The following shall be added to Appendix A, Table of Principal Uses.

Schedule of Use Regulations

	RR	TR	RCR	SR	UR	C	I
Roof Mounted Solar Energy System	Y	Y	Y	Y	Y	Y	Y
Ground-Mounted Solar Energy System, Small Scale	Y	Y	Y	Y	Y	Y	Y
Ground-Mounted Solar Energy System, Medium-Scale	PB	PB	PB	PB	PB	PB	PB
Ground-Mounted Solar Energy System, Large-Scale	PB	PB	PB	N	N	PB	PB

6500. Solar Energy Systems

6510. Purpose.

The purpose of this section is to encourage the use of solar energy systems and protect solar access consistent with M.G.L. 25A, Section 10. This section facilitates and regulates the installation of solar energy systems in the Town by providing standards for the size, placement, design, construction, operation, maintenance, monitoring, modification and removal of such systems to address public safety and provide adequate financial assurance for the eventual decommissioning of such facilities, consistent with M.G.L. Chapter 40A, Section 3.

6520. Definitions.

As-of-Right: A development or installation that may proceed without the need for a special permit, variance, waiver, or other discretionary approval.

Photovoltaic System (also referred to as Photovoltaic Installation): An active solar energy system that converts solar energy directly into electricity.

Rated Nameplate Capacity: The maximum rated output of an electric power production of the photovoltaic system in watts of Direct Current (DC).

Solar Access: The access of a solar energy system to direct sunlight.

Solar Canopy – An active solar energy system that is raised above the ground on structures placed on land. For the purpose of this bylaw, solar canopies are considered ground mounted solar energy systems.

Solar Collector: A device, structure or a part of a device or structure for which the primary purpose is to transform solar radiant energy into thermal, mechanical, chemical or electrical energy.

Solar Energy: Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

Solar Energy System, Grid-Intertie: A photovoltaic system that is connected to an electric circuit served by an electric utility.

Solar Energy System, Ground-Mounted: An active Solar Energy System that is structurally mounted to the ground and is not roof-mounted. Such a system may be of any size (small-; medium-; or large-scale).

Solar Energy System, Large Scale: An Active Solar Energy System that occupies more than 40,000 square feet of surface area (equivalent to a rated nameplate capacity of at least 250 KW DC or greater).

Solar Energy System, Medium-Scale: An active Solar Energy System that occupies more than 2,800 square feet but less 40,000 square feet of surface area (equivalent to a rated nameplate capacity between 15 – 250 KW DC).

Solar Energy System, Off Grid: A photovoltaic solar energy system in which the circuits energized by the solar energy system are not electrically connected in any way to the electric circuits that are served by an electric utility.

Solar Energy System, Roof-Mounted: An active Solar Energy System that is structurally mounted on the roof of a building, residence, parking garage, or any other structure. Such a system may be of any size (small-; medium-; or large-scale).

Solar Energy System, Small-Scale: : An active Solar Energy System that occupies 2,800 square feet or less square feet of surface area (equivalent to a rated nameplate capacity of approximately 15 KW DC or less).

Solar Thermal System: An active Solar Energy System that uses collectors to convert the sun's rays into useful forms of energy for water heating, space heating, or space cooling.

6530. Applicability.

This section applies to solar photovoltaic installations proposed to be constructed after the effective date of this bylaw. This section also pertains to modifications that materially alter the type, configuration, or size of these installations or related equipment. This section does not apply to minor modification or routine maintenance of a solar energy system.

6540. Permitted Uses.

6540.1 Roof-mounted solar energy systems of any size are permitted as-of-right in all zoning districts, subject to receipt of a building permit. The Building Inspector may require a structural engineering report illustrating the structural integrity of the underlying structure and associated roof and its ability to support the proposed roof-mounted solar energy system.

6540.2 Small- scale ground-mounted solar energy systems are permitted as-of-right in all zoning districts, subject to receipt of a building permit. If the site contains a principal structure then the solar energy system will be deemed an accessory structure and must meet the setback requirements for an accessory structure.

6540.3 Medium-scale ground-mounted solar energy systems are permitted in all zoning districts as either a principal or accessory use subject to a Planning Board Special Permit.

6540.4 Large-scale ground mounted solar energy systems are permitted subject to receipt of a Planning Board Special Permit in the following zoning districts: Commercial (C), Industrial (I), Rural Residential (RR) and Suburban Residential (SR). They are not allowed in the following zoning districts: Urban Residential (UR), Town Residential (TR) and Recreational Residence Residential (RCR).

6540.5 The construction and operation of all solar energy systems shall be consistent with all applicable local, state and federal requirements, including but not limited to all applicable safety, construction, electric and communications requirements. All solar energy systems must comply with the Massachusetts Wetlands Protection Act and the Pepperell Wetlands Protection Bylaw. The applicant for a building permit for a solar energy system shall be required to provide evidence of liability insurance to the Building Inspector in an amount sufficient to cover loss or damage to property and structures occasioned by the failure of the system. Construction or installation of all solar energy systems requires a building permit. All solar energy systems shall be constructed and installed in accordance with the State Building Code.

6540.6 No grid-intertied solar energy system shall be installed until the owner or operator has provided evidence of notification to the utility company of the customer's intent to install an interconnected customer-owned generator. Off-grid solar energy systems are exempt from this requirement.

6550. Design and Dimensional Standards.

6550.1 Roof-mounted solar energy systems are subject to the same height restrictions as other rooftop appurtenances. The panels, however, shall be excluded from any calculation of maximum roof coverage allowed for appurtenances. No roof-mounted solar energy system shall be located in a manner that would cause this shedding of ice or snow from the roof onto a porch, stairwell or pedestrian travel area.

6550.2 Roof-mounted solar energy systems shall be located in such a manner as to allow emergency access to the roof, allow for smoke ventilation, and provide emergency egress from the roof.

6550.3 Ground-mounted solar energy systems are subject to the same height restrictions as accessory buildings or principal buildings in each district, depending on whether the systems are permitted as accessory or principal uses.

6550.4 Small- and medium-scale ground-mounted solar energy systems accessory to a principal use shall comply with the setbacks for accessory structures in the relevant zoning district. All ground-mounted solar energy systems in Residential districts shall be installed either in the side yard or rear yard to the extent practicable.

6550.5 Ground-mounted solar energy systems accessory to a principal use will not be included in any lot-coverage calculations.

6550.6 Solar panels, to the maximum extent feasible, shall be positioned and landscaped so as to minimize glare on surrounding occupied structures.

6550.7 Medium-scale ground mounted solar energy systems that are principal uses must comply with all setback requirements for principal uses in the relevant zoning district.

a. Reasonable efforts shall be made to minimize visual impacts by preservation of natural vegetation and screening between abutting properties. Screening shall consist of existing and /or proposed new vegetation, fences, walls, and grassed earthen berms or a combination thereof. In cases where screening cannot be provided onsite, the Planning Board may consider existing and/or proposed off-site screening if the property owner obtains permission to screen on an abutter's property. If utilizing a natural buffer, it shall be maintained above the highest level of the solar panels. When a screen consists of plant materials, said materials shall provide screening at the time of planting and be of a type that shall be expected to form a year-round dense screen.

b. Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of ground-mounted solar energy systems.

c. Lighting of medium-scale ground mounted solar energy systems shall be consistent with local, state and federal law. Lighting of other parts of the system, such as appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from abutting properties. Where feasible, lighting of the solar energy system shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.

6550.8 Large-scale ground-mounted solar energy facilities must meet the following design and dimensional standards:

a. The parcel must contain a minimum of 3 contiguous acres of upland areas.

b. Front side and rear setbacks shall be as follows:

1. Front Yard: The front yard shall have a depth of at least fifty (50 feet);
2. Side Yard: Each side yard shall have a depth of at least fifty (50 feet);
3. Rear Yard: The rear yard depth shall be at least thirty (30) feet.

c. Reasonable efforts shall be made to minimize visual impacts by preservation of natural vegetation and screening between abutting properties. Screening shall consist of existing and /or proposed new vegetation, fences, walls, and grassed earthen berms or a combination thereof. In cases where screening cannot be provided onsite, the Planning Board may consider existing and/or proposed off-site screening if the property owner obtains permission to screen on an abutter's property. If utilizing a natural buffer, it shall be maintained above the highest level of the solar panels. When a screen consists of plant materials, said

materials shall provide screening at the time of planting and be of a type that shall be expected to form a year-round dense screen.

d. Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of ground-mounted solar energy systems.

e. Lighting of large-scale ground mounted solar energy systems shall be consistent with local, state and federal law. Lighting of other parts of the system, such as appurtenant structures, shall be limited to that required for safety and operational purposes, and shall be reasonably shielded from abutting properties. Where feasible, lighting of the solar energy system shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.

f. Signage on large-scale ground-mounted solar energy systems shall comply with the sign provisions of the Zoning Bylaw and shall identify the owner, manufacturer, and operator and provide a 24-hour emergency contact phone number. A solar energy system shall not be used to display any advertising.

6550.9 For medium- and large-scale ground-mounted solar energy systems, reasonable efforts shall be made to place all utility connections from the solar energy system underground depending on appropriate soil conditions, shape and topography of the site, and any requirements of the utility provider. Electrical transformers for utility interconnections may be above ground if required by the utility provider.

6560. Standards for Site Plan Review and Special Permits.

6560.1 For medium and large-scale ground mounted solar energy systems that require a special permit, the Planning Board shall serve as the Special Permit Granting Authority (SPGA). The SPGA shall include as part of its review and proceedings all of the provisions and requirements of the Site Plan review standards applicable to medium and large-scale ground-mounted solar energy systems set forth in this bylaw.

6560.2 Solar Energy Systems that require a Special Permit must comply with Sections 3.0 and 4.0 of the Planning Board Rules and Regulations for Special Permits and Site Plan Reviews dated March 1, 2010. Special permit review shall be conducted in accordance with the notice, hearing and filing procedures set forth in M.G.L. Chapter 40A.

6560.3 Upon receipt of an application for a special permit and site plan review, the Planning Board may engage at the applicant's cost professional and technical consultants including legal counsel to assist with its review of the application in accordance with the requirements of Section 53G of Chapter 44 of M.G.L. The Planning Board may direct the applicant to deposit funds with the Planning Board for such review at the time the application is accepted and to add additional funds as needed upon notice. Failure to comply with this section shall be grounds for denying the application. Any excess amount in the account attributable to the application,

including any interest accrued, shall be returned to the applicant upon granting of the permit or formal withdrawal of the permit application.

6560.4 For solar energy systems which require a special permit, the Planning Board may approve, approve with modifications, disapprove or grant leave to withdraw. Approval may be subject to any conditions, modifications and/or restrictions that the Planning Board may deem necessary. Leave to withdraw or disapproval by the Planning Board must be supported by written findings. The Planning Board may waive strict compliance with the requirements of this Section, when in its judgement such action is in the public interest and consistent with the overall intent and purpose of this Section.

6560.5 In addition to the application requirements set forth in the Planning Board Rules and Regulations for Special Permits and Site Plan Reviews dated March 1, 2010, the applicant shall provide a site plan showing:

a. Property lines and physical features, including roads for the project site;
b. Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, screening vegetation and/or structures;
c. Blueprints or drawings of the solar energy system signed by a professional engineer licensed to practice in the Commonwealth of Massachusetts showing the proposed layout of the system, any potential shading from nearby structures, the distance between the system components, including the solar collector and all property lines and existing on-site buildings and structures, and the tallest finished height of the system;
d. One or three line electrical diagram details of the photovoltaic system, associated components, and electric interconnection methods, with all Massachusetts Electrical Code (527 CMR 12.00) compliant disconnects and overcurrent devices;
e. Documentation of the major system components to be used, including the panels, mounting systems, and inverter;
f. Name, address, and contact information for the proposed system installer;
g. Name, address, phone number and signature of the applicant, as well as any co-applicants, and property owners;
h. The name contact information and signature of any agents representing the applicant; and
i. Zoning district designation for the parcel(s) of land comprising the project site.

6560.6 The applicant shall submit documentation of actual or prospective access to and control of the project site sufficient to allow for the construction and operation of the proposed solar energy system.

6560.7 The applicant shall submit a plan for the operation and maintenance of the ground-mounted solar energy system, which shall include measures for maintaining safe access to the installation, stormwater controls, as well as general procedures for the operational maintenance of the solar energy system.

6570. Financial Surety.

The owner or operator of a large-scale ground mounted solar energy system shall provide a form of surety, either through escrow account, bond or other form of surety approved by the Planning Board to cover the estimated cost of removal in the event the Town must remove the installation and remediate the landscape, in an amount and form determined to be reasonable by the Planning Board, but in no event to exceed more than 125 percent of the cost of removal and compliance with the additional requirements set forth herein, as determined by the project proponent and the Planning Board. Such surety will not be required for municipal or state-owned facilities. The project proponent shall submit a fully inclusive detailed itemized cost estimate of the Town's estimated cost (including "prevailing wages") associated with removal and full decommissioning of the facility and the site, prepared by a qualified engineer. The amount shall include a mechanism for calculating increased removal cost due to inflation at the end of the facility's useful life. Said estimated cost shall not include or deduct the value of material recycling. Said surety in its full amount shall be presented to the Planning Board prior to the project proponent applying for a Building Permit or the commencement of construction.

6580. Monitoring and Maintenance.

The owner or operator of a medium - or large-scale ground-mounted solar energy system shall maintain the facility in good condition. Maintenance shall include, but not be limited to, painting, structural repairs, and preserving the integrity of security measures. Site access shall be maintained at a level acceptable to the Building Inspector. The owner or operator shall be responsible for the cost of maintaining the solar energy system and any road(s) providing access to the system, unless accepted as a public way. For medium and large-scale ground mounted solar energy systems, the owner or operator shall provide a copy of the operation and maintenance plan, electrical schematic, and site plan to the Town's fire chief. Upon request, the owner and operator shall cooperate with local emergency services in development of an emergency response plan. All means of shutting down the solar energy system shall be clearly marked. The owner and/or operator shall identify a responsible person for public inquiries throughout the life of the solar energy system.

6590. Abandonment or Decommissioning.

6590.1 Removal Requirements. Any medium- or large-scale ground-mounted solar energy systems which has reached the end of its useful life or has been abandoned shall be removed. The owner or operator shall physically remove the system no more than one hundred fifty (150) days after the date of discontinued operations. The owner or operator shall notify the Planning Board by certified mail of the proposed date of discontinued operations and plans for removal. Decommissioning shall consist of: physical removal of all structures, equipment, security barriers and transmission lines from the site; disposal of all solid and hazardous waste in accordance with local, state and federal waste disposal regulations; stabilization or re-vegetation of the site as necessary to minimize erosion and disruption to vegetation.

6590.2. Abandonment. Absent notice to the Planning Board from the owner or operator of a proposed date of decommissioning or written notice of extenuating circumstances, a medium- or large-scale ground-mounted solar energy system shall be considered abandoned after it has failed to operate for more than one year without the written consent of the Planning Board. Upon receipt of notice of extenuating circumstances, the Planning Board may hold a public hearing to determine whether the circumstances are sufficient to rebut the presumption of abandonment. If the owner or operator of the solar energy system fails to remove the installation in accordance with the requirements of this Section within 150 days of abandonment or the proposed date of decommissioning the Town retains the right, after the receipt of an appropriate court order, to enter and remove any abandoned, hazardous or decommissioned solar energy system. To the extent permitted by law, the Town's cost for the removal will be charged to the property owner in accordance with the provisions of M.G.L. Chapter139, Section 3A as a lien on the property.