

## **Deerfield's Green Infrastructure Policy and Bylaws**

Deerfield's Selectboard adopted an innovative Green Infrastructure and Climate Resiliency Policy in 2020. The purposes of the policy are to promote the use of green street facilities and green infrastructure in public and private development, to promote climate resiliency in public buildings and infrastructure and private development.

This policy is implemented through three main mechanisms;

1. Incorporate and maintain green street facilities and green infrastructure into all publicly-funded development, redevelopment, and enhancement projects, to the extent technically and economically feasible.
2. Ensure that regulations require and incentivize all development to incorporate green streets and green infrastructure features.
3. Ensure coordination and communication between town boards and departments, in particular Selectboard, Public Works Department, Building Department and Planning Board to ensure implementation of this policy.

The full Green Infrastructure and Climate Resiliency Policy is shown below.

### **Town of Deerfield** **Green Infrastructure and Climate Resiliency Policy**

*Adopted by Deerfield Selectboard 4/22/2020*

#### **Section 1. Goals:**

The goals of this Town of Deerfield policy are to:

1. promote the use of green street facilities and green infrastructure in public and private development as a cost-effective and sustainable practice for stormwater management in current and future projects wherever possible. This includes: road construction and reconstruction projects; sewer projects; and new development and redevelopment projects.
2. promote climate resiliency in public buildings and infrastructure and private development.

#### **Section 2. Definitions:**

**Green Infrastructure:** Keeps rain close to where it falls, using structures to improve on-site infiltration, such as rain gardens, green roofs and permeable pavements, to promote cleaner, slower, and smaller storm flows to nearby rivers and streams.

**Green Streets:** Green Streets are a subset of Green Infrastructure in which the street handles significant amounts of stormwater on site through use of vegetated and/or soil-infiltration facilities. Green Streets can include landscaped street-side planters or swales or tree box filters or porous pavement that capture stormwater runoff and allow it to soak into the ground as soil and vegetation filter pollutants.

### **Section 3. Policies:**

#### **WHEREAS,**

The Town of Deerfield recognizes:

1. Stormwater runoff from streets, roads, parking lots, and other impervious urban surfaces is a significant source of water pollution to our rivers, streams and water bodies;
2. The local impacts of climate change in Deerfield include more frequent 100-year floods and more severe storms; an increase in insect populations and insect-borne diseases; rising water tables and increases in invasive species.
3. Green Streets can provide cost-effective infrastructure solutions to reduce and manage stormwater runoff and flooding from more intense storm and flooding events and can reduce localized flooding from surcharging, providing some adaptation to climate change.
4. Green Streets can improve water quality by filtering stormwater, removing contaminants, including total suspended solids (TSS), organic pollutants /oils, and heavy metals, and cooling the stormwater before it encounters groundwater or surface water bodies, which benefits watershed health.
5. Green Streets foster unique and attractive streetscapes that protect and enhance neighborhood livability, integrate the built and natural environments, enhance the pedestrian environment, and introduce park-like elements into neighborhoods.
6. Green Streets encourage the planting of landscapes and trees which contribute environmental benefits such as reduced summer air temperatures, reductions in global warming through carbon sequestration and air pollution screening.
7. Green infrastructure can reduce the long-term costs of gray infrastructure maintenance, and complement gray infrastructure with hybrid systems of gray, piped infrastructure combined with green, vegetated infrastructure.
8. Green infrastructure will be an investment in Deerfield's village centers. The costs for installing green infrastructure may be initially higher, but long term costs of climate changes, storm damages and flooding will be mitigated. Green infrastructure, when built in tandem with grey infrastructure, extends the lifespan of both green and grey infrastructure. Green infrastructure reduces water pollution more cost effectively than grey infrastructure alone.
9. Recharge of groundwater sources is a key mitigation activity under the Massachusetts Water Management Act regulations 310 CMR 36.00.

#### **NOW, THEREFORE BE IT ORDERED,**

The Town of Deerfield policy is to promote the use of green street facilities and green infrastructure in public and private development through regulation, capital investment, and management mechanisms as a cost-effective and sustainable practice for stormwater management in current and future projects when technically and economically feasible. This includes road development and reconstruction, bicycle and pedestrian projects, stormwater projects, and other development and redevelopment.

It is Town of Deerfield policy to:

1. Incorporate and maintain green street facilities and green infrastructure into all publicly-funded development, redevelopment, and enhancement projects, to the extent technically and economically feasible. To achieve this, where feasible, Deerfield will:
  - a) Evaluate new municipal projects to determine if they will make the town more climate resilient and green, and will provide long-term benefits to the town.
  - b) Install new and replacement culverts that are open-bottom culverts designed for fish and wildlife passage, and sized to handle larger storm events expected with climate change.
  - c) As streets and parking lots are replaced, re-paved or installed, utilize green streets and parking lot designs with tree box filters, permeable pavement, and curbless planted medians and shoulders.
  - d) Purchase electric or hybrid municipal vehicles.
  - e) Install EV charging stations and priority EV parking spaces
  - f) Support “Solarize” neighborhood programs to incentivize group solar panel purchases
  - g) Conduct and periodically update energy audits and upgrades in energy efficiency for all municipal buildings, and utilize Mass Energy Insight data to track and reduce energy use.
  - h) Green existing and new municipal buildings, schools and facilities, including *but not* limited to, such techniques as rain gardens, green roofs, rainwater harvesting and porous pavements.
  - i) Install LED lighting for traffic lights, street lights and municipal buildings.
  - j) Install green stormwater infrastructure in public green spaces.
  - k) Work toward Deerfield generating its own green power with solar or wind installations.
  - l) Work with power companies to bury powerlines to reduce vulnerability to storm-related power outages.
  - m) Work to make improvements to municipal buildings, schools and municipal infrastructure including:
    - Resiliency improvements for flooding;
    - Green roofs, rainwater harvesting, and re-use for watering;
    - Plant trees, shrubs and vegetation around municipal facilities;
    - Install bioswales, rain gardens, porous pavements and bioretention to infiltrate stormwater on site and reduce flooding;
    - Reduce impervious surfaces and replace with greenspace;
    - Install complete streets including bike lanes, sidewalks, and pedestrian infrastructure;
    - Energy efficiency and weatherization improvements.
2. Ensure that regulations require and incentivize all development to incorporate green streets and green infrastructure features. To achieve this, Deerfield will enforce current stormwater regulations, and work toward adoption of zoning best practices for:
  - a) On-site stormwater retention, low impact development and minimized impervious surfaces;
  - b) Tree protection and planting;
  - c) Complete streets and green parking;

- d) Green roofs;
  - e) Solar access and streamlined solar permitting.
3. Ensure coordination and communication between town boards and departments, in particular Selectboard, Public Works Department, Building Department and Planning Board to ensure implementation of this policy, as well as fully addressing competing priorities.

**Section 4. Amendments:**

This policy may be amended at any time with the approval the Deerfield Selectboard.

**Section 5. Effective Date/Authorization:**

This policy will become effective for when it is approved by vote of Deerfield Selectboard.

Approval by Deerfield Selectboard:

\_\_\_\_\_

Chair, Selectboard

\_\_\_\_\_

Date

## Deerfield's Green Development Performance Standards

Deerfield's Town Meeting adopted an innovative set of Green Development Performance Standards in 2022, as part of revisions to the town's Site Plan Review bylaw. The standards are applicable to all uses requiring Site Plan Review, including commercial and Industrial uses, multi-family housing and \_\_\_\_\_ . They address ten main focus areas, including:

- (a) Limits to Site Disturbance;
- (b) Tree Preservation;
- (c) Orientation of Buildings for Solar Access;
- (d) Landscaping and Water Reduction;
- (e) Protection and Buffering of Land in Agricultural Use;
- (f) Parking and Trip Reduction;
- (g) Pedestrian and Bicycle Access;
- (h) Storage of Hazardous Materials;
- (i) Light Pollution Reduction;
- (j) Collection and Storage of Recyclables;
- (k) Construction Waste Management and Topsoil Recovery

The full Green Development Performance Standards and bylaw are shown below.

### **DEERFIELD SITE PLAN REVIEW with GREEN DEVELOPMENT PERFORMANCE STANDARDS**

*Adopted by Town Meeting, June 12, 2021*

#### 5400. SITE PLAN REVIEW

5410. Applicability. The following types of activities and uses require site plan review by the Planning Board: [Amended 4-26-2010 ATM, Art. 1; 4-25-2011 ATM, Art. 7; 4-30-2012 ATM, Art 7; 4-30-2018 ATM, Art. 27]

5411. For a municipal, institutional, commercial, industrial, or multi-family structure: 1) a change of use; or 2) construction, exterior alteration, or exterior expansion that will cumulatively add more than 600 square feet over a three-year period;

5412. Construction or expansion of a parking lot for a municipal, institutional, commercial, industrial, or multi-family structure which results in a cumulative total of 10 or more parking spaces or 2,000 square feet of parking area;

5413. Grading, clearing, or other land development activity EXCEPT for the following: landscaping on a lot with an existing dwelling, clearing necessary for percolation and other site tests, or work in conjunction with an approved subdivision plan or earth removal permit.

5414. Outdoor storage, sales or display associated with any retail use:

5415. Construction or expansion of a Large-Scale Ground-Mounted Solar Electric installation or a **Medium**-Scale Ground Mounted Solar Electric Installation.

5416. Flexible Developments as authorized in Section 3500;

5417. Planned Unit Developments as authorized in Section 4800;

5418. Marijuana Establishments as authorized in Section 4660;

5419. Any use listed in Section 2230, Use Regulation Schedule, or in other sections of this bylaw as requiring Site Plan Review.

**5420. Green Development Performance Standards. All uses requiring Site Plan Review in Section 5410 shall also demonstrate compliance to the Planning Board with the Green Development Performance Standards herein, before a Building Permit may be issued. Applicants shall, to the maximum extent practicable, meet the standards for:**

- (a) **Limits to Site Disturbance (see Section 5481);**
- (b) **Tree Preservation (see Section 5482);**
- (c) **Orientation of Buildings for Solar Access (see Section 5483);**
- (d) **Landscaping and Water Reduction (see Section 5484);**
- (e) **Protection and Buffering of Land in Agricultural Use (see Section 5485);**
- (f) **Parking and Trip Reduction (see Section 5486);**
- (g) **Pedestrian and Bicycle Access (see Section 5487);**
- (h) **Storage of Hazardous Materials (see Section 5488);**
- (i) **Light Pollution Reduction (see Section 5489);**
- (j) **Collection and Storage of Recyclables (see Section 54891);**

(k) **Construction Waste Management and Topsoil Recovery (see Section 54892);**

#### **5430. Definitions**

**Best Management Practices (BMPs):** Practices that have been determined to be the most effective and practicable means of preventing or reducing undesirable environmental impacts.

**Blue Roof:** A blue roof is a roof design that is explicitly intended to store rainfall or other precipitation, through a detention stormwater management practice that provides temporary storage and slow release of rainwater on a rooftop.

**Complete Streets:** Streets that are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.

**Conditioned Square Footage:** A building's room area that is heated in the winter and/or air conditioned in the summer.

**Critical Root Zone (CRZ):** The critical root zone (also known as essential root zone) is the portion of a tree's root system that is the minimum necessary to maintain the stability and vitality of the tree. It can be calculated by using the following formula: tree trunk diameter at breast height X 2, then convert to feet. For example, for a tree with a trunk diameter of 10 inches, the critical root zone would have a diameter of 20 feet.

**Drip Line:** The circle that could be drawn on the soil around a tree directly under the tips of its outermost branches. Rainwater tends to drip from the tree at this point.

**Floor Area Ratio:** The ratio of the gross floor area of buildings on a certain location to the size of the land of that location.

**Green Roof:** A green roof or living roof is a roof of a building that is partially or completely covered with vegetation and a growing medium, planted over a waterproofing membrane. It may also include additional layers such as a root barrier and drainage and irrigation systems.

**Gross Floor Area:** The sum of the gross horizontal areas of the several floors of the building measured from the exterior faces of the exterior walls or from the center line of walls separating two buildings. The "floor area" of a building shall include basement floor area when more than one-half of the basement height is above the established curb level or above the finished lot grade level where curb level has not been established, elevator shafts and stairwells at each floor, floor space used for mechanical equipment — except equipment, open or enclosed, located on the roof — penthouses, attic space having headroom of seven feet, ten inches or more, interior balconies and mezzanines, and enclosed porches, and floor area devoted to accessory uses.

**Infiltration:** The downward movement of water from the surface to the subsoil.

**Land in Agricultural Use:** Land used for the primary purpose of commercial agriculture, aquaculture, silviculture, horticulture, floriculture or viticulture, on land parcels of five acres or more.

**Low Impact Development (LID):** A set of approaches that seeks to mimic a site's pre-development hydrology by using design techniques that infiltrate, filter, store, evaporate and detain runoff close to its source. Instead of conveying, managing and/or treating stormwater in large, end-of-pipe facilities, LID utilizes small-scale, decentralized practices that infiltrate, treat, evaporate, and transpire rain water and snow melt. These practices include bioretention areas, grassed swales, rain gardens, reduced impervious areas, preservation of open space, increased development density, smaller lot sizes, reconfiguration of lots, green street and parking designs, and alternative structural stormwater treatment methods.

"Parties in Interest" shall include: the petitioner, abutters, owners of land directly opposite on any public or private street or way, and abutters to the abutters within three hundred feet of the property line of the petitioner as they appear on the most recent applicable tax list, notwithstanding that the land of any such owner is located in another city or town, the planning board of the city or town, and the planning board of every abutting city or town.

**Pre-development:** The conditions that exist at the time that plans for the land development of a tract of land are submitted to the Planning Board. Where phased development or plan approval occurs (preliminary grading, roads and utilities, etc.), the existing conditions at the time prior to the first plan submission shall establish pre-development conditions.

**Recharge:** The process by which groundwater is replenished by precipitation through the percolation of runoff and surface water through the soil.

**Specimen Trees:** Trees that are of large diameter in excess of 24 inches measured at a height of 4.5 feet, have historic significance or are part of an historic site, are designated as a champion tree by town, state or federal government, are a rare, threatened or endangered species, or have exceptional beauty in canopy or shape.

5440. Procedures. [Amended 4-25-2011 ATM, Art. 7; 4-30-2012 ATM, Art 7]

**5441. Application.** Prior to the commencement of any activity set forth in Section 5410, the project proponent shall obtain site plan approval from the Planning Board. Applicants for site plan approval shall submit an original and nine (9) hard copies of the site plan review application to the Town Clerk on behalf of the Planning Board for review at a regularly scheduled meeting along with an **electronic copy**, on compact disk, **USB drive or similar medium** containing a Standard Digital File (SDF) as defined by Version 2.0 of the MassGIS

Standard for Digital Plan Submittals to Municipalities (October 2007) and a copy of the original CADD file in PDF format plus accompanying documents in PDF format.

**5442. Distribution of the Application.** Within three business (3) days thereafter, administrative staff shall distribute copies of the site plan to the Board of Health, Director of Public Works, Police Chief, Fire Chief, the Building Inspector, Conservation Commission, and **Selectboard** for their advisory review and comments. Said boards and officials shall have fourteen (14) days from the receipt of the site plan to make a written recommendation to the Planning Board. Failure to respond or provide comments within fourteen (14) days shall be deemed to constitute no objection to the application.

**5443. Application Fee.** An application for site plan approval shall be accompanied by a fee, as set forth in the Planning Board's Rules and Regulations.

**5444. Pre-submittal Meeting.** Prior to filing an application for Site Plan review, all applicants for Site Plan Review shall meet with the Building Commissioner and town administration to discuss the application. In addition, Applicants are encouraged to meet informally with the Planning Board prior to submission of a formal application for Site Plan Review.

**5445. Hearing Process, Time Limits and Decision.** The Planning Board shall hold a public hearing, for which notice has been given as required in the Massachusetts Zoning Act, MGL Chapter 40a, on any application for Site Plan Review within 35 days from the date of filing of a complete application. The decision of the Planning Board, with such conditions as may be deemed appropriate, shall be made within 90 days of the application filing date. The time limits for a public hearing and action may be extended by written agreement between the petitioner and the Planning Board. The decision of the Planning Board shall be upon a majority of those present and shall be in writing.

**5446. Public Hearing.** Public Hearings are required for all Site Plans filed. The applicant shall obtain a list of abutters, and all "parties in interest" as defined herein and in G.L. c. 40A, s. 11, from the Deerfield Assessor's Office, and shall attach the list to the application when filed. At least fourteen (14) days prior to the day of the Public Hearing, written notices shall be sent by

the administrative staff by certified mail at the applicant's expense to the parties in interest. Legal notice of the public hearing shall be published at the applicant's expense in a newspaper of general circulation in the town in each of two (2) successive weeks, the first publication to appear not less than fourteen (14) days prior to the day of the Public Hearing. Notice of the Public Hearing shall also be posted in a conspicuous place in Town Hall for a period of not less than fourteen (14) days before the day of such hearing.

**5447. Fees: An application for site plan approval shall be accompanied by a fee, as set forth in the Planning Board's Rules and Regulations.**

**5448. Consolidation of Procedures.** Where the Planning Board serves as the special permit granting authority, it shall consolidate site plan review into the special permit procedures and the timetable for decision shall conform thereto.

**5449. Site Plan Contents and Submittals.** The Application requirements in section 5440 above shall include the following:

**5450. Plan Specifications.** Plans subject to this section shall be submitted on 24-inch by 36-inch sheets. Plans shall be prepared by a Registered Professional Engineer, Registered Land Surveyor, Architect, or Landscape Architect, as appropriate. Dimensions and scales shall be adequate to determine that all requirements are met and to make a complete analysis and evaluation of the proposal. All plans shall have a minimum scale of 1" = 40'.: [Amended 4-30-2012 ATM, Art 7] and shall include the following:

- a. All boundary line information pertaining to the land sufficient to permit location of same on ground with existing and proposed topography at 2 foot contour intervals and the location of wetlands, streams, waterbodies, drainage swales, areas subject to flooding and unique natural features;
- b. Existing and proposed buildings and structures, including fences, loading areas, accessory buildings, signs, waste disposal areas, and storage areas, with proposed building elevations as renderings; utilities and snow disposal methods;
- c. Water provision, including fire protection measures;
- d. Sanitary sewerage;
- e. Storm drainage, including means of ultimate disposal and calculations to support maintenance of the requirements in the Planning Board's Subdivision Rules and Regulations. **Projects must comply with the Deerfield general bylaws, Chapter 155, (Stormwater) and Planning Board stormwater regulations.**

f. Parking, walkways, driveways, and other access and egress provisions. A detailed Traffic Impact Statement is required in each case where a proposed new building, use or project will contain more than 4,000 square feet, or will include one of the following uses which generates high volumes of trips: motor vehicle service station or bank. The Traffic Impact Statement shall contain:

- (1) A description of estimated daily (including peak season) and peak-hour vehicle trips to be generated by the site and traffic flow patterns for vehicles, bicycles and pedestrians showing adequate access to and from the site and adequate circulation within the site.
- (2) Traffic flow patterns at the site including entrances and egresses, loading and unloading areas, and curb cuts on site and within one hundred feet of the site;
- (3) A detailed assessment of the traffic safety impacts of the proposed project or use on the carrying capacity of any adjacent highway or road, including the projected number of motor vehicle trips to enter or depart from the site estimated for daily hour and peak hour traffic levels, road capacities, and impacts on intersections;
- (4) A plan to minimize traffic and safety impacts through such means as physical design and layout concepts, staggered employee work schedules, promoting use of public transit or carpooling, or other appropriate means;
- (5) An interior traffic and pedestrian circulation plan designed to minimize conflicts with safety problems.

g. Existing and proposed exterior lighting in accordance with the Light Pollution Reduction standards set forth in Section 5499;

h. Plans shall include a Tree Inventory and Landscaping Plan that identifies significant groups of trees or individual specimen trees (including species, size and health), within the area proposed to be disturbed by the development, prepared by an Arborist, Landscape Architect, Ecologist, or other qualified professional. The plan shall identify existing trees 6" caliper or larger at breast height (4.5 feet above ground) and existing tree/shrub masses; proposed planting, landscaping, and screening. It shall also:

- (1) Note any wooded environmentally sensitive areas, such as floodplains, stream corridors, steep slopes, rare species habitat or wetland buffer zones;
- (2) Indicate whether each tree or grouping of trees are recommended for preservation, transplant, or removal;
- (3) Describe provisions for the protection, maintenance and management of trees to be preserved, including the location of protective fencing, and replacement of any trees moved or lost during construction. Show that project grading changes, structures, construction work zones, and areas for storing construction materials and debris will not occur within the drip line or critical root zone of any trees or groupings of trees designated for protection;
- (4) Identify the location, condition, and species for all larger individual trees with a circumference at breast height (4.5 feet above ground) of 25 inches or greater.

i. The location, dimensions, height, color, illumination and characteristics of existing and proposed signs;

j. A table containing the following information:

- (1) Maximum area of building to be used for sales offices, business, industrial or other uses;
- (2) Maximum number of employees, where applicable;
- (3) Maximum seating capacity, where applicable;
- (4) Number of parking spaces existing or required for the intended uses.

k. An illustration of the location and a description of proposed open space or recreation areas.

l. A plan for the control of erosion, dust and silt, both during and after construction, temporary and permanent erosion control, and protection of water bodies is required. The plan must conform to the most recent version of the Massachusetts Erosion and Sedimentation Control Guidelines by the Massachusetts Executive Office of Energy and Environmental Affairs.

m. Compliance with all applicable provisions of this Zoning By-Law;

n. Certified list of abutters;

o. Application fees and inspection fees, as set forth in the rules and regulations of the Planning Board.

**5451. ~~5432.~~ Assessment of Impacts.** During the hearing process, the Planning Board may require **further or additional** assessments of the on-site and off-site impacts of the proposed project, including traffic, drainage, noise, and other environmental factors. The Planning Board may require that such assessments be prepared by qualified experts at the applicant's expense.

[Amended 4-25-2011 ATM, Art. 9; 4-30-2012 ATM, Art 7]

**5452. Lack of Complete Application.** Any application submitted which fails to include the required materials shall not be accepted until the application is complete.

**5460.** Waiver of Technical Compliance. The Planning Board may, **in its sole discretion**, upon written request of the applicant, waive any of the technical requirements of **this** Section ~~5450 or 5460~~ where the project involves relatively simple development plans.

**5470. ~~5460.~~ Criteria for Approval.** Site Plan approval **requires a majority vote of the Planning Board and** shall be granted upon determination by the Planning Board that the following

conditions have been satisfied. The Planning Board may impose reasonable conditions at the expense of the applicant, including performance guarantees, to ensure that the following conditions have been satisfied. Any new building construction or other site alteration shall provide adequate access to each structure for fire and service equipment and adequate provision for utilities and stormwater drainage consistent with the functional requirements of the Planning Board's Subdivision Rules and Regulations. (Editor's Note: See Ch. 264, Subdivision of Land) New building construction or other site alteration shall be designed in the Site Plan, after considering the qualities of the specific location, the proposed land use, the design of building form, grading, egress points, and other aspects of the development, so as to:

**5471.** Minimize the volume of cut and fill, the number of removed trees 6" caliper or larger, **(at 4.5 feet above the ground)** the length of removed stone walls, the area of wetland vegetation displaced, the extent of stormwater flow increase from the site, soil erosion, and threat of air and water pollution;

**5472.** ~~5462.~~ Maximize pedestrian and vehicular safety both on the site and egressing from it;

**5473.** ~~5463.~~ Minimize obstruction of scenic views from publicly accessible locations;

**5474.** ~~5464.~~ Minimize visual intrusion by controlling the visibility of parking, storage, or other outdoor service areas viewed from public ways or premises residentially used or zoned;

**5475.** Minimize glare from headlights through plantings or other screening;

**5476.** Minimize lighting intrusion through use of such devices as cut-off luminaires confining direct rays to the site;

**5477.** Minimize unreasonable departure from the character and scale of building in the vicinity, as viewed from public ways.

**5478.** Minimize contamination of groundwater from on-site waste-water disposal systems or operations on the premises involving the use, storage, handling, or containment of hazardous substances;

**5479. Maximize employment of the Green Development Performance Standards (see Section 5480);**

**54795.** Achieve compliance with the provisions of this Zoning By-Law, including parking and landscaping.

**5480. Green Development Performance Standards**

The Planning Board shall review and evaluate whether the Site Development Plan maximizes consistency with the following Green Development Performance Standards.

**5481. Limits to Site Disturbance**

- (a) Applicants shall demonstrate that they will minimize land clearing, alteration of natural topography and features, destruction of vegetation, soil compaction, destruction of wildlife habitat, prevent pollution of water resources, damage to root systems and associated environmental impacts, in order to preserve open space and undisturbed land.
- (b) The site design shall preserve natural topography outside of the development footprint to reduce unnecessary land disturbance and to preserve natural drainage channels on the site.
- (c) The site design shall minimize and balance cut and fill, to reduce total land disturbance and minimize the importing or exporting of earth materials from the site.
- (d) To the maximum extent feasible, the site design shall protect hilltops and scenic views. Placement of buildings, structures, or parking facilities shall minimize negative impacts to the site's scenic qualities and shall blend with the natural landscape. Building sites shall be directed away from the crest of hills, and foundations shall be constructed to reflect the natural terrain.
- (e) Sites shall be designed to avoid impacts to rare and endangered species and wildlife habitat on a site, including Biomap Core Habitat and Priority Habitat areas, and to maintain contiguous forested areas.

- (f) Sites shall be designed to prevent impacts to aquifer recharge areas and water supply reservoir watershed areas for public drinking water supplies;
- (g) Limit-of-work controls (also known as perimeter controls or development envelopes) for structures, driveways, parking, wastewater disposal, lawn areas, utility work, and any grading associated with the development shall be installed and maintained to establish the disturbance limits of clearing and grading activities.
- (h) Efforts to minimize the clearing and grading on a site associated with construction activities shall be employed, such as parking of construction vehicles, offices/trailers, and stockpiling of equipment/materials in areas already planned for permanent structures, and not in areas of protected trees, wetlands, and/or their vegetated buffers.
- (i) The extent of a site exposed at any one time shall be limited through phasing of construction operations. Timely re-vegetation of disturbed areas shall occur immediately after grading is complete.
- (j) Except on urban and infill sites where higher density development has been determined to be desirable, clearing of vegetation and alteration of topography should be limited to 35% of the site for residential uses, or 40% of the site for commercial, industrial or institutional uses. Native vegetation shall be planted in disturbed areas as needed to enhance or restore wildlife habitat.

#### **5482. Tree Preservation**

- (a) The Planning Board shall review and evaluate whether the Site Development Plan maximizes:
  - (1) Preservation of open space and trees on the site
  - (2) Retention of existing stands of trees, trees at the site perimeter, contiguous vegetation with adjacent sites, and specimen trees
- (b) Forested areas should be preserved if they are located in areas also including:
  - (1) Wetlands, waterbodies and their buffers; or
  - (2) Critical wildlife habitat areas; or
  - (3) Slopes over 25 percent; or
- (c) Trees with a circumference of 60 inches at breast height (4.5 feet above ground), or a diameter of 19 inches, shall be preserved. The entire area within the dripline and critical root zone of preserved

trees, including understory vegetation, shall be retained in an undisturbed state.

- (d) Any trees, identified for preservation in Section 5522c above, that are removed or lost during construction shall be replaced. Replacement tree shall be native tree species, and shall be species that promote forest diversity and carbon sequestration, for example, sugar maple, red oak, beech, red maple, white ash and birch. For each tree over 19 inches in diameter that is removed or lost, a replacement tree with a diameter of at least 4 inches shall be planted on the site.
- (e) Transplanting methods that maximize plant survival shall be used.
- (f) Prior to clearing, excavation, grading or other construction activities, all vegetation to be retained shall be surrounded by temporary protective fencing (i.e. orange construction fencing) or other measures. All trees on adjacent properties whose drip lines extend into the project site shall also be protected. Barriers shall be constructed outside the dripline and critical root zone of all vegetation to be protected.
- (g) Materials shall not be stored within the drip line of trees to be protected.
- (h) Additional Best Management Practices shall be used to protect trees during construction (i.e. pruning, soil aeration, trunk wrapping, root pruning, watering).
- (i) All protective measures shall be maintained until all construction work is completed, the site is cleaned up, and final approval is given by the Building Inspector.

#### 5483. Orientation of Buildings for Solar Access

- (a) The Planning Board shall review and evaluate whether the Site Development Plan is compatible with the following design guidelines, to the extent feasible based on lot configuration and size:
  - (1) Building orientation takes advantage of passive solar heat gain in the winter by orienting buildings with the longest axis running east-west. The long axis of a building should face within 10 degrees of due south if possible, and not more than 30 degrees off of due south.

#### 5484. Landscaping and Water Reduction

- (a) The Planning Board shall review and evaluate whether the Site Development Plan has environmentally sensitive landscaping features, including:

- (1) **Maximum use of native plants and landscaping with low maintenance requirements, and that require little or no irrigation.**
- (2) **Minimized use of potable water for landscape irrigation, including installing high-efficiency irrigation systems, using mulch to prevent water evaporation, irrigating with captured rainwater, and reusing building grey water, where feasible.**
- (3) **Incorporation of Low Impact Development practices for stormwater management, in conformity with Deerfield bylaws, Chapter 155, Stormwater, and Planning Board stormwater regulations. (See Town of Deerfield “Best Development Practices Guide”).**

#### **5485. Protection and Buffering of Land in Agricultural Use**

**(a) Applicants shall, to the extent feasible, avoid development of land in agricultural use, using the following practices:**

- (1) **Select development sites that reduce impacts to land in active agricultural use;**
- (2) **If the development will take place on land in agricultural use, minimize impacts through cluster design or other open space preservation techniques.**
- (3) **If the development site is adjacent to land in agricultural use, the site plan shall:**
  - **Provide screening by installing landscaped buffers at property lines that abut land in agricultural use;**
  - **Prevent stormwater runoff from impermeable surfaces from entering adjacent land in agricultural use.**

#### **5486. Parking and Trip Reduction**

**(a) The Planning Board shall review and evaluate whether the Site Development Plan meets the following standards to reduce parking and personal vehicle trips, and to support walking, cycling, and use of alternative transportation:**

- (1) **Parking:**
  - a. **The site design shall reserve parking spaces for electric vehicles, compact cars, low emission vehicles, and/or carpools and vanpools. To the extent feasible, set aside 10% of all parking spaces for carpools and fuel efficient vehicles.**

Locate these spaces in preferred locations nearest to buildings.

- b. Through the Site Plan Approval process, the Planning Board may reduce parking requirements, based on information that demonstrates the proposed use will have reduced parking demand. Applicants may estimate parking demand based on the type of use involved, its location, and other relevant considerations.

(2) Trip Reduction:

- a. Designate and clearly mark areas for carpool and vanpool drop off/pick up and parking.
- b. Encourage use of mass transit, where available, by designating areas for bus stops or shuttle services, and/or through other measures.
- c. Reduce on-site driving through efficient design of roads and parking areas.

**5487. Pedestrian and Bicycle Access**

- a. Applicants shall demonstrate that the development will, to the extent feasible, provide accessibility for pedestrians and bicycle use within the development and from the development to adjacent properties, including:
  - (1) Sidewalks are required in all residential subdivisions, and for all commercial, industrial and civic uses.
  - (2) Bicycle racks and other bicycle amenities are encouraged in all developments.
  - (3) Linkages to town-wide or regional bicycle/pedestrian pathways are encouraged in all developments.
  - (4) Bicycle and pedestrian pathways are encouraged for improved internal circulation within large developments, and should be linked to adjacent properties, pathways, sidewalks and transit stops wherever feasible.
  - (5) Within commercial, civic and office developments larger than 50,000 square feet, provide secure bicycle racks or other bicycle storage, shower and changing rooms. For multifamily residential buildings, provide covered bicycle storage facilities for 15% or more of all building occupants.

- (6) When developing new roads, provide safe and convenient routes for bicyclists, pedestrians and vehicles. Refer to "Complete Streets" principles when designing new roads. Provide a Site Circulation Map that shows vehicle, pedestrian and bicycle routes within the site.

#### 5488. Storage of Hazardous Materials

- a. Applicants shall describe and locate all hazardous materials that will be stored on site.
- b. All hazardous materials that are stored on site must be stored to prevent releases to the environment, in accordance with the regulations of the U.S. Environmental Protection Agency, the Uniform Fire Code (UFC) and the International Fire Code (IFC).

#### 5489. Light Pollution Reduction

- a. Applicants shall demonstrate that the development will, to the extent feasible, minimize light pollution, including glare and light trespass, while maintaining safety, visibility and security of individuals and property. The Planning Board shall review and evaluate whether the Site Development Plan meets the following standards to reduce light pollution:
  - (1) All outdoor lighting shall have full cutoff fixtures. Cutoffs shall shield bulbs from visibility.
  - (2) General site lighting shall focus light downwards in order to prevent light from going upwards or reaching off-site areas. The horizontal plane of the bottom of lamp fixtures shall not exceed 90 degrees. No up lighting is allowed: parking, security and aesthetic lighting shall shine downward.
  - (3) Spotlights used to illuminate buildings, signs or specific site features shall be targeted on such objects so as to prevent direct up lighting. Cutoffs shall limit lighting to a 45 degree angle above the horizontal plane.
  - (4) Upward search or spotlighting of the sky for entertainment or advertising purposes is prohibited.
  - (5) Lighting shall be shielded to prevent direct glare and light trespass and shall be contained to the target area to the extent feasible.
  - (6) Color temperature of any outdoor light source shall not exceed 3500 Kelvin.
  - (7) All nonessential lighting, including display, parking and sign lighting, shall be automatically turned off after business hours, leaving only the lighting necessary for site security.

- (8) For each interior light, the design should prevent strong intensity light from exiting through windows. Alternatively, employ automatic controls to ensure that interior lights are shut off after dark when there are no building occupants.
- (9) The Site Development Plan shall specify the lowest lighting power densities necessary to meet the minimum requirements of each lighting task.
- (10) No light standard shall be taller than fourteen (14) feet in height.
- (11) Signs should be illuminated from the top. Internal illumination is not permitted.
- (12) Energy-efficient lamps should be used for all outdoor applications.

#### 54891. Collection and Storage of Recyclables

Applicants shall demonstrate that the development will, to the extent feasible, facilitate reduction of waste by building occupants by providing an easily accessible area(s) that serves the entire building(s) that is dedicated to collection and storage of paper, cardboard, glass, plastics, metals and organics for recycling.

#### 54892. Construction Waste Management and Topsoil Recovery

Applicants shall demonstrate that the development will, to the extent feasible, minimize construction waste and loss of topsoil resulting from demolition, construction and land disturbance activities.

- a. To the greatest extent feasible, recycle or salvage non-hazardous construction and demolition debris, including waste cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass, gypsum wall-board, carpet and insulation.
- b. Provide details on construction waste management and topsoil recovery, including identification of all materials that will be diverted from final disposal for reuse on site, charitable donation, and recycling.
- c. To the extent feasible, preserve and re-apply at least 6" of the site's topsoil and at least 12" of the site's subsoil to replicate pre-existing conditions.

5490. Lapse. Site plan approval shall lapse after one year from the grant thereof if a substantial use thereof has not sooner commenced except for good cause. Such approval may,

for good cause, be extended in writing by the Planning Board upon the written request of the applicant.

**5491. Regulations.** The Planning Board may adopt and from time to time amend reasonable regulations for the administration of these Site Plan guidelines.

**5492. Appeal.** An appeal of a Site Plan Review Decision by the Planning Board shall be filed in a court of competent jurisdiction in accordance with M.G.L. Chapter 40A, Section 17.  
[Added 4-30-2012 ATM, Art 7]

#### **5495. Incentivized Green Performance Standards Special Permit**

In addition to Site Plan Review, an applicant may submit a separate application for a Special Permit to the Planning Board, which shall be the Special Permit Granting Authority for Incentivized Green Performance Standards, demonstrating that the development plan incorporates any of the green development practices listed in 5561 below, or other enhanced green development practices as approved by the Planning Board, in exchange for the incentives described in 5562 below.

**54951. Eligible Green Development Practices.** Eligible green development practices include:

- a. Installation of a green roof;
- b. Installation of permeable pavement in parking areas or driveways;
- c. Permanent protection of additional open space, farmland and wildlife habitat area on the contiguous site, beyond applicable minimum zoning requirements;
- d. Restoration and permanent protection of previously destroyed or disturbed wildlife habitat on the contiguous site;
- f. Creation public park and/or community garden space on lands which are permanently dedicated to the town;
- g. Installation of rain gardens and/or tree box filters to capture and infiltrate stormwater;
- h. Installation of rooftop solar panels.

**54952. Eligible Incentives.** The applicant may select the best incentive option(s) for their project:

- a. Additional lot coverage or floor area;
- b. Partial waiver of parking space requirements.
- c. Increase in building height limits.
- d. Reduction in frontage requirements.

**5496. Dimensional and Density Regulations**

- a. Each Green Performance Standard is equivalent to one of the incentives shown in the Table of Exchange Standards for Green Performance Standards, found below in this section.
- b. The maximum limits on density, lot coverage, and parking reductions permitted to be developed by Special Permit in the Receiving District shall be determined by reference to the Table of Exchange Standards for Green Performance Standards found below in this section.

**Table of Exchange Standards for Green Performance Standards**

Green Performance Standard	Incentive	Notes
<p>One acre of protected land on the contiguous site, beyond applicable zoning requirements;</p> <p>or</p> <p>One acre of permeable pavement;</p> <p>or</p> <p>2000 s.f. of installed green or blue roof;</p> <p>Or</p> <p>2000 s.f. of installed rooftop solar panels</p> <p>or</p>	<p>Reduction of 20 parking spaces;</p> <p>or</p> <p>An increase of 5 feet in building height;</p> <p>or</p> <p>2000 s.f. of additional floor area;</p> <p>Or</p> <p>A reduction of 10% in the required frontage</p>	<p>1) The Planning Board may reduce the minimum parking requirements in the Zoning Bylaw for off-street parking area. The Planning Board may reduce this requirement for off-street parking area to a minimum of 75% of the required parking. To obtain this waiver, the applicant shall demonstrate that sufficient parking will be available to the development (i.e. through shared parking, use of on-street parking, reduced vehicle use, timing, etc.).</p> <p>2) The maximum increase in building height shall be ten feet.</p> <p>3) The maximum increase in floor area shall be 2000 s.f.</p>

<p>One acre restored and protected wildlife habitat area on the contiguous site;</p> <p>Or</p> <p>One acre of public park and/or community garden space on lands which are permanently dedicated to the town</p> <p>Or</p> <p>Installation of a rain garden, bio-retention area or other Low Impact Development practice for retaining stormwater on-site</p> <p>equals:</p>	<p>subject to the following (see notes):</p>	
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**5497. Special Permit Process for Green Performance Incentives**

- a. The applicant proposing a green performance incentive exchange shall make application to the Planning Board for a Special Permit. The application shall clearly illustrate, on the Site Development Plan, the proposed green development practice to be employed in the proposed project, and shall describe the proposed incentive requested in exchange for the green development practice.
- b. Prior to final approval of a Special Permit, applicants proposing to protect additional open space shall tender to the Planning Board a valid instrument granting to the Town a permanent Conservation Restriction or Agricultural Preservation Restriction in accordance with G.L. c. 184 sec. 32 for the proposed protected land. No occupancy permit shall issue until the proposed restriction is approved by the Commonwealth, the Selectboard and the Planning Board and is recorded in the Franklin County Registry of Deeds.
- c. Upon advice of the Town Counsel that the Conservation Restriction or Agricultural Preservation Restriction document is valid and sufficient, the Selectboard shall consider authorizing Conservation Commission acceptance of the Conservation Restriction or Agricultural Preservation Restriction. If the Special Permit application is valid and sufficient, the Conservation Commission, acting on behalf of the Town, shall accept the Conservation Restriction or Agricultural Preservation Restriction for approval by the appropriate state agency, and for recording in the County Registry of Deeds.

**5498. Special Permit Criteria**

- a. The Planning Board shall not grant any special permit for Green Performance Incentives unless it finds the following criteria, in lieu of those provided for in Section 5300 of the Zoning Bylaw, are met:**
  - (1) The proposed use is in harmony with the purposes of this bylaw.**
  - (2) The proposed use meets all of the procedural, dimensional and density requirements of this bylaw.**
  - (3) The proposal meets or exceeds the standards set forth in this section 5560.**

