

Memorandum

To:	Barkhamsted Low Impact Development Committee
From:	Martin J. Connor, AICP
Date:	March 2, 2011, as amended 12.04.26
Re:	Barkhamsted Low Impact Development Recommendations for Zoning Regulations

I have reviewed the “*Town of Barkhamsted Zoning Regulations*” with a goal of incorporating best management practices relating to Low Impact Development into the Regulations. The proposed recommendations below incorporate recommendations that the Low Impact Committee made at the March 1, 2011 meeting based on feedback received at the public information meeting held on February 9, 2011.

Article I – Section 193-11

Existing Language: This section indicates when a site plan shall be required.

Recommendations:
Add the following:

A stormwater management plan shall be prepared that incorporates best management practices in accordance with the 2004 Connecticut Stormwater Quality Manual, as amended, unless the Commission waives the requirement because the proposed activity will have minimal impact to the environment. In determining whether the project will have minimal impact to the environment the Commission will consider the report received on the project from the Inland Wetlands Commission. However, stormwater management plans shall be developed for all new and redevelopment projects, including phased developments that meet the following criteria:

- Any development resulting in the disturbance of greater than or equal to one acre of land;
- Residential development consisting of 5 or more dwelling units;
- Residential development consisting of fewer than 5 dwelling units involving the construction of a new road or reconstruction of an existing road.
- Residential development consisting of fewer than 5 dwelling units where imperviousness of the site after construction exceeds 30 percent.
- Stormwater discharge to wetlands/watercourses or in areas designated by the Town of Barkhamsted as Aquifer Protection Areas.
- Land uses or facilities with potential for higher pollutant loadings such as industrial facilities subject to DEP Industrial Stormwater General Permit or U.S. EPA National Pollution Discharge Elimination System (NPDES) Stormwater Permit Program, vehicle salvage yards and recycling facilities, vehicle fueling facilities, vehicle service,

maintenance and equipment cleaning facilities, fleet storage areas (cars, busses, trucks, public works), commercial parking lots with high intensity uses (shopping center, fast food restaurants, convenience stores, supermarkets), public works storage areas, road salt storage facilities, commercial nurseries, flat metal rooftops of industrial facilities, facilities with outdoor storage and loading/unloading of hazardous substances or materials, regardless of the primary land use of the facility or development.

- Industrial and commercial developments which result in 10,000 sq ft or greater of impervious surface.
- New highway, private road, and street construction
- Modifications to existing storm drainage systems.

(Note: the above criteria has been taken from the 2004 Connecticut Stormwater Quality Manual Section 9.1 Plan Development.)

Article I – Section 193-27A Table of Uses by Zone – Residential RA-2 Zoning District – Residential Clusters

Existing Language: This chart indicates “Residential Clusters” are a SE (Special Exception Use) permitted by special exception and site plan required in accordance with 193-67.

Recommendations: Keep “Residential Clusters” and add “Conservation Subdivisions” and allow them by “SP” permitted by right site plan required in accordance with 193-67.

Reasons:

1. The term Conservation Subdivision better describes the purpose and Section 193-67 should be revised to incorporate best management practices relating to Low Impact Development.
2. Changing the use from a “SE” use to a “SP” use will encourage this type of development which is more flexible, can permanently protect environmentally sensitive lands and is more environmentally friendly. The uncertainty of approval for a “SE” use makes it less likely that a developer will consider a “conservation subdivision” over a “conventional subdivision” that is permitted by right.
3. Conservation-style development allows a larger percentage of a site to remain as undeveloped, typically in a natural state.
4. Creation of open space networks that serve dual function of providing natural resource conservation, wildlife corridors, recreation and assisting in the management of stormwater runoff as well as maintaining water quality.

Article IV – Section 193-27 Table of Area and Dimensional Requirements – Maximum Lot Coverage (percent) – RA-2 Zone

Existing Language: This section in the Table shows “NA” under the percent of maximum lot coverage in the RA Zone.

Recommendations:

1. Insert a maximum of 25% maximum lot coverage in the RA-2 Zone. This would require no more than 25% of the lot be covered with buildings, decks, swimming pools, tennis courts, patios, driveways, walks, or other impervious surfaces. This is more in keeping with the principles of Low Impact Development rather than having no maximum as is currently the case.

Article V - Section 193.32

Existing Language:

This section contains the definitions.

Recommendations:

Add the following definitions to incorporate Low Impact Development terms:

BEST MANAGEMENT PRACTICES: Techniques that are effective practical ways of preventing or reducing pollution and providing environmental stewardship. **Refer to 2004 Connecticut Stormwater Quality Manual, as amended**

INFILTRATION: The process of precipitation percolating into the subsoil.

LOW IMPACT DEVELOPMENT (LID): A site design strategy intended to maintain or replicate predevelopment hydrology through the use of small-scale controls integrated throughout the site to manage runoff as close to its source as possible.

NONPOINT SOURCE POLLUTION: Pollution caused by diffuse sources that are not regulated as point sources and are normally associated with precipitation and runoff from the land that carries pollutants.

PERMEABLE PAVING: Materials that are alternatives to conventional pavement surfaces and that are designed to increase infiltration and reduce stormwater runoff and pollutant loads. These materials have variable porosity dependent on the product, its installation and the site conditions.

PROFESSIONAL ENGINEER: A person licensed by the State of Connecticut to practice as a professional engineer in civil engineering.

RAIN GARDENS/BIOFILTRATION: A low impact development practice to manage and treat stormwater runoff by using a specially designed planting soil bed and planting materials to filter and infiltrate runoff gathered in a shallow depression.

STORMWATER: Water consisting of precipitation runoff or snowmelt.

STORMWATER MANAGEMENT PLAN: Plan describing the potential water quality and quantity impacts associated with a development project both during and after construction. It also

identifies selected source controls and treatment practices to address those potential impacts, the engineering design of the treatment practices, and maintenance requirements for proper performance of the selected practices.

STORMWATER RUNOFF: Above ground water flow resulting from precipitation or snowmelt.

STORMWATER TREATMENT: Devices constructed for primary treatment, pretreatment or supplemental treatment of stormwater.

STORMWATER TREATMENT TRAIN: Stormwater treatment practices, as well as site planning techniques and source controls, combined in series to enhance pollutant removal or achieve multiple stormwater management objectives.

VERNAL POOL: (From CT DEEP)

Vernal pools are small bodies of standing fresh water found in the spring of the year. Usually temporary, they derive their name from *vernal*, the Latin word for spring because they result from various combinations of snowmelt, precipitation, and high water tables associated with the spring season. For a vernal pool to exist, there must be a source of water and an enclosed basin that traps the water for some period of time. The depressions may be natural or of human origin, and they dry out most years. Because of its periodic drying, vernal pools do not support breeding populations of fish.

To meet the definition of a vernal pool, four criteria must be met:

- It contains water for approximately two months during the growing season;
- It occurs within a confined depression or basin that lacks a permanent outlet stream;
- It lacks any fish population;
- It dries out most years, usually by late summer.

WATER QUALITY SWALES : Vegetated open channels designed to treat and attenuate the water quality volume and convey excess stormwater runoff.

WATER QUALITY VOLUME: The volume of runoff generated by one inch of rainfall on a site.

Reasons:

1. The Low Impact Development Techniques should have consistent definitions to allow applicants to understand the Town's expectations and the Town to review a project objectively.
2. The same definitions will be proposed to be added to the Subdivision Regulations. These proposed definitions in the Zoning Regulations will become consistent with the Subdivision Regulations, if they are both adopted.

Article VI – Section 193-39 Site Design for new non-residential development in residential zones

Existing Language:

193-39. This section presents site design standards for new non-residential development in residential zones.

Recommendations:

Add the following:

Article VI - 193-39H. A stormwater management plan shall be prepared that incorporates best management practices in accordance with the 2004 Connecticut Stormwater Quality Manual, as amended, unless the Commission waives the requirement because the proposed activity will have minimal impact to the environment.

Reasons:

1. The site design standards for new non-residential development in residential zones should include a stormwater management plan.

Article VII - Section 193-40 Site Plan Standards and Requirements

Existing Language:

193-40 I. This section presents the information to be included on site plans.

Recommendations:

Add the following:

193-40 I 8 ii, “Show Erosion and Sedimentation Control devices in accordance with Article VI Sections 193-37.

193-40 I 8 iii, “Proposed Stormwater Management Plan for stormwater treatment and/or detention during and after construction.”

193-40 I 13, A biological assessment of the natural resources located on the subject property with special reference to wetlands, vernal pools and biodiversity prepared by a qualified expert shall be submitted unless the Commission waives the requirement because the proposed activity will have minimal impact to the environment. Commission will refer to map entitled “Vernal Pools and Vernal Pool Critical Terrestrial Habitat Zones Barkhamsted Biodiversity Study” dated 2010 and included in “Town of Barkhamsted: Amphibian and Reptile Biodiversity Study”, by Eric R. Davison, BS and Michael W. Klemens, PhD, Cary Institute of Ecosystem Studies.

Reasons:

1. Site plans should have an erosion control plan.
2. Site plans should have a stormwater management plan.
3. Site plans should include a biological assessment of the subject property.

Article VII - Section 193-40 J Criteria for Site Plan Approval

Existing Language:

This section lists the criteria for site plan approval.

Recommendations:

Add new sections:

193.40 J. (11.) Adequacy of the Stormwater Management Plan.

193.40 J. (12.) Effect the project may have on the property's natural resources.

Reasons:

1. Adequacy and accuracy of the Stormwater Management Plan should be a factor in the Commission's decision to approve or deny the application.

Article VII -Section 193.41

Existing Language:

This section covers the landscaping requirements.

Recommendations:

The Committee should consider adding additional landscaping provisions to the Zoning Regulations. The committee could beef up the landscaping section by adopting tree protection provisions in the Regulations to:

Add to Article VII -Section 193.41 D.1

- i. Landscape plans shall incorporate native tree species based on known performance for managing stormwater runoff.
- ii. Public trees removed or damaged during construction associated with private development may be required to be replaced on or off-site with an equivalent amount of tree caliper (e.g. remove a 24" diameter tree/replace with six 4" diameter trees.)
- iii. Construction protection practices shall be implemented for protection of public trees (e.g., fencing, no hazardous materials, avoid cutting into root zones.)
- iv. Trees over a minimum size of 3" caliper protected during development are credited towards landscaping requirements.

Reasons:

1. Mature trees provide multiple community benefits, reduce overall stormwater runoff, and improve stormwater quality. Mature trees provide multiple environmental, economic, and community benefits, including improved water and air quality, reduced heat island effects, lowered energy costs and improved community aesthetics. Encouraging proper landscaping can provide many low impact development benefits.

Article VI - Section 193-34 Off-street parking and loading requirements

Existing Language:

This section presents the parking standards.

Recommendations:

Lower the minimum parking requirements in Section 9.15. Reducing unnecessary parking is a low impact design element. Consider amendments to minimum required parking in order to reduce unnecessary parking and impervious surfaces. We recommend the Committee review the document “Model Zoning Regulations for Parking for Northwest Connecticut,” September 2003, written for the Litchfield Hills Council of Elected Officials and Northwest Council of Governments. This document describes an actual study conducted in the Northwest corner that demonstrated most local regulations contained excessive parking requirements.

Low Impact Development strategies to consider for parking regulations:

- Match parking requirements to the level of demand and allow flexible arrangements to meet parking standards.
- Allow flexibility in meeting parking requirements through shared parking, off-site parking, on street spaces, and similar approaches.
- Permit businesses with different peak demands to share the required spaces.
- Allow by-right reduction in required parking spaces in mixed use developments.
- Permit developers to undertake parking studies to establish that specific developments (e.g., senior housing, affordable housing) require fewer spaces than typical projects.
- Allow some low-use parking to be grass surface.

Reasons:

1. Excess parking results in excess impervious surface. The regulations should require an adequate number of spaces, but should not require more than what is needed.

Recommended revisions:

A. Parking spaces. Parking spaces shall be provided on the same lot or on adjacent land permanently available to the applicant in sufficient number to accommodate the motor vehicles of all occupants, employees, customers and any others normally visiting the premises at any one (1) time. The minimum parking space requirements shall be as specified in the following table.

B. The Commission shall determine the number of parking spaces for any use not specifically included in the table, such as schools used for multiple purposes. (NOTE: Gross square feet of building floor area, as used below, is determined by using outside building dimensions per floor occupied.)

193-34 B - Table of Off-Street Parking and Loading Requirements

Use	Number of Parking Spaces per gross square feet of building floor area
Retail Stores.	1 per 1,000 sq ft of floor area
Offices, financial and similar business buildings	2 per 1,000 sq ft of floor area
Restaurants	6 per 1,000 sq ft of floor area
Hotels/motels	1 per guest room
Industrial	1 per 1,000 gross square feet
Single Family Dwelling Unit	2 parking spaces
Personal service facilities	2 per 1,000 sq ft of floor area
Other (theaters, churches, places of public assembly; etc.)	1 space per 5 seats in the portion of the building used for services or public assembly

C. Minimum parking space size requirements. Parking spaces shall be clearly delineated at a minimum of nine by eighteen (9x18) feet. Aisles for access to parking stalls shall be at least **twenty-two (22)** feet wide for double-load bays. Where parking spaces front on a landscaped strip, the spaces may be delineated at nine by sixteen (9x16) ft.

D. Landscaping and paving. Sufficient landscaping shall be provided and shall be shown on an accompanying site plan. Landscaping shall be used to reduce the visual impact of large paved areas. Parking areas, excluding those for single-family dwellings, shall be paved with bituminous concrete or with pervious pavement alternatives. Overflow areas (low-use parking) to be grass surface.

E. Reduction of parking facilities

1. It is the intent of these regulations that all structures and land uses be provided with a sufficient amount of off-street motor vehicle parking, while allowing for some flexibility of site design to accommodate the unique characteristics of individual properties. The Commission may require the submission of a parking demand analysis as part of any request for a waiver or exception from the general parking requirements. In the case that an applicant believes that the required parking amounts are in excess of what is needed for the proposed use, the applicant may submit a request with justification to the Commission for a reduction in parking space requirements. The Commission will consider and act on this request concurrent with and as part of the full development application process.

2. In Mixed-Use developments, or developments where parking is affected by cooperative agreements between the different land uses, for any proposed use, substantial change in use, construction, conversion, or increase in intensity of use of any buildings or structures, the applicant shall submit a parking demand analysis that demonstrates parking demand patterns. The parking demand analysis must be approved by the Commission and will serve as the basis for determination of required parking at the mixed-use site.
3. For phased developments, the Commission may provide that up to 50 percent of the parking spaces required by this section will not be immediately constructed and may be kept in reserve. Such reserve parking areas must be kept planted and maintained rather than surfaced for parking until such time the additional parking space is necessary to serve completed phases of the associated development. No above ground improvements shall be placed or constructed upon such reserve parking area. The area designated as reserve parking must be clearly depicted on the phased development site plan and the terms and conditions of phasing of the parking area completion as determined by the Commission, must be clearly set forth in notations on the approved site plan.

F. Handicap Parking Facilities

Handicap Parking Space shall be provided for all non-residential uses in number and design as specified by the laws and regulations of the State of Connecticut (State Building Code). No new structure, addition or use shall receive a Certificate of Occupancy until the required handicap parking has been provided, striped and signed as provided by current specification. Handicap parking spaces shall be provided in addition to the minimum number of required parking spaces.

Reasons:

Excess parking results in excess impervious surface. The regulations should require an adequate number of spaces, but should not require more parking than what is needed.

Article IX - Section 193-67 Residential Clusters

Existing Language:

This section lists the criteria for residential cluster subdivisions

Recommendations:

ADD a new Section- Conservation Subdivisions

New Article IX Section 193-67.1 Conservation Subdivisions

193-67.1: Purpose:

The purpose of this section is:

- A. Allow for greater flexibility & creativity in the design of residential subdivisions provided that the overall density of the development is no greater than what would be normally allowed in that zone;

- B. Encourage permanent preservation & protection of open space, greenway connections, scenic vistas, agricultural lands, forest lands, water quality and other cultural, historical or natural resources, which has an overall effect of increasing land values;
- C. Facilitate the construction of streets, utilities, building sites and public services in a more economical and efficient manner with reduced maintenance costs;
- D. Provide wildlife corridors connecting open spaces and protecting wildlife habitat;
- E. Provide land for active recreation where needed.
- F. Reduce demand for public-funded green space and providing means for expanding public trails and greenways.
- G. To encourage low impact development and design and reduce impervious surfaces.

190-67.1A. Minimum lot size

The minimum lot area for a Conservation Development shall be ten (10) acres

193-67.1B. Permitted uses

- a) Detached single family dwellings.
- b) Playgrounds, recreation areas, parks, open spaces, and natural areas
- c) Accessory uses and structures such as private garages, swimming pools, clubhouses, recreation facilities, and other structures and facilities which are customarily incidental and subordinate to the principal uses.

193-67.1 C. Configuration of lots:

The individual lots in Conservation Developments may be reduced from the conventional area, **however, each** lot shall have a minimum lot size of 40,000 sq ft, **with a minimum of one hundred (100') feet frontage on the new road**. Setbacks and building heights for principle buildings and accessory structures, other than maintenance sheds, shall meet the maximum height for buildings and structures in the RA2 Zone. The minimum setbacks allowed are 25 ft front and rear yards and 20 ft side yards. However, proposed lots with frontage on existing Town or State roads shall contain a minimum of 200 feet of lot frontage and shall maintain a minimum front yard setback of 50 feet. A maximum of 25% lot coverage shall be permitted.

193-67 D. Open Space Preservation:

A minimum of 50% of the overall parcel area shall remain as open space, preferably in one contiguous parcel. No more than 50% of the required open space shall be classified as inland wetlands soils or watercourses, subject to easements for utilities or purposes unrelated to recreation or preservation of open space, or have slopes greater than 25%. The open space land shall be deeded either to the Town, Home Owner's Association, Land Trust or another conservation organization acceptable to the Commission on such a basis as will insure that such land will be properly maintained and will remain as Open Space in perpetuity.

193-67 E. Maximum Density of Development

1. Maximum density shall be calculated according to the following formula: Total acres of the lot minus one hundred percent (100%) of the inland wetlands as defined by the Inland Wetlands Regulations, minus fifty percent (50%) of the lot area with slopes of over

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twenty-five percent (25%) as determined by field or aerial survey and plotted by a licensed surveyor, divided by the lot size for the residential zone in which the lot is located.

2. The actual number of dwelling units shall be as approved by the Planning and Zoning Commission after careful review, and the number of units may be reduced by the Commission.

Reasons:

5. Conservation-style development allows a larger percentage of a site to remain as undeveloped, typically in a natural state.
6. Creation of open space networks that serve dual function of providing conservation, recreation and assisting in the management of stormwater runoff.