erosion of natural deposits
Combined Radium (pCi/L)	5	0	1.33 (2006)	ND-1.33	No	3.79 (2006)	ND-3.79	No	Erosion of natural deposits
Uranium pCi/L	30	0	ND (2006)	--	No	ND (2006)	ND	No	Erosion of natural deposits
Chlorine (ppm)	MRDL 4	MRDLG 4	0.85	0.03-0.85	No	0.83	0.03-0.83	No	Water additive used to control microbes
HAA5 (ppb) [Haloacetic acids]	60	NA	ND	ND	No	ND	ND	No	By-product of drinking water disinfection
THMs (ppb) [Total Trihalomethanes]	80	0	4.1	ND-4.0	No	3.5	ND-3.5	No	By-product of drinking water disinfection

## Definitions and Key Terms

**AL (Action Level):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**MCL (Maximum Contaminant Level)** The highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology. Typically when MCLs are exceeded a violation occurs and public notification is required.

**MCLG (Maximum Contaminant Level Goal)** The level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.

**MRDL (Maximum Residual Disinfection Level):** The highest level of a disinfectant allowed in drinking water.

**MRDLG (Maximum Residual Disinfection Level Goal):** The level of a drinking water disinfectant below which there is no known or expected risk to health.

**Detected Contaminant:** A detected contaminant is any contaminant measured at or above a **Method Detection Level**. Just because a contaminant is detected does not mean that its MCL is exceeded or that there is a violation.

**n/a:** Not applicable.

**ND:** Not detected.

**NL:** Notification level.

**ppb (parts per billion):** One part per billion = ug/L; the equivalent of 1 penny in \$10,000,000.

**ppm (parts per million):** One part per million = 1 mg/l; the equivalent of 1 penny in \$10,000.

**pCi/L (picocuries per liter):** A measure of radioactivity.

**TT (Treatment technique):** A required process intended to reduce the level of a contaminant in drinking water.

**<:** Less than.

# University of Connecticut

Facilities Operation Building  
25 LeDoyt Road, Unit 3252  
Storrs, CT 06269

## 2009 Annual Water Quality Report



*Proudly Presented By:*



*In a 2008 letter to President Hogan, the Commissioner of Environmental Protection and the Commissioner of Public Health praised the University as follows: "The efforts that the University has taken to address its commitments have been exemplary ... From a water supply management perspective, the University is to be commended for promptly engaging a professional operator, implementing system improvements necessary to achieve operational flexibility including system automation, installing sub-metering, addressing identified leaks, and updating the University's Drought Response Plan."*

*This commendation from both state agencies rightly recognizes the results of the unique partnership between Connecticut Water and the University of Connecticut.*

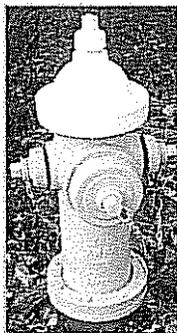
## 2009 Water System Improvement Projects

The University completed a number of important water system improvements in 2009, including:

- Engineering for a new 1 million gallon water storage tank which will replace two older tanks with a net increase of 100,000 gallons of storage capacity. These older tanks can no longer be cost effectively maintained/upgraded to provide for continuing service in the future. The construction of the replacement storage tank was initiated in early 2010.
- Engineering for a new water treatment building that will treat all water pumped from the Willimantic wellfield. This facility will allow for the retirement of two older treatment facilities, will provide treatment advantages from increased treatment contact time, and will provide standby power for all four Willimantic wells plus the new treatment plant. The construction of the new treatment building was initiated in early 2010.

## Fire Protection Charges

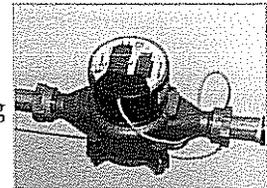
One of the important services provided by a public water system is the availability of fire protection. Fire protection is provided both to municipalities through the fire hydrants that its Fire Departments use to fight fires, referred to as "public fire protection," and to individual buildings that are equipped with fire sprinkler systems, referred to as "private fire protection." Fire protection charges are standard practice among public water systems as an equitable way to recover the additional costs associated with providing the large, instantaneous flow rates required for fire protection purposes. These peak flow rates necessitate constructing larger treatment, storage, pumping and water main piping than would be needed to serve metered consumption needs in residences, industries, commercial and institutional facilities. Since fire flows are not typically metered, they are not subject to metered billing rates as other customers are. In place of metered rates, fire protection is usually billed based on the number of fire hydrants in service and/or the size of the water pipes delivering the fire flows. In this way those customers directly benefitting from the fire protection availability pay for their equitable share of the costs to provide those fire flows.



In June of 2009, the University established both public and private fire protection charges. The public fire protection charges are billed to the town for its municipal fire protection purposes. The private fire protection charges are billed to individual properties that have either fire service lines for interior sprinkler systems or have private fire hydrants installed on their property for their use.

## Water Metering Program

Water metering is recognized as a sound water system practice which allows for billing based on the actual amount of water used by each customer. Metered customer bills include a basic charge to cover the administrative costs associated with meter reading, billing, and customer service that are provided regardless of the amount of water used, as well as a commodity charge based strictly on the amount of water used. In this way customers can control the amount of their water bill by controlling the amount of water that they use.



The installation and use of accurate water meters to measure all water uses from the system also represents a fundamental tool in promoting water conservation efforts. Metered customers have the water use information they need to track their conservation efforts, and are billed on actual use. The University began a system-wide metering program in 2006 which included Phase I metering efforts on campus, and Phase II metering efforts off campus. The Phase I program is 85 percent complete. The Phase II program, which includes the metering of all off-campus customers, is now 92 percent complete.

## Planning for the Future

In conjunction with the town of Mansfield, the University contracted for the preparation of a Master Plan for the University's water and wastewater systems in 2006. Today, that Plan serves as a roadmap for the town and the University for the future of these important utility systems and it provides a detailed study of the alternatives for the short-term and long-term operation, maintenance and management of these systems. It identified a number of recommendations, which were reviewed and revised based on actual results documented during the drought of 2007, and were detailed in the 2008 "UCONN Water System Analysis Report." Recommendations from those reports serve as guidelines for our future plans. Most of the recommendations in that Report have been completed. Two of those recommendations, the use of reclaimed water for non potable purposes and identification of additional supply options, are in our current active planning process.

In addition to the specific projects identified above, the University has worked cooperatively with the Water and Wastewater Advisory Committee, established in 2006 to help guide water supply and wastewater decisions for the University and the Storrs area to best meet current and future needs in the area. The ongoing Committee meetings provide regular opportunities for input from community leaders and multiple stakeholders in this public process. The Committee reports at least annually to the University administration and the Board of Trustees. The Water/Wastewater Advisory Committee continued to provide this important planning function throughout 2009.

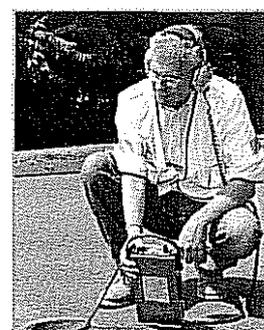
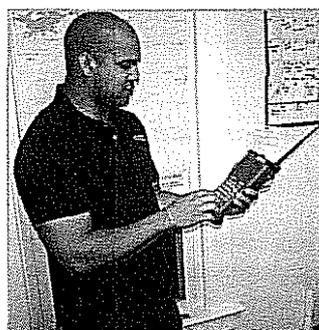
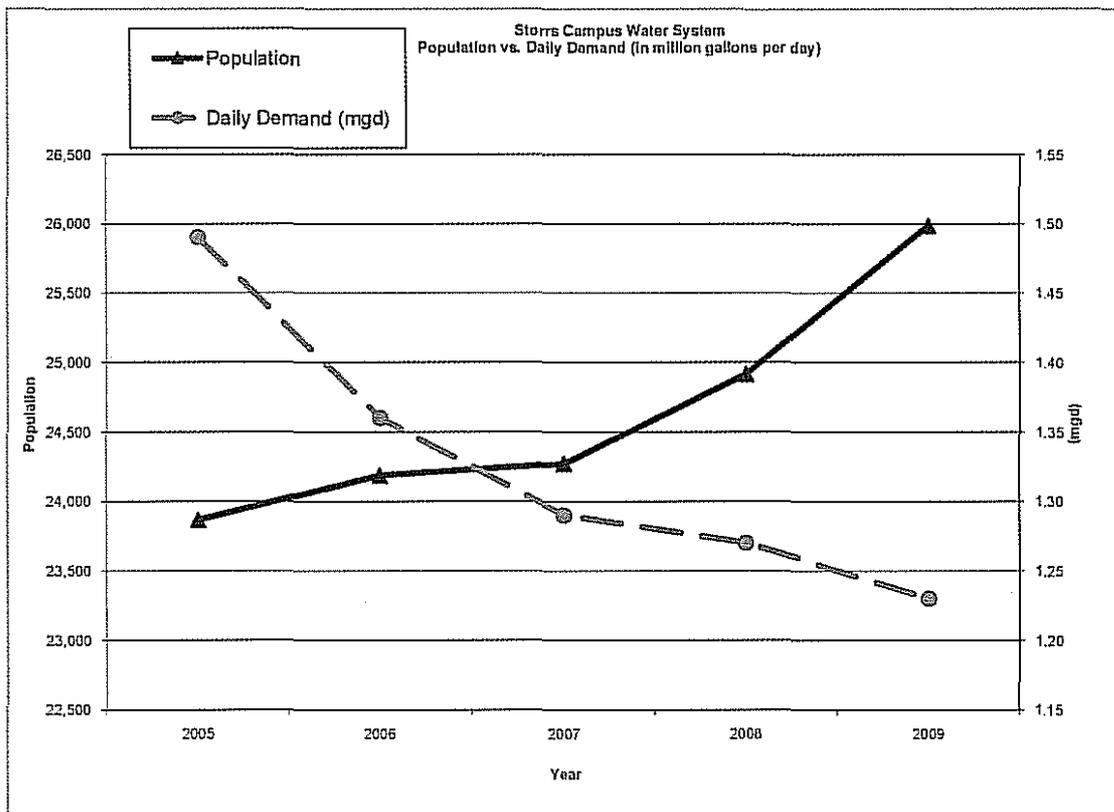
# Water Conservation

Four straight years of declining water consumption highlight the continuing and successful efforts undertaken by the University to conserve its water resources. Combined Average Day Demands for the water systems have decreased from 1.49 million gallons per day (mgd) in 2005 to 1.23 mgd in 2009. It is important to note that even though 2009 was not a drought year and there were no mandatory conservation steps required as part of our "Water Conservation Plan," we still achieved a net decrease in overall system demand as compared to the drought year of 2007.

The graph below illustrates the results of our water conservation efforts. During the years 2005 through 2009, student enrollment and faculty/staff increased by over 8 percent. During those same years, however, the average daily water demand in our Storrs Campus water system decreased by 17 percent. These reductions in system demands did not happen by accident but were the result of deliberate actions taken by the University to conserve water. Over the years, the University has made water system operation changes to maximize water efficiencies, thereby reducing wasted water; and has completed a comprehensive water conservation study of University buildings. The University regularly invests in leak detection and repair, the installation of water-saving devices and more efficient water chillers, the replacement of old water mains, as well as the retrofit or replacement of equipment with more efficient methods.

## Conservation Tips

- Install water-efficient fixtures and equipment, such as water-saving shower heads and toilets.
- Take shorter showers.
- Turn off faucets and showers when not in use.
- Wash full loads in washing machines/dishwashers.
- Limit running water in food preparation.
- Limit outdoor watering to early mornings or evenings and do not water on windy days.
- Mulch around plants to reduce evaporation.
- Limit running water time when washing a car, or use a car wash.
- Repair leaks. In UCONN dorms, promptly report leaks to your Resident Advisor. In other campus buildings, report leaks to Facilities Operations at 860-486-3113.



CONNECTICUT FEDERATION OF  
PLANNING AND ZONING AGENCIES  
QUARTERLY NEWSLETTER

Summer 2010

Volume XIV, Issue 3

TOWN ROAD CAN NOT BE CLOSED  
IN RESPONSE TO SUBDIVISION  
APPROVAL

A parcel of property located in Columbia was approved for a residential subdivision. The property, while located entirely within Columbia, abutted the town of Hebron. The only existing road access to the parcel was from a Hebron town road.

At the subdivision hearing, officials from the Town of Hebron participated, stating that the town road was not able to adequately serve the needs of the proposed subdivision. In particular, the increased traffic as well as access for emergency vehicles would likely exceed the capacity of the road. Columbia approved the application. Hebron blocked the town road at the town line.

The owner of the parcel brought an action in court seeking an order from the court to have Hebron re-open the road. The Town objected, claiming it had the statutory authority to close a public road. The court ordered that the road be re-opened because Hebron did not have the authority to close the town road due to concerns over the impact of a subdivision in an adjoining town on its public road.

The Court arrived at its decision stating that "Land use disputes should be resolved in accordance with the

procedures provided in the land use statutes." These statutes provided Hebron with the opportunity to participate in the administrative process and would have allowed for an appeal of an unfavorable decision. Hebron did not have to resort to the extreme act of closing a public road. *See Wellswood Columbia LLC v. Hebron, 295 Conn 802 (2010).*

PUBLIC HEARING DOES NOT  
CHANGE A RE-SUBDIVISION  
APPLICATION

An application for a resubdivision was submitted in order to split a subdivision lot into two parcels. The application was scheduled for a public hearing. At the public hearing, several neighbors, and their attorney, testified against the application stating that if granted, property values would suffer and the plan of development would be violated. The applicant demonstrated that his application satisfied all of the requirements in the subdivision regulations.

The application was denied based upon general considerations not part of the subdivision regulations. An appeal to court followed.

The commission defended its decision by claiming that when a public hearing is held, the commission is not bound by the rule applicable to

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CONNECTICUT FEDERATION OF  
PLANNING AND ZONING AGENCIES  
QUARTERLY NEWSLETTER

Summer 2010

Volume XIV, Issue 3

subdivision approvals: that it must approve an application which satisfies all of the regulatory requirements. The court disagreed.

Just because a public hearing is held on a resubdivision application does not change the rule that it must be approved if all of the regulatory requirements are met by the applicant. *See Rocha v. PZC, 49 Conn. L. Rptr. 397 (2010).*

#### WHAT IS A FLASHING SIGN

Is an electric sign that changes a written message every few seconds a flashing sign? A zoning enforcement officer thought so and issued a cease and desist order because the zoning regulations did not permit flashing signs. The business owner, who used the sign to display various advertising messages, appealed the order to the zoning board of appeals. The ZBA thought the sign was a flashing sign too and upheld the cease and desist order. An appeal to court followed.

In finding that this sign was not a flashing sign, the court recognized that, while the message changed, the sign did not flash on and off, which is what flashing is. In addition, it was revealed that the ZEO did not consider a bank's date and temperature sign to be a flashing sign. *See Cargill Quick Lube &*

*Carwash v. ZBA,, 48 Conn. L. Rptr. 434 (2009).*

#### HORSE COMPETITIONS IS NOT FARMING

The owners of a farm obtained a zoning permit to allow for the construction of a barn to house and exercise horses. Agriculture was a permitted use in the zone. The property had once been a dairy farm but was now used to raise and train horses. At some point, the owners began having horse riding competitions as well as roping competitions. These events drew participants and spectators to the farm to the annoyance of neighbors who complained to the ZEO. A cease and desist order was issued, with an appeal to the ZBA following. The ZBA agreed with the ZEO that these competitions were commercial uses and thus not permitted in the residential zone. An appeal to court followed.

The court saw the issue as whether these events are part of an agricultural use. Horse raising and training could be considered a normal farming activity. On the other hand competitions involving horses goes beyond the generally accepted meaning of farming. Thus, the court found that the use of the riding center for competitions was not permitted as it went beyond what was considered to be

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TOWN ROAD CAN NOT BE CLOSED  
IN RESPONSE TO SUBDIVISION  
APPROVAL

A parcel of property located in Columbia was approved for a residential subdivision. The property, while located entirely within Columbia, abutted the town of Hebron. The only existing road access to the parcel was from a Hebron town road.

At the subdivision hearing, officials from the Town of Hebron participated, stating that the town road was not able to adequately serve the needs of the proposed subdivision. In particular, the increased traffic as well as access for emergency vehicles would likely exceed the capacity of the road. Columbia approved the application. Hebron blocked the town road at the town line.

The owner of the parcel brought an action in court seeking an order from the court to have Hebron re-open the road. The Town objected, claiming it had the statutory authority to close a public road. The court ordered that the road be re-opened because Hebron did not have the authority to close the town road due to concerns over the impact of a subdivision in an adjoining town on its public road.

The Court arrived at its decision stating that "Land use disputes should be resolved in accordance with the

procedures provided in the land use statutes." These statutes provided Hebron with the opportunity to participate in the administrative process and would have allowed for an appeal of an unfavorable decision. Hebron did not have to resort to the extreme act of closing a public road. *See Wellswood Columbia LLC v. Hebron, 295 Conn 802 (2010).*

PUBLIC HEARING DOES NOT  
CHANGE A RE-SUBDIVISION  
APPLICATION

An application for a resubdivision was submitted in order to split a subdivision lot into two parcels. The application was scheduled for a public hearing. At the public hearing, several neighbors, and their attorney, testified against the application stating that if granted, property values would suffer and the plan of development would be violated. The applicant demonstrated that his application satisfied all of the requirements in the subdivision regulations.

The application was denied based upon general considerations not part of the subdivision regulations. An appeal to court followed.

The commission defended its decision by claiming that when a public hearing is held, the commission is not bound by the rule applicable to

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subdivision approvals: that it must approve an application which satisfies all of the regulatory requirements. The court disagreed.

Just because a public hearing is held on a resubdivision application does not change the rule that it must be approved if all of the regulatory requirements are met by the applicant. See *Rocha v. PZC*, 49 Conn. L. Rptr. 397 (2010).

#### WHAT IS A FLASHING SIGN

Is an electric sign that changes a written message every few seconds a flashing sign? A zoning enforcement officer thought so and issued a cease and desist order because the zoning regulations did not permit flashing signs. The business owner, who used the sign to display various advertising messages, appealed the order to the zoning board of appeals. The ZBA thought the sign was a flashing sign too and upheld the cease and desist order. An appeal to court followed.

In finding that this sign was not a flashing sign, the court recognized that, while the message changed, the sign did not flash on and off, which is what flashing is. In addition, it was revealed that the ZEO did not consider a bank's date and temperature sign to be a flashing sign. See *Cargill Quick Lube &*

*Carwash v. ZBA*, 48 Conn. L. Rptr. 434 (2009).

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