

Memorandum

To: Regulatory Review Advisory Working Group, Town of Blandford
Town Administrator - Josh Garcia
Planning Board - Mike Hutchins
Conservation Commission – Dick Gates
Highway Department – Rene Senecal
Building Inspector – Jason Forgue

From: Patty Gambarini, PVPC, and Dillon Sussman, Dodson & Flinker

Re: MVP Action Grant – Blandford Regulatory Review for Climate Resilience

Date: June 21, 2021

Overview of Regulatory Work Accomplished

Under Blandford’s MVP Action Grant, PVPC and Dodson & Flinker staff met a total of three times with the Regulatory Review Advisory Working Group. At the first meeting, PVPC and Dodson & Flinker presented an overview of possible work to promote climate resiliency and facilitated a discussion about best areas of focus for regulatory updates. Members discussed several possibilities for areas of focus and decided on a review of municipal code for Low Impact Development. There was also interest in a review of the Long Pond Water Supply Protection Overlay District in the Zoning Bylaw and based on a major recommendation coming out of the Master Planning process, the model policy on Green Infrastructure and Climate Resiliency.

Subsequent meetings covered discussion on updates recommended by PVPC and Dodson & Flinker. Dodson & Flinker reviewed LID recommendations within zoning, subdivision regulations, and general bylaws for alignment with best practices, using the Center for Watershed Protection checklist. PVPC followed with a review of the Long Pond Water Supply Protection Overlay District in the Zoning Bylaw and the model policy on Green Infrastructure and Climate Resiliency. More detail on each element is provided below and in the accompanying Dodson & Flinker “Summary of Blandford Regulatory Review for Low Impact Development” memo. All final marked up code documents with proposed new sections are attached as appendices to this Memorandum.

Note that PVPC through its Planning Board Assistance Program can provide ongoing support to enable Town staff and boards to further consider and then integrate recommended updates into their local municipal code.

Changing Climate and Regulatory Considerations

For Blandford, the greatest climate change considerations involve increased heat, including warmer winters and more summer days of 90 degrees or more, and greater variability in rainfall, including greater frequency of larger storms and increasing consecutive dry days. Fortunately, strategies to deal with these changes are fully complementary in that reduced impervious cover and greater use of green infrastructure help to cool during hot temperatures, as well as create a landscape more able to absorb increased rainfall that reduces runoff volumes, but also infiltrates to help sustain ecosystems and human communities through dryer periods.

As such, the overall aim of regulatory review work with the Town has been to institute development and redevelopment project review standards that advance low impact approaches, including reductions in impervious cover, wider use of green infrastructure, nature-based solutions, and trees.

Long Pond Watershed Protection District in Zoning Bylaw

Language for this zoning overlay district requires some important updates to ensure greater resilience for the Town's drinking water supply. Chief among these updates are the following:

- Redefining and better articulating the boundaries of the district. While the 1973 map included in the Bylaw shows a boundary based on USGS topographical information, the description of boundaries in the Bylaw narrative relate to roadways. Further, the boundary extends into Otis, but is not shown or described. Collaboration with the Town of Otis to extend protections into their jurisdiction is recommended.
- Standards on stream crossings, forest cutting, and soil moisture conditions all need to be updated.
- Buffers for forest cutting and placement of organic material within riparian areas ought to be reconsidered and possibly increased in width beyond 25 feet. Connection between changing precipitation patterns and the entry of natural organic material into drinking water supply, that when chlorinated produces Haloacetic Acids (HAAs), warrants additional thought about buffers. The National Institutes of Health have noted that HAAs are mutagenic, cytotoxic, genotoxic, teratogenic, and carcinogenic. PVPC is talking with DCR foresters in the Water Supply Program to understand what they are following currently for best practice.

Also, since large-scale ground-mounted solar photovoltaic installation is the only use permitted in the Long Pond Watershed Protection District, it is critical to ensure that such projects do not deliver storm flows within the watershed that can impact water quality in Long Pond. Stormwater management and erosion and sediment control standards to be protective of water quality could be added to Section VIII or even better, they could be added to Section IX on Site Plan review to ensure that all projects better manage stormwater and control erosion and sedimentation.

LID Checklist

To support the Dodson & Flinker recommendation within the Zoning Bylaw, Section IX, Site Plan Review for a pre-application concept plan meeting, PVPC is including in the appendices a checklist it developed and has been using with other communities throughout the region to get project proponents thinking early in the process about a low impact development approach. The pre-application checklist guides a developer through the preparation of three simple maps for use with such meetings. These maps entail:

1. an existing resources site analysis map that identifies, locates, and describes noteworthy features to be designed around;
2. a hydrologic soils group (HSG) map and soils description of site and abutting properties using NRCS's web soil survey on-line mapping tool; and
3. a sketch plan, based on the existing resources/site analysis and soils map, that illustrates conceptual layout of the proposed development or redevelopment. This checklist is included in the appendices to this memo.

Green Infrastructure and Climate Resiliency Policy

PVPC shared its current model Green Infrastructure and Climate Resiliency Policy with the advisory working group. The group expressed interest in the policy and agreed that adoption of a policy would help lay a foundation for advancing regulatory updates and resiliency. The policy would help to inform other boards and town officials, but also developers working in the community. Further, the policy could help promote better coordination and communication between Town boards and departments. Some ideas that emerged in the discussion included:

- Maybe before issuing CO, Building Inspector sends sign off form to PB and appropriate departments that ensures this policy being upheld.
- Maybe establish regular meetings across Town board and departments to talk about progress in meeting goals of policy (could be monthly, every other month, quarterly).

The model is included in the appendices to this memo.

BLANDFORD REGULATORY REVIEW FOR LOW IMPACT DEVELOPMENT

Introduction

As the impacts of climate change are increasingly becoming evident, communities, like Blandford, are stepping up to prepare for the future. There are many climate resilience actions that the town can, and is, taking on its own: developing a climate resilience master plan, upgrading unimproved roads, and reducing municipal energy use. However, the town's responsibility for preparing for climate change extends beyond municipal improvements. The Town is also responsible for ensuring that private activities do not unduly endanger public health, safety and welfare, including ensuring that sites are built and managed to minimize the risk of climate change impacts.

The Town's bylaws and regulations, in particular its zoning, are a key tool for ensuring that private development helps make Blandford a more climate resilient town. By revising its bylaws and regulations, the town can ensure that privately developed sites are resilient to increased storms, increased heat, and broadscale ecological changes. Better bylaws will result in better built outcomes which will benefit property owners in the long run, protect neighboring properties from flooding and erosion, and minimize the burden placed on the town's infrastructure, highway department, emergency responders, and other staff.

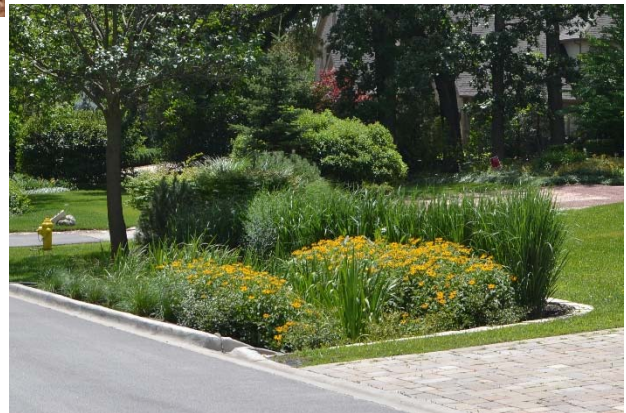
Recognizing the need to update its bylaws for climate resilience, the Town of Blandford applied for, and was awarded, a grant from the Commonwealth of Massachusetts Municipal Vulnerability Preparedness (MVP) Program to undertake a climate resilient regulatory review.

During initial discussions, the Blandford Regulatory Review Advisory Working Group identified several opportunities to improve the climate resilience of bylaws like adopting a local stormwater bylaw, exploring a mixed-use center village bylaw, establishing incentives for more energy efficient buildings and renewable energy, or encouraging and or eliminating barriers to Low Impact Development (LID). Low impact development was selected as the focus for this project because LID has multiple benefits that are aligned with town goals related to climate change and preserving the town's rural character, its wildlife and nature.

Dodson & Flinker completed a review of the Town's zoning, subdivision regulations, and general bylaws for their alignment with LID best practices. We then developed draft zoning language to implement top priority recommendations. Draft language was reviewed at two meetings Blandford Regulatory Review Advisory Working Group. This report summarizes the project work and outcomes.

What Is Low Impact Development?

Low Impact Development (LID) is a development strategy that seeks to mimic—or in the case of redevelopment, restore or recreate—a site's predevelopment hydrology through protection of on-site natural features and better site design that limits impervious areas, preserves open space, and uses decentralized small-scale facilities to capture and manage rainfall (or snowmelt) close to where it falls. These small-scale facilities serve to slow, absorb, and treat flow and include bioretention areas, grassed swales, porous pavements, cisterns, and green roofs and walls.



Examples of Low Impact Development stormwater management facilities (from top left): rain Garden in Hadley MA, permeable pavement in a parking lot, rain garden in Florence MA, a rain garden with a curb inlet handles stormwater from the street. (Image Credits: Berkshire Design, Mississippi Watershed Management Organization, Dodson & Flinker, Center for Neighborhood Technology)

Low Impact Development is often contrasted with conventional design and engineering practices, which in their worst forms, approach sites as blank slates to be cleared, regraded, and paved and built upon without regard to existing natural systems and the benefits they provide. In conventional design and engineering—sometimes called gray infrastructure—stormwater is treated as a waste product that is moved quickly from roofs and pavement to storm drains or detention basins via catch basins and pipes. The conventional engineering practice is efficient but can result in increased flood flows and the loss of water soaking into the earth which ultimately can compromise drinking water supplies.

Low Impact Development, on the other hand, can:

- Reduce flooding;

Summary of Blandford LID Review of Zoning, Subdivision Regs and Town Bylaws

- Improve water quality
- Reduce the need for investments in gray infrastructure
- Increase water supply
- Reduce local temperatures
- Improve habitat and ecosystems
- Maintain community character
- Improve the aesthetics of sites

A low impact development approach has four key techniques:

- Preserve and protect natural systems, including natural drainage and infiltration, soils, vegetation, ecosystems;
- Steer development to the most appropriate locations like previously disturbed areas with well drained soils and/or locations with existing stormwater infrastructure with spare capacity;
- Reduce the amount of area covered with impervious surfaces;
- Use green infrastructure stormwater management practices (also known as LID facilities).

The applicability of the four LID techniques varies based on context. In a heavily urbanized area, reducing impervious surfaces may be most important technique. In a developed community with soils that are effective at infiltrating rainwater, green infrastructure practices might have the most impact. Because Blandford has limited impervious surfaces and soils in many parts of the community have limited infiltration capacity, the main focus of LID in Blandford should be on preserving and protecting natural systems and steering development to the most suitable locations.



Land Use in Blandford: the town center and a forested area near Long Pond (Image Source: Pictometry)

Blandford is projected to see some of the highest increases in rainfall in the state due to climate change. With steep slopes and limited soils, stormwater moves quickly through Blandford contributing to local erosion, road damage, and streambank erosion and exacerbating downstream flooding. Under these conditions, Blandford's forests and the duff layer under them are doing outsized work to manage the town's stormwater. Damage to the forests and the thin soils they rely on would have long-term consequences that would be difficult to repair.

Blandford presents unique opportunities for the implementation of Low Impact Development in a rural setting with relatively intact natural systems. While many communities are focused on using LID to repair or replicate fragments of natural systems, Blandford has the opportunity to protect functional natural systems that are both the basis of its treasured rural character and its biggest resource for building climate resilience to sustain the community in the long-term.

Summary of Review

Dodson & Flinker reviewed Blandford's zoning bylaw, subdivision regulations and Town bylaws for the degree to which they promote or obstruct low impact development (LID) best practices. The review used the *The Code & Ordinance Worksheet: A Tool for Evaluating the Development Rules in Your Community* (Center for Watershed Protection, 2017). This tool was chosen after an extensive review of LID code review protocols because the *Code & Ordinance Worksheet* offers an overall "score" making it easy to see how well Blandford is doing overall and because its companion handbook provides clear explanations of LID techniques that will be a useful resource for explaining LID going forward.

The Code & Ordinance Worksheet (COW), is calibrated for a range of community types ranging from highly urbanized to rural. We selected the "Rural" form. Because the COW is a comprehensive code review tool, some review criteria did not apply to this project. For example, Blandford does not have a local stormwater bylaw and so criteria related to that were not included in the review. The overall score was recalibrated to remove points for criteria that did not apply to this review.

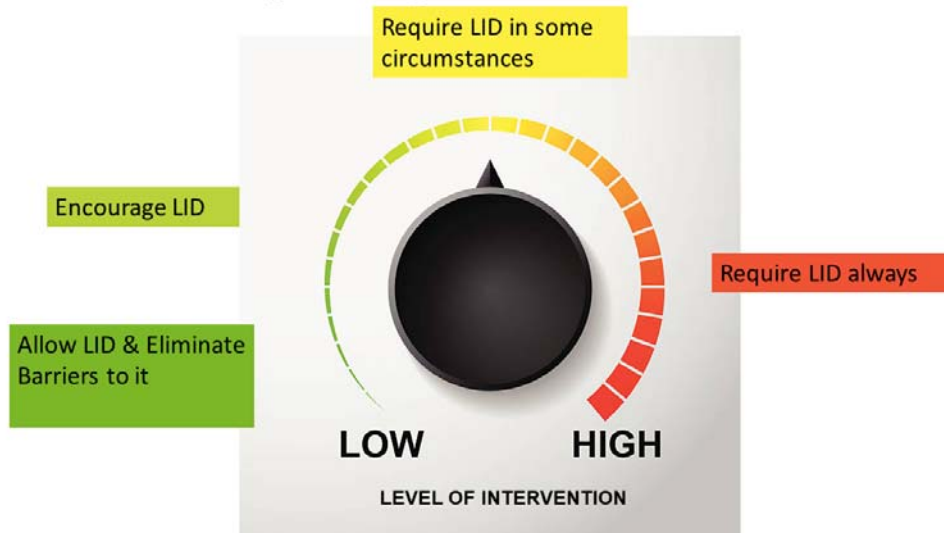
Overall, Blandford's bylaws and regulations received a score of 20 out of 114.5% (17%). This very low score mostly reflects the codes being silent about low impact development and associated practices, rather than the codes explicitly prohibiting it. In fact, LID is not mentioned by name in any of Blandford's bylaws or regulations.

Blandford's bylaws and regulations are generally minimal, likely reflecting both a lack of development activity that requires extensive review and a local preference for minimal regulation. Across Blandford's bylaws and regulations, requirements are often stated in general terms without specific guidance about preferred methods for meeting the intent of a section. This approach does not preclude LID, but it also does not steer project proponents toward LID. Given that the few mentions of stormwater included in the codes seem to indicate a need for "gray infrastructure" practices like catch basins, project proponents may assume Blandford has a preference for "gray infrastructure" and may not consider LID alternatives. More recent sections of the zoning bylaw include more explicit requirements related to environmental protection, for example the Ground Mounted Solar section. Elements of this section could be applied elsewhere.

A Low Impact Development approach can be applied across scales, from broad scale land use planning that is the basis of zoning districts and allowed densities and uses within them, to site specific designs. This review focused on the latter—how zoning shapes the design of specific sites. We did not review the overall effectiveness of the zoning for meeting the Town's broadscale land use goals. As the Town moves into implementation of its Master Plan, it would be worth reviewing its Bylaws for consistency with the Master Plan Goals and in particular to ensure that the zoning is steering development toward the most suitable locations and away from more vulnerable locations. Shutesbury's Natural Resource Protection Zoning is a model worth considering.

A key question when incorporating Low Impact Development practices into bylaws is how prescriptive a community wants to be about the use of LID techniques. Some communities may want to simply allow LID and eliminate regulatory barriers to it. Others will want to encourage LID design techniques and features but not require them. Others will require LID in some situations. Finally, some communities may choose to make LID the default approach for development that is required in all situations.

Calibrating LID Regulations to Local Situation



The LID “regulatory dial” can be calibrated to suit local goals, and physical, political, and economic conditions.

When setting the “LID dial,” it is helpful to understand expected development activity in the community. Blandford currently has minimal development activity. According to the building inspector, approximately seven or eight single family houses have been built in the last two to three years. Residential development is expected to remain slow due to a lack of market demand and physical constraints that make building in Blandford difficult, especially the lack of soils that “perc” for a septic system. That said, with housing prices rising dramatically in valley towns, access to broadband, and increased work-from-home options, residential development in Blandford is likely to continue. The town recently saw an uptick in large-scale resource-based commercial projects including ground-mounted solar fields and a commercial marijuana growing facility. The Planning Board Chairman suspects the demand for large-scale solar has peaked and the opportunities for future marijuana facilities are limited. He also cites the lack of three-phase power as a constraint on development. For the foreseeable, Blandford is likely to see continued slow development of individual single-family houses and a few large-scale resource-based projects.

Based on discussions with the Regulatory Review Advisory Working Group, we recommend that LID design techniques and features be required, unless not feasible, for projects with significant land disturbance or tree clearing, and/or projects on steep slopes. Blandford should consider whether or not to exempt single-family houses from this requirement. On the one hand, single-family houses are currently exempt from site plan review, so there is precedent for the exemption. On the other hand, land disturbance due to extensive site work has an impact regardless of the ultimate use of the site. Regardless of whether single family houses are exempt, this change to the bylaw will impact only a small number of projects, but it will cover the kinds of projects that can have outsize impact. It is possible, the provisions will be rarely used, but as the saying goes, “better safe than sorry” and as Blandford has seen changes to laws (for example marijuana legalization) or market conditions (for example, demand for large scale solar installations) can result in unexpected development, even in very constrained rural communities.

It is important to note that while soils in many areas of Blandford are not well suited for stormwater infiltration and so may not be well suited for some LID “green infrastructure” facilities, projects at those locations can, and should, nevertheless use a LID design approach which prioritizes conservation of existing natural resources, preservation of existing native vegetation, and preservation of natural stormwater features, etc.

The COW worksheet documenting the code review is included in the Appendix, along with the COW Handbook which provides useful background information on LID. In addition, the Appendix includes a version Blandford’s zoning with sections of the zoning that relate to the COW criteria called out in situ using Microsoft Word “comments.” These comments may be useful for identifying additional opportunities for improvements, beyond those that were addressed in this project.

Key Recommendations based on the code review are summarized below.

Key Recommendations

Adopt a LID Section into the Zoning

Low Impact Development (LID) is not mentioned in the zoning bylaw. There are no explicit prohibitions on using LID, but the zoning also does not state that LID is the preferred method of site design and stormwater management.

- Recommendation: Define Low-Impact Development in definitions section
- Recommendation: Establish a LID bylaw section that will require LID, set basic stormwater management requirements, address topographical alterations, minimize damage to soils, and establish tree preservation and protection. Apply the requirements of this section to projects:
 - with an acre or more of disturbance;
 - or that are part of a larger common plan of development that will have an area or more of total disturbance;
 - or where the clearing of land will result in trees being removed from one or more acre or 50 percent or more of a lot, whichever is less. Lots with an area of 20,000sf or less will be exempt from this requirement;
 - or construction, development, and/or redevelopment activities that occur on steep slopes greater than 15% for 100’ feet or more.
 - Exempt various projects as shown in the attached draft bylaw. Evaluate whether to exempt single-family houses.

This section should refer out to the Planning Board Regulations for LID plan contents. It should also encourage a pre-application meeting with Planning Board that uses a Pre-Application Checklist for LID (a draft is included in Appendix).

See the draft of the LID Section and Pre-Application Checklist in the Appendix

Trees Preservation and Protection

Preserving existing trees and planting new ones is an impactful climate resilience strategy. Trees can help reduce local temperatures. They uptake stormwater. They provide habitat for other species that will be challenged by climate change. They sequester carbon and so can help slow climate change. Finally, street trees have been shown to increase the value of properties.

Blandford’s zoning recommends, but does not require, preserving trees in several places including site plan review and the Ground Mounted Solar section. The subdivision regulations call for planting street trees where “existing trees are inadequate.” The zoning bylaw and the subdivision regulations could go

further and set specific requirements for preserving trees. Because the benefits of trees are related to their size and growing trees is a long-term process, it is especially important to preserve existing mature trees. The zoning and subdivision regulations could also establish requirements for planting new trees including their size, appropriate planting locations and conditions, and recommended species of trees.

- Recommendation: adopt a tree preservation section.
See the proposed LID Zoning Section
- Recommendation: Add design standards for tree planting, especially streets and parking lots.
See Proposed Zoning Section 17.2
- Recommendation: adopt a recommended tree list into the Planning Board's Rules and Regulations.

Landscaping

Poorly designed and maintained landscaped areas can be a source of runoff, sediment, and excess nutrients. On the other hand, when well designed and maintained, landscaped areas can provide habitat and food for wildlife, natural cooling, clean, absorb, and infiltrate stormwater, and contribute to community character. Blandford's zoning has a few provisions related to landscaping. Landscape plans are required in various sections, and the bylaw asks for general harmony or appropriateness of landscaping. For example, the Site Plan Review section, includes the following criteria for review " ... landscaping of the proposed development is in harmony with the historic, rural character of the neighborhood and the Town of Blandford."

- Recommendation: Add performance standards for required landscaping that are more specific. These standards can require a diversity of plants, require that a minimum percentage of plants are native species, and encourage the use of landscaped areas for green stormwater management.
See Proposed Zoning Section 17.3

Paved Areas: Parking, Driveways, Permeable Paving, Street Widths

Parking lots, streets, sidewalks, driveways, and paved walkways are a significant source of stormwater runoff and also increase local temperatures. Both will become more significant problems due to climate change. The best way to reduce the harm from paved areas is to minimize their surface area. After that, they should be covered with pervious surfaces, like permeable pavement rather than impervious surfaces like concrete, asphalt, or most forms of gravel.

Blandford's zoning, unlike most zoning codes, does not establish specific minimum parking ratios. This is likely the zoning's biggest strength from an LID perspective. We recommend that Blandford continue to not set minimum parking requirements. This gives applicants the flexibility to provide only the amount of parking necessary for their use. That said, Blandford could adopt several provisions to encourage even less surface area dedicated to parking, including encouraging shared parking and setting maximum parking ratios.

The width of new streets is determined by the Town's subdivision regulations. We were unable to find required widths for streets in Blandford, but the required widths for a right-of-way, and the minimum cul-de-sac diameter both exceed LID best practices. Given Blandford's rural context, street widths can be quite narrow and remain functional. Loop roads and alternative turnarounds like a hammerhead should be encouraged over cul-de-sacs. The required radius of a cul-de-sac could be significantly smaller than

the 100' required by Blandford's zoning bylaw and the bylaw could encourage the use of the center of a cul-de-sac for green infrastructure where possible. Blandford's subdivision regulations require a four-foot wide sidewalk on both sides of a street. This could be reduced to a five-foot sidewalk on one side of the street in locations where the slow traffic volumes and good visibility makes it possible for people to safely cross the street to a sidewalk.

Blandford's zoning could set a maximum allowed width for driveways and encourage use of permeable pavement, grass pave, and two-track driveway designs. A two-track driveway has two paved areas for wheel treads, but the middle of the driveway is left unpaved. The zoning could also encourage or require that sidewalks and walkways are paved with permeable surfaces.

- Recommendations, Parking:
 - Encourage or require permeable pavement in parking areas, where feasible
See Proposed Zoning Section 17.1
 - Continue to not have minimum parking ratios in zoning
 - Establish maximum parking ratios
 - Encourage shared parking

- Recommendations, Streets, Sidewalks, Walkways
 - Zoning: Require or encourage permeable surfaces for walkways and sidewalks
See Proposed Zoning Section 17.4
 - Subdivision Regulations: Establish street cross sections that incorporate LID elements. The width of streets should be as narrow as is safe.
 - Subdivision Regulations: Encourage loop roads and hammerhead turnarounds
 - Subdivision Regulations: Require a 5-foot sidewalk on only one side of the street only, in appropriate circumstances

- Recommendations, Driveways:
 - Set maximum driveway widths
See Proposed Zoning Section 17.1
 - Encourage or require permeable pavement and two-track driveway design for residential use.
 - *See Proposed Zoning Section 17.1*

Open Space Development

Open Space Development is a crucial strategy for improving the climate resilience of subdivisions. In an Open Space Development, the applicant undertakes a site analysis to determine which areas of a site should be preserved and which areas should be conserved. The density of the development is typically set using a formula and the applicant is giving flexibility to design streets, layout lots, and site buildings in a manner that meets their project goals and best fits the existing conditions. The design flexibility can result in more environmentally sensitive site designs and, often, more attractive developments. Additional benefits for the applicant and the Town are reduced road lengths which reduce the cost of construction and maintenance and improve emergency response times. Blandford's zoning does not include an OSD section. It is strongly recommended that Blandford adopt an Open Space Development bylaw and apply it throughout the town. Pioneer Valley Planning Commission was recently awarded a grant to work with regional communities to develop a regionally appropriate OSD bylaw. We recommend that Blandford participate in this project. In particular, Blandford might want to explore a

variation of Open Space Development called Natural Resource Protection Zoning. This variant of the bylaw was developed to help rural Massachusetts communities minimize the unique impacts of road front and backland development. It has been adopted in several communities including Shutesbury. In any case an Open Space Development bylaw in Blandford should:

- Allow OSD by-right (Open Space Development is a more environmentally-sensitive approach to development than conventional subdivision and so it should not require extra permitting hurdles).
- Require a rigorous site analysis (conservation analysis) to identify areas to protect and develop, including LID stormwater management. Blandford should detail its criteria for prioritizing open space protection to include key habitats and ecosystems, climate resilience, greenways, green infrastructure, trail systems, historic and cultural resources, farmland and soils preservation, and scenic views. Tie open space prioritization to OSRP and Master Plan priorities. The bylaw should establish that the Planning Board will verify and modify, if needed, the site analysis.
- Set allowed density by a formula based the portion of the site that is developable (in other words, exclude wetlands, steep slopes, and other undevelopable areas from the density calculation). For example, a ten-acre site with two acres of wetlands and one acre of steep slopes yields seven net developable acres. At one-unit-per-acre density, seven units would be allowed on the lot.
- Set a requirement that a minimum percentage of the site will be set aside as common open space. Require placing a conservation restriction on the open space, if feasible.
- Calibrate the minimum required site size to the district context. The required site size should be the minimum feasible size for a subdivision in the district.
- Provide wide flexibility in lot dimensions, frontage, setbacks, etc, including allowing more than one unit per lot.
- Consider allowing various types of housing including single-family, two-family, three-family, etc.
- Provide a density bonus for smaller units, affordable housing, and/or open space conservation beyond the required minimum.
- Set performance and design standards (including site layout, landscaping, massing, etc).
- Encourage or require a Low Impact Development approach to site design and stormwater management.

Stormwater Bylaw

Blandford does not have a local stormwater bylaw. Adopting a local bylaw would enable Blandford to be more specific about how stormwater should be managed during and after construction. A local stormwater bylaw could also establish more detailed standards for erosion control and sedimentation. Blandford could customize aspects of the bylaw like which projects are subject to it, the recommended rainfall data source, standards for runoff, or pollution control, and techniques for erosion control that are customized to local conditions.

- Recommendation: Adopt a local stormwater bylaw

CONCLUSION

Although Blandford is a rural community with minimal new development, it still has ample opportunities and compelling reasons to implement low impact development through its bylaws and regulations. Blandford's natural systems are relatively fragile and will be adversely impacted by climate change. Furthermore, residents of Blandford value the rural character that low impact development would preserve. By making proactive changes to its zoning and subdivision regulations, Blandford can avoid irreversible degradation of its natural systems and increase its resilience to climate change.

Appendices

1. Long Pond Watershed Protection District with track change recommendations and notes
2. Model Green Infrastructure and Climate Resiliency Policy
3. LID Checklist for use with Stormwater Management Permit pre-application meeting
4. New Zoning Sections to Implement Low Impact Development – bylaw section
5. New Zoning Sections to Implement Low Impact Development – performance standards
6. Municipal code review, analysis, and scoring using Center for Watershed Protection “Updated Code and Ordinance Worksheet for Improving Local Development Regulations”
7. Center for Watershed Protection - Code and Ordinance Worksheet Guidance 12.06.17
8. Zoning Bylaw with comments based on code review (Note: tracked changes shown in the document are not part of this project. They came with the zoning when we began our review).

Appendix 1

PVPC Recommendations 6-28-21

4.4 LONG POND WATERSHED PROTECTION DISTRICT

4.4.1 Purpose of District

A Watershed Protection District is established in the Town of Blandford for the watershed of Long Pond for the following purposes:

- 4.4.1.1 To protect, preserve and maintain the water table and water recharge areas within the Town, so as to preserve present sources of water supply for the public health and safety;
- 4.4.1.2 To protect the community from the detrimental use and development of land and water within the watershed protection district; and
- 4.4.1.3 To conserve the watershed area of the Town of Blandford for the health, safety, welfare and enjoyment of its people.

4.4.2 Intent of District

The intent of the Watershed Protection District is to include lands lying adjacent to water courses and surface water bodies which create the catchment or drainage areas of such water courses and bodies, as part of their natural drainage system. The district includes all areas designated on the Watershed Protection District Maps for the Town of Blandford, on file in the Office of the Town Clerk, which are hereby made part of the Town Zoning Map(s).

The Watershed Protection District is an overlay district and shall be superimposed on the other districts established by this by-law. All regulations of the Town of Blandford Zoning Bylaw applicable to such underlying districts shall remain in effect, except that where the Watershed Protection District imposes additional regulations, such regulations shall prevail.

4.4.3 Boundaries of District

Following is a description of the boundaries of the Watershed Protection District:

BEGINNING at a point on the Blandford and Otis town line, approximately 1,300 feet southerly from the center of North Blandford Road;

THENCE southeasterly about 3,600 feet to the intersection of Wheeler Brook with Negro Hill Road

THENCE continue southeasterly along the center of Negro Hill Road [P3] about 1,100 feet to a point;

THENCE in a general southerly direction about 1,800 feet to an angle;

THENCE continue in a general southerly direction about 1,900 feet to the center of an old road;

THENCE westerly and southwesterly along the center of said old road about 2,300 feet to its intersection with Gibbs Road;

THENCE northwesterly about 1,200 feet to a point on the Blandford and Otis town line, at the southwest corner of parcel three as shown on Map 403 of the Town of Blandford Assessors maps;

THENCE northerly along the Blandford and Otis town line about 4,150 feet to the place of beginning.[P4]

Where the bounds delineated are in doubt or in dispute, the burden of proof shall be upon [P5] the owner(s) of the land in question to show where they should properly be located. At the request of the owner(s), the Town may engage a professional hydrogeologist to determine more accurately the location and extent of the watershed boundary and may charge the owner(s) for all or part of the cost of the investigation.

4.4.4 Permitted Uses

The following uses are permitted within the Watershed Protection District, subject to Section IV, provided that all necessary permit orders, or approvals required by local, state or federal law shall also be obtained:

4.4.4.1 Conservation of soil, water, plants, and wildlife.

4.4.4.2 Outdoor recreation, nature study, fishing, and hunting where otherwise legally permitted.

4.4.4.3 Proper operation and maintenance of existing dams, splash boards, and other water control, supply and conservation devices.

4.4.4.4 Repair, maintenance and reconstruction of structures and uses lawfully existing prior to adoption hereof may be continued as permitted under the Zoning Act, M.G.L. Chapter 40A.

4.4.4.5 Farming, gardening, nursery, conservation and harvesting.

4.4.4.6 Forestry, i.e. the cutting and removal of trees for the purpose of selling said trees or any products derived there from, when carried out in the following manner.

- (a) Every reasonable effort shall be made to gain access without constructing new access ways including, but not limited to maintaining and improving (but not substantially enlarging) existing access ways, and operations shall be conducted when the soil is dry or otherwise

stable, as determined by the Board of Health or an agent appointed by them.

- (b) Where access is determined impracticable without constructing new access ways, said access ways shall be designed, constructed and maintained in accordance with U.S. Forest Service logging road standards, and shall be removed and the site returned to previously existing conditions within one year.
- (c) To ensure the faithful completion of the construction under (b) above, any person desiring to perform construction thereunder shall file with the Planning Board, in a form satisfactory to the Board, a performance bond in an amount determined by the Board or its authorized agent. Said performance bond shall be held by the Planning Board until all work required under paragraph (b) is completed in a manner satisfactory to the Board or its authorized agent.

For several of the following standards (highlighted in yellow below), note that PVPC is seeking best guidance on forestry within water supply areas.

While there is a MA Forestry Best Management Practices Manual at: <https://www.mass.gov/doc/massachusetts-forestry-best-management-practices-manual-0/download>, the manual does not include special considerations for forest cutting near drinking water supplies.

Given the rise of difficulty with Haloacetic acids (HAAs)--a carcinogenic by-product from chlorination disinfection that is generated as more organic material gets into surface water supplies with larger rainstorms—it seems important to provide better guidance here.

Certain practices that seem most applicable to this issue are as follows:

- stream crossings and approaches necessary to the forest cutting operation
- filter strips (the preserved area of forest) between forest cutting and surface waters
- disposal of “slash” and proximity to surface waters
- timing of cutting operations (season, but also related to latest large rainfall event when soils can become more easily compacted).

- (d) **All channel crossings** shall be stabilized to prevent erosion, using standard U.S. Forest Service methods. When crossings involve fill or other closed or semi-closed structures which will obstruct flow, they shall be designed, constructed and maintained in accordance with U.S. Forest Service standards, shall allow the unobstructed Passage Of existing flows for at least the 10-year storm, and shall be removed and the site returned to existing conditions within one year of construction.
- (e) All operations shall be conducted in accordance with a ~~cutting plan approved by the Massachusetts Department of Environmental Management District Forester~~ Forest Cutting Plan (following M.G.L. Chapter 132 Sections 40 - 46A) and approved by a Service Forester of the

Massachusetts Department of Conservation and Recreation (as provided under 304 CMR 11.04); and a written notice describing the proposed cutting and removal of trees shall be submitted to the Conservation Commission not less than ten days prior to the commencement of operations.

- (f) The removal of the selectively cut trees shall occur only during those periods when the ground is sufficiently dry or otherwise stable to support the equipment used, as determined by the Board of Health or an agent appointed by them.
- (g) The placement of such, branches and limbs resulting from the cutting and removal operations shall not occur within 25 feet of the bank of a water body; and there shall occur no filling, excavation or other change in the existing topography. After the cutting, the crown area of the remaining trees shall be evenly distributed throughout the site and shall cover no less than 50 percent of the surface area of the site.

4.4.5 Prohibited Uses

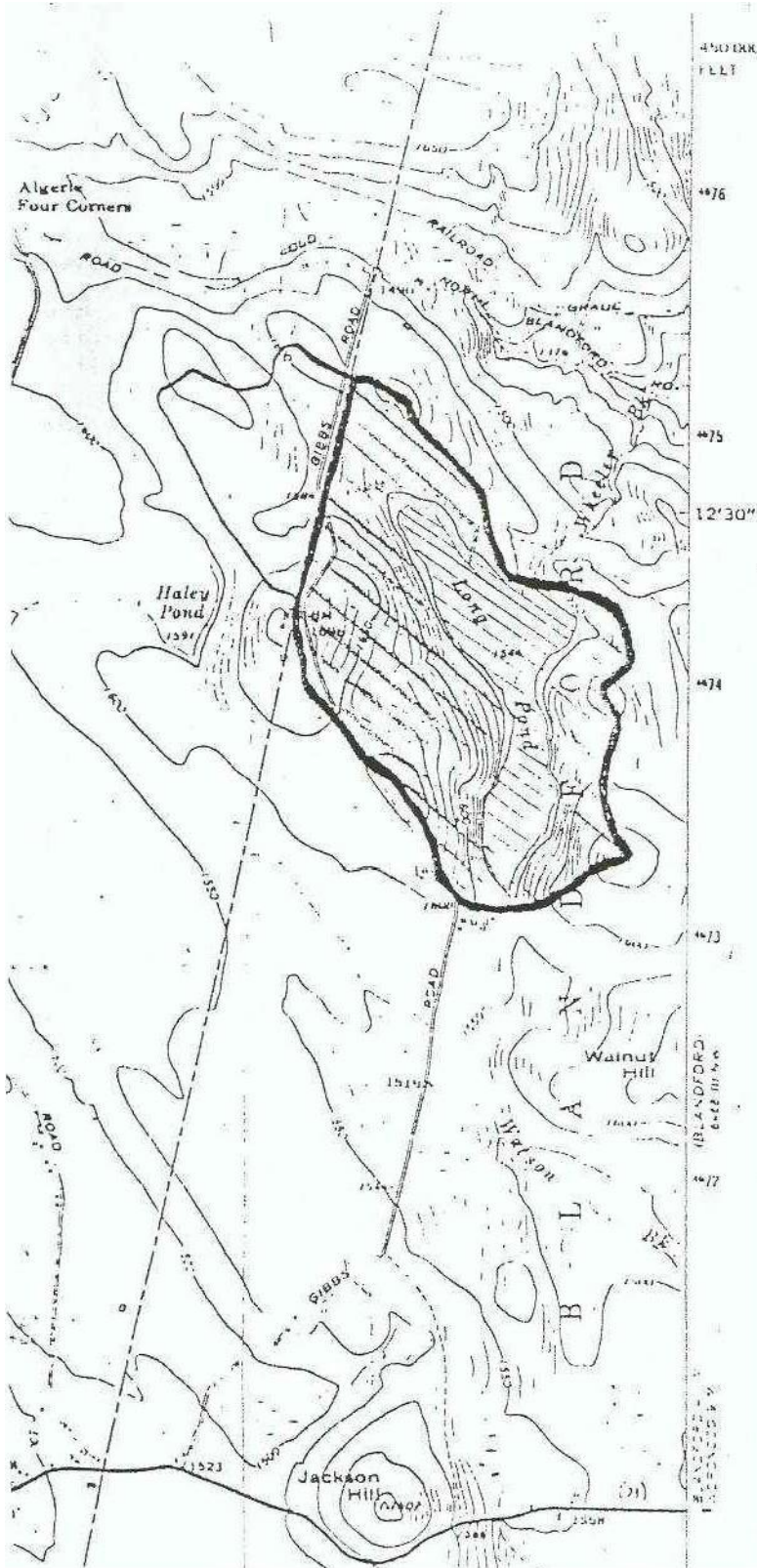
The following uses are prohibited within the Watershed Protection District:

- 4.4.5.1 Forestry, i.e., the cutting or removal of trees within 100 yards of the shore of Long Pond from the mean high water line and 25 feet from the bank of all brooks and streams flowing into Long Pond.
- 4.4.5.2 The location of landfills and the storage of salt and road de-icing chemicals.
- 4.4.5.3 Any new buildings, structures, land-disturbing activities, or excavations for removal of soil, sand, gravel, rocks, minerals, or any other earthen material within the Watershed Protection District.
- 4.4.5.4 Any animal feedlots.
- 4.4.5.5 The disposal of solid waste, other than brush.
- 4.4.5.6 The storage and/or sale of petroleum (or any other refined petroleum product) except within the buildings which it will heat.
- 4.4.5.7 The dumping of snow contaminated by de-icing chemicals which is brought in from outside the district.
- 4.4.5.8 The storage or disposal of hazardous materials, as defined by the Hazardous Waste Regulations promulgated by the Hazardous Waste Board, the Water Resources Commission, and the Division of Water Pollution Control under the provisions of Chapter 21C of Massachusetts General Laws as amended.
- 4.4.5.9 The storage and use of herbicides and pesticides for any purpose and the storage of fertilizers and manure or other leachable materials.

4.4.6 Restricted Uses

- 4.4.6.1 Use of sodium chloride for ice control shall be minimized.

ZONING BY-LAW of the TOWN OF BLANDFORD, MASSACHUSETTS



LONG POND WATER

SCALE: 1" = 2000'

BOUNDARIES DETERMINED
USING USGS TOPOGRAPHIC
INFORMATION OTIS QUAY
MASSACHUSETTS, 1973

1" = 2000' A 410'

13 - J 8 1 J J

SECTION VIII: LARGE-SCALE GROUND-MOUNTED SOLAR PHOTOVOLTAIC INSTALLATIONS

If you decide not to update stormwater/environmental requirements in Site Plan Review, recommend getting far more specific in this section as this is allowed use in Long Pond Watershed Protection District.

8.1 Purpose

The purpose of this Section VIII is to regulate new large-scale ground-mounted solar photovoltaic installations (LSGMSPi) by providing standards for the placement, design, construction, operation, monitoring, modification and removal of such installations that address public safety, minimize impacts on scenic, natural and historic resources and to provide adequate financial assurance for the eventual decommissioning of such installations.

8.2 Applicability

The provisions set forth in this Section VIII shall apply to the construction, operation, and/or repair of LSGMSPi. This Section applies to LSGMSPi proposed to be constructed after the effective date of this Section VIII. This Section also pertains to physical modifications that alter the type, configuration, or size of these installations or related equipment.

8.3 Definitions

The following definitions shall apply: to LSGMSPi

As-of-Right Siting: As-of-Right Siting shall mean that development may proceed without the need for a special permit, variance, amendment, waiver, or other discretionary approval. **As-of-Right Siting may be subject to site plan review to determine conformance with the Blandford I Zoning Bylaw. Projects cannot be prohibited, but can be reasonably regulated by the Blandford Building Inspector and the Planning Board.** As provided in §8.4, below, a LSGMSPi may be located on any parcel in Blandford with a lot size of twelve (12) acres or more.

Building Permit: A construction permit issued by an authorized building inspector; the building permit evidences that the project is consistent with the state and federal building codes as well as local zoning bylaws, including those governing ground-mounted large-scale solar photovoltaic installations.

Customer-Owned Generator: An LSGMSPI owned by an entity other than the electric utility company.

Large-Scale Ground-Mounted Solar Photovoltaic Installation (LSGMSPI): A solar photovoltaic system that is structurally mounted on the ground and is not roof-mounted, and has a minimum nameplate capacity of 250 kW DC.

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

Site Plan Review: Review by the Planning Board to determine conformance with the Blandford Zoning Bylaw. See Blandford Zoning Bylaw, §6.8, Site Plan Review.

Solar Photovoltaic Array: An arrangement of solar photovoltaic panels.

8.4 General Requirements for all Large Scale Solar Power Generation Installations
The following requirements are required for all LSGMSPIs. Any lot in the Town that is twelve (12) or more acres in area may be used as a site for an LSGMSPI, as long as all Site Plan Review criteria have been met to the satisfaction of the Planning Board.

1. Compliance with laws, bylaws, and regulations. The construction and operation of all LSGMSPI shall be consistent with all applicable local, state and federal requirements, including the Wetlands Protection Act , M.G.L. c. 141, §40 et seq., and any other regulations or laws under the jurisdiction of the Blandford Conservation Commission, and including but not limited to all applicable safety, construction, electrical, and communications requirements. All buildings and fixtures forming part of an LSGMSPI shall be constructed in accordance with the State Building Code. All necessary permits from the Conservation Commission shall be obtained by the applicant prior to Site Plan Review.
2. Building Permit and Building Inspection. No LSGMSPI may be constructed, installed or modified as provided in this Section VIII without first obtaining a Building Permit.
3. Fees. The application for a Building Permit for an LSGMSPI must be accompanied by the fee required for a building permit and the required Site Plan Review fee. Upon receipt of an application for Site Plan Review for a LSGMSPI, the Planning Board may engage, at the applicant's cost, professional and technical consultants, including legal counsel, to assist the authority with its review of the application, in accordance with the requirements of M.G.L. c.44, §53G. 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 good grounds for denying the application. Upon approval of the application, any excess amount in the account attributable to the application processing, including any interest accrued shall be refunded to the applicant.

8.5 **Site Plan Review**

LSGMSPIs with 250 kW or larger of Rated Nameplate Capacity shall undergo Site Plan Review by the Planning Board prior to construction, installation or modification as provided in this section. Failure by the Planning Board to render a decision on the submitted plan in accordance with Section 6.8.7 of the Blandford Zoning By-Law within 365 days of Completeness Notification (as set forth below) shall be deemed to be a constructive approval of those plans. An applicant claiming constructive approval of a LSGMSPI shall

follow the process set forth in M.G.L. c. 40A, §9, to obtain a certificate of such approval from the Town Clerk.

1. General. All plans and maps shall be prepared, stamped and signed by a professional engineer licensed to practice in Massachusetts.
2. Required Documents. Pursuant to the Site Plan Review process, the applicant shall provide the following documents in addition to those required under §6.8.5 of the Zoning By-Law[P6]
 - a. A site plan showing:
 - i. Property lines and physical features, including roads, for the project site;
 - ii. The proposed site for the installation shown on a map of the Town of Blandford.
 - iii. Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, screening vegetation or structures;
 - iv. Blueprints or drawings of the LSGMSPI signed by a professional engineer showing the proposed layout of the system and any potential shading from nearby structures or vegetation;
 - v. One or three line electrical diagram detailing the LSGMSPI, associated components, and electrical interconnection methods, with all National Electrical Code compliant disconnects and overcurrent devices;
 - vi. Documentation of the major system components to be used, including the Photovoltaic panels, mounting system, and inverter;
 - vii. Name, address, and contact information for proposed system installer;
 - viii. Name, address, phone number and signature of the applicant, as well as all co-applicants or property owners, if any; if the applicant is not the owner of the property, a statement from the owner authorizing the applicant to proceed;
 - ix. The name, contact information and signature of any agent(s) representing the applicant; and
 - b. Documentation of actual or prospective access and control of the project site.
 - c. An operation and maintenance plan.
 - d. Description of financial surety.
 - e. Proof of liability insurance.
3. Application Submission
The application packet must contain all the appropriate application fees, application forms, and the appropriate number of copies of all plans and supporting documentation. The application packet shall be submitted to the Town Clerk. The Town Clerk shall

stamp the application with the date received and shall immediately notify the Chair of the Planning Board of a submitted application packet.

4. Completeness Review

The Planning Board shall, within thirty (30) calendar days of the receipt of the application by the Town Clerk, determine whether the application is complete or incomplete ("Completeness Review") and notify the applicant in writing by certified mail.

- a. Incomplete Applications. If the Planning Board determines the application to be incomplete, the Board shall provide the applicant with a written explanation as to why the application is incomplete and request the information necessary to complete the application. Any additional information submitted by the applicant starts a new thirty (30) calendar day Completeness Review.
- b. Complete Applications. When the Planning Board determines the application to be complete, the Board shall notify the applicant in writing ("Completeness Notification") and transmit copies of the completed application to the appropriate local boards but not limited to Building Inspector, Conservation, Board of Health, Historic commission, Board of selectman, Highway Dept., Fire, and Police, departments for their independent review.

8.6 Site Control

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

8.7 Operation & Maintenance Plan

The applicant shall submit a plan for the operation and maintenance of the LSGMSPI, which shall include measures for maintaining safe access to the installation, storm water controls, as well as general procedures for operational maintenance of the installation.

8.8 Utility Notification

No LSGMSPI shall be constructed until evidence, satisfactory to the Planning Board, has been given to the Planning Board that the utility company that operates the electrical grid where the installation is to be located has been informed of the LSGMSPI's owner or operator's intent to install an interconnected Customer-Owned Generator; as well as documentation from said utility that they can and will connect the proposed Customer-Owned Generator into their power grid. Off-grid systems shall be exempt from this requirement.

8.9 Dimension and Density Requirements

The following dimensional and density requirements shall apply to all LSGMSPIs.

1. Setbacks. For LSGMSPIs, front, side, rear, and height setbacks shall be as follows:
 - a. Front yard: The front yard depth shall be at least 500 feet;
 - b. Side yard. Each side yard shall have a depth at least 500 feet;
 - c. Rear yard. The rear yard depth shall be at least 500 feet.
 - d. Height. The Height of the structure at the tallest point shall not exceed twenty five (25) feet.

2. Appurtenant Structures. All appurtenant structures to LSGMSPIs shall be subject to reasonable regulations concerning the dimensions. The height of structures shall not exceed twenty five (25) feet. All such appurtenant structures, including but not limited to, equipment shelters, storage facilities, transformers, and substations, shall be architecturally compatible with each other. All structures shall be a minimum of two hundred and fifty (250) feet from all surrounding property lines, and be screened from view and/or joined or clustered to avoid adverse visual impacts.

8.10 Design Standards. The following design standards shall apply to all LSGMSPIs.

1. Lighting. Lighting of LSGMSPIs shall be consistent with local, state and federal law. Lighting of other parts of the installation, 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 photovoltaic installation shall be directed downward and shall incorporate full cut-off fixtures to reduce light pollution.
2. Signage. Signs on large-scale ground-mounted solar photovoltaic installations shall comply with §6.2 of the Blandford Zoning By-Law. A sign shall be required to identify the owner and operator of the LSGMSPI and provide a 24-hour emergency contact phone number. Solar photovoltaic installations shall not be used for displaying any advertising; advertising does not include reasonable identification of the manufacturer.
3. Utility Connections. Reasonable efforts, as determined by the Planning Board, shall be made to place all utility connections from the solar photovoltaic installation 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.
4. Fencing and Screening. All fencing and screening shall be in compliance with the Blandford Zoning By-Law. The applicant shall include the fencing and screening plan for review by the Planning Board.

8.11 Safety and Environmental Standards. The following safety and environmental standards shall apply to all LSGMSPIs.

1. Emergency Services. The LSGMSPI's owner or operator shall provide a copy of the project summary, electrical schematic, and site plan to the Blandford Fire Chief. Upon request the owner or operator shall cooperate with local emergency services in developing an emergency response plan. All means of shutting down the solar photovoltaic installation shall be clearly marked. The owner or operator shall identify a responsible person for public inquiries throughout the life of the installation.
2. Land Clearing, Soil Erosion and Habitat Impacts. Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the LSGMSPI or otherwise prescribed by applicable local, state and federal laws and regulations.

8.12 Monitoring and Maintenance.

1. Solar Photovoltaic Installation Conditions. The LSGMSPI's owner or operator shall maintain the facility and access road in good condition. Maintenance shall include, but

not be limited to, painting, structural repairs, and integrity of security measures. Site access shall be maintained to a level acceptable to the Blandford Fire Chief, Police Chief and any other local emergency services.

2. Modifications. All modifications to an LSGMSPI made after issuance of the required Building Permit shall require approval by the Planning Board.

8.13 Abandonment or Decommissioning.

1. Removal Requirements. Any LSGMSPI which has reached the end of its useful life or has been abandoned, as provided below, shall be removed by the owner or operator no more than 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:

- a. Physical removal of all LSGMSPIs, structures, equipment, security barriers and transmission lines from the site.
- b. Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
- c. Stabilization and re-vegetation of the site as necessary to minimize erosion. The Planning Board may allow the owner or operator to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation.

2. Abandonment. Absent notice to the Planning Board as provided above of a proposed date of decommissioning or written notice requesting an extension due to extenuating circumstances, the LSGMSPI shall be considered abandoned when it fails to operate or operations are discontinued for more than one year without the written consent of the Planning Board. If the owner or operator of the LSGMSPI fails to remove the installation in accordance with the requirements of this section within 150 days of abandonment or discontinuance or the proposed date of decommissioning, the Town may, to the extent it is otherwise duly authorized by law, enter the property and physically remove the installation.

8.14 Financial Surety. The applicant for an LSGMSPI project shall provide a form of surety, either through escrow account, bond or otherwise, to cover the 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 applicant. Such surety shall not be required for municipally- or state-owned facilities. The applicant shall submit a fully inclusive estimate of the costs associated with removal, prepared by a qualified engineer. The amount shall include a mechanism for calculating increased removal costs due to inflation.

8.15 Liability Insurance. The owner or operator of an LSGMSPI shall provide the Town Clerk with a certificate of insurance showing that the property has a minimum of one million dollars in liability coverage, and that the Town of Blandford is an additional named insured thereon. Such a certificate shall be supplied on an annual basis upon the renewal of said insurance policy.

SECTION XII: SCHEDULE OF USES TABLE

Use	AG	RR	BB	LPWP	Notes	
2.0 Community Facilities						
2.1	Religious, Educational, or Municipal Use	Y	Y	Y	N	
2.3	Convalescent Home or Nursing Home	SP	N	N	N	
3.0 Agricultural Uses						
3.2	Agriculture, Horticulture, Floriculture, or Viticulture on parcels of land with 5 acres or fewer	Y	Y	Y	N	Excludes the raising of hogs, pigs or fur-bearing animals.
3.3	Raising of Hogs, Pigs, or Fur-bearing Animals on parcels of land with more than 5 acres	Y	Y	Y	N	Such activity must be carried on at least 500 feet from any property lines.
3.4	Raising of Hogs, Pigs, or Fur-bearing Animals on parcels of land with fewer than 5 acres	SP	SP	N	N	Such activity must be carried on at least 500 feet from any property lines.
3.6	Nursery on parcels with fewer than 5 acres	Y	Y	N	N	
3.7	Farm Stand on parcels of land with 5 acres or more	Y	Y	Y	N	For the display and sale of natural products, the majority of which are raised in town during the months of June, July, August and September of every year.
3.8	Farm Stand on parcels of land with fewer than 5 acres	Y	Y	Y	N	For the display and sale of natural products, the majority of which are raised in town during the months of June, July, August and September of every year.

	Use	AG	RR	BB	LPWP	Notes
3.10	Commercial kennels or stables, riding schools on parcels of land with not fewer than 3 acres	SP	N	N	N	No dogs are to be kept in any building or enclosures within 150 feet of any property line.
3.11	Lumbering, portable sawmills, and portable planing mills	Y	N	N	N	
5.0 Wholesale, Transportation and Industrial Uses						
5.1	Milk Bottling and Distribution	SP	N	SP	N	
5.2	Soil, Gravel, Loam and Sand Removal	SP	N	N	N	
5.3	Large-Scale Ground-Mounted Solar Photovoltaic Installations	Y	Y	Y	Y	Subject to the provisions of Section VIII on a lot of twelve (12) acres or more in area, or take any action relative thereto.

We call the town's attention to Section 2.1 of the Schedule of Uses Table that pertains to religious and educational uses. Religious and educational uses are prohibited in the town's LPWP district. In approving this portion of the Schedule of Uses Table, we remind the town of the protections accorded to religious and educational uses under G.L. c. 40A, § 3. Section 3 provides zoning protections for religious and non-profit educational uses and provides in pertinent part:

“No zoning ... by-law shall prohibit, regulate or restrict the use of land or structures for religious purposes or for educational purposes on land owned or leased by the commonwealth...”

SECTION XIII: DEFINITIONS

- 13.1 APPLICANT, ALSO SUBDIVIDER: shall include an owner or his agent or representative, or his assigns.
- 13.2 BOARD: In the Site Plan Review, shall mean the Planning Board of the Town of Blandford.
- 13.3 HIGHWAY SUPERINTENDENT: The superintendent of streets or other official designated by the Board of Selectmen in charge of streets and roadways in the Town of Blandford.
- 13.4 LOT: shall mean an area of land in single ownership, with definite boundaries, used, or available for use, as the site of one or more buildings.
- 13.5 MUNICIPAL SERVICE: shall mean public utilities furnished by the city or town in which a subdivision is located, such as water, sewage, gas, or electricity.

- 13.6 RECORDED: shall mean recorded in the registry of deeds of the county or district in which the land in question is situated, except that as affecting registered land. It shall mean filed with the recorder of the land court.
- 13.7 REGISTER OF DEEDS: shall mean the register of deeds of the county or district in which the land in question, or the city or town in question, is situated, and, when appropriate, shall include the recorder of the land court.
- 13.8 REGISTERED MAIL: shall mean registered or certified mail.
- 13.9 S.P.G.A.: Special Permit Granting Authority. In Blandford, the Zoning Board of Appeals or Planning Board serves in this role.
- 13.10 SUBDIVISION: shall mean the division of a tract of land into two or more lots and shall include resubdivision, and when appropriate to the context, shall relate to the process of subdivision of the land or territory subdivided; provided, however that the division of a tract of land into two or more lots shall not be deemed to constitute a subdivision within the meaning of the Subdivision Control Law if at the time when it is made every lot within the tract so divided has frontage on:
- 13.10.1 A public way or a way which the Town Clerk of the Town of Blandford certifies is maintained and used as a public way, or
- 13.10.2 A way shown on a plan theretofore approved and endorsed in accordance with the Subdivision Control Law, or
- 13.10.3 A way in existence when the Subdivision Control Law became effective in the Town of Blandford, having, in the opinion of the Planning Board, sufficient width, suitable grades and adequate construction to provide for the needs of vehicular traffic in relation to the proposed uses of the land abutting thereon or served thereby, and for the installation of municipal services to serve such land and the building erected or to be erected thereon.
- Such frontage shall be of at least such distance as is required by the Zoning By-Law of the Town of Blandford for erection of a building on such lot. Conveyances or other instruments adding to, taking away from, or changing the size and shape of, lots in such manner as not to leave any lot so affected without the frontage above set forth, of the division of a tract of land on which two or more buildings were standing when the Subdivision Control Law went into effect in the Town of Blandford into separate lots on each of which one of such buildings remains standing, shall not constitute a subdivision.
- 13.11 SUBDIVISION CONTROL: shall mean the power of regulating the subdivision of land granted by the Subdivision Control Law.
- 13.12 SUBSTANTIAL IMPROVEMENT, SITE PLAN: Any repair, reconstruction, or improvement of a structure or site, the cost of which equals or exceeds fifty (50) percent of the market value of the structure and other improvements on a site including, but not limited to, utilities, drainage, parking, access ways, lighting, landscaping, signage before the improvement or repair is started.

13.13 SUBSTANTIAL IMPROVEMENT, STRUCTURE: Any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either (1) before the improvement or repair is started, or (2) if damaged, the value of the structure to be restored prior to being damaged.

13.14 SUBSTANTIAL IMPROVEMENT, SUBDIVISION: Substantial improvement of an approved subdivision shall mean that 1) the construction of all approved streets has been completed with the exception of the final coat of paving, and 2) all required utilities have been installed.

13.14.1 Large-scale ground-mounted solar photovoltaic installations. See Section VIII.

13.15 SUPERINTENDENT OF STREETS: The superintendent of streets or other official designated by the Board of Selectmen in charge of streets and roadways in the Town of Blandford.

13.16 TOWN: The Town of Blandford, Massachusetts.

13.17 TRAILER: A vehicle which can be drawn, carried on or incorporated in a motor vehicle whether on temporary or permanent supports, designed for dwelling or sleeping purposes or as a temporary business or construction office.

Appendix 2

DRAFT

Implementation of this draft policy is top recommendation of the climate resilience and sustainability chapters of the Master Plan

**Town of Blandford
Green Infrastructure and Climate Resiliency Policy**

Section 1. Goals:

The goals of this Town of Blandford 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 Blandford 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 Blandford 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 Blandford'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 Blandford 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 Blandford 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.

Commented [P1]: Exempt SFH development.

To achieve this, *where feasible*, Blandford 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 curbsless 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, using, 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 Blandford 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, Blandford 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;
- 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.

From discussion at 5-26-21 meeting

Would be good to define pathway to better coordination and communication.

Some ideas:

- Maybe before issuing CO, Building Inspector sends sign off form to PB and appropriate departments that ensures this policy being upheld.
- Maybe establish regular meetings across Town board and departments to talk about progress in meeting goals of policy (could be monthly, every other month, quarterly).

Section 4. Amendments:

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

Section 5. Effective Date/Authorization:

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

Approval by Blandford Selectboard:

_____ Chair, Selectboard Date

Appendix 3

Pre-application concept meeting

For projects seeking stormwater management and erosion & sediment control permit

Prepared by Pioneer Valley Planning Commission

Low Impact Development Checklist

Yellow highlights – where need to customize further.

To promote a Low Impact Development (LID) approach, the Town of Blandford Planning Board encourages all those applying for a stormwater management and erosion and sediment control permit to join the Planning Board for a pre-application concept meeting.

This meeting is intended to be beneficial for applicants prior to investing in extensive professional design efforts. The meeting will serve to provide applicants with advice and guidance relative to the permit approval process, but also allow the applicant and Planning Board to have a preliminary conversation about the site, stormwater management and erosion and sediment control considerations, and concept plan. It may also help to streamline the permitting process overall.

This meeting can be combined with the pre-submission review meeting described under the Subdivision Regulations, Section 4.0. The Planning Board may invite to this meeting other town boards and officers at its discretion.

What is Low Impact Development?

“Low impact development” (LID) is a development approach that seeks to maintain (or in the case of redevelopment, restore/recreate) a site’s predevelopment hydrology through protection of on-site natural features and environmentally sensitive site design through the following:

- Limiting impervious areas
- Preserving existing flow patterns
- Preserving native vegetation and soils, other natural resources and open space
- Using decentralized small-scale facilities to capture and manage rainfall (or snowmelt) close to where it falls (these small-scale facilities serve to slow, absorb, and treat flow and include bioretention areas, grass swales, porous pavements, cisterns, and green roofs and walls)
- Ensuring that LID strategies are implemented in a way so as to ensure protection of Blandford’s groundwater supply.

The checklist below identifies several items that will be helpful to bring to this meeting. All of these items are meant to be simple, low-cost drawings and analyses prepared by a professional landscape architect, architect, planner, site designer, or engineer.

1. Existing resources site analysis map that identifies, locates, and describes noteworthy features to be designed around:

___ Rivers, streams, and wetlands, and existing drainage patterns

___ Flood plains

___ Areas of flat, moderate, and steep slopes, and natural existing drainage patterns

___ Native vegetation, significant and/or rare vegetation, mature trees, woodlands

___ Farmland soils

___ Cultural or historic resources, including stone walls

___ Threatened or endangered species, and vernal pools

___ Unusual geological formations, including exposed ledge

___ Scenic views or viewsheds

2. Hydrologic soils group (HSG) map and soils description of site and abutting properties using NRCS mapping tool. Following are instructions to get Hydrologic Soils Group Map and Descriptions at <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>.

- Establish Area of Interest (AOI), inputting site address in Quick Navigation drop-down menu and then use rectangle or polygon tool to draw AOI. Double click or CTRL+click to close the AOI polygon
- Click on Soil Data Explorer tab
- Click on Soil Properties and Qualities tab
- Select Soil Qualities and Features from menu
- Select Hydrologic Soil Groups from drop-down menu
- Make sure map, table, description boxes are checked
- Click on View Rating, which will produce map with the HSGs color coded, a table, and description of soils that you can print

3. Sketch plan, based on the existing resources/site analysis map, that illustrates conceptual layout of the proposed development or redevelopment, including:

- | | |
|--|---|
| ___ Note of existing zoning and proposed use | ___ Calculation on estimated total square feet of new impervious area. If redevelopment project, show numbers of existing and new proposed. |
| ___ Proposed building, driveway, and street footprints | ___ Drainage areas, showing location of existing and proposed stormwater management facilities with identification of type of facility |
| ___ Proposed site access (points of ingress and egress) | |
| ___ Location of utilities | |
| ___ Anticipated limits of disturbance and areas to be protected from disturbance | |

Some questions for consideration at pre-application concept meeting:

Is development being designed to avoid ecologically important areas and critical watercourses, wetlands, and steep slopes?

Are natural existing drainage patterns proposed to be preserved and/or impacts minimized?

Are proposed built elements and site improvements located where development can occur with the least environmental impact?

Have built elements been clustered to maximize open space/pervious areas?

Have disturbance areas been delineated to avoid unnecessary clearing or grading?

Are impervious surfaces kept to the minimum extent practicable?

Are impervious surfaces disconnected from draining to the municipal storm system and directed to appropriate pervious areas or LID stormwater management facilities?

What are the proposed LID stormwater management facilities, and do they make sense given soils indicated from the desk top analysis?

How is stormwater management design also addressing groundwater drinking water supply protection? (For example, if a land use involves deliveries of fuel or other such potential contaminant, how is the stormwater management facility providing for containment of any potential spills?)

Appendix 4

Proposed Low Impact Development By-Law for Blandford, Massachusetts

Introduction

The following by-law establishes a new section of the zoning that addresses Low Impact Development. It establishes performance standards for Stormwater Management, Low Impact Development Site Planning and Design, Topographical Alteration, Tree Preservation and Protection, Soil Protection and Fill. The performance standards apply to projects with large-scale land disturbance or clearing. The standards are administered through Site Plan Review. The proposed section is intended to minimize the impact from large land-disturbing activities in the Town of Blandford. It uses a Low Impact Development approach to ensure that projects are designed and implemented to preserve Blandford's natural resources with a particular focus on stormwater drainage, tree preservation, and soils. This has the side benefit of ensuring that larger development projects do not degrade Blandford's rural character.

Changes in two sections of the Zoning By-Law are proposed. Definitions are added to Section XIII, and a new section XVI is added to the bylaw.

The Planning Board is encouraged to further revise this Bylaw to meet the Town's needs.

SECTION XIII: DEFINITIONS

Add to this section:

DISTURBANCE: action to alter the existing vegetation and/or underlying soil of a site, such as clearing, grading, site preparation (e.g., excavating, cutting, and filling), soil compaction, and movement and stockpiling of top soils.

LOW IMPACT DEVELOPMENT (LID): A comprehensive land planning and engineering design strategy that seeks to maintain a site's pre-development ecological and hydrological function through the protection, enhancement, or mimicry of natural processes. LID systems and practices emphasize reduction of effective imperviousness and conservation and use of existing natural site features integrated with distributed small-scale stormwater controls to result in the treatment, infiltration, evapotranspiration, and/or use of stormwater close to its source.

INFEASIBLE: not technologically possible, or not economically practicable and achievable in light of best industry practices.

MAXIMUM EXTENT PRACTICABLE (MEP): Refers to the extent of efforts to comply with the standards of this Zoning By-Law. Elements of MEP indicate serious intent to comply and include selecting and implementing design elements to address site restrictions. MEP is defined as the following:

1. Proponents of development/redevelopment projects have made all reasonable efforts to meet the applicable standards;

2. They have made a complete evaluation of possible design measures; and,
3. If not in full compliance with the applicable standards, they are implementing the highest practicable level of implementation as demonstrated by documentation submitted to the permit granting authority that shows the design alternatives that were evaluated and explains why the selected design meets the MEP criteria.

SLOPE, STEEP: any area of land that has a slope greater than 15% (rise divided by run) over a horizontal distance of 100 feet, as measured perpendicular to the contour line

Additional Definitions to be added, as needed

SECTION XVI – LOW-IMPACT DEVELOPMENT (LID)

16.1 PURPOSE

The purpose of this section is to provide a thorough review of construction, development, and/or redevelopment projects that have the potential to adversely impact natural resources, man-made structures, abutting properties and/or the Town's infrastructure. This section will ensure that these projects are designed in accordance with low impact development (LID) principles and techniques, unless infeasible, to protect Blandford's unique natural resource; maintain its rural character; improve its climate resilience; and minimize erosion, sedimentation, stormwater runoff, flooding, degradation of water ways, damage to town and private roads and other infrastructure, and loss of tree cover and habitat.

16.2 Applicability and Procedures

16.2.1 Activities Requiring Review

This Section XVI shall apply to the following construction, development, and/or redevelopment projects:

- 16.2.1.1 The disturbance of land area equal to or greater than one acre (43,560 square feet);
- 16.2.1.2 The disturbance of land as part of a larger common plan of development with a total disturbance area equal to or greater than one acre;
- 16.2.1.3 The clearing of land that results in trees being removed from one or more acre or 50 percent or more of a lot, whichever is less. Lots with an area of 20,000sf or less shall be exempt from this requirement; and/or
- 16.2.1.4 Construction, development, and/or redevelopment activities that occur on steep slopes as defined in this bylaw

16.2.2 Land Use Activities Exempt from Review

The following construction, development and/or redevelopment projects shall be exempt from the requirements of this Section XVI (but not exempt from other laws, regulations, and by-laws of the Town):

- 16.2.2.1 Any normal maintenance of Town owned public lands, ways, and/or appurtenances.
- 16.2.2.2 Redevelopment activities that are exclusively limited to maintenance and improvement of existing roadways, (including widening less than a single lane, adding shoulders, correcting substandard intersections, improving existing water, sewer or drainage systems, and repaving projects).
- 16.2.2.3 Activities undertaken in connection with an existing public athletic field; the management of Town-owned park or cemetery; or the management and operation of the existing footprint of a golf course or ski area.
- 16.2.2.4 Work in connection with an agricultural use classified under M.G.L. c. 61A, including: planting, cultivating harvesting, and/or the raising and/or caring of animals; agricultural operations in accordance with an approved Natural Resource Conservation Service Agricultural Plan; agricultural uses on parcels of land of more than five acres as specified in M.G.L. c. 40A, Section 3; and/or the harvesting of trees on a property classified and good standing under M.G.L. c. 61 and in accordance with a forest management plan or cutting plan as set forth in M.G.L. c. 61, Section 1.
- 16.2.2.5 Activities conducted in accordance with a Forest Stewardship Plan approved by the Massachusetts Department of Conservation and Recreation.
- 16.2.2.6 Temporary work relative to emergency storm events or emergency repairs to any utilities (gas, water, sewer, electric, telephone, etc.), including situations that pose an immediate danger to life and/or property.
- 16.2.2.7 Construction of utilities (gas, water, sewer, electric, telephone, etc.) other than drainage, which will not alter terrain, ground cover, or drainage patterns.
- 16.2.2.8 Repair or replacement of septic systems when required by the Board of Health for the protection of public health;
- 16.2.2.9 Work associated with a single-family house unless the house is part of a new subdivision or part of a common plan of development with more than one single-family house.

16.2.3 Permit Granting Authority and Permit Procedure

The standard requirements and permit procedures for projects requiring Site Plan Approval, as set forth in Section IX of the By-law, shall apply to all projects subject to this Section. Projects associated with uses that are exempt from Site Plan Review per Section 9.1.3 are nonetheless subject to Site Plan Review under this section 16, if they meet the criteria for “Activities Requiring Review” above.

16.2.4 Minimum Standards

The LID By-Law shall serve as the minimum standards for activities that fall under LID review. Applicants are expected to exceed these minimum standards through the use of BMPs, LID techniques, increased vegetation, the preservation of land, and/or limiting development to previously disturbed areas. Furthermore, projects on previously developed sites shall be expected to increase stormwater infiltration and reduce stormwater runoff, erosion, sedimentation and Total Suspended Solids (TSS) when compared to existing conditions.

16.2.5 Non-Avoidance by Phasing or Segmentation

A construction, development, and/or redevelopment project shall not be phased and/or segmented in such a manner so as to avoid compliance with the LID By-Law. The Planning Board shall not approve any application for construction, development, and/or redevelopment, where individual parcels and/or multiple parcels of land are held in common ownership (including ownership by related or jointly controlled persons or entities) with the intent to segment project phases. All phases of a project shall be considered as part of a single development project if located either on a single parcel or contiguous parcels of land that have been in the same common ownership at any time after the date of adoption of this Section XVI.

16.2.6 Documentation Submittal Requirements

Applications shall submit plan sets and supporting documentation in accordance with the requirements set forth in the Town of Blandford Planning Board^[DF1] Rules & Regulations.

16.2.7 Pre-application and Concept Plan Meeting

16.2.7.1 Prior to investing in extensive professional design efforts, it may be beneficial to attend at least one pre-application meeting with the Planning Board. This meeting is intended to provide the applicant with advice and guidance relative to the approval process; and allow the applicant and Planning Board to have a preliminary conversation about the site, stormwater management and erosion control considerations, and concept plan. The Planning Board may invite to this meeting other town boards and officers at its discretion.

16.2.7.2 To encourage a better site design approach, the applicant should submit a completed copy of the Town's *Low Impact Development Design Checklist* to the Planning Board prior to the pre-application meeting. The checklist identifies items that will be helpful for this preliminary meeting and will help to streamline the permitting process overall.

16.2.7.3 This meeting can be combined with the pre-submission review meeting described under the Subdivision Regulations.

16.2.8 Waivers

Strict compliance with the LID By-Law is required to the greatest extent feasible. The Planning Board may grant waivers for Documentation Submittals by a majority vote and

for design standards by a four-fifths vote, where such action is not inconsistent with the purposes of the LID By-Law or the other associated Regulations.

16.3 Performance Standards

16.3.1 Stormwater Management

Projects subject to this Section shall comply with the Massachusetts Stormwater Management Standards and any stormwater regulations adopted by Planning Board pursuant to this section to the maximum extent practicable. Applicants are encouraged to consult the *Massachusetts Stormwater Handbook*, as amended, and to retain the services of a professional engineer, if needed.

16.3.2 Low Impact Development Site Planning and Design

16.3.2.1 The applicant shall submit plans demonstrating that the following design process were followed and that the site design implements low impact development to the maximum extent practicable. If standards elsewhere in the Blandford Zoning By-Law preclude implementation of any low impact development technique described below, the applicant may request a waiver from the conflicting provisions via Site Plan Approval from the Planning Board.

16.3.2.2 Identify and preserve the site's natural features, hydrology, and ecological integrity including preservation of existing permeable soils, drainage ways, wetlands, floodplains, slopes, healthy native and naturalized non-invasive vegetation, woodlands, significant plant communities and wildlife habitats, natural soil structure, and historic and cultural resources to the greatest extent possible;

16.3.2.3 Identify areas for development. Whenever possible, all buildings, roadways, parking lots/areas, detention/retention facilities, and other site improvements shall be located in previously developed, cleared, disturbed, and/or improved areas before an applicant proposes to disturb an area that presents existing natural topography. Buildings, structures, and/or parking facilities shall be sited away from the crest of hills so as to not detract from the scenic site's scenic qualities.

16.3.2.4 Designate a building envelope(s). The extent and location of construction, clearing, structures, parking areas, and associated site improvements shall be limited to the designated building envelope(s). The building envelope(s) shall be sized and delineated to accommodate necessary compaction incurred during construction.

16.3.2.5 Site, and when appropriate, cluster buildings in locations that avoid environmentally sensitive areas; Minimize the size of building footprints;

16.3.2.6 Minimize impervious surfaces wherever possible through LID design of streets, parking lots, driveways and other site elements. Appropriate LID design techniques include: minimizing travel lane widths; minimizing the number and

size of parking spaces; minimizing parking aisle widths; use of shared parking areas; minimizing driveway widths; the use of shared driveways; the use of porous pavement or permeable pavers;

- 16.3.2.7 Minimize Grading, Clearing and soil compaction with a focus on preservation of existing topography, vegetation, and soils (especially those in Hydrologic Soil Groups A and B) where it most benefits hydrologic functions; fit development to the natural terrain to the maximum extent practicable;
- 16.3.2.8 Use and/or create subwatersheds to treat and manage runoff as close to the source as possible using smaller, decentralized stormwater management techniques;
- 16.3.2.9 Use stormwater management components that provide filtration, treatment and infiltration such as vegetated areas that slow down runoff; maximizing infiltration and reducing contact with paved surfaces;
- 16.3.2.10 Lengthen flow paths and maximize sheet flow;
- 16.3.2.11 Use simple, nonstructural, innovative, low-cost methods for managing stormwater, including: open drainage systems; recharge of roof runoff, parking areas and/or roadways;
- 16.3.2.12 When plants are used for stormwater management or landscaping, use native and/or naturalized non-invasive vegetation. Select plants based on their ability to survive in the conditions under which they will be planted without additional irrigation, fertilization, or pesticides. It is recommended that at least 75% of new plants be native plants
- 16.3.2.13 Provide an operations and maintenance plan and easements and other agreements for any LID stormwater management elements. The operations and maintenance plan and easements and other agreements shall ensure that the LID stormwater management elements continue to function as intended. The operations and maintenance plan and agreements shall comply with any **Regulations adopted by the Planning Board pursuant to this Section.**
- 16.3.2.14 Consider and, to the maximum extent practicable, propose and implement Low Impact Development (LID) Stormwater BMPs. Applicants shall demonstrate compliance with design standards for LID Stormwater BMPs through generally accepted methods. LID Stormwater BMPs include, but are not limited to:
 - (a) Grassed Channels/Swales;
 - (b) Water Quality Swales
 - (c) Bioretention Areas & Rain gardens;
 - (d) Tree Filters;
 - (e) Vegetated filter strips;
 - (f) Cisterns and rain barrels;
 - (g) Green roofs;
 - (h) Constructed wetlands;

- (i) Subsurface gravel wetlands;
- (j) Infiltration trenches, chambers, or basins.

16.3.3 Topographical Alterations

16.3.3.1 Where possible, development shall not occur on steep slopes. If development is proposed on a steep slope, the Planning Board and the Highway Department shall review grading plans, and erosion control and sedimentation plans to ensure such topographical alteration will not adversely impact direct abutters, structures, and/or the stability of the land.

16.3.3.2 To protect the root zones of existing vegetation, topographical alteration shall not occur within 10' of a vegetated buffer to a wetland or within 10' of a front and/or rear setback.

16.3.3.3 The Planning Board may require the applicant to establish a vegetated berm to prevent negative impacts to abutting properties and/or roadways.

16.3.4 Tree Preservation and Protection

16.3.4.1 The removal of trees greater than 16" diameter at breast height shall not be permitted within the front, side or rear setbacks, unless:

- (a) The trees are identified by the Town's Tree Warden to be hazardous or diseased, or
- (b) The LID design process demonstrates that removal of the trees results in the most environmentally sensitive design, or
- (c) The tree removal is necessary to construct a driveway or subdivision roadway. The width of the driveway or roadway shall be the minimum width required by the Highway Department, Fire Department, and Police Department.

16.3.4.2 Consistent with the design process described in Section 16.3.2, site plans shall show all trees greater than 10" (hereafter, called significant trees) or that are part of a stand of 5 or more trees that are to be retained. Prior to any site clearing, excavation, grading, movement of construction vehicles or materials onto a site, or other construction activities, all trees to be retained shall be surrounded by temporary protective measures as shown on approved plans. All significant trees on adjacent properties whose drip lines extend into the project site shall also be protected as shown on plans.

16.3.4.3 Construction vehicles and materials shall not be stored within the critical root zone or drip line of a significant tree.

16.3.4.4 All protective measures for significant trees shall be maintained until all construction work is completed, the site is stabilized and restored to a growing state and the Town issues a certificate of occupancy.

16.3.4.5 The Building Inspector may approve additional measures proposed in writing by a Certified Arborist to maintain the health of significant trees during construction (i.e., pruning, soil aeration, root pruning, watering, etc.). Such measures shall conform to ANSI A300 Standards.

16.3.4.6 Any tree that is designated for protection that dies during, or within one year of the conclusion of construction, shall be replaced. Replacement trees shall have 1/4" of caliper for every 1" of caliper of a significant tree that dies. If trees lost are part of a stand with more than five trees, then Replacement trees shall have 1/4" of caliper for each 2" of caliper for each tree lost from a stand of five or more trees. At the time of planting, each replacement tree shall have a minimum caliper of two inches measured six inches above the soil root ball. Each replacement tree must meet American Association of Nurserymen Standards for the type and size of species that is provided. In lieu of planting replacement trees on site, an applicant may plant replacement trees elsewhere in the Town of Blandford upon approval of the approval body and the Tree Warden. Such trees shall be planted in locations deemed appropriate by the Tree Warden. In lieu of planting replacement trees on site, an applicant may contribute to the Town's tree replacement^[DF3] fund, upon approval of the approval body and the Tree Warden. The amount of the required payment to the Town's tree replacement fund shall be adequate, in the Planning Board's estimate, to allow the Town to plant the required number of new trees on Town property.

16.3.5 Soil Protection and Fill

16.3.5.1 The soil duff layer and native topsoil should remain undisturbed to the maximum extent practicable.

16.3.5.2 Disturbance of soils shall be strictly limited to the building envelopes shown on the LID Plan.

16.3.5.3 In areas requiring grading, the duff layer and topsoil shall be removed and stockpiled on-site in a designated, controlled area, not adjacent to surface waters, wetlands, floodplains, or river corridors, and reapplied on-site. Such stockpiles shall be seeded and/or covered, and protected with erosion controls around the base of the pile, until such soils are needed. The duff and topsoil shall be reused on-site where possible.

16.3.5.4 When new fill is required to be brought onto the site, the use of clean fill is required. Prior to fill being brought onto site, the applicant shall provide a written notarized affidavit to the Planning Board, Highway Department, and the Conservation Commission that includes the name of the company, the location where the fill is coming from, the type of fill, and any additional information to certify that all fill is clean. Subsoils below the topsoil layer shall be scarified at least 4 inches with some incorporation of the upper material to avoid stratified layers, where feasible.

16.3.5.5 At project completion, imported soils shall be conducive to the type of vegetation to be established. Unless, the applicant demonstrates an alternative requirement, topsoil should meet the following quality requirements:

- (a) a topsoil layer with a minimum organic matter content of 10% dry weight in planting beds and 5% organic matter content in turf areas; and
- (b) a pH from 6.0 to 8.0 or matching the pH of the undisturbed soil.
- (c) The topsoil layer shall have a minimum depth of 8 inches except where tree roots limit the depth of incorporation of amendments needed to meet the criteria

16.3.5.6 Throughout the duration of construction, a gravel apron of at least fifteen feet wide and at least twenty-five feet long is required at any site access from a paved public way to prevent unstable material from being transported onto the roadway by vehicle tires.

16.4 Findings and Conditions of Approval

The Planning Board shall render written findings prior to granting an approval or disapproval of the application. Such findings shall pertain to the entire proposed project that is subject to review. The Planning Board may modify the site plan or project as a condition of its approval. The Findings shall contain, at a minimum, the following:

- 16.4.1.1 All documents and plans required in Section XVI and **related Regulations** have been submitted and fully explain the LID Design Process used for the project.
- 16.4.1.2 The project meets the Performance Standards in Section 16.3 to the maximum extent practicable

Appendix 5

Proposed Performance Standards related to Low Impact Development for Blandford, Massachusetts

Introduction

This document contains a proposed section for Blandford’s Zoning Bylaw. The new section contains performance standards related to Driveways, Trees, Landscaping, and Permeable Pavement.

The proposed language can be customized to meet the Town’s needs.

SECTION XVII– Performance Standards

17. Performance Standards

17.1 Driveways

17.1.1 Any required driveway on private property may be surfaced with pervious pavement where site conditions allow. The use of a “two track” design is encouraged for a driveway serving a single-family dwelling in order to reduced impervious surface.

17.1.2 Driveway widths measured at the front lot line shall comply within the following dimensions:

	Minimum	Maximum
Single-family use	10 feet	15 feet
All other uses, One-way	11 feet	20 feet
All other uses, Two-way	22 feet	30 feet

17.2 Trees

New trees required to be planted by this bylaw, or proposed to be planted as part of a special permit or site plan approval, shall meet the following standards.

17.2.1 The trees shall be selected from the Town of Blandford Recommended Tree List.
[Editor’s note: The Planning Board would adopt a Tree List]

17.2.2 Adjacent street trees and trees within parking lots shall be spaced to form a continuous canopy upon maturity.

17.2.3 Each tree shall be surrounded by fifty (50) contiguous square feet of soil surface area that is free of impervious surfaces and capable of infiltrating stormwater. The soil surface area shall not be less than four feet wide at any point.

17.2.4 Each small tree shall be provided with a minimum of 600 cubic feet of soil volume. Each medium tree shall be provided with a minimum of 800 cubic feet of soil volume. Each large tree shall be provided with a minimum of 1,000 cubic feet of soil volume.

- 17.2.5 Where possible, adjacent tree planting areas shall be connected to provide larger connected soil volumes for tree roots.
- 17.2.6 At the time of planting, each tree shall have a minimum caliper of two inches measured six inches above the soil root ball. Each replacement tree must meet American Association of Nurserymen Standards for the type and size of species that is provided.
- 17.2.7 If a required tree dies, it shall be replaced within sixty days, or if the ground is frozen, within sixty days of the ground being free of frost. Failure to replace a tree in a timely manner shall be subject to the enforcement provisions **in Section 7**.

17.3 Landscaping

Landscaping that is required by this bylaw, or proposed to be planted as part of a special permit or site plan approval, shall meet the following standards.

- 17.3.1 Lawn shall be limited to only those areas that are functionally necessary. Examples of functions of lawn include gathering space and space for outdoor recreation. Lawns shall be planted with species that minimize the need for irrigation, fertilizer, pesticides and herbicides.
- 17.3.2 Landscaped areas, other than lawns, shall contain species from three or more of the following categories: trees, shrubs, herbaceous perennials, flowering annuals, ground covers (not including lawn grasses), bulbs. There shall be at least three species for each of the required three plant categories (nine species minimum). Plants must be a mix of heights and habits upon maturity. Within three years of planting, at least 80% of the ground surface must be covered by plants from June through September. Exposed soil shall be minimized through use of a mulch that retains moisture and prevents erosion of soil.
- 17.3.3 At least 30% of the plant species in a landscaped area shall be native to the United States, with a strong preference for species that are native to the northeast. All species shall be adapted to the conditions in which they are planted—and expected future climatic conditions over the course of their expected life span—in order to minimize the need for irrigation, fertilizer, pesticides, and herbicides.
- 17.3.4 Landscape areas shall be designed to store, infiltrate and/or clean stormwater where feasible.
- 17.3.5 If a required plant dies, it shall be replaced within sixty days, or if the ground is frozen, within sixty days of the ground being free of frost. Failure to replace vegetation in a timely manner shall be subject to the enforcement provisions **in Section 7**.

17.4 Permeable Paving

- 17.4.1 Any sidewalk or walkway on private property required as part of a site plan or special permit approval shall [alternative: “may”] be surfaced with pervious pavement where feasible. When a sidewalk is required to be built on public property as part of a site plan or special permit approval, the Planning Board may require it to be surfaced with

pervious pavement. In making such a determination, the Planning Board shall consult with the Highway Department.

- 17.4.2 Any paved parking lot or driveway required as part of a site plan or special permit approval shall [alternative: “may”] be surfaced with pervious pavement where feasible.

DRAFT

Appendix 6

INSTRUCTIONS: For all "Yes" answers, enter the associated number of points in the Yes column. BLUE questions are worth two points; ORANGE questions are worth 0.5 points. All other questions are worth 1 point. If the answer is

Question		Yes	No	N/A	Codes are Silent	Notes + Strength - Weakness > Action
Code Area						
Street Width						
1	1		x			Subdivision regulations do not specify minimum roadway widths. 7.4.1 Refers to Typical Cross-Sections and good engineering practice. We were unable to find Typical Cross Sections on the town website. In Zoning: XIII. Definitions, 13.10.3 Subdivision + "Sufficient width" leaves room for narrower roads where demand is low. > Consider defining roadway widths consistent with rural conditions. Refer to recommended street widths and design characteristics in "Sustainable Road Design" (Mass APA/Massachusetts Association of Home Builders, 2011). These could be added to the Subdivision regulations and referred to from the zoning for the functional equivalent of roads like parking lot aisles.
	2				x	Not mentioned. >Add to subdivision regulations.
1	3		x			Subdivision regulations, 7.74.8, requires "two (2) inch compacted bituminous concrete binder course and a one (1) inch minimum compacted hot asphalt concrete surface course" Permeable pavement presumably not specifically allowed. Zoning does not have parking standards > Encourage permeable pavement in Site Plan Review section and subdivision regulations
Street Length						
1	4		x			Not found in subdivision regulations; no mention in Zoning or Town By-Laws. > Make explicit
Right-of-Way Width						
1	5		x			Subdivision Regulation 7.31. require 50' for local street and 60' for a Collector > Weigh the pros and cons of reducing ROW width. On the one hand a wider ROW results in more impervious surfaces (driveways will get 5-15 longer). On the other hand, as long as the full width of the ROW is not required to be cleared a wider ROW can have minimal impact while providing more room for street tree planting, country drainage and future expansion if needed.
	6				x	Not mentioned in subdivision regulations > Allow in subdivision regulations. Include in the Typical Cross Sections and add a mention in the text of the subdivision regulations.
1	7		x			Subdivision regs require street trees and a minum amount of loam, but don't specify planting area. In Subdivision Regs: 7.7 Required Improvements, 7.7.7 Shade Trees: "Where, in the opinion of the Board, existing trees are inadequate, shade trees having a trunk diameter of at least two (2) inches and of such variety as the Board may approve shall be planted; such trees shall usually be spaced not more than forty (40) feet apart, on both sides of the street, within ten (10) feet of the front lot line or as otherwise approved by the Board, and planted in one-half (1/2) cubic yards of loam." - Planting guidance does not explicitly outline surface area requirements or required root space > Set minimum area requirements for planting surface area (minimum 6ft wide and 50 square feet total) and a minimum area for root space--600 cubic feet for a small tree, 800 cubic feet for medium tree, 1000 cubic feet for a large tree.
Cul-de-Sacs						
1	8		x			Subdivision Regulations: Cul de Sacs are required for dead end streets. No other mention of preference for loop streets or connected streets mentioned, other than mention of projections. - No mention in Zoning or Town By-Laws > In Subdivision Regs, encourage loop streets and add provisions for alternate turnarounds like hammerhead turnarounds.
1	9		x			Subdivision Regs require an excessively large 100' outer diameter. [Note it is unclear whether this is the dimention of the ROW at the turnaround or the edges of the pavement--in either case it is excessively large]. > Reduce the diameter required for cul-de-sacs. One approach is to test the turning radius of the Town's largest piece of equipment and then set the circle radius based on that.
2	10				x	Subdivision Regs don't specify this > Make explicit
						<i>Yes, and the cul-de-sac must be graded to the island with an overflow to the storm drain system, so that it can be used for stormwater treatment (2 pts.)</i>
						<i>Yes, but curbing is required or the island must be raised, limiting its use for stormwater treatment (1 pt.)</i>
1	11		x			Not mentioned in subdivision regulations > Make explicit that these are preferred
						<i>Yes, alternative turnarounds are specifically mentioned in the ordinance with specific design/construction guidance provided by reference</i>
						<i>Yes, alternative turnarounds are allowed, but no specific guidance provided on design</i>
Vegetated Open Channels						
1	12				x	In Subdivision Regs: 7.7 Required Improvements, 7.7.5 Storm Drainage: 3. Catch Basins: Adequate disposal of surface water shall be provided. Catch basins shall be built on both side of the roadway on continuous grades, at intervals of not more than two hundred and fifty (250) feet at low points and sags in the roadway and near the corners of the roadway at intersecting streets, and all drainage is to be of metal pipe. Catch basins and covers shall be constructed according to the type currently used by the Town, shall be installed under the supervision of the Highway Superintendent." In Zoning: Site Plan Review, 9.1.8 Criteria for Review: "9.1.8.6 The site plan shows adequate measures to prevent pollution of surface or groundwater, to minimize erosion and sedimentation, to prevent changes in groundwater levels, and potential for flooding, and a stormwater management plan prepared in accordance with good engineering, hydrologic and pollution control practices." - No mention of using vegetated open channels for drainage in Subdivision Regs or Zoning or Town By-Laws. Subdivision Regs discourage LID stormwater techniques by requiring catch basins. > Explicitly allow use of vegetated channels for drainage and do not require catch basins unless LID drainage is infeasible.
	13				x	Codes are silent > Explicitly allow and encourage runoff reduction practices like dry swales, bioretention, biofilters, or vegetated swales
Parking Ratios						

		Question	Yes	No	N/A	Codes are Silent	Notes
		Do parking ratios reflect local parking demand?				x	Minimal mention of parking in Zoning or Town By-Laws. In Zoning: Site Plan Review, 9.1.5 Required Site Plan Contents: "(f) The location of existing and proposed parking and loading areas, public and private ways, driveways, walkways, sidewalks, curbing, access and egress points" 9.1.8 Criteria for Review: "9.1.8.2 The site plan minimizes traffic and safety impacts of the proposed development on adjacent highways or roads, and maximizes the convenience and safety of vehicular and pedestrian movement within the site." + Blandford's zoning does not require excessive parking. This is unusual and admirable. > Continue not requiring a minimum amount of parking. Consider setting maximum parking requirements. For example, state that the amount of parking provided shall not exceed the recommended parking in either the ULI or ITE parking generation manuals and if it does, the pervious surfacing must be required for the extra spaces.
1	14						
		<i>Yes, they are based on a local study of parking demand, or are based on ITE or ULI values and adjusted for local conditions.</i>					
		<i>No, we simply use the ITE or ULI values, base them on a neighboring community's standards, or we do not know where they came from.</i>					
1	15	Are parking requirements set as maximums?				x	Zoning is silent. See COW 14.
Parking Codes							
2	16	Are shared parking arrangements allowed?				x	Zoning is silent. See COW 14. >Allow and encourage shared parking
		<i>Yes, shared parking is allowed by-right (2 pts.)</i>				x	
		<i>Yes, shared parking is allowed with special exception (1 pt.)</i>				x	
1	17	Are parking ratios reduced if shared parking arrangements are in place?				x	Zoning does not have parking minimums so parking ratios can't be reduced. > The zoning could encourage applicant to provide less parking if parking is shared.
1	18	Is the parking ratio reduced when multi-modal transit (e.g., mass transit, bike share or car share programs) is provided?				x	Zoning does not include parking ratios > Leave parking as is and encourage pedestrian and bicycle site designs
1	19	Can the number of parking spaces be reduced and additional parking be maintained as green space until needed for redevelopment projects?				x	Zoning does not include minimum parking ratios > Encourage applicants to not pave occasional use parking areas and instead leave them as grassed areas or use grass pave or similar.
	20	Are parking credits provided when nearby on-street parking is available?				x	Zoning is silent. See COW 14.
Parking Lots							
1	21	Is the minimum stall width for a standard parking space 9 feet or less?				x	Zoning is silent. > Encourage applicants to minimize size of parking spaces
1	22	Is the minimum stall length for a standard parking space 18 feet or less?				x	Zoning is silent. > Encourage applicants to minimize size of parking spaces
1	23	Is a fixed proportion (eg., 15%) of the spaces at larger commercial parking lots required to have smaller dimensions for compact cars?				x	Zoning is silent. > Encourage applicants to minimize size of parking spaces by setting aside compact car spaces
2	24	Can pervious materials be used for parking areas, including spillover or special event parking? (2 pts.)				x	Zoning is silent. > Encourage use of pervious materials for parking lots, where feasible
Structured Parking							
	25	Are there any incentives for developers to provide parking within garages rather than surface parking lots?			x		Structured parking is not necessary and unlikely to be economically feasible in Blandford
Parking Lot Runoff							
2	26	Is a minimum percentage of a parking lot required to be landscaped? (2 pts.)				x	Zoning is silent. > Set this requirement
2	27	Is the use of runoff reduction practices within landscaped areas, setbacks, or parking areas allowed? (give yourself 2 pts.)				x	Zoning is silent. > Encourage or require these practices
1	28	Are flush curbs and/or curb cuts and depressed landscaped areas allowed so that runoff can be directed into vegetated landscaped islands or runoff reduction practices?				x	Zoning is silent. > Encourage or require these practices
1	29	Are dimensions for landscaped areas sufficient to plant large trees?			x		Zoning is silent. See COW 7 > Add a standard for this to site plan review criteria and/or Planning Board regulations
		<i>Yes, a minimum width 6 feet or greater is specified</i>					
		<i>No, a minimum width less than 6 feet is specified</i>					
1	30	Do vegetated stormwater management areas count toward required landscape minimums?				x	Zoning is silent. See COW 14.
Open Space Design							
2	31	Do the ordinances require or allow open space subdivisions?				x	No mention of Open Space Design in Zoning or Subdivision Regs. > Top priority recommendation: Add an OSD section to the zoning including the best practices described below. Consider the Natural Resource Protection Zoning (NRPZ) model.
		<i>Yes, they are required in a designated open space zoning district (2 pts.)</i>					
		<i>Yes, open space designs are an allowable option (through an overlay zone) (1 pt.)</i>					
1	32	Is land conservation or impervious cover reduction a major stated goal or objective of the open space design ordinance?			x		See COW 31
2	33	Is a minimum percentage of the buildable portion of the site required to be set aside as open space?			x		See COW 31
		<i>Yes, at least 50% (2 pts.)</i>					
		<i>Yes, less than 50% (1 pt.)</i>					
1	34	Is the open space determined through a stepwise design process where open space is identified first?			x		See COW 31
1	35	Is open space design a by-right form of development versus a more burdensome conditional use or warrant?			x		See COW 31
1	36	Are flexible site design criteria available for developers that utilize open space or cluster design options (e.g., setbacks/lot lines, road widths, lot sizes and shapes)?			x		See COW 31
2	37	Are density bonuses and/or penalties used to encourage use of open space design?			x		See COW 31
		<i>Yes, density penalties are given for conventional development. (2 pts.)</i>					
		<i>Yes, density bonuses are provided for open space designs that exceed the minimum requirements for open space protection, up to an established maximum. (2 pts.)</i>					
		<i>Yes, density bonuses are provided for open space designs that exceed the minimum requirements for open space protection, with no cap on density bonuses. (1 pt.)</i>					
Setbacks and Frontages							

Question		Yes	No	N/A	Codes are Silent	Notes
1	38				x	No mention of irregular lot shapes in Zoning or Town By-Laws. > Consider allowing irregular shaped lots, but only in appropriate locations--for example those with reasonable infiltration and relatively un-steep lots
1	39		x			In Zoning: Residential District, 4.1.1.1 Uses Permitted, One and two-family dwellings: "The Zoning Board of Appeals shall grant a special permit... provided: (a) The minimum frontage of a lot in the district and the minimum area of the district for each dwelling are met. (b) All minimum distances between buildings and setback requirements are met." 4.1.2 Frontage and Area of Lots: "4.1.2.1 The minimum frontage of lots in this district shall be 150 contiguous feet, and the minimum area shall be 30,000 square feet. 4.1.2.2 The minimum distance between a dwelling or accessory building and a street line shall be 30 feet" Business District, 4.2.2 Front Yards: "In the Business District there shall be provided in the front of every building or structure a front yard extending the full width of the lot and equal in depth to the average of the depths of yards on adjoining lots, and no building or structure shall be erected moved, or altered, reconstructed, or enlarged so that a front yard less in clear depth shall result.... Where there are not sufficient buildings in the vicinity to determine an average, the minimum depth of front yards shall be thirty (30) feet." Agricultural District, 4.3.2 Frontage and Area of Lots "4.3.2.1 The minimum frontage of lots in this district shall be 300 contiguous feet, and the minimum area shall be 87,120 square feet... 4.3.2.3 The minimum distance between a dwelling or accessory building and a street line shall be 30 feet." - No mention of variances except for front setback averaging in Business District. > Allow flexibility to setbacks and frontage requirements by waiver through site plan review. (Note: we recommend that Blandford not use a variance procedure for this)
Sidewalks						
2	40				x	Subdivision regs require 4' sidewalks on both sides. Minimal mention of sidewalks in Zoning or Town By-Laws. In Zoning: See COW 14 > Allow 5' sidewalks on one side where appropriate in Subdivision Regs. Allow "sidepaths" that meander within the ROW to preserve existing trees and follow contours, rather than specifying sidewalks that are strictly parallel to the street edge.
1	41				x	Not mentioned in subdivision regulations > Add this
1	42				x	Not mentioned in subdivision regulations > Add this. See #40 above
1	43				x	Not mentioned in subdivision regulations > Add this
Driveways						
1	44				x	Minimal mention of driveways in Zoning or Town By-Laws. In Zoning: Plans and Permits: "5.1.2 No driveway or right of way shall be constructed or connected to any traveled way or portion of a town way until written permit for same is issued by the Selectmen. The Highway Superintendent shall make proper provisions for road drainage grades, visibility, and such things of like nature necessary for the issuance of such a permit." Also see COW 14 > Establish standards the minimize the widths of driveways
2	45				x	Codes are silent > Explicitly allow and encourage
1	46				x	Codes are silent > Explicitly allow and encourage
1	47				x	Codes are silent > Explicitly allow and encourage
Open Space Management						
2	48			x		No Open Space Design provisions. > Add OSD section to zoning
1	49				x	See #48 and #31
1	50			x		See #48 and #31
1	51			x		See #48 and #31
1	52			x		See #48 and #31
1	53			x		See #48 and #31
1	54			x		See #48 and #31
1	55			x		See #48 and #31
Rooftop Runoff						
1	56				x	Codes are silent > Explicitly allow and encourage
1	57				x	Codes are silent > Explicitly allow and encourage
1	58				x	Codes are silent > Explicitly allow and encourage
1	59				x	Codes are silent > Explicitly allow and encourage
	60					Not reviewed
Buffer Systems						

Question		Yes	No	N/A	Codes are Silent	Notes
2	61	2				<p>MA Wetland Law requires this</p> <p>In Zoning: Long Pond Watershed Protection District, 4.4.5 Prohibited Uses "The following uses are prohibited within the Watershed Protection District: 4.4.5.1 Forestry, i.e., the cutting or removal of trees within 100 yards of the shore of Long Pond... and 25 feet from the bank of all brooks and streams flowing into Long Pond... 4.4.5.3 Any new buildings, structures, land-disturbing activities, or excavations within the Watershed Protection District." Site Plan Review, 9.1.5 Required Site Plan Contents: "(d) Existing and proposed topography at the two foot contour interval, the location of wetlands, streams, water bodies, drainage swales, areas subject to flooding and base flood elevations and unique natural land features; (h) Proposed landscape features including the location and a description of buffers, screening, fencing, and plantings, including the size and type of plants material;" 9.1.8 Criteria for Review: "9.1.8.3 The proposed development, to the extent feasible: (b) minimizes adverse environmental impacts on such features as wetlands, floodplains, and aquifer recharge areas... 9.1.8.6 The site plan shows adequate measures to prevent pollution of surface or groundwater, to minimize erosion and sedimentation, to prevent changes in groundwater levels, and potential for flooding, and a stormwater management plan prepared in accordance with good engineering, hydrologic and pollution control practices." Flood Plain District, 10.1.2.2 Base Flood Elevation and Floodway Data: "(a)...floodway data shall be used to prohibit encroachments in floodways which would result in any increase in flood levels within the municipality during the occurrence of the base flood discharge." + Long Pond Watershed Protection District (WPD) limits development and forestry along waterways. + Flood Plain District partially meets LID standards: prohibits encroachment in floodways, but some ambiguity about which areas are floodways, difficult to read Priority Resources Map - Site plans require location and description of buffers, but no explicit requirement for vegetated buffers >Make requirement for a vegetated buffer along waterways more explicit for site plan criteria, or adopt local wetlands bylaw with expanded buffer requirements > See PVPC recommendations RE Long Pond</p>
2.5	62					<p>In Zoning: Long Pond Watershed Protection District, 4.4.2 Intent of District: "The intent of the Watershed Protection District is to include lands lying adjacent to water courses and surface water bodies which create the catchment or drainage areas of such water courses and bodies, as part of their natural drainage system." Flood Plain District, 10.1.2.2 Base Flood Elevation and Floodway Data: See COW 61. + Definition of "water courses and surface water bodies" is expansive. > See PVPC recommendations re Long Pond</p>
		0.5				
		0.5				
		0.5				
				x		Estuaries not applicable
		0.5				
		0.5				
2	63					<p>In Zoning: Long Pond Watershed Protection District, 4.4.2 Intent of District: See COW 62 4.4.5 Prohibited Uses: "4.4.5.1 Forestry, i.e., the cutting or removal of trees within 100 yards of the shore of Long Pond from the mean high water line and 25 feet from the bank of all brooks and streams flowing into Long Pond." - Language of Long Pond WPD does not outline minimum buffer width. - Forestry uses allowed 25 ft from waterways - No mention of minimum buffer width in Site Plan Criteria > See PVPC recommendations re Long Pond</p>
			x			
1	64	1				<p>In Zoning: Long Pond Watershed Protection District, 4.4.2 Intent of District: See COW 62. + Meets LID standards: Long Pond WPD includes drainage areas adjacent to Long Pond. > See PVPC recommendations re Long Pond. >Consider applying similar provisions for other high quality streams--for example any designated coldwater fishery resources</p>
1	65	1				<p>In Zoning: Long Pond Watershed Protection District, 4.4.2 Intent of District: See COW 62. Flood Plain District, 10.1.2.1 Floodplain District Boundaries and Base Flood Elevation Data: "The District includes all special flood hazard areas designated on the Town of Blandford Flood Insurance Rate Map (FIRM) issued by the Federal Emergency Management Agency (FEMA) for the administration of the NFIP dated July 26, 1974 as Zone A, which indicates the 100-year regulatory floodplain." 10.1.2.2 Base Flood Elevation and Floodway Data: "In Zone A along watercourses that have not had a regulatory floodway designated, the best available Federal, State, local, or other floodway data shall be used to prohibit encroachments in floodways which would result in any increase in flood levels within the municipality during the occurrence of the base flood discharge." 10.1.4.2 Other Use Regulations: "(a) All applications for a preliminary or definitive subdivision plan must be designed to assure that: (i) Such plans minimize flood damage; (ii) All public utilities and facilities are located and constructed to minimize or eliminate flood damage; and (iii) Adequate drainage is provided to reduce exposure to flood hazards." + Meets LID standards: Long Pond WPD includes adjacent drainage areas; Flood Plain District covers 100-year floodplain and additional areas that may experience flooding.</p>
Buffer Management						

Question		Yes	No	N/A	Codes are Silent	Notes + Strength - Weakness > Action
2	66		x			In Zoning: Long Pond Watershed Protection District, 4.4.4 Permitted Uses, See COW 67 Site Plan Review, 9.1.5 Required Site Plan Contents: See COW 61 9.1.8 Criteria for Review: See COW 61 Flood Plain District, 10.1.2.2 Base Flood Elevation and Floodway Data: See COW 61 - Long Pond WPD, Flood Plain District, and Site plan criteria do not make explicit requirement for vegetated buffers > Require vegetated buffer along waterways for site plan criteria, or adopt local wetlands bylaw with expanded buffer requirements that include minimum percentage of native vegetation > Provide explicit guidance on maintaining vegetated buffer for Long Pond WPD and Flood Plain District
1	67		1			In Zoning: Long Pond Watershed Protection District, 4.4.4 Permitted Uses: "4.4.4.1 Conservation of soil, water, plants, and wildlife." 4.4.4.6 Forestry: "(d) All channel crossings shall be stabilized to prevent erosion, using standard U.S. Forest Service methods... (e) All operations shall be conducted in accordance with a cutting plan approved by the Massachusetts Department of Environmental Management District Forester; 4.4.5 Prohibited Uses: See COW 61 Flood Plain District, 10.1.2.2 Base Flood Elevation and Floodway Data: "(a) ...floodway data shall be used to prohibit encroachments in floodways which would result in any increase in flood levels within the municipality during the occurrence of the base flood discharge." 10.1.4.2 Other Use Regulations, see COW 66. 10.1.4.4 Uses Allowed by Special Permit: "(a) No structure or building shall be erected, constructed, substantially improved...or otherwise created or moved; no earth or other materials dumped, filled, excavated, or transferred, unless a special permit is granted by the Zoning Board of Appeals. (d) The following uses may be allowed by special permit from the Zoning Board of Appeals in accordance with the requirements of the Zoning Bylaw and the additional restrictions and criteria contained herein regarding the Floodplain Overlay District: (i) Single family detached dwelling; (ii) Commercial golf course, recreation, or camp facility; (iii) Commercial landing strip or heliport." 10.1.4.6 Prohibited Uses: "(d) Any encroachments, including fill, new construction, substantial improvements, and other development that would result in any increase in flood levels in the community during the occurrence of the base 100 year flood discharge." + Meets LID standard for uses without special permit - Uses allowed by special permit may significantly impact vegetated buffer > Provide further guidance on maintaining vegetated buffer for all uses, including special permit > See PVPC recommendations re Long Pond
1	68		1			In Zoning: Administration and Procedures: 7.1 Enforcement Officer; Penalty; Permits; Exemptions: "7.1.5 PENALTY: Anyone who violates a provision of this bylaw, including without limitation any term or condition of a variance, site plan review decision or special permit, shall be punishable by a fine of not more than \$300 for each offense. Each day during which any portion of a violation continues under the provisions of this section shall constitute a separate offense." Site Plan Review: 9.1.9 Enforcement: "9.1.9.1 The Planning Board may require the posting of a bond or other adequate security to assure compliance with the site plan and conditions and may suspend any permit or license when work is not performed as required." + Meets LID standards
1	69		x			No mention of buffer locations.
Clearing and Grading						
2	70		2			In Subdivision Regs: 7.6 Protection of Natural Features: "The Board shall require that the sub-divider make every reasonable effort consistent with sound planning to preserve natural features such as large trees, water courses... Six (6) inches of top- soil shall be replaced on all disturbed earth within the subdivision." In Zoning: Long Pond Watershed Protection District, 4.4.4.6 Forestry: See COW 67 Site Plan Review, 9.1.8 Criteria for Review: 9.1.8.3: "e) minimize removal of trees, vegetation, and soil and grade changes" 9.1.8.6: See COW 61 Ground Mounted Solar PV Installations: 8.3.6 Design Standards: "8.3.6.1 Minimize the volume of cut and fill, the number of removed trees 10" caliper or larger, the length of removed stone walls, the area of wetland vegetation displaced, the extent of storm water flow increase from the site, soil erosion and threat of air and water pollution." 8.3.7 Safety & Environmental Standards: "8.3.7.2 Land Clearing, Soil Erosion and Habitat Impacts – Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the Ground Mounted Solar Photovoltaic Installation or otherwise prescribed by applicable laws, regulations, and bylaws. Such installations shall not occur on any slopes greater than 15% in order to minimize erosion..." 8.3.7.3 No topsoil shall be removed from the land parcel under consideration for Ground Mounted Solar Photovoltaic Installation... 8.3.7.4 Impact on Agricultural and Environmentally Sensitive Land Wireless Communications Facilities: 11.4 Siting and Construction Guidelines: "11.4.7 Existing on-site vegetation shall be preserved to the maximum extent practicable. Clearing of land shall be performed in a manner which will maximize preservation of natural beauty and conservation of natural resources and which will minimize scarring of the landscape or siting of streams or wetlands." + Meets LID standard for Subdivision Regs, Ground Mounted Solar PV Installations, and Wireless Communications Facilities - Limited guidance for preserving native soils in Site Plan Criteria for Review > Apply LID standards for development for all uses based on Ground Mounted Solar PV Installations

Question		Yes	No	N/A	Codes are Silent	Notes
1	71		x			In Zoning: Ground Mounted Solar PV Installations, 8.3.7 Safety & Environmental Standards: "8.3.7.2 Land Clearing, Soil Erosion and Habitat Impacts – ...No more than 50% of the land parcel utilized for Ground Mounted Solar Photovoltaic Installations shall contain land requiring clearing of forest." 8.3.7.4 Impact on Agricultural and Environmentally Sensitive Land- ...No more than 50% of the total land area proposed for the Ground Mounted Solar Photovoltaic Installation may be occupied by the solar panels, with the remainder of the land remaining as undeveloped open space left in its natural state." + Meets LID standard for Ground Mounted Solar PV Installations - No guidance on portions of site clearing in Subdivision Regs or Zoning Site Plan Review > Apply LID standards for development for all uses. Consider something similar to requirements for Ground Mounted Solar PV Installations
1	72		x			In Zoning: Site Plan Review, 9.1.5 Required Site Plan Contents: "(h) Proposed landscape features including the location and a description of buffers, screening, fencing, and plantings, including the size and type of plants material;... (j) The location and a description of proposed open space or recreation areas" Ground Mounted Solar PV Installations, 8.3.1 Site Plan Review: "8.3.1.2 Required Documents – Pursuant to the site plan review process, the Project Proponent shall provide the following documents: (a) A site plan showing: (1) Property lines and physical features, including roads for the project site; (2) Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, screening vegetation or structures" - Limits of disturbance are not required to be shown > Add to site plan contents
1	73			x		In Zoning: Site Plan Review, 9.1.5 Required Site Plan Contents: "(g) The location and description of all proposed septic systems, a soil percolation test, water supply, storm drainage systems including existing and proposed drain lines, culverts, drainage swales, catch basins, drainage calculations, and sub-drainage along with soil logs, utilities, hydrants, manholes, lighting fixtures, and refuse and other waste disposal methods and facilities" - No mention of reserve septic field areas > Require that reserve septic field areas be left undisturbed
Tree Conservation						
2	74		x			No requirement for or reference to natural resources inventory in Zoning or Town Bylaws or Subdivision Regs > add to Zoning. Included in proposed zoning section.
						<i>Yes, and significant natural areas such as high quality forest stands, wildlife habitat and travel corridors, productive cropland, and specimen trees must be identified (2 pts.)</i>
						<i>Yes, but no requirements to assess resource quality. (1 pt.)</i>
2	75					In Subdivision Regs: 7.7 Required Improvements, 7.7.7 Shade Trees: "Trees shall be property wrapped and guyed in a manner to insure their survival, In wooded areas existing specimen shade trees shall be left in place where practicable and lots in such areas shall not be cleared except as approved by the Board." In Zoning: Site Plan Review, 9.1.8 Criteria for Review: 9.1.8.3: "e) minimizes removal of trees, vegetation, and soil and grade changes" Ground Mounted Solar PV Installations, 8.3.6 Design Standards: See COW 70 Wireless Communications Facilities, 11.4 Siting and Construction Guidelines: See COW 70 + Subdivision Regs and Site Plan Review prioritize minimizing removal of trees - But do not identify specific conservation thresholds > Identify specific conservation thresholds. See proposed tree preservation zoning section.
						<i>Yes, specific conservation thresholds are identified (2 pts.)</i>
			0.5			<i>Answer Yes, no specific conservation thresholds identified (1 pt.)</i>
1	76		x			In Subdivision Regs: 7.7 Required Improvements, 7.7.7 Shade Trees: "Trees shall be property wrapped and guyed in a manner to insure their survival." - No mention in Zoning or Town By-Laws. - Insufficient guidance on protecting critical root zone. > Provide further guidance about tree protection in Zoning. See proposed tree preservation zoning section.
1	77	1				In Subdivision Regs: 7.7 Required Improvements, 7.7.7 Shade Trees: "Where, in the opinion of the Board, existing trees are inadequate, shade trees having a trunk diameter of at least two (2) inches and of such variety as the Board may approve shall be planted; such trees shall usually be spaced not more than forty (40) feet apart, on both sides of the street, within ten (10) feet of the front lot line or as otherwise approved by the Board, and planted in one-half (1/2) cubic yards of loam." In Zoning: Site Plan Review, 9.1.8 Criteria for Review: No mention of planting new trees where none exist. + Meets LID standards for Subdivision Regs - No mention in Zoning > Require tree planting where none exist in Zoning
2	78			x		Minimal landscaping regulations in Zoning or Town By-Laws. In Subdivision Regs: See COW 77 In Zoning: Site Plan Review: 9.1.5 Required Site Plan Contents: "(h) Proposed landscape features including the location and a description of buffers, screening, fencing, and plantings, including the size and type of plants material" 9.1.8 Criteria for Review: no mention of permissible plant materials - Minimal reference to criteria for native plant materials > Make it explicit that native plants are encouraged (or require that a certain % of new plants must be native)
						<i>Yes, some portion of landscaping must include trees and other native vegetation provided in recommended species list. (2 pts.)</i>
						<i>Yes, trees and native vegetation are allowed per recommended species list (1 pt.)</i>
						<i>No, landscaping ordinance requires turfgrass or includes vegetation height standards that preclude use of native plants</i>
	79					Not reviewed

Question		Yes	No	N/A	Codes are Silent	Notes
1	80			x		In Subdivision Regs: See COW 76, 77 In Zoning: See COW 78 - Minimal specified landscaping methods > Provide specifications for planting methods, species selection, and maintenance in Subdivision Regs and Zoning
Land Conservation Incentives						
2	81				x	No mention of land conservation incentives in Zoning or Town By-Laws. > Create an OSD section and apply an incentive to it
2	82			x		Not applicable because there are not land conservation requirements. > Add this as part of adding an OSD section
Stormwater Outfalls						
2	83	2				Blandford does not have a true stormwater bylaw. Stormwater appears in Town By-Laws, X. Highways, I. Drainage Control. Guidance on water use also exists in Town By-Laws, XIV. Water Use Restriction No local stormwater bylaw other than minimal mention in Town By-Laws, X. Highways, I. Drainage Control. No mention of discharge to sensitive waters in Town By-Laws. In Zoning: Long Pond Watershed Protection District, 4.4.1 Purpose of District: "4.4.1.1 To protect, preserve and maintain the water table and water recharge areas within the Town, so as to preserve present sources of water supply for the public health and safety" 4.4.2 Intent of District: See COW 62 4.4.4 Permitted Uses: See COW 66 4.4.5 Prohibited Uses: See COW 61 + Long Pond section meets LID standards - Standard not met elsewhere > Consider adopting a local stormwater bylaw
2	84	2				Flood Plain District, See COW 67 + Meets LID standards
1	85		x			We were unable to find a local wetland protection bylaw
Stormwater Codes						
1	86			x		Blandford does not have a true stormwater bylaw. Stormwater appears in Town By-Laws, X. Highways, I. Drainage Control. Guidance on water use also exists in Town By-Laws, XIV. Water Use Restriction No mention of rainwater harvesting in Zoning or Town By-Laws.
2	87		x			In Town By-Laws: X. Highways, 1. Drainage Infrastructure Section 2. Definitions: "DRAINAGE INFRASTRUCTURE – includes all manmade infrastructure designed to collect, transport or divert water runoff, including but not limited to, culverts, trenches, drainage ditches, catch basins and underground piping." Section 4. New Drainage Infrastructure Construction: "Any Owner who undertakes a Project must design drainage patterns and construct Drainage Infrastructure so as to prevent Stormwater discharge onto adjacent public and private roads and adjacent properties." - Does not include specific standards to reduce runoff volume. > Provide specific standards for reducing runoff volume.
						<i>Yes, runoff/volume reduction is required for most new development and redevelopment sites (2 pts.)</i>
						<i>Yes, the standards apply to some sites or are included as an alternative compliance method (1 pt.)</i>
2	88					In Subdivision Regs: 5.0 Preliminary Plans In Zoning: Site Plan Review, 9.1.4 Application Procedure: No mention of pre-application meeting to review runoff reduction + Subdivision meets LID standards - No process for pre-application meeting in Site Plan Review > Establish pre-application concept plan meeting in Site Plan Approval with LID checklist. See proposed zoning section.
						<i>Yes, there are provisions for a pre-application meeting or similar (2 pts.)</i>
		1				<i>Yes, but the meetings are not mandatory for applicants (1 pt.)</i>
2	89		x			In Zoning: Site Plan Review: 9.1.5 Required Site Plan Contents: "(g) The location and description of all proposed septic systems, a soil percolation test, water supply, storm drainage systems including existing and proposed drain lines, culverts, drainage swales, catch basins, drainage calculations, and sub-drainage along with soil logs, utilities, hydrants, manholes, lighting fixtures, and refuse and other waste disposal methods and facilities" 9.1.8 Criteria for Review: "9.1.8.6 The site plan shows adequate measures to prevent pollution of surface or groundwater, to minimize erosion and sedimentation, to prevent changes in groundwater levels, and potential for flooding, and a stormwater management plan prepared in accordance with good engineering, hydrologic and pollution control practices." In Town By-Laws: X. Highways, 1. Drainage Infrastructure, Section 4. New Drainage Infrastructure Construction: See COW 87 - No specific runoff reduction standards > Provide specific standards using local design guidance for reducing runoff volume. Proposed zoning section refers to Mass Stormwater Handbook.
						<i>Yes, the code references design guidance or a manual (2 pts.)</i>
						<i>Yes, such a manual exists but it is not referenced in the code (1 pt.)</i>

Question		Yes	No	N/A	Codes are Silent	Notes
1	90 Are drainage and stormwater treatment standards all in one place within the code and internally consistent?					Minimal stormwater treatment standards in Zoning and Town By-Laws and Subdivision Regs. In Subdivision Regs: 7.0 Design Standards, 7.7.5 Storm Drainage In Zoning: Site Plan Review, 9.1.8 Criteria for Review, 9.1.8.6 Long Pond Watershed Protection District, 4.4.2 Intent of District Ground Mounted Solar PV Installations, 8.3.6 Design Standards, 8.3.6.1 Flood Plain Overlay District, 10.1.4 Use Regulations In Town By-Laws: X. Highways, 1. Drainage Infrastructure, Section 4. New Drainage Infrastructure Construction > Consider adopting a local stormwater bylaw and regulations and referring to it from Zoning and Subdivision Regs
	<i>Yes, codes are consolidated and consistent regarding applicability and methods</i>					
	<i>No, various code sections are conflicting or inconsistent</i>		x			
Installation and Maintenance of Practices						
2	91 Do erosion and sediment control standards specify protection of post-construction practice sites during active construction?					In Subdivision Regs: 7.7.11 Inspection In Zoning: Ground Mounted Solar PV Installations: 8.3.1.2 Required Documents: "(b) Erosion and sediment control plan" Site Plan Review, 9.1.5 Required Site Plan Contents: "(m) A plan for the control of erosion, dust, and silt, both during and after construction sequencing, temporary and permanent erosion control, and protection of water bodies" Site Plan Review, 9.1.8 Criteria for Review: "9.1.8.6 The site plan shows adequate measures to prevent pollution of surface or groundwater, to minimize erosion and sedimentation, to prevent changes in groundwater levels, and potential for flooding, and a stormwater management plan prepared in accordance with good engineering, hydrologic and pollution control practices." + Site Plan Contents reference plan + Site Plan Criteria mentions "adequate measures" but do not provide explicit practices > Provide more explicit erosion control standards in Site Plan criteria to protect any areas that will be used for post-construction stormwater management (for example, ensure any existing swales on a site will not be filled with sediment during construction, or that they won't be damaged by construction vehicles). Or adopt a local stormwater bylaw and include erosion control in it.
	<i>Yes, erosion control standards include these provisions (2 pts.)</i>					
	<i>Yes, the code is not explicit but it is addressed during plan review (1 pt.)</i>		1			
2	92 Does the code mandate performance bonds and periodic inspections to ensure proper installation of stormwater practices based on the approved plans?					In Subdivision Regs: 7.0 Design Guidelines, 7.7 Required Improvements: 7.7.11 Inspections: "Checklist: The sub-divider shall notify the designated town representative upon completion of each item in the Subdivision Inspection Check List...Inspections should be made within 48 hours." 9.0 Administration, 9.2 Inspections: "For the protection of the town and future residents of the subdivision, a series of inspections, during the course of construction are required to ensure compliance with the approved Definitive Plan and Board's Rules and Regulations." In Zoning: Site Plan Review, 9.1.9 Enforcement:"9.1.9.1 The Planning Board may require the posting of a bond or other adequate security to assure compliance with the site plan and conditions and may suspend any permit or license when work is not performed as required." In Town By-Laws: X. Highways, 1. Drainage Infrastructure, Section 5. Repair and Maintenance: "A. All Owners shall keep their Drainage Infrastructure in Good Repair. B. All Owners shall maintain their Drainage Infrastructure free of Obstructions and in such a state so as to prevent the discharge of Stormwater onto public and private roads and abutting properties. All Owners shall maintain their Drainage Infrastructure in such a state as to prevent the deviation from existing or approved drainage patterns." + Subdivision Regs and Zoning require initial inspections for construction or performance bonds for site plan implementation - No mention of periodic, follow-up inspections or performance reviews - Inspection requirements in Subdivision Regs appear focused on gray infrastructure > Require periodic performance reviews and inspections assessing LID practices
	<i>Yes, the code includes bonding requirements and inspections during stormwater practice installation (2 pts.)</i>					
	<i>Yes, the code includes bonding or inspections, but not both (1 pt.)</i>		1			
2	93 Does the code include provisions for runoff reduction practice easements, inspector right-of-entry, maintenance agreements, and post-construction inspections?			x		See COW 92 - Limited follow-up inspections or performance reviews > Address post-construction issues: like easements, inspections, maintenance, etc.
	<i>Yes, all the provisions are included (2 pts.)</i>					
	<i>Yes, 3 out of the 4 are included (1 pt.)</i>					
Off-Site Compliance						
	94 If off-site stormwater compliance is authorized, is some percentage of treatment required on-site?					There is no local bylaw that would allow this. > Consider this if Blandford establishes a local stormwater bylaw.
	<i>Yes, applicants must provide on-site treatment to some level and provide documentation (2 pts.)</i>					
	<i>No, many sites have automatic access to off-site compliance</i>					
	Total Points Achieved	19				
	Total Possible Points	114.5				
	Final Score (%)	17%				

Appendix 7



**CENTER FOR
WATERSHED
PROTECTION**

The Code & Ordinance Worksheet

*A Tool for Evaluating
the Development Rules
in Your Community*

2017





3290 North Ridge Road, Suite 290 • Ellicott City, MD 21043
www.cwp.org • info@cwp.org

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- *Tackling Barriers to Green Infrastructure: An Audit of Local Codes and Ordinances* (University of Wisconsin Sea Grant, and 1,000 Friends of Wisconsin, 2014)
- *Water Quality Scorecard: Incorporating Green Infrastructure Practices at the Municipal, Neighborhood and Site Scales* (EPA, 2007)
- *Ordinance Assessment* (Chicago Metropolitan Agency for Planning, 2013)

Introduction to Better Site Design and the Code and Ordinance Worksheet

Published in 1998, the Center for Watershed Protection's Better Site Design Handbook outlines 22 model development principles for site design that act to reduce impervious cover, conserve open space, prevent stormwater pollution, and reduce the overall cost of development. The model development principles were created through a national Site Planning Roundtable, a consensus-based process initiated to create more environmentally sensitive, economically viable and locally appropriate development. The roundtable consisted of over 30 influential individuals from various organizations around the nation, including environmental groups, transportation officials, planners, realtors, homebuilders, land trusts, fire officials, county managers and more.

For each model development principle, the Better Site Design Handbook summarized practices that were recommended around the nation at the time, outlined their economic and environmental benefits, addressed perceived and real barriers, and presented national case studies. The Better Site Design Handbook also presented a process for evaluating local development regulations based on the model development principles so that strategic code changes could be made in the community. The tool provided to facilitate an in-depth review of codes and ordinances at the local level was the Code and Ordinance Worksheet (COW). Since its creation, the COW has been used by the Center to conduct 13 local site planning roundtables and review local development regulations in over 75 communities in Maryland, Pennsylvania, Virginia, South Carolina, Ohio, Wisconsin, New York, Alabama, and the District of Columbia. Other organizations, such as the Cumberland River Compact, Southeast Watershed Forum, Pennsylvania Environmental Council, Potomac Conservancy, James River Association, and Tennessee Valley Authority, have used the Better Site Design process to make updates to their local codes or to conduct their own roundtables.

Runoff Reduction Practices

Runoff reduction practices, often interchangeably referred to as Green Infrastructure practices or Low Impact Development practices, are stormwater treatment strategies that aim to replicate pre-development hydrology by reducing runoff volume. Many runoff reduction practices integrate trees and other vegetation, and runoff volume is reduced through disconnecting impervious cover, infiltration, evapotranspiration, collection and re-use, and other mechanisms.



Green rooftop



Porous asphalt



Rain garden



Cistern

Why an Update?

Much has happened in the world of stormwater management and site planning since the release of the Better Site Design Handbook in 1998. Programmatic and regulatory changes driven by the advent of the National Pollutant Discharge Elimination System (NPDES) municipal separate storm sewer system (MS4) program have advanced the thinking about how stormwater is managed on development sites. The result has been a shift from primarily using ponds, wetlands and other large practices that detain and slowly release runoff to the integration of small stormwater management practices throughout the landscape to promote infiltration and reduce runoff. This shift has necessitated another look at how local development regulations can influence and sometimes create barriers to the use of these “runoff reduction” practices.

Since the Better Site Design Handbook was published, the development of total maximum daily loads (TMDLs) for numerous urban streams and rivers has created a need for MS4s to install stormwater management practices on developed sites as retrofits. Stormwater ordinance language that creates barriers to installing runoff reduction practices on new or redevelopment sites can also act to discourage their use as retrofits.

The 22 model development principles and the COW were developed during a time when seminal research on the important connection between impervious cover and stream health had recently been published (CWP, 1998; Schueler, 1994). New suburban development was widespread, and many communities were concerned that their local codes and ordinances created standards that resulted in excessive impervious cover (Figures 1-3). Therefore, the original COW was primarily intended to influence new residential and commercial development and, as a result, most of the COW questions applied to low or medium density (suburban) neighborhoods. The update recognizes that while the overall goals of reducing impervious cover, conserving natural areas and preventing stormwater pollution can apply to any community, some of the COW questions are not relevant for certain types of development. The instructions for using the revised COW explain how to determine which questions are most applicable for the type of development that is most prevalent in your community (e.g., new rural, suburban or urban development, redevelopment).



Figure 1. This low-density residential street accommodates two travel lanes and two on-street parking lanes, despite the fact that each house has a three-car garage and large driveway and will rarely if ever need that much on-street parking.



Figure 2. This cul-de-sac with a 50-foot radius creates a large bulb of rarely-used impervious cover.



Figure 3. This commercial parking lot sits largely empty because it was not designed for local parking demand (Photo credit: Todd Gill, Fayetteville Flyer).

The COW update also considered revised standards and supporting research on topics such as recommended stream buffer widths, parking ratios, parking stall dimensions needed to accommodate today's vehicle sizes, differing setbacks for fire-prone regions versus humid regions, and the impact of state water law on the use of rainwater harvesting practices.

Who Should Use the COW?

The COW is intended to help communities evaluate their local development regulations to identify revisions that allow or require site developers to minimize impervious cover, conserve natural areas and use runoff reduction practices to manage stormwater. The COW can be completed by municipal staff or by non-governmental organizations who wish to improve the environmental footprint and character of development in their community. It is a tool that can be used by communities who are experiencing or anticipating moderate to high pressure for new development (urban, suburban, or rural) or redevelopment.

In addition to the environmental benefits of reduced runoff and protection of natural areas, other benefits of using this tool to revise local codes and ordinances include:

- Stormwater permitting agencies are increasingly requiring the use of Runoff Reduction practices to the maximum extent practical, so removing barriers to their use can facilitate meeting permit requirements. Some state MS4 Permits (e.g., Maryland, Georgia, California, Connecticut, West Virginia) even require that permittees review their local codes and ordinances and revise them to remove barriers and better integrate Runoff Reduction practices.
- Communities who are embracing Runoff Reduction, either voluntarily or to meet volume-based stormwater management requirements or to help reduce combined sewer overflows, can better meet their goals by removing local code barriers.
- Reducing the impact of new and redevelopment can help MS4s with local or regional TMDL requirements to stay “under the cap” while still allowing for growth.
- Changing regulations to promote developments that conserve natural areas and use runoff reduction practices can support both resiliency planning and sustainability planning efforts.
- Better Site Design can reduce construction costs for developers and increase profits.
- Better Site Design also results in safer streets, neighborhood designs that promote a sense of community, more open space for recreation, and more walkable neighborhoods.

How to Use the COW

The COW allows an in-depth review of the codes and ordinances (i.e., the development rules) that shape HOW development occurs in your community. Programs, institutional frameworks and informal policies are not included in this review unless specifically documented in the codes or in a plan, manual, or other document referenced by the code. Additional resources on conducting local stormwater, forestry, wetland or other local environmental program reviews are provided in the Resources section of this document.

The model development principles and the COW are not intended to address WHERE development occurs. Rather, the assumption is that development is already planned and communities completing the COW wish to reduce the impact of expected development on local water resources, while improving neighborhood character and reducing construction costs. Many other tools and resources are available for communities who wish to change where development happens, most of which fall under the umbrella of watershed planning and Smart Growth. A list of resources is provided in the Resources section of this document.

The COW worksheet is subdivided into four categories:

1. Residential Streets and Parking Lots (Principles 1 - 10)
2. Lot Development (Principles 11 - 16)
3. Conservation of Natural Areas (Principles 17 - 22)
4. Runoff Reduction

The first three sections consist of a series of questions that correspond to each of the model development principles. Section four contains new questions added to address stormwater management standards, particularly the inclusion of runoff reduction practices. Points are assigned based on how well the current development rules agree with the site planning practices identified in the questions. The revised COW provides some

background and rationale for each principle and related questions. The Better Site Design Handbook (CWP, 1998) provides additional background and research on each principle.

Preparing to Complete the Code and Ordinance Worksheet

The first step is to identify the development rules that apply in your community. Few communities include all of their rules in a single document. Rather, the development process is usually shaped by a mix of local regulations and policies, each of which may be administered by a different agency. In some cases, state and federal agencies may also exercise some authority over the local development process (e.g., wetlands, design of larger roads, stormwater management). Where this is the case, the local code will reference these state or federal standards. This task can be streamlined by having a knowledgeable person (e.g., a local land use planner or plan reviewer) read through the COW questions and make an initial list of codes and ordinances that apply for the particular community. A list of potential documents to gather is provided in Table 1.

Six Steps for Using the Code and Ordinance Worksheet

1. Gather codes, ordinances, and other documents
2. Identify authorities who administer the rules
3. Select the appropriate COW questions for your community
4. Review the regulations to find answers to the COW questions
5. Use the COW Scoring Spreadsheet to record answers, points and notes
6. Identify priority actions for the short and long term

The next step is to gather the relevant codes and ordinances. Most municipal ordinances, as well as state and federal regulations, are available online. The COW Scoring Spreadsheet provided at <https://owl.cwp.org> includes a worksheet to list the relevant codes and the link where each can be found. As you complete the review, you may find it necessary to also obtain design manuals, review checklists, guidance documents or specifications that are referenced in the codes in order to answer the COW questions. So identifying and gathering the relevant documents is an iterative process.

Table 1. Relevant Documents for Completing the COW

<p>Zoning Ordinance Subdivision Ordinance Street Standards or Road Design Manual Parking Requirements Building Code Stormwater Management, Rainwater or Drainage Ordinance Stormwater Management Design Manual Buffer or Floodplain Regulations Environmental Regulations Tree Protection or Landscaping Ordinance Erosion and Sediment Control Ordinances Fire Code Grading Ordinance Health Codes</p>
--

Next, you must identify the local, state, and federal authorities that actually administer or enforce the development rules within your community. This step should be relatively easy and will provide a better understanding of the intricacies of the development review process and helps identify key members of a future local

roundtable focused on changing the development rules. The COW Scoring Spreadsheet provides a worksheet for recording the agencies that influence development in your community and listing specific contacts. Space is provided for local agencies, as well as state and federal agencies.

Completing the Worksheet

Once you have located the documents that outline your development rules and identified the authorities responsible for development in your community, you are ready for the next step. You can now use the COW Scoring Spreadsheet to compare your development rules to the model development principles. This may be a good project for an intern or graduate student to work on with input from municipal staff. In many communities that have used the COW, a non-profit organization has taken the lead on completing the worksheet, in partnership with municipal staff. Both approaches can greatly reduce the time commitment by local staff.

The worksheet is presented in the next section of this document and includes 94 questions, as well as the 22 model development principles for reference. Each question focuses on a specific site design standard, such as the minimum diameter of cul-de-sacs, the minimum width of streets, or the minimum waterway buffer width. The codes, ordinances, and other related documents you have compiled will be used to answer the questions. If your development rule agrees with the site planning benchmark, you are awarded points. If your development rule does not agree with

Selecting the COW Worksheet that Best Fits Your Community

The developed landscape is a continuum from natural areas to the urban core. Some regional planners identify transects in land use forms across this continuum with multiple breaks in their classifications. The COW Scoring Sheet simplifies these breaks with four categories: rural, suburban, urban and highly urban.



Rural

The rural landscape is characterized by open space dominated by woodland, agriculture, and other open areas. It contains scattered residential lots and subdivisions on relatively large lots. There is an auto-oriented land use pattern with limited non-residential uses. Development is primarily served by on-lot sewer and water systems. (Photo credit: Dorothy Cappiella)



Suburban

The suburban landscape is dominated by residential subdivisions containing primarily single-family housing, as well as concentrations of non-residential land uses. This landscape has an auto-oriented transportation network and can be served by public sewer and water systems or by on-lot systems. Open areas are present with the opportunity for conservation practices, buffers for natural areas and open space management. (Photo credit: Matt Rath)



Urban

The urban landscape includes historic population centers that provide commerce, civic, and cultural activities for the surrounding area. These landscapes have a pedestrian-orientation with sidewalk systems and are often served by mass transit. Public sewer and water systems are the norm here. Urban landscapes include both medium and high density areas and may experience redevelopment as well as some new construction on the few remaining unbuilt areas.



Highly Urban

Highly urban landscapes are similar to urban landscapes except that the primary development activity here is redevelopment. (Photo credit: Ted Eytan)

the site planning benchmark, or does not address it at all (in other words, the code is “silent” on the issue) you are not awarded points.

The COW can be used by rural, suburban and urban communities experiencing new development, as well as urban communities where redevelopment is prevalent. However, not all questions will be applicable in all communities. The COW Scoring Spreadsheet provides space in which to record your answers to the COW questions. The spreadsheet contains a separate section for each major community type: rural, suburban, urban and highly urban. Select the worksheet that is most appropriate for the type of development occurring in your community. Questions that are not applicable to each type of development have been grayed out and the total possible score has been adjusted accordingly.

If the mix of questions contained in the rural, suburban, urban and highly urban worksheets aren't quite right for your community, it is possible to tailor the COW questions and scoring for your municipality. Simply complete all the relevant questions in any of the four worksheets (overriding the grayed out cells where necessary). Then adjust the scoring by changing the number of total possible points to reflect the total possible score for the questions you answered. This tailoring may be useful when a specific set of questions do not apply to your community (e.g., tree conservation or tree planting questions in an arid desert environment, or rainwater harvesting questions in a state where water rights law prohibits this practice) or where local conditions are such that the pre-assigned questions for your community type are not an exact fit.

For each question, if the answer is Yes, enter the associated number of points in the “Yes” column. Most questions are worth one point for a Yes answer, but BLUE questions are worth two points and ORANGE questions are worth 0.5 points. If the answer is No; the question is not applicable (for example, the question is about a requirement in the open space ordinance but your community does not have an open space ordinance); or the codes do not address the question at all, enter an “x” in the appropriate column (No, N/A, or Codes are Silent). No points are given for these answers. Note that “Codes are Silent” is only an option for certain questions. Other questions will have a clear Yes or No answer (e.g., Does the buffer ordinance outline prohibited and allowable uses?).

Use the Notes column to record details about your responses, such as specific code language or a reference to the specific code section where the answer was found. Other notes that could be made in this column include whether or not the recommended standard is something the municipality has authority over versus a state or federal authority, and notes on any impending updates to the local codes or ordinances. This will assist later on with determining the next steps and prioritizing the necessary changes.

Calculating Your Score

The total number of points possible varies with the community type; therefore the final score is presented as a percentage of the total possible points. The COW Scoring Spreadsheet automatically calculates the total points received as well as the percentage. Your overall score provides a general indication of your community's ability to support environmentally sensitive development. As a general rule, if your overall score is lower than 80%, then it may be advisable to systematically reform your local development rules. However, it is important not to get hung up on the score or to compare it to other jurisdictions. The COW is intended to provide a constructive assessment of the current development regulations and identify the top opportunities for improvement.

How to Use the Results

Once you have completed the worksheet, go back and review your responses. For COW questions with “No” or “Codes are Silent” answers, evaluate their relative importance in your community. The next step is to use the COW benchmarks to develop short-term (1-3 years) and long-term (3-5 years) action items for the most important items. These action items can be recorded in the Action Items worksheet of the COW Scoring Spreadsheet. Some factors to consider in determining relative importance and whether actions are short or long term include:

- Time the revisions with planned updates to codes and ordinances
- Focus on the code changes that are under municipal control
- Focus on codes that give you the most bang for your buck
- Target specific areas that need the most improvement first (e.g., development rules that govern road design)
- Consider local support/local importance of specific principles
- Prioritize changes that remove direct barriers
- Consider relative ease of proposed changes (e.g., adopting a stream buffer ordinance may be a longer road than changing parking lot design standards)

When State or Federal Rules Apply

The goal of the local code and ordinance review is to identify changes that can be made at the local level. However, sometimes the local codes reference a state or federal standard which cannot be changed through a local site planning roundtable process. Communities may be able to address the identified problems through adoption of a local ordinance but the authority granted to local governments to do so varies by state.

In some states, cities, municipalities, and/or counties are granted the ability to pass laws to govern themselves as they see fit (so long as they obey the state and federal constitutions). In other states, municipalities only have the rights that are expressly granted to them by the state legislature. In these states, a city or county must obtain permission from the state legislature if it wishes to pass a law or ordinance which is not specifically permitted under existing state legislation.

https://en.wikipedia.org/wiki/Home_rule_in_the_United_States

It is important to remember that the Better Site Design principles and therefore the COW questions are not independent of each other. For example, reducing lot sizes to allow for clustering of homes can preserve significant open space and reduce overall impervious cover, but the higher density may mean having to use curb and gutter rather than open section roads, limiting some opportunities for stormwater treatment. Similarly, reducing front yard setbacks can reduce overall imperviousness by reducing driveway length; however, this may result in a need to provide on-street parking, making road widths wider and ultimately cancelling out the reduction in impervious cover achieved through shorter driveways. In each situation, tradeoffs must be made. Users of the COW may want to decide which specific design principles are more important for their communities given the advantages and potential drawbacks of each practice. This can assist with identifying the top code changes to move forward on once the COW has been completed.

This review also directly leads into the next step: making the recommended changes. Municipal staff may simply proceed with the short-term changes through their usual process of updates. Another option is a site planning roundtable process conducted at the local government level. The primary tasks of a local roundtable are to systematically review existing development rules and then determine if changes can or should be made. By providing a much-needed framework for overcoming barriers to better development, the site planning roundtable can serve as an important tool for local change. The Better Site Design Handbook (CWP, 1998) provides detailed information on how to conduct a site planning roundtable.

The COW is a useful tool to identify actions for improving local development regulations. However, having “good” codes and ordinances only works if their provisions are actually implemented. Therefore, the importance of implementing and enforcing the codes cannot be overstated. Some useful publications for designing effective code and ordinance language are listed in the Resources section of this document.

Code and Ordinance Worksheet

Residential Streets and Parking Lots

These principles focus on those codes, ordinances and standards that determine the size, shape, and construction of parking lots and roadways.

1. Street Width

Principle: Design residential streets for the minimum required pavement width needed to support travel lanes; on-street parking; and emergency, maintenance, and service vehicle access. These widths should be based on traffic volume.

In many cities and jurisdictions, local street design manuals and standard plans require or incentivize roadways that are overbuilt for motor vehicle traffic, with wide travel-ways and large corner radii that increase impervious surfaces while increasing risk to street users. Revising local street standards to consider design speed, street type and traffic volume presents a significant opportunity to reduce impervious cover, by allowing for more compact roadways and intersections. When curb extensions are permitted, they unlock street space to introduce pervious surface and integrate runoff reduction practices within the street environment.

Permeable pavements in roadways also provide a means to retain stormwater away from the street surface.

While there may be opportunities to reduce street widths on arterial roads, high volume roads and/or non-residential streets, their design is often determined by state standards and are therefore not addressed in this local code review.



Figure 4. Road widths are minimized in this Savannah, GA neighborhood; yet are wide enough to allow access for emergency vehicles

Questions

Points

1	Is the minimum roadway width allowed for streets in neighborhoods with low volume roads (less than 400 average daily trips according to AASHTO, 2001) between 18-22 feet (where bicycle lanes are not present)?	
	YES	1
	NO	0
	CODES ARE SILENT	0
2	Are curb extensions that narrow the roadway (such as pinchpoints, gateways, and chicanes) permissible?	
	YES	1
	NO	0
	CODES ARE SILENT	0

Questions

Points

3	Are permeable paving materials allowable on low-volume streets and/or parking lanes?	
	YES	1
	NO	0
	CODES ARE SILENT	0

2. Street Length

Principle: Reduce total length of residential streets by examining alternative street layouts to determine the best option for increasing the number of homes per unit length.

Minimizing street length in residential neighborhoods can reduce the overall imperviousness created by the development and also minimize the associated land disturbance. The most common street network types include grid and curvilinear (which uses a hierarchical street pattern that includes cul-de-sacs) as well as various hybrids of the two. Although grid patterns are generally less efficient than curvilinear patterns (Canada Mortgage and Housing Corporation, 2002), the grid pattern has advantages such as greater dispersal of traffic, being more pedestrian friendly, and providing greater direct access.

The best street layout option for most neighborhoods will utilize some aspects of the grid and curvilinear systems; however, there is no one street layout that is guaranteed to minimize total street length in residential developments. Generally, a more compact street network can be achieved by reducing frontage distances and side yard setbacks and by allowing narrower lots. Smaller lots clustered together (e.g., open space developments) can also reduce the total street length. Reducing the number of non-frontage roads is another strategy for minimizing street length. Traditional Neighborhood Development is another type of design that lends itself to reduced street length because of the focus on walkability and connectedness. Long streets serving only one or two homes should be discouraged.

Types of Curb Extensions

Pinchpoints



Robert Perry)

Curb extensions at mid-block or intersection corners that narrow a street by extending the sidewalk or widening the planting strip. These can include mid-block crossing locations. (Photo credit: Kevin

Gateways



Seattle Department of Transportation)

A curb extension located at the entrance to a neighborhood street narrows the crossing length for pedestrians and reinforces a low-speed operating environment. (Photo credit: Dongho Chang,

Chicanes



for pervious surface or bioretention (Photo credit: thisbossi)

A series of narrowings or curb extensions that alternate from one side of the street to the other forming S-shaped curves can be implemented to reduce motor vehicle speeds and unlock roadway space

Questions		Points
4	Does the subdivision, Planned Unit Development, or Unified Development ordinance identify reducing street length as a goal of neighborhood street design?	
	YES	1
	NO	0
	CODES ARE SILENT	0

3. Right-of-Way Width

Principle: Wherever possible, residential street right-of-way widths should reflect the minimum required to accommodate the travel-way, the sidewalk, and vegetated open channels. Utilities and storm drains should be located within the pavement section of the right-of-way wherever feasible.

Similar to street width, many communities' codes specify right-of-way widths that are based on blanket application of high-volume street design standards. This results in very wide rights-of-way that require greater clearing during road construction and consume more land that could be used for housing lots. Reducing right-of-way widths can result in less clearing and encourage more compact site design.

One component of the right-of-way that actually has a benefit to being wide is the planting strip between the sidewalk and the street as well as any median strips. These areas not only provide opportunity for storm-water treatment using bioretention or other runoff reduction practices, but they can be planted with large trees to provide shade, capture rainfall, and generally beautify and improve our neighborhoods. Increasing the width of these planting strips to at least six feet (to accommodate large shade trees) can increase the overall right-of-way width but is a tradeoff that is well worth it, especially if some existing trees can be preserved.

Questions		Points
5	Is the recommended right-of-way width for a low-volume residential street less than 45 feet?	
	YES	1
	NO	0
	CODES ARE SILENT	0
6	Does the code allow utilities to be placed under the paved section of the right-of-way to limit clearing and allow a compact development footprint?	
	YES	1
	NO	0
	CODES ARE SILENT	0

Questions		Points
7	If street trees are required, is the planting area required to be at least 6 feet to provide sufficient rooting space to support large trees?	
	YES	1
	NO	0
	CODES ARE SILENT	0
	N/A	0

4. Cul-de-Sacs

Principle: Minimize the number of residential street cul-de-sacs and incorporate landscaped areas to reduce their impervious cover. The radius of cul-de-sacs should be the minimum required to accommodate emergency and maintenance vehicles. Alternative turnarounds should be considered.

A cul-de-sac is a local street open at only one end. A large “bulb” is located at the closed end to enable emergency and service vehicles to turn around without having to back up. Cul-de-sacs are a prominent feature in many contemporary residential developments and many communities require that the bulb be 60 feet or more in radius, creating a large circle of impervious cover that is never fully utilized for turning movements. The research on cul-de-sac radii shows the following:

- AASHTO (2011) recommends a 30 foot minimum radius for residential areas. However, some state transportation agencies (e.g., Pennsylvania Department of Transportation) will not provide road maintenance funds to municipalities if cul-de-sac radius is less than 40 feet.
- The International Fire Code (IFC) (ICC, 2015) specifies a minimum 48 foot radius for dead end roads greater than 150 feet in length. However, the IFC also gives the local fire department authority to determine the turning radius and to select equipment that has a more narrow turning radius. Cities and towns across the country with narrow streets and tight turns have purchased specialized emergency vehicles that can operate in these environments (City and County of San Francisco Board of Supervisors, 2015). These vehicles are designed to incorporate features that improve their operability, such as rear-mounted pumpers on fire engines and use of short-jacked ladders on fire trucks.
- The National Fire Protection Association's 2017 standard for fire protection infrastructure for land development in wildland, rural and suburban areas (standard NFPA 1141) requires a 60 foot minimum radius. This standard is applicable for hard-to-access and rural areas as well as those communities who may not already have adopted local building or fire codes.

Neighborhoods that use cul-de-sac turnarounds (typically suburban but sometimes urban or rural developments) can produce less impervious cover if local codes are revised to reduce the minimum cul-de-sac radius to the IFC recommendation of 48 feet. Local fire officials can also determine whether this radius can be further reduced through investment in specialized emergency vehicles.

Questions		Points
8	Do the street or subdivision standards allow street layouts that minimize the use of cul-de-sacs?	
	YES	1
	NO	0
	CODES ARE SILENT	0
9	Is the minimum radius for cul-de-sacs 48 feet or less?	
	YES	1
	NO	0
	CODES ARE SILENT	0
10	Can a landscaped island be created within the cul-de-sac?	
	<i>YES, and the cul-de-sac must be graded to the island with an overflow to the storm drain system, so that it can be used for stormwater treatment</i>	2
	<i>YES, but curbing is required or the island must be raised, limiting its use for stormwater treatment</i>	1
	NO	0
	CODES ARE SILENT	0
11	Are alternative turnarounds such as hammerheads and loop roads allowed?	
	<i>YES, alternative turnarounds are specifically mentioned in the ordinance with specific design/construction guidance provided by reference</i>	1
	<i>YES, alternative turnarounds are allowed, but no specific guidance provided on design</i>	0.5
	NO	0
	CODES ARE SILENT	0

Cul-De-Sac Alternatives

Each of the options shown below serve about four homes.



1. This cul-de-sac with a 50-foot radius creates about 8,250 square feet of impervious cover



2. This loop lane reduces the need for backing up of vehicles and creates about 10% less impervious cover than Option 1.



3. This cul-de-sac also has a 50-foot radius but incorporates a vegetated island. This alternative creates about 15% less impervious cover than Option 1.



4. This hammerhead or t-shaped turnaround produces about 80% less impervious cover than Option 1. This alternative is good for very short (< 200 feet) streets. (Photo Source: Google Earth)

5. Vegetated Open Channels

Principle: Where density, topography, soils, and slope permit, vegetated open channels should be used in the street right-of-way to convey and treat stormwater runoff.

Many jurisdictions require curb and gutter systems along residential streets to direct stormwater runoff. By contrast, vegetated open channels that incorporate runoff reduction practices such as dry swales, bioretention, biofilters, or vegetated swales, are often prohibited in subdivision codes. Vegetated open channels remove pollutants by allowing infiltration and filtering to occur, encourage groundwater recharge and reduce the volume of runoff generated from a site. These are generally only applicable in low or medium density developments. In neighborhoods with medium to high housing densities or other conditions that limit the use of vegetated open channels, runoff reduction practices can be integrated into curb extensions or landscape strips.

Questions

Points

12	Are open section vegetated channels allowed where density, topography, soils, and slope permit?	
	YES	1
	NO	0
	CODES ARE SILENT	0
13	Are runoff reduction practices permissible within curb extensions or landscape strips?	
	YES	1
	NO	0
	CODES ARE SILENT	0

6. Parking Ratios

Principle: The required parking ratio governing a particular land use or activity should be enforced as both a maximum and a minimum in order to curb excess parking space construction. Existing parking ratios should be reviewed for conformance, taking into account local and national experience to see if lower ratios are warranted and feasible.

Parking demand is defined as “the number of spaces that should be provided to serve a particular land use, given factors such as the prices of parking and the availability of alternative travel modes” (ULI 2014). Parking ratios found in parking codes are intended to reflect parking demand for a particular land use and are typically stated as the number of spaces per square foot of building space, number of dwelling units, persons, or building occupancy. In reality, parking ratios in many communities do not accurately reflect the local parking demand, because they may be taken directly from another community’s parking code, be based on studies of parking demand from another region, and/or do not consider local factors that can affect parking demand (e.g., price of parking, availability of public transportation, density or economic vitality). In addition, parking ratios are typically set as minimums, even when drawn from studies of peak parking demand. The result is that some parking lots have far more spaces than are actually needed, particularly in areas of mixed land use, where there are good travel options, and parking is managed for efficiency or cost (Litman, 2016).

One approach to estimate parking demand is to start with industry standards—such as those identified in the Institute of Transportation Engineers (ITE) Parking Generation document and the Urban Land Institute (ULI) and National Parking Association (NPA)’s The Dimensions of Parking—and adjust these values to reflect local characteristics. The ITE values are based primarily on suburban sites with isolated single land uses with free parking, and not intended for highly developed areas, although the more recent editions have begun to segregate the data into various factors that influence parking demand (ITE, 2012; Kimley Horn, 2016). ULI and NPA (2010) provides recommended base parking ratios for the most common land uses found in mixed-use developments. With either source, the values should be considered base ratios to be adjusted based on local data following the process outlined in ULI and NPA (2010). A second approach to estimate parking demand (often used for event facilities) is to forecast the number of person-trips or vehicle-trips or the number of people expected to be present at peak and off-peak hours (ULI and NPA, 2010).

Communities with Reduced Parking Ratios

As part of the Citywide Zoning Update effort, the City of Oakland, CA recently updated its regulations related to off-street parking and loading. These regulations had not been comprehensively reviewed since 1965 and the “one size fits all” approach to parking ratios often resulted in too much parking. The revisions have addressed this problem by eliminating parking requirements in certain zones and in other zones the amount of parking provided is determined on a project-by-project basis to reflect local demand. These updates to the parking regulations were developed based upon an evaluation of existing parking policies and issues in Oakland, as well as a review of strategies implemented in other cities.

<http://www2.oaklandnet.com/Government/o/PBN/OurOrganization/PlanningZoning/OAK030572>

Other cities such as Fayetteville, AR are also addressing the problem of “excess” parking by changing their codes to eliminate minimum parking requirements for non-residential properties.

<https://www.fayettevilleflyer.com/2015/10/07/fayetteville-eliminates-minimum-parking-requirements/>

Questions		Points
14	Do parking ratios reflect local parking demand?	
	YES, they are based on a local study of parking demand, or are based on ITE or ULI values and adjusted for local conditions	1
	NO, we simply use the ITE or ULI values, base them on a neighboring community's standards, or we do not know where they came from	0
15	Are parking requirements set as maximums?	
	YES	1
	NO	0
	CODES ARE SILENT	0

7. Parking Codes

Principle: Parking codes should be revised to lower parking requirements where mass transit is available or enforceable shared parking arrangements are made.

Parking demand represents the actual number of parking spaces required to accommodate parking needs of a particular land use. Mass transit can lower parking demand directly by reducing the number of vehicles driven, and therefore, vehicles parked. Cervero, Adkins, and Sullivan (2010) found there is an oversupply of parking near Transit Oriented Developments (TODs), sometimes by as much as 25–30%, when compared to parking generation rates from the ITE. Similarly, Ewing et al. (2017) found that the ratio of demand to supply was between 58 and 84% for five TODs across the country, even with parking built at 23 to 61% of ITE's guidelines.

Shared parking is a strategy that reduces the number of parking spaces needed by allowing a parking facility to serve multiple users or destinations. This approach is most successful when destinations have different peak periods during the day or week, or if they share patrons that can park at one facility and walk to multiple destinations (Litman, 2016).

Questions		Points
16	Are shared parking arrangements allowed?	
	YES, shared parking is allowed by-right	2
	YES, shared parking is allowed with special exception	1
	NO	0
	CODES ARE SILENT	0

Questions	Points	
17	Are parking ratios reduced if shared parking arrangements are in place?	
	YES	1
	NO	0
	CODES ARE SILENT	0
	N/A	0
18	Is the parking ratio reduced when multi-modal transit (e.g., mass transit, bike share or car share programs) is provided?	
	YES	1
	NO	0
	CODES ARE SILENT	0
19	Can the number of parking spaces be reduced and additional parking be maintained as green space until needed for redevelopment projects?	
	YES	1
	NO	0
	CODES ARE SILENT	0
20	Are parking credits provided when nearby on-street parking is available?	
	YES	1
	NO	0
	CODES ARE SILENT	0

8. Parking Lots

Principle: Reduce the overall imperviousness associated with parking lots by providing compact car spaces, minimizing stall dimensions, incorporating efficient parking lanes, and using pervious materials in spillover parking areas.

The size of a parking lot is driven by stall geometry, lot layout, and parking ratios. Many parking codes require a standard stall dimension that is geared toward larger vehicles, ranging from 162-190 square feet – often 10 feet wide and 19 feet long. The Parking Consultants Council has adopted a 6'7" wide by 17'3" long vehicle as their "design vehicle" for determining parking space and aisle dimensions (ULI and NPA, 2010). These dimensions represent the 85th percentile vehicle, which has varied slightly since 1999 but remained within an inch or two of the stated dimensions (ULI and NPA, 2010). Therefore, many communities may be able to reduce their standard parking stall dimensions while still accommodating the vast majority of today's vehicles.

Parking codes can also be amended to require that a fixed percentage of all stalls be dedicated for compact cars, with correspondingly smaller dimensions. The number of cars on the road that can comfortably fit in a compact stall has decreased considerably, from about 40-50% in 1994 to less than 20% in 2014 (ITE, 1994;

ULI and NPA 2010). However, compact stalls create up to 30% less impervious cover than standard stalls so can be an important strategy for reducing impervious cover in large parking lots.

Impervious cover can also be reduced through the use of alternative paving materials (e.g., permeable pavement, grass pavers) on regularly used parking stalls and parking lanes as well as in spillover areas for larger parking lots. Most parking codes do not distinguish between regular parking areas that are used most of the time and spillover parking, which is used only a few days per year or for special events. These are ideal locations for permeable pavers, reinforced turf products or other permeable parking options. However, if no distinction is made in the parking code, the result can be creation of enormous paved parking areas that stand empty the vast majority of the year. Communities may wish to require designation of spillover parking areas for larger parking lots and promote the use of alternative paving materials in these areas.



Figure 5. Concrete grid pavers are a good option to reduce runoff from parking lots

Questions

Points

	Questions	Points
21	Is the minimum stall width for a standard parking space 9 feet or less?	
	YES	1
	NO	0
	CODES ARE SILENT	0
22	Is the minimum stall length for a standard parking space 18 feet or less?	
	YES	1
	NO	0
	CODES ARE SILENT	0
23	Is a fixed proportion (e.g., 15%) of the spaces at larger commercial parking lots required to have smaller dimensions for compact cars?	
	YES	1
	NO	0
	CODES ARE SILENT	0
24	Can pervious materials be used for parking areas, including spillover or special event parking?	
	YES	2
	NO	0
	CODES ARE SILENT	0

9. Structured Parking

Principle: Provide meaningful incentives to encourage structured parking to make it more economically viable.

Vertical parking structures can reduce impervious cover by reducing acreage converted for parking. However, in suburban and rural areas where land is relatively inexpensive, surface parking costs much less than a parking garage. In highly urban areas, garages are generally more economical to build than purchasing additional land. In urban and urbanizing areas, local governments should consider using incentives to encourage the building of multi-level, underground, and under the building parking garages. These incentives could come in the form of tax credits; stormwater waivers; or density, floor area, or height bonuses.

Questions

Points

	Questions	Points
25	Are there any incentives for developers to provide parking within garages rather than surface parking lots?	
	YES	1
	NO	0
	CODES ARE SILENT	0

10. Parking Lot Runoff

Principle: Wherever possible, provide stormwater treatment for parking lot runoff using bioretention areas, filter strips, and/or other practices that can be integrated into required landscaping areas and traffic islands.

Many parking lots are almost completely impervious and they represent a significant source of stormwater pollutants and runoff. In addition to reducing the amount of impervious cover, another option is to require onsite stormwater management. Landscaping areas used to enhance the appearance of a parking lot and associated development can also be used for stormwater management. Some options include: bioretention, bio swales, perimeter sand filters, filter strips, and structural soils with trees.

Another option is to plant large trees within the landscaped areas due to their ability to reduce stormwater runoff, promote infiltration, and take up nutrients and other pollutants. A minimum width of 6 feet is recommended to support large, mature trees (Cappiella et al, 2006). Layouts that cluster trees and allow them to share rooting space are also encouraged. Lastly, even the paved portion of the lot can provide stormwater treatment through the use of permeable pavement (e.g. porous asphalt, pervious concrete or permeable pavers) in parking lot driving lanes and parking stalls.



Figure 6. This landscape area is designed to accept and treat stormwater runoff in this Portland, OR parking lot

Questions		Points
26	Is a minimum percentage of a parking lot required to be landscaped?	
	YES	2
	NO	0
	CODES ARE SILENT	0
27	Is the use of runoff reduction practices within landscaped areas, setbacks, or parking areas allowed?	
	YES	2
	NO	0
	CODES ARE SILENT	0
28	Are flush curbs and/or curb cuts and depressed landscaped areas allowed so that runoff can be directed into vegetated landscaped islands or runoff reduction practices?	
	YES	1
	NO	0
	CODES ARE SILENT	0
29	Are dimensions for landscaped areas sufficient to plant large trees?	
	YES, a minimum width 6 feet or greater is specified	1
	NO, a minimum width less than 6 feet is specified	0
	CODES ARE SILENT	0
	N/A	0
30	Do vegetated stormwater management areas count toward required landscape minimums?	
	YES	1
	NO	0
	CODES ARE SILENT	0
	N/A	0

Lot Development

Principles 11 through 16 focus on the regulations that determine lot size, lot shape, housing density, and the overall design and appearance of our neighborhoods.

11. Open Space Design

Principle: Advocate open space development that incorporates smaller lot sizes to minimize total impervious area, reduce total construction costs, conserve natural areas, provide community recreational space, and promote watershed protection.

Open space design accommodates the same number of lots on one portion of a site and conserves the remaining half or more as protected land (Figure 7). When applied in rural or low-density suburban areas, open space design (also referred to as Conservation Design in these landscapes) first identifies unbuildable wetlands, floodplains, and steep slopes, preserves all of them, and then protects half of the remaining buildable lands. The same concept applies in higher density/sewered suburban and urban landscapes, except that less land is protected. The minimum goal of conserving 50% of the buildable land has been incorporated into model ordinances adopted by several states (e.g., Pennsylvania, North Carolina, and several New England states).

In open space design, conservation of open space is achieved in part by clustering lots. It should be noted that simply using the technique of clustering lots is not sufficient to qualify as open space design. With clustering, lot standards are more flexible; but in the absence of open space design standards, the resulting open space often consists of leftover bits of unusable property.

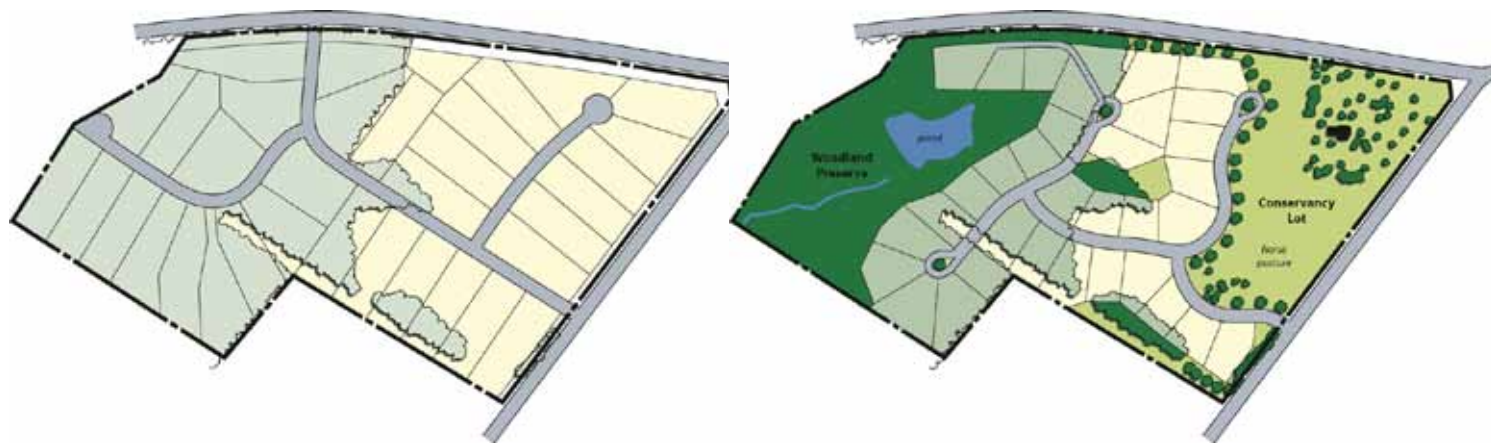


Figure 7. Conventional and open space design options for the Stratford Hall development in Weddington, NC. In both figures, 35 homes are shown on a 35-acre parcel served by public sewer. The figure on the left (conventional development) consists entirely of lots of nearly one acre in area, at a density of one dwelling unit (du)/acre. The figure on the right clusters smaller lots (about 15,000 square feet) on half the parcel, so that the other half can be preserved as open space. The density on the developed portion is about two du/acre, and the density on the other half is 0 du/acre, for an average density of one du/acre, the same as in the conventional option (Source: Randall Arendt, graphics by Natural Lands Trust).

Open space design is most applicable in suburban and rural landscapes but can be used in urban landscapes, with some caveats. Where public sewer is not available, the minimum lot size should be sufficient to provide space for on-site sewage disposal systems, unless alternatives to on-lot septic systems are allowed. Such alternatives may be off-lot individual drainfields located in the common open space, or private central sewage treatment facilities. Open space developments may rely on public sewer if located in a current service area in which case the minimum lot size becomes irrelevant. In rural districts, the extension of water/sewer service beyond currently approved boundaries is not advisable.

Questions	Points	
31	Do the ordinances require or allow open space subdivisions?	
	<i>YES, they are required in a designated open space zoning district</i>	2
	<i>YES, open space designs are an allowable option (through an overlay zone)</i>	1
	NO	0
	CODES ARE SILENT	0
32	Is land conservation or impervious cover reduction a major stated goal or objective of the open space design ordinance?	
	YES	1
	NO	0
	N/A	0
33	Is a minimum percentage of the buildable portion of the site required to be set aside as open space?	
	<i>YES, at least 50%</i>	2
	<i>YES, less than 50%</i>	1
	NO	0
	N/A	0
34	Is the open space determined through a stepwise design process where open space is identified first?	
	YES	1
	NO	0
	N/A	0
35	Is open space design a by-right form of development versus a more burdensome conditional use or warrant?	
	YES	1
	NO	0
	N/A	0

Questions		Points
36	Are flexible site design criteria available for developers that utilize open space or cluster design options (e.g., setbacks/lot lines, road widths, lot sizes and shapes)?	
	YES	1
	NO	0
	N/A	0
37	Are density bonuses and/or penalties used to encourage use of open space design?	
	<i>YES, density penalties are given for conventional development</i>	2
	<i>YES, density bonuses are provided for open space designs that exceed the minimum requirements for open space protection, up to an established maximum</i>	2
	<i>YES, density bonuses are provided for open space designs that exceed the minimum requirements for open space protection, with no cap on density bonuses</i>	1
	NO	0
	N/A	0

12. Setbacks and Frontages

Principle: Relax side yard setbacks and allow narrower frontages to reduce total road length in the community and overall site imperviousness. Relax front setback requirements to minimize driveway lengths and reduce overall lot imperviousness.

Conventional zoning standards usually dictate that each house be set back a minimum distance from property lines and require a minimum road frontage width. Together, these standards tend to increase the total site impervious cover. For example, frontage widths and side yard setbacks directly influence the length of roads and sidewalks, while front yard setbacks influence driveway length. Relaxing these minimum requirements can reduce site imperviousness and allow site designers flexibility in residential lot design while also addressing parking, traffic, and fire safety concerns.



Figure 8. Reduced front yard setbacks result in shorter driveways and reduced frontage distance and side yard setbacks result in shorter streets in this Savannah, GA development.

Questions		Points
38	Are irregular lot shapes (e.g., pie-shaped, flag lots, zipper lots) allowed in the community?	
	YES	1
	NO	0
	CODES ARE SILENT	0
39	Does the code allow for variances to setback and frontage requirements?	
	YES	1
	NO	0
	CODES ARE SILENT	0

13. Sidewalks

Principle: Promote more flexible design standards for residential subdivision sidewalks.

Where practical, consider locating sidewalks only on one side of the street and provide common walkways linking pedestrian areas.

The intent of this principle is to ensure that sidewalk design standards for residential areas are flexible and do not result in excessive impervious cover. While locating sidewalks on only one side of the street may be appropriate in some rural neighborhoods, sidewalks represent only a small proportion of total site impervious cover (from 1% to 7% of total impervious cover, depending on density, based on analysis of data from Cappiella and Brown 2001). Therefore, communities may get more "bang for their buck" by focusing on reducing roadway widths rather than eliminating or reducing sidewalk widths to reduce impervious surfaces while at the same time achieving better safety and mobility outcomes.



Figure 9. The roadway comprises a significant portion of impervious cover in this neighborhood, compared to sidewalks (Photo credit: Dorothy Cappiella)

Sidewalk widths of 5 feet may be appropriate in some neighborhoods but wider walkways will be needed as density increases. Road type, land use/density, roadway characteristics and other variables are important factors to consider in determining suitable sidewalk widths. Some guidance is provided below:

- The United States Access Board's Guidelines for Pedestrian Facilities in the Public Right-of-Way include a continuous clear width of at least 4 feet for sidewalks. If sidewalk width is less than 5 feet, passing spaces must be provided at set intervals. These accessibility guidelines for safe passage can usually be met through driveways, intersections and other methods. <https://www.access-board.gov/guidelines-and-standards/streets-sidewalks/public-rights-of-way/proposed-rights-of-way-guidelines/chapter-r3-technical-requirements>
- The recommended minimum width to allow two people to walk side by side is 5-6 feet (NACTO, 2013, PBIC, 2015).



- Wider sidewalks of 8-10 feet may be desirable where sidewalks are located on only one side of the street, sidewalks are directly adjacent to moving traffic, streets are within walking distance of schools, or where higher pedestrian traffic is expected (PBIC, 2015; NACTO, 2013).
- Higher density residential neighborhoods (e.g., downtown residential areas that are walkable to commercial areas) may need increased widths of up to 10-12 feet. <http://www.sfbetterstreets.org/design-guidelines/side-walk-width/>

Figure 10. This paved trail connecting neighborhood streets provides a pleasant alternative to walking along the street to travel to nearby parks, bus stops and other locations.

Questions

Points

	Questions	Points
40	Can minimum sidewalk widths for residential neighborhoods be reduced to 5 feet where safe and appropriate?	
	YES	2
	NO	0
	CODES ARE SILENT	0
41	Can alternate pedestrian networks (e.g., paved trails through common areas, walkways and bike trails connecting from cul-de-sacs to other streets) be substituted for sidewalks in the right-of-way?	
	YES	1
	NO	0
	CODES ARE SILENT	0
42	Are alternative sidewalk designs that provide sufficient soil rooting volume for street trees (e.g., pop-outs or bulb-outs, curving sidewalks, tree islands) allowed?	
	YES	1
	NO	0
	CODES ARE SILENT	0
43	Are alternative sidewalk construction materials that increase infiltration allowed?	
	YES	1
	NO	0
	CODES ARE SILENT	0

14. Driveways

Principle: Reduce overall lot imperviousness by promoting alternative driveway surface and shared driveways that connect two or more homes together.

Questions	Points	
44	Are minimum driveway widths 9 feet or less (one lane) or 18 feet or less (two lanes)?	
	YES	1
	NO	0
45	Can pervious materials (e.g., grass, gravel, permeable pavements, etc.) be used for residential driveways?	
	YES	2
	NO	0
	CODES ARE SILENT	0
46	Can a "two track" design be used for residential driveways?	
	YES	1
	NO	0
	CODES ARE SILENT	0
47	Are shared driveways permitted in residential developments?	
	YES	1
	NO	0
	CODES ARE SILENT	0



Figure 11. This shared driveway in Jordan Cove, CT helps to reduce impervious cover and is also constructed using permeable materials.



Figure 12. A "two-track" driveway is another way to reduce driveway imperviousness

15. Open Space Management

Principle: Clearly specify how community open space will be managed and designate a sustainable legal entity responsible for managing both natural and recreational open space.

If open space developments are not allowed in your community, select N/A for each question below.

Questions		Points
48	Does the open space design ordinance require identification of an entity (e.g., conservation organization, community association) who will be responsible for managing the open space?	
	YES	2
	NO	0
	N/A	0
49	Can open space be managed by a land trust or other qualified public or private land conservation organization (e.g., municipal parks department) through conservation easements or transfer of ownership?	
	YES	1
	NO	0
	CODES ARE SILENT	0
N/A	0	
50	If open space cannot be managed by a third party, are there enforceable requirements to establish an association that can effectively manage the open space?	
	YES	1
	NO	0
N/A	0	
51	Are secure and permanent funding arrangements required to be established for the long-term management and maintenance of open space?	
	YES	1
	NO	0
N/A	0	

Questions		Points
52	Are there standards for the open space requiring interconnections, prioritized lists of resources to be conserved, and access standards?	
	YES	1
	NO	0
	N/A	0
53	Are allowable and unallowable uses for open space in residential developments defined?	
	YES	1
	NO	0
	N/A	0
54	Are long-term management plans that conserve natural systems required for all open space areas?	
	YES	1
	NO	0
	N/A	0
55	Is open space in a natural condition required to be protected in perpetuity by a binding conservation easement or similar legal instrument?	
	YES	1
	NO	0
	N/A	0

16. Rooftop Runoff

Principle: Direct rooftop runoff to pervious areas such as yards, open channels, or vegetated areas and avoid routing rooftop runoff to the roadway and the stormwater conveyance system.

Use of rainwater harvesting practices in the arid and semi-arid West may be prohibited by water rights law. The complex legal landscape associated with the doctrine of prior appropriation complicates the process of determining whether rainwater harvesting is allowable. For example, some states clearly have jurisdiction over atmospheric rainwater, while others do not or may only under certain circumstances. In states that have jurisdiction over precipitation, some require a permit for harvest and use of rainwater, while others do not require a permit or specifically exempt rainwater harvesting. In states where a permit is required, only some actually outline a formal process by which a property owner can apply, while others do not accept permit applications. If you live in a state that prohibits or requires a permit for rainwater harvesting, some of the rooftop practices below may not be applicable in your community. EPA's Green Infrastructure in Arid and Semi-Arid Climates is a good resource to evaluate how water law may impact rainwater harvesting in your state: https://www3.epa.gov/npdes/pubs/arid_climates_casestudy.pdf.

Questions		Points
56	Can downspouts be disconnected such that rooftop runoff flows to storage tanks, pervious areas, runoff reduction practices, etc.?	
	YES	2
	NO	0
	CODES ARE SILENT	0
57	Do current grading or drainage requirements allow for temporary ponding of stormwater on front yards or rooftops?	
	YES	2
	NO	0
	CODES ARE SILENT	0
58	Is temporary storage of rainwater in storage tanks (e.g., rain barrels or cisterns) permitted?	
	YES	1
	NO	0
	CODES ARE SILENT	0
59	Do the stormwater BMP design specifications for green roofs address structural concerns (e.g. how to determine design load of roof)?	
	YES	1
	NO	0
60	Do local plumbing codes allow harvested rainwater for exterior uses such as irrigation and non-potable interior uses such as toilet flushing?	
	YES	1
	NO	0
	CODES ARE SILENT	0



Figure 13. Three options for managing rooftop runoff in Washington, DC: 1) rain barrel, 2) green roof, and 3) disconnected downspout directed to a rain garden

Natural Areas

The natural areas principles address codes and ordinances that promote (or impede) protection of existing natural areas and incorporation of open spaces into new development.

17. Buffer Systems

Principle: Create a variable width, naturally vegetated buffer system along all perennial streams that also encompasses critical environmental features such as the 100-year floodplain, steep slopes, and freshwater wetlands.

Vegetated systems along shorelines, wetlands, and streams can protect water quality, reduce flooding impacts, provide wildlife habitat, serve as a recreation resource, and offer economic benefits to the local community. Optimal buffer widths vary with the type of waterway and the desired benefit (e.g., water quality protection versus habitat).



Figure 14. A forested buffer on either side of the stream helps to protect water quality and habitat (Photo credit: Dorothy Cappiella)

Questions

Points

Questions	Points	
61	Do the development standards in the community require a vegetated buffer along waterways?	
	YES	2
	NO	0
62	Is the definition of waterway, or the regulated buffer, expansive enough to include (check all that apply):	
	<i>Perennial streams</i>	0.5
	<i>Ephemeral and intermittent streams</i>	0.5
	<i>Lakes</i>	0.5
	<i>Estuaries and shorelines</i>	0.5
	<i>Wetlands</i>	0.5
	<i>Vernal ponds</i>	0.5
	NO	0
	CODES ARE SILENT	0
N/A	0	

Questions		Points
63	Is the minimum buffer width 50 feet or more?	
	YES, width is 100 feet or greater	2
	YES, width is between 50 and 99 feet	1
	NO, width is < 50 feet	0
	CODES ARE SILENT	0
	N/A	0
64	Are buffer widths greater for sensitive resources (e.g., designated high quality streams) or in certain zones (e.g., drinking water protection)?	
	YES	1
	NO	0
	N/A	0
65	Is expansion of the buffer to include adjacent wetlands, steep slopes, or the 100-year floodplain required?	
	YES	1
	NO	0
	N/A	0

18. Buffer Management

Principle: The riparian stream buffer should be preserved or restored with native vegetation that can be maintained throughout the plan review, delineation, construction, and occupancy stages of development.

The key to effective buffer preservation and management is the adoption and active enforcement of a strong buffer ordinance that requires a plan that outlines the legal rights and responsibilities for the long-term management of the buffer. Education of landowners is vital to preventing encroachment within the buffer, as well as real penalties for violation of buffer requirements to emphasize the importance of maintaining buffer integrity.

Questions		Points
66	Does the buffer ordinance specify that a minimum percentage of the buffer be maintained with native vegetation?	
	YES	2
	NO	0
	N/A	0

Questions		Points
67	Does the buffer ordinance outline prohibited uses and permitted uses that have little impact to the vegetated buffer?	
	YES	1
	NO	0
	N/A	0
68	Does the ordinance specify enforcement mechanisms?	
	YES	1
	NO	0
	N/A	0
69	Does the buffer ordinance specify a preference for buffers to be located on a parcel of common ownership (e.g., a homeowners' association)?	
	YES	1
	NO	0
	N/A	0

19. Clearing and Grading

Principle: Clearing and grading of forests and native vegetation at a site should be limited to the minimum amount needed to build lots, allow access, and provide fire protection. A fixed portion of any community open space should be managed as protected green space in a consolidated manner.

Conservation of natural areas within a site can reduce erosion and sediment and clearing and grading costs while maintaining natural features of the site. Common ordinances that can be adapted to limit clearing include: erosion and sediment control, grading, forest conservation or tree protection, and open space development.

Questions		Points
70	Is there any ordinance that requires the preservation of native soils, hydric soils, natural vegetation, or steep slopes at development sites?	
	YES	2
	NO	0
71	Do regulations limit the total portion of the site that can be cleared?	
	YES	1
	NO	0

Questions	Points	
72	Are the limits of disturbance required to be shown on construction plans and physically marked at the site?	
	YES	1
	NO	0
73	Are reserve septic field areas allowed to be left undisturbed until needed?	
	YES	1
	NO	0
	CODES ARE SILENT	0

20. Tree Conservation

Principle: Conserve trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native plants. Wherever practical, manage community open space, street rights of way, parking lot islands, and other landscaped areas to promote natural vegetation.

Native trees, shrubs, and grasses are important contributors to the overall quality and viability of the environment. Preservation and restoration of natural areas can provide aesthetic, environmental, and economic benefits. These will accrue as increased land values, reduced small drainage complaints, creation of habitat for wildlife, better stormwater management, lower ambient temperature, increased safety for residents, and provision of passive recreation space.

In regions of the country where trees are not the predominant native cover, the questions below may not be applicable or can be adjusted to promote preservation and planting of plants that are native to the landscape. For example, xeriscaping is an option for parts of the country where water supplies are limited. This technique uses drought tolerant native plants to landscape and can greatly increase water conservation compared to lawn-focused landscaping.

Questions	Points	
74	Is a natural resources inventory required to identify and map natural areas?	
	YES, and significant natural areas such as high quality forest stands, wildlife habitat and travel corridors, productive cropland, and specimen trees must be identified	2
	YES, but no requirements to assess resource quality	1
	NO	0

Questions		Points
75	Is there an ordinance that requires conservation of some portion of forests, specimen trees, or other native vegetation at development sites?	
	<i>YES, specific conservation thresholds are identified</i>	2
	<i>YES, no specific conservation thresholds identified</i>	1
	NO	0
76	Do tree conservation requirements identify or reference methods for delineating and protecting the critical root zone of trees (sometimes referred to as “drip line”)?	
	YES	1
	NO	0
	N/A	0
77	Do forest/tree conservation requirements specify planting new trees at sites where none exist?	
	YES	1
	NO	0
	N/A	0
78	Are trees and native plant materials permissible for landscaping in yards, common areas, and other open spaces?	
	<i>YES, some portion of landscaping must include trees and other native vegetation provided in recommended species list</i>	2
	<i>YES, trees and native vegetation are allowed per recommended species list</i>	1
	<i>NO, landscaping ordinance requires turfgrass or includes vegetation height standards that preclude use of native plants</i>	0
79	Does the community have an urban forestry plan that supports/is referenced by the landscaping ordinance?	
	YES	1
	NO	0
80	Do landscaping requirements identify or reference specifications for soil amendments, planting methods, species selection, and maintenance?	
	YES	1
	NO	0

21. Land Conservation Incentives

Principle: Incentives and flexibility in the form of density compensation, buffer averaging, property tax reduction, stormwater credits, and by right open space development should be encouraged to promote conservation of stream buffers, forests, meadows, and other areas of environmental value. In addition, off-site mitigation consistent with locally adopted watershed plans should be encouraged.

Conservation and protection measures that require excessive administrative hurdles, such as lengthy plan reviews, additional upfront costs to developers and unclear appeal procedures can create major barriers to implementation. Incentives and flexibility are an effective way to promote adoption of conservation and protection measures.



Figure 15. Maryland's unique Forest Conservation Act helps to protect forest from development impacts and required planting new trees at sites where there is little forest to conserve

Questions

Points

Questions	Points	
81	Are there any incentives to developers (e.g., open space design, density bonuses, stormwater credits, or expedited design review) to conserve land above and beyond what is already required (e.g., steep slopes, wetlands)?	
	YES	2
	NO	0
	CODES ARE SILENT	0
82	Is flexibility to meet land conservation requirements (e.g. density compensation, buffer or lot averaging, by-right open space development, transferable development rights, off-site mitigation) offered to developers?	
	YES	2
	NO	0
	CODES ARE SILENT	0

22. Stormwater Outfalls

Principle: New stormwater outfalls should not discharge unmanaged stormwater into jurisdictional wetlands, sole source aquifers, or other water bodies.

Stormwater runoff generated at development and redevelopment sites can represent a significant threat to the quality of streams, wetlands, and other surface and groundwater resources. Programmatic and regulatory changes, including MS4 Phase II and the adoption of TMDLs, have occurred in the field of stormwater management since the initial National Site Planning Roundtable. As a result, stormwater is required to be

treated for quality before discharge from most new development and redevelopment projects. Therefore, this principle should be a common practice in most development situations.

On the other hand, there are no federal laws that prohibit discharge of stormwater directly into a jurisdictional wetland without pretreatment (Section 404 regulates discharge of dredge or fill material but not stormwater). The definition of what is "jurisdictional" may not include all wetland types or sizes so it is important for local governments to fill this gap in wetland protection. Other types of natural resources may be sensitive to inputs of stormwater and could be better protected by adopting special stormwater criteria. The questions below are intended to address this changing landscape of regulations regarding stormwater discharges to natural areas.



Figure 16. This tidal wetland in coastal Virginia is protected through a setback and buffer, and the adjacent development benefits from the spectacular view and access for recreation.

Questions

Points

83	Does the stormwater code contain special treatment criteria for discharges to impaired or sensitive waters, such as natural wetlands, lakes, trout streams, nutrient-sensitive estuaries, drinking water supplies, etc.?	
	YES	2
	NO	0
84	Does a floodplain management ordinance exist that restricts or prohibits development within the 100-year floodplain?	
	YES	2
	NO	0
85	Is there a local wetland protection ordinance?	
	YES	1
	NO	0

Runoff Reduction

Due to changes in federal, state, and local environmental regulations and in the thinking regarding the best strategies for dealing with stormwater impacts, several new questions have been added to the COW to address potential code barriers to implementation of runoff reduction techniques.

Sections 23-25 focus on the regulations that pertain to stormwater management standards, particularly the inclusion of practices that reduce runoff.

23. Stormwater Codes

The questions in this section are intended to ensure that runoff or volume reduction is included in the stormwater code.

Traditionally, stormwater codes require detention (control of peak rates of runoff), and, more recently, water quality treatment. A newer generation of stormwater codes also addresses runoff volumes through a focus on retention so that post-development runoff characteristics replicate pre-development conditions. Examples of specific code requirements include reduce post-construction runoff volume associated with a particular rainfall depth (e.g., 1 inch) or a range of design storms, or not exceed the volume associated with a forested or pasture condition. Newer codes that address runoff reduction are likely to be complementary to more traditional peak rate/detention and water quality treatment standards.

One prerequisite for runoff reduction standards and their associated runoff reduction practices is they must be introduced early in site planning in order to be integrated with the rest of site plans and layout. Processes such as pre-application meetings can help with this early integration. Clear and local or regionally-based design guidance, such as an updated stormwater design manual, is also essential for the proper application and design of the practices. It is also essential that the local code is internally consistent regarding drainage and stormwater treatment in order to avoid conflicting or confusing design standards.

Questions	Points	
86	Do codes define rainwater harvesting and establish acceptable uses for rainwater (e.g., irrigation and toilet flushing) and corresponding treatment requirements?	
	YES	1
	NO	0
	N/A	0
87	Does the stormwater code include specific standards to reduce post-construction runoff volume (not just peak rate)?	
	YES, runoff/volume reduction is required for most new development and redevelopment sites	2
	YES, the standards apply to some sites or are included as an alternative compliance method	1
	NO	0
	N/A	0
88	Does the code require or have incentives for consideration of runoff reduction concepts early in the site planning process?	
	YES, there are provisions for a pre-application meeting or similar	2
	YES, but the meetings are not mandatory for applicants	1
	NO	0
	N/A	0

Questions		Points
89	If the code includes post-construction runoff reduction standards, is there reference to clear, understandable, and local or regionally-based design guidance or manual?	
	YES, the code references design guidance or a manual	2
	YES, such a manual exists but it is not referenced in the code	1
	NO	0
	N/A	0
90	Are drainage and treatment standards all in one place within the code and internally consistent?	
	YES, codes are consolidated and consistent regarding applicability and methods	1
	NO, various code sections are conflicting or inconsistent	0
	N/A	0

24. Installation and Maintenance of Practices

The questions in this section are intended to ensure that post-construction (runoff reduction) practices are installed properly and that there are provisions to ensure long-term maintenance.

Installation and maintenance can be the “Achilles heel” of stormwater practices, especially small-scale runoff reduction practices. Many practices have failed due to these issues, and thus are not providing the hydrologic and water quality benefits they are intended to provide. For construction and installation, it is critically important that erosion and sediment control standards are integrated with the post-construction stormwater plan. For instance, areas designated for post-construction stormwater control must be protected from heavy equipment, compaction, and sediment during construction, especially if the post-construction practice will rely on infiltration or soil treatment. Post-construction practices, such as filter strips and riparian buffers, should be outside of the limits of disturbance during active construction. Performance bonds are important tools to ensure that installations are completed as per the approved plan.



Figure 17. Mulch replacement is one activity that may be included in a maintenance agreement for stormwater practices such as bioretention.

Long-term maintenance is another vital issue related to stormwater practice performance. The code can help ensure proper maintenance by making sure that practices are within easements (unless designed to be on private lots), inspectors have right-of-entry, maintenance agreements are in place that spell out the responsibilities of the property owner, and that there are periodic inspections during the post-construction phase.

Questions		Points
91	Do erosion and sediment control standards specify protection of post-construction practice sites during active construction?	
	<i>YES, erosion control standards include these provisions</i>	2
	<i>YES, the code is not explicit but it is addressed during plan review</i>	1
	NO	0
	N/A	0
92	Does the code mandate performance bonds and periodic inspections to ensure proper installation of practices based on the approved plans?	
	<i>YES, the code includes bonding requirements and inspections during stormwater practice installation</i>	2
	<i>YES, the code includes bonding or inspections, but not both</i>	1
	NO	0
	N/A	0
93	Does the code include provisions for runoff reduction practice easements, inspector right-of-entry, maintenance agreements, and post-construction inspections?	
	<i>YES, all the provisions are included</i>	2
	<i>YES, 3 out of the 4 are included</i>	1
	NO	0
	N/A	0

25. Off-Site Compliance

The question in this section is intended to ensure that off-site compliance or trading mechanisms are used judiciously and do not compromise local water quality.

States, regions, and localities are turning increasingly to off-site compliance strategies, such as pollution trading, banks, or allowing stormwater requirements to be met at alternative sites. These provisions can add flexibility and innovation, especially for tricky sites or areas where the local comprehensive plan calls for infill and redevelopment. However, overuse of these strategies can compromise local water quality because the treatment is happening elsewhere. A balanced off-site compliance program will require a certain level of "due diligence" treatment on-site wherever possible, while allowing flexibility for full compliance. Documentation should be provided to verify that on-site options are infeasible.

Questions		Points
94	If off-site stormwater compliance is authorized, is some percentage of treatment required on-site?	
	YES, applicants must provide on-site treatment to some level and provide documentation	2
	NO, many sites have automatic access to off-site compliance	1
	N/A	0

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Appendix 8

Zoning By-Law

Town of Blandford, Massachusetts

With Comments from Dodson & Flinker regarding regulations that relate to Low Impact Development (LID). Comments are keyed to the *Code and Ordinance Worksheet* (Center for Watershed Protection, 2017)

Note: Redlined text in the body of the zoning is not from Dodson & Flinker. Only the comments in the right sidebar are from Dodson & Flinker and relate to LID.

1 Russell Stage Road, Blandford, MA 01008 — (413) 848-4279

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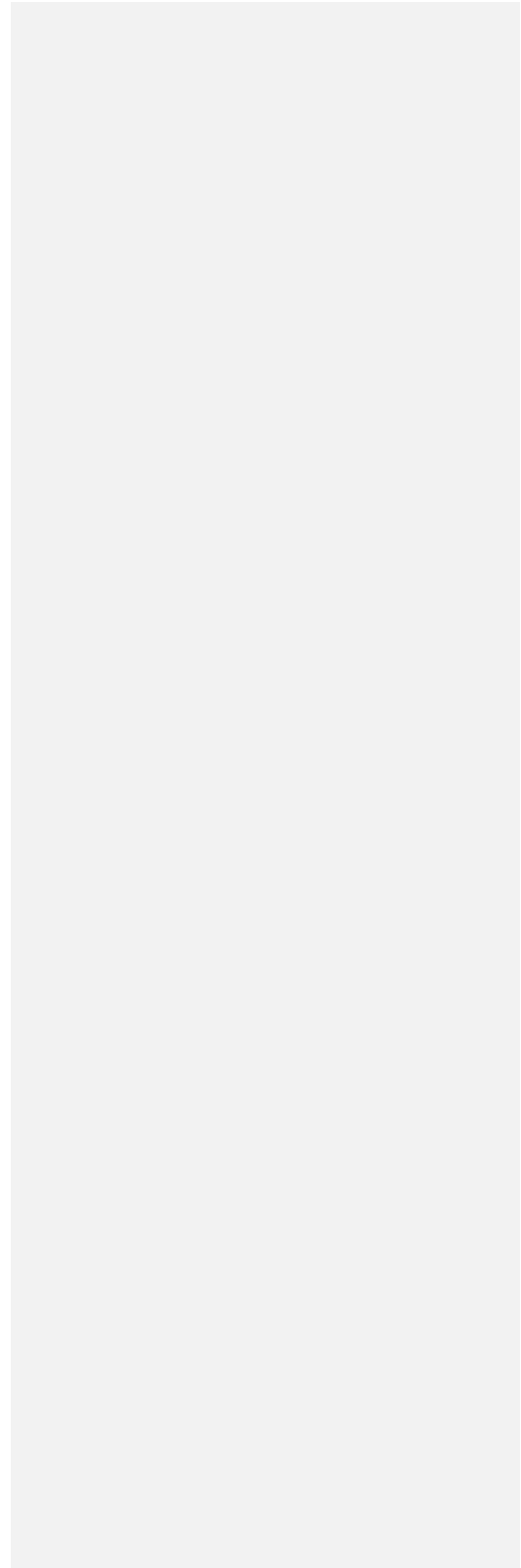
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Note: SECTIONS I thru SECTION XV BY-LAWS were originated by the Planning Board and have been approved by a 2/3 vote at town meeting.



SECTION I: PURPOSE

~~The purposes of this Bylaw are to promote the health, safety, and general welfare of the inhabitants of the Town of Blandford; to protect and conserve the value of property within the Town; and to secure safety from fire, congestion, or confusion, all in accord with the General Laws of the Commonwealth of Massachusetts, Chapter 40A.~~

These regulations are enacted to promote the general welfare of the Town of Blandford, to protect the health and safety of its inhabitants, to encourage the most appropriate use of land throughout the town, to preserve the cultural, historical and agricultural heritage of the community, to increase the amenities of the town, and to reduce the hazard from fire by regulating the location and use of buildings and the area of open space around them, all as authorized by, but not limited to, the provisions of the Zoning Act, G.L. c. 40A, as amended, Section 2A of 1975 Mass. Acts 808, and by Article 89 of the Amendments to the Constitution of the Commonwealth of Massachusetts.

SECTION II: NONCONFORMING USES

~~2.1 — USE OF STRUCTURE~~

~~The lawful use of any structure or land existing at the time of the enactment or subsequent amendment of this Bylaw may be continued although such structure or use does not conform to the provisions of the Bylaw.~~

~~2.2 — ALTERATION~~

~~A nonconforming structure may be altered, repaired or rebuilt, but such alteration or restoration shall not depart further from the requirements of this Bylaw than the nonconforming condition or conditions existing in such structure prior to such alteration or restoration.~~

~~2.3 — EXTENSION~~

~~Any structure or land, or part thereof, which at the time this Bylaw is adopted is being put to a nonconforming use may be altered or enlarged in that use to an extent not exceeding 25 percent of the area at the time this Bylaw is adopted.~~

~~2.3.1 — In appropriate cases and with appropriate safeguards, the Board of Appeals may grant special permits to further extend nonconforming uses with respect to farms located in the~~

~~residential district.~~

~~2.4 ABANDONMENT~~

~~A nonconforming Use which has been abandoned for a year or more shall not be reestablished, and any future use shall conform with this Bylaw.~~

~~2.5 CHANGES~~

~~Once changed to a conforming use, no structure or land shall be permitted to revert to a nonconforming use.~~

2.1 APPLICABILITY

This zoning By-Law shall not apply to structures or uses lawfully in existence or lawfully begun, or to a building or special permit issued before the first publication of notice of the public hearing on such relevant portion of the By-law required by G.L. c. 40A, s. 5. Such prior, lawfully existing nonconforming uses and structures may continue, provided that no modification of the use or structure is accomplished, unless authorized hereunder.

2.2 NONCONFORMING USES

The Board of Appeals may issue a special permit to change or substantially extend a nonconforming use in accordance with this section only if it determines that such change or extension shall not be substantially more detrimental than the existing nonconforming use to the neighborhood

2.3 NONCONFORMING STRUCTURES

The Board of Appeals may issue a special permit to reconstruct, extend, alter, or change a nonconforming structure in accordance with this section only if it determines that such reconstruction, extension, alteration, or change shall not be substantially more detrimental than the existing nonconforming structure to the neighborhood.

2.4 SPECIAL PERMIT REQUIRED

Except as provided in subsection 2.5, below, the reconstruction, extension or structural change

of a nonconforming structure in such a manner as to increase an existing nonconformity, or create a new nonconformity, including the extension of an exterior wall at or along the same nonconforming distance within a required yard, shall require the issuance of a special permit from the Board of Appeals.

2.5 NONCONFORMING SINGLE AND TWO-FAMILY RESIDENTIAL STRUCTURES

Nonconforming single-family and two-family residential structures may be reconstructed, extended, altered, or structurally changed upon a determination by the Building Inspector that such proposed reconstruction, extension, alteration, or change does not increase the nonconforming nature of said structure. The following circumstances shall not be deemed to increase the nonconforming nature of said structure:

- a) Alteration to a structure located on a lot with insufficient area which complies with all current setback, yard, building coverage, and building height requirements,*
- b) Alteration to a structure located on a lot with insufficient frontage that complies with all current setback, yard, building coverage, and building height requirements.*
- c) Alteration to a structure which encroaches upon one or more required yard or setback areas, where the alteration will comply with all current setback, yard, building coverage and building height requirements.*

In the event that the Building Inspector determines that the nonconforming nature of such structure would be increased by the proposed reconstruction, extension, alteration, or change, the Board of Appeals may, by special permit, allow such reconstruction, extension, alteration, or change where it determines that the proposed modification will not be more detrimental than the existing nonconforming structure to the neighborhood.

2.6 ABANDONMENT OR NON-USE

A nonconforming use or structure that has been abandoned, or not used for a period of two years, shall lose its protected status and be subject to all of the provisions of this zoning By-Law.

2.7 RECONSTRUCTION AFTER CATASTROPHE OR DEMOLITION

A nonconforming single-family or two-family structure may be reconstructed as of right after a catastrophe or after demolition in accordance with the following provisions:

- a) Reconstruction of said premises shall commence within two years after such catastrophe or demolition; and*
- b) Building(s) as reconstructed shall be located on the same footprint as the original nonconforming structure, shall be only as great in volume or area as the original nonconforming structure, and shall meet all applicable requirements for yards, setback, and height.*

In the event that the proposed reconstruction would cause the structure to exceed the volume or area of the original nonconforming structure or would exceed applicable requirements for yards, setback, and/or height or would cause the structure to be located other than on the original footprint, a special permit for such reconstruction shall be required from the Board of Appeals prior to such demolition.

2.8 REVERSION TO NONCONFORMITY

No nonconforming use or structure shall, if changed to a conforming use or structure, revert to a nonconforming use or structure.

SECTION III: ESTABLISHMENT OF DISTRICTS

3.1 TYPES OF DISTRICTS

In accordance with the purpose of this Bylaw, the Town of Blandford is hereby divided into the following Districts:

- Residential
- Business
- Agricultural
- Long Pond Watershed Protection District
- Flood Plains District

3.2 LOCATION OF DISTRICTS

Said Districts are located and bounded as shown on a map entitled "Zoning Map of Blandford, Massachusetts" dated May 6, 2019 and on file with the Town Clerk. The Zoning Map, with all explanatory matter thereon, is hereby incorporated by reference and made a part of this Bylaw.

3.3 BOUNDARIES OF DISTRICTS

The location of the boundary lines of the Districts shown on the Zoning Map shall be determined as follows:

3.3.1 Where the boundary lines are shown on said map to be the road lines of public or

private roads or ways, the center line of such roads or ways shall be the boundary line.

3.3.2 Where the boundary lines are shown on said map as being approximately upon the location of existing property lines and the exact location of boundary lines is not indicated by means of figures distance otherwise, then the property or lot lines shall be the boundary lines.

3.3.3 Boundary lines located outside such road lines and shown approximately parallel thereto shall be regarded as parallel figures placed on the map between the boundary lines and road lines or measured at right angles to the road lines unless otherwise indicated.

BOUNDARIES OF RESIDENTIAL DISTRICT:

The residential district begins at the junction of South Street, on the north side of Rte 23, with GIS lot 113-0-11 (aka 60 Main Street), and continues to the junction of Kaolin Road, then follows north on Kaolin Road to GIS lot 1 (aka 2 Kaolin Road), then easterly along the northern boundary of lot 1 continuing easterly along the northern boundary of lot 4 (aka 72 Main Street) to the property of the Massachusetts Turnpike. It then continues along the southern border of the Massachusetts Turnpike back to the northeast corner of GIS lot 113-0-11 (aka 60 Main Street). The residential district includes all lots within the perimeter described above.

It then continues on the south side of Main Street at the junction of South Street and Main Street, (Rte 23), starting at GIS 113-0-16, (aka 59 Main Street), to GIS lot 111-0-4.01 (aka 71 Main Street), including all the lots between the aforementioned two lots.

The residential district includes all lots bordering the east and west sides of Sunset Road and all lots bordering the east and west sides of Glasgow Road, and all lots bordering the east and west sides of Wyman Road. All lots are south of the business district. The southern boundary of the residential district is as follows: starting at the south east corner of GIS lot 113-0-18,(aka 9 Sunset Road), then westerly along the southern boundary of lot 18, then northerly along the west side of lot 18 to the south east corner of lot 19,(aka 16 Sunset Road), then westerly along the southern boundary of lot 19, then northerly along the western boundary of lot 19, then easterly along the northern boundary of lot 19 to the south west corner of lot 111-0-12 , (aka 14 Sunset Road). It proceeds northerly along the western boundary of lot 12 to the southern boundary of lot 111-0- 19, (aka 79 Main Street). The residential district continues westerly along the south side of lot 111-0-19 to a point on lot 111-0-30 which borders on Glasgow Road. The residential district boundary continues southerly on the east side of lots 30 and 31 to the south east corner of lot 31 then continues westerly along lot 31 to lot 111-0-32 and then westerly along the southern border of lot 32, and westerly along the southern border of lot 110-0-6, and 110-0-16 whose western boundary borders along Herrick Road.

The residential district continues to where lot 110-0-6 meets the north east boundary of lot 414-

0-2 (aka 23 Herrick Road). The boundary of the residential district then follows south along the eastern border of lot 414-0-2 and then west along the southern border of the same lot including the southern border of lot 414-0-3(aka 25 Herrick Road). The southern border of the residential district continues across Herrick Road where it follows westerly along the southern border of lot 414-0-5.3. The residential district continues north along Herrick Road and includes all of the lots on the eastern and western sides of Herrick Road until it meets Otis Stage Road (aka Rte 23).

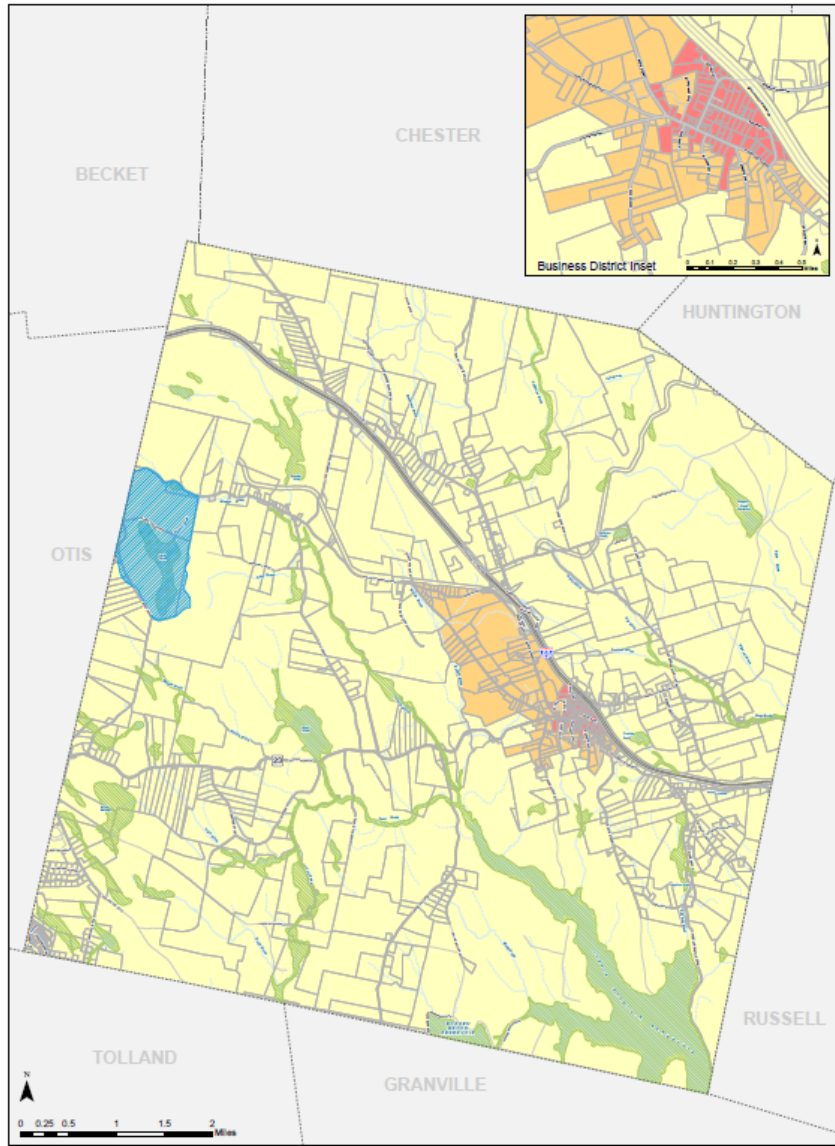
The residential district also includes Lots 110-0-24(105 Otis Stage Road) and 110-0-25, (107 Otis Stage Road).

The residential district follows northwest along both sides of North Blandford Road and stops at the northern border of lot 409-0-41 (aka 49 North Blandford Road) on the west side of North Blandford Road. The residential district includes all the lots on the eastern side of North Blandford Road to the junction of Gore Road.

The residential district includes all lots on the north and south sides of Gore Road to the junction of North Street. All lots within the boundary of North Blandford Road, Gore Road, and North Street are in the residential district.

The residential district continues on the east side of North Street starting at 104-0-6(aka 28 North Street) and continues south along North Street containing all lots between the east side of North Street and the boundary of the Massachusetts Turnpike Authority. The residential district ends where it meets the business district.

ZONING BY-LAW of the TOWN OF BLANDFORD, MASSACHUSETTS



ZONING MAP
OF THE
TOWN OF BLANDFORD
Adopted by Town Meeting on May 6, 2010



Zoning Districts & Overlay

	Agricultural District		Tax Parcel Boundaries		Open Water
	Residential District		U.S. Highway		Stream
	Business District		Local Roads		Intermittent Stream
	Floodplain Overlay District		Municipal Boundaries		
	Watershed Protection Overlay District				

BOUNDARIES OF BUSINESS DISTRICT

Starting on the east side of Kaolin Road, at lot 21, then following the southern border of lot 21 to lot 22 and then along the southern border of lot 22 to the border of the Massachusetts Turnpike. The business district then follows westerly along the southern border of the Massachusetts Turnpike including all of the lots between the Mass Turnpike and Kaolin Road.

The business district will also include all of the property encompassed within the boundaries of Russell Stage Road, Kaolin Road, and Main Street (Rte 23).

The business will continue from the intersection of Russell Stage Road and Maple Lane including all of the lots between Maple Lane and the Mass Turnpike including lot 30 AKA 10 Maple Lane. Then continuing along the western border of lot 29 then west along the southern border of lot 5 then southerly along the east side of lots 8 and 9 (aka 4 and 6 respectively) and westerly along ~~the southern border of lot 9 to North Street~~ **(to the east side of north street. then south along the west side of lot 109-0-9 and along the west side of lot 109-0-10 (aka 6 and 4 north street respectively)).**

Then continuing south on North Street to the junction of Main Street, (Rte 23), and Russell Stage Road including lots 11, 12, 14, 15, 16, and 17 and excluding lot 13 also known as Watson Park. Then at the junction of Main Street and Russell Stage Road going North along Russell Stage Road to Maple Lane including all of the lots between Russell Stage Road and lot 13, (Watson Park), and then along the south side of Maple Lane to and including lot 28 aka 5 maple Lane.

The business district continues from the junction of Main Street and North Street

Starting at lot 1, aka 99 Main Street, including all of the lots that border along the south side of Main Street and ending at lot 5 (aka 73) Main Street. The business district will extend to the southern border of each lot.

BOUNDARIES OF AGRICULTURAL DISTRICT

All areas not in the Business or Residential Districts.

SECTION IV: PROVISIONS FOR DISTRICTS

4.1 RESIDENTIAL DISTRICT

4.1.1 Uses Permitted (see Table XII- Schedule of Uses Table)

No building or land shall be used except for the following purposes:

4.1.1.1 One and two-family dwellings.

No more than one (1) building designated or available for use for dwelling purposes shall be erected or placed or converted to use as such on any lot without first obtaining a permit from the Building Inspector.

The Zoning Board of Appeals shall grant a special permit for the erection of an additional building or a conversion of an additional building, on any one lot, to be used for dwelling purposes provided:

- (a) The minimum frontage of a lot in the district and the minimum area of the district for each dwelling are met.
- (b) All minimum distances between buildings and setback requirements are met.
- (c) The building Inspector obtains approval of the Planning Board prior to issuing permit.

Commented [DS1]: COW 39. Setbacks and Frontages
➤ Allow variation in setbacks and frontage requirements

4.1.1.2 Churches, schools, town offices and buildings, libraries, cemeteries, public parks.

4.1.1.3 Such accessory buildings or uses as are common to dwellings. The phrase "uses as are common" shall be interpreted to include the cutting of salable timber and the keeping of livestock and domestic animals and pets where such uses are not a commercial enterprise and do not conflict with the purpose of this By-Law.

4.1.1.4 The growing of agricultural crops.

4.1.1.5 Private clubs not conducted for business and the Union Agricultural and Horticultural Society.

4.1.1.6 In appropriate cases, for uses which are not specifically prohibited or already require a Special Permit from another Board, and with appropriate safeguards, the Board of Appeals may grant special permits for the following accessory uses:

- ~~(a) No display of goods or advertising outside except for a sign not more than 2 square feet.~~
- ~~(b) Location of standing signs. Minimum distance from public right of way, twelve (12) feet from intersection, twenty five (25) feet.~~
- (c) Such occupations shall include but not be limited to: Architect, Hairdresser, Art Gallery, Interior Designer, Boutique, Laundress, Craft Shop, Real Estate, Dressmaker, Carpenter, Home Manufacturing, Painter, Plumber, and Electrician
- (d) Office for the practice of a recognized profession, i.e. doctor, dentist, lawyer.

4.1.1.7 Recreational facilities, operated as a business provided that any accessory buildings conform to the Subdivision Regulations and are approved by the Planning Board. None of these uses should create offensive odors, noise or unsightly appearance noticeable off the premises.

4.1.1.8 Target range; in appropriate cases and with appropriate safeguards, the Board of Appeals may grant special permits to organized groups within the Town for supervised target shooting.

4.1.1.9 Roof Mounted Solar Photovoltaic Installation

None of these uses shall create offensive odors, noise or unsightly appearance noticeable off the premises.

4.1.2 Frontage and Area of Lots

4.1.2.1 The minimum frontage of lots in this district shall be 150 contiguous feet, and the minimum area shall be 30,000 square feet.

4.1.2.2 The minimum distance between a dwelling or accessory building and a street line shall be 30 feet.

4.1.2.3 The minimum distance between a dwelling or accessory building, a driveway or road or other structure such as a swimming pool or tennis court and any abutting property shall be 15 feet.

Commented [DS2]: COW 39. Setbacks and Frontages
➤ Allow variation in setbacks and frontage requirements

4.2 BUSINESS DISTRICT

4.2.1 Uses Permitted (see Section XII: Schedule of Uses Table)

No building or land shall be used except for the following purposes:

4.2.1.1 Any purpose authorized in the Residential District.

4.2.1.2 Offices, banks, and places of assembly.

4.2.1.3 Retail stores, salesrooms, shops for Custom work; or the making of articles to be sold at retail on the premises.

4.2.1.4 Restaurants excluding drive-ins or businesses using curb service.

4.2.1.5 Theaters, halls, and clubs.

4.2.1.6 Public or semipublic buildings.

4.2.1.7 Places of business of a barber and similar public service, baker blacksmith, builder, carpenter, caterer, clothes cleaner, confectioner, decorator dressmaker, dyer, electrician, florists furrier, and laundry, Laundromat, lumber, mail-order business, milliner, motor vehicle salesroom, milk bottling and distributing, news dealers, optician, pointer, paper hanger, pastry shop, photographer, plumber, printer, publisher, radio broadcasting studio, shoemaker, shoe repair, tailor, telegraph office, tinsmith, undertaker, upholsterer, and other similar uses.

4.2.1.8 Gasoline and oil stations and garages for storage and repair.

4.2.1.9 Any additional use, which is not specifically prohibited or already requires a Special Permit from another Board, for which the Zoning Board of Appeals may grant permission.

4.2.1.10 Roof Mounted Solar Photovoltaic Installation

4.2.1.11 Registered Marijuana Dispensary (RMD) – Requires a Special Permit and Site Plan Review issued by the Planning Board in accordance with Section XIV and IX.

4.2.2 Front Yards

In the Business District there shall be provided in the front of every building or structure a front yard extending the full width of the lot and equal in depth to the average of the depths of yards on adjoining lots, and no building or structure shall be erected, moved, or altered, reconstructed, or enlarged so that a front yard less in clear depth shall result. Projecting eaves and uncovered steps shall not be considered as coming within the meaning of this section. Where there are not sufficient buildings in the vicinity to determine an average, the minimum depth of front yards shall be thirty (30) feet.

Commented [DS3]: COW 39. Setbacks and Frontages
➤ Allow variation in setbacks and frontage requirements

4.2.3 Frontage and Area of Lots

4.2.3.1 The minimum frontage of lots in this district shall be 100 contiguous feet.

4.2.3.2 The minimum distance between buildings or structures such as swimming pools or tennis courts, driveways or roads and any abutting property shall be 10 feet.

4.3 AGRICULTURAL DISTRICT

4.3.1 Uses Permitted (see Section XII: Schedule of Uses Table)

No building or land shall be used except for the following purposes:

4.3.1.1 Any purpose authorized in the Residential District.

4.3.1.2 Agriculture.

4.3.1.3 Lumbering, portable sawmills, and portable planing mills.

4.3.1.4 In appropriate cases, for uses which are not specifically prohibited or already require a Special Permit from another Board, and with appropriate safeguards, the Board of Appeals may grant special permits for the following uses:

(a) Convalescent homes/retirement homes.

(b) Commercial kennels or stables, riding schools, provided they are on lots not less than three (3) acres and provided no dogs are kept in any building or

enclosures within 150 feet of a property line. Plans must be submitted to the Planning Board.

- (c) None of these shall create offensive odors, noise or unsightly appearance noticeable off the premises.

4.3.1.5 Roof Mounted Solar Photovoltaic Installation

4.3.1.6 Ground Mounted Solar Photovoltaic Installation – Requires a Special Permit and Site Plan Review issued by the Planning Board in accordance with Sections VII and IX.

4.3.2 Frontage and Area of Lots

4.3.2.1 The minimum frontage of lots in this district shall be 300 contiguous feet, and the minimum area shall be 87,120 square feet.

4.3.2.2 The minimum distance between a dwelling or accessory building, a road or driveway or other structure such as swimming pool or tennis court and any abutting property shall be 15 feet.

4.3.2.3 The minimum distance between a dwelling or accessory building and a street line shall be 30 feet.

Commented [DS4]: COW 39. Setbacks and Frontages
Allow variation in setbacks and frontage requirements

4.4 LONG POND WATERSHED PROTECTION DISTRICT

Commented [DS5]: See PVPC recommendations for this section

4.4.1 Purpose of District

A Watershed Protection District is established in the Town of Blandford for the watershed of Long Pond for the following purposes:

4.4.1.1 To protect, preserve and maintain the water table and water recharge areas within the Town, so as to preserve present sources of water supply for the public health and safety;

4.4.1.2 To protect the community from the detrimental use and development of land and water within the watershed protection district; and

4.4.1.3 To conserve the watershed area of the Town of Blandford for the health, safety, welfare and enjoyment of its people.

4.4.2 Intent of District

The intent of the Watershed Protection District is to include lands lying adjacent to water courses and surface water bodies which create the catchment or drainage areas of such water courses and bodies, as part of their natural drainage system. The district includes all areas designated on the Watershed Protection District Maps for the Town of Blandford, on file in the Office of the Town Clerk, which are hereby made part of the Town Zoning Map(s).

4.4.3 Boundaries of District

Following is a description of the boundaries of the Watershed Protection District:
BEGINNING at a point on the Blandford and Otis town line, approximately 1,300 feet southerly from the center of North Blandford Road;

THENCE southeasterly about 3,600 feet to the intersection of Wheeler Brook with Jethro Jones Road;

THENCE continue southeasterly along the center of Jethro Jones Road about 1,100 feet to a point;

THENCE in a general southerly direction about 1,800 feet to an angle;

THENCE continue in a general southerly direction about 1,900 feet to the center of an old road;

THENCE westerly and southwesterly along the center of said old road about 2,300 feet to its intersection with Gibbs Road;

THENCE northwesterly about 1,200 feet to a point on the Blandford and Otis town line, at the southwest corner of parcel three as shown on Map 403 of the Town of Blandford Assessors maps;

THENCE northerly along the Blandford and Otis town line about 4,150 feet to the place of beginning.

4.4.4 Permitted Uses (see Section XII: Schedule of Uses Table)

The following uses are permitted within the Watershed Protection District, subject to Section IV, provided that all necessary permit orders, or approvals required by local, state or federal law shall also be obtained:

4.4.4.1 Conservation of soil, water, plants, and wildlife.

4.4.4.2 Outdoor recreation, nature study, fishing, and hunting where otherwise legally permitted.

4.4.4.3 Proper operation and maintenance of existing dams, splash boards, and other water control, supply and conservation devices.

4.4.4.4 Repair, maintenance and reconstruction of structures and uses lawfully existing prior to adoption hereof may be continued as permitted under the Zoning Act, M.G.L. Chapter 40A.

4.4.4.5 Farming, gardening, nursery, conservation and harvesting.

4.4.4.6 Forestry, i.e. the cutting and removal of trees for the purpose of selling said trees or any products derived there from, when carried out in the following manner.

- (a) Every reasonable effort shall be made to gain access without constructing new access ways including, but not limited to maintaining and improving (but not substantially enlarging) existing access ways, and operations shall be conducted when the soil is dry or otherwise stable, as determined by the Board of Health or an agent appointed by them.
- (b) Where access is determined impracticable without constructing new access ways, said access ways shall be designed, constructed and maintained in accordance with U.S. Forest Service logging road standards, and shall be removed and the site returned to previously existing conditions within one year.
- (c) To ensure the faithful completion of the construction under (b) above, any person desiring to perform construction thereunder shall file with the Planning Board, in a form satisfactory to the Board, a performance bond in an amount determined by the Board or its authorized agent. Said performance bond shall be held by the Planning Board until all work required under paragraph (b) is completed in a manner satisfactory to the Board or its authorized agent.
- (d) All channel crossings shall be stabilized to prevent erosion, using standard U.S. Forest Service methods. When crossings involve fill or other closed or semi-closed structures which will obstruct flow, they shall be designed, constructed and maintained in accordance with U.S. Forest Service standards, shall allow the unobstructed passage of existing flows for at least the 10-year storm, and shall be removed and the site returned to existing conditions within one year of construction.
- (e) All operations shall be conducted in accordance with a cutting plan approved by the Massachusetts Department of Environmental Management District Forester; and a written notice describing the proposed cutting and removal of trees shall be submitted to the Conservation Commission not less than ten days prior to the commencement of operations.
- (f) The removal of the selectively cut trees shall occur only during those periods when the ground is sufficiently dry or otherwise stable to support the equipment used, as determined by the Board of Health or an agent appointed by them.
- (g) The placement of such, branches and limbs resulting from the cutting and removal operations shall not occur within 25 feet of the bank of a water body; and there shall occur no filling, excavation or other change in the

existing topography. After the cutting, the crown area of the remaining trees shall be evenly distributed throughout the site and shall cover no less than 50 percent of the surface area of the site.

4.4.4.7 Ground Mounted Solar Photovoltaic Installation – Requires a Special Permit and Site Plan Review issued by the Planning Board in accordance with Section VII and IX.

4.4.5 Prohibited Uses

The following uses are prohibited within the Watershed Protection District:

4.4.5.1 Forestry, i.e., the cutting or removal of trees within 100 yards of the shore of Long Pond from the mean high water line and 25 feet from the bank of all brooks and streams flowing into Long Pond.

4.4.5.2 The location of landfills and the storage of salt and road de-icing chemicals.

4.4.5.3 Any new buildings, structures, land-disturbing activities, or excavations within the Watershed Protection District.

4.4.5.4 Any animal feedlots.

4.4.5.5 The disposal of solid waste, other than brush.

4.4.5.6 The storage and/or sale of petroleum (or any other refined petroleum product) except within the buildings which it will heat.

4.4.5.7 The dumping of snow contaminated by de-icing chemicals which is brought in from outside the district.

4.4.5.8 The storage or disposal of hazardous materials, as defined by the Hazardous Waste Regulations promulgated by the Hazardous Waste Board, the Water Resources Commission, and the Division of Water Pollution Control under the provisions of Chapter 21C of Massachusetts General Laws as amended.

4.4.5.9 The storage and use of herbicides and pesticides for any purpose and the storage of fertilizers and manure or other leachable materials.

SECTION V: ADMINISTRATION & SIGNS

5.1 PLANS AND PERMITS

5.1.1 No building or structure shall be erected without a permit granted by the Building Inspector.

5.1.2 No driveway or right of way shall be constructed or connected to any traveled way or portion of a town way until written permit for same is issued by the Selectmen. The Highway Superintendent shall make proper provisions for road drainage grades, visibility, and such things of like nature necessary for the issuance of such a permit.

Commented [DS11]: COW 44-47 Driveways
➤ Provide further guidance on LID standards.

5.1.3 Applications for building permits shall contain reasonable information on forms provided by the Building Inspector.

5.1.4 Permits and plans are not required for accessory buildings of less than 300 square feet floor area, which are not to be used for habitation, business, or public gatherings.

5.2 SIGNS

~~5.2.1 Maximum Size: 6 square feet (except in residential zone, see Section 10.2.9).~~

~~5.2.2 One sign per business.~~

~~5.2.3 Moving signs of any type are specifically prohibited.~~

~~5.2.4 Illumination: moving and flashing signs are prohibited.~~

~~5.2.5 Time: No sign may be illuminated between 12 P.M. and 6 A.M. except signs identifying police and fire stations and public telephones.~~

~~5.2.6 The provisions of Sections 10.2.3 – 10.2.5 shall apply not only to exterior signs but also to interior signs that are designed or placed so as to shine through windows or doors of the building.~~

~~5.2.7 Temporary signs for sale or rental of property and temporary signs for contractor when building are permitted.~~

~~5.2.8 No non-accessory sign shall be erected or maintained.~~

~~5.2.9 In residential areas, signs are permitted only with specific permission from the Board of Appeals. In this area, signs shall be two (2) square feet maximum. Location of standing signs — minimum distance from public right of way, twelve (12) feet from intersection~~

~~twenty five (25) feet.~~

~~5.2.10 Detailed plans for the design and placement of any sign must be submitted to the Board of Appeals.~~

5.2.1 PERMANENT SIGNS

Any sign that is permanently attached to a building or to any wall or to posts that are placed below the frost line in the ground or attached to a concrete foundation. This includes window signs or any other sign that is intended to be permanent.

5.2.1.1 Maximum size: six (6) square feet in all districts

5.2.1.2 One sign per business.

5.2.1.3 Moving signs of any type are specifically prohibited.

5.2.1.4 Illumination: Moving and flashing signs are prohibited.

5.2.1.5 No signs can be illuminated between 9pm and 6am except signs illuminating police and fire stations.

5.2.2 TEMPORARY SIGNS

Any sign, including its supporting structure, and which is not permanently mounted. This includes any sign designed to be transported, including but not limited to trailer signs and signs with an "A or T" frame used for support.

5.2.2.1 Yard sale signs must be placed three days before an event and removed the day after the event.

5.2.2.2 Temporary signs including property for sale or rent and contractor signs during construction are permitted and must not exceed four square feet.

5.2.2.3 No non-accessory signs shall be erected or maintained.

5.2.2.4 Temporary signs are to be maintained for a period of no more than three months.

5.2.3 PLACEMENT OF SIGNS

No sign may be placed within twelve (12) feet of the edge of any road or so as to constitute a hazard to pedestrians or vehicular traffic. No sign shall be placed within the clear sight triangle so as to obstruct the clear visibility at the intersection in a manner that will jeopardize the safety to vehicles or pedestrians.

5.2.4 SIGN PERMITS

Detailed plans for the design and placement permanent must be submitted to the board of appeals. The permit fee is twenty dollars (\$20.00) payable to the Town of Blandford.

5.2.5 Any sign, temporary or permanent, that is larger than six (6) square feet in size, must have a special permit from with the Zoning Board of Appeals.

5.2.6 All signs must be kept in good repair. Any sign that has peeling paint or is damaged in any way must be repaired within thirty days of notification by the building inspector or face removal..

5.3 TRAILERS

5.3.1 Definition: A vehicle which can be drawn, carried on or incorporated in a motor vehicle whether on temporary or permanent supports, designed for dwelling or sleeping purposes or as a temporary business of construction office.

5.3.2 The Board of Appeal may, in a specific case after a public hearing with due notice given subject to appropriate conditions to protect the neighborhood and Town, authorize the use of a trailer as a dwelling for a period of sixty (60) days only while a permanent dwelling is being constructed. Renewals may be granted at the discretion of the Board of Appeals for a period of thirty (30) days.

5.3.3 Commercial trailer bodies, i.e. moving vans, auto carriers, commercial load bodies excepting farm vehicles are specifically prohibited.

5.3.4 The use of a trailer as a residence for a period not to exceed twelve (12) months while a residence which has been destroyed by fire or other natural holocaust is being rebuilt is permitted in all districts.

5.3.5 Shipping containers are allowed for storage by special permit only. Any container must be free of lead paint, and be certified as such by the Board of Health.

5.4 ENFORCEMENT

~~5.4.1 This By law, and any amendment thereto, shall be administered by the Building Inspector who shall be appointed for a period of one (1) year, or until a successor is appointed. He shall receive remuneration for his duties in an amount to be set by the Board of Selectmen. He shall approve no application for permits required under this By law for~~

~~buildings or structures of any kind for which plans and specifications, and intended use are not in all ways in conformity with this By law. He shall have full authority with the approval of the Board of Selectmen to prosecute in any Court of proper jurisdiction, any action, suit or proceeding for the enforcement of this by-law.~~

~~5.4.2 This By law shall be enforced by the Selectmen or a Building Inspector appointed by them. No building shall be built or structurally altered and no use of land or a building shall be begun or changed without a permit having been issued by the building Inspector. No building shall be occupied until a certificate of occupancy has been issued by the Building Inspector.~~

~~5.4.3 Any person violating any of the provisions of this By law shall be fined not less than twenty (20) dollars or more than fifty (50) dollars for each offense. Each day that such violation continues shall constitute a separate offense.~~

5.5 ~~BOARDS OF APPEALS~~

~~A Board of Appeals is hereby established as provided under the General Laws of the Commonwealth of Massachusetts, Chapter 40A to consist of three (3) members and three (3) associate members, to pass upon matters which may be brought before them. They shall be appointed by the Selectmen for terms of one, two, and three years the term of one member expiring each year. Thereafter, appointments are to be for three (3) years. Vacancies shall be filled by the Selectmen for the balance of any unexpired term. No member shall act in any case in which he may have a personal or financial interest, an associate member being designated in such cases by the Chairman of the Board of Appeals.~~

~~5.5.1 Method of Appeal~~

~~Any person aggrieved by a decision of the Selectmen, or their appointed inspector, may appeal from such decision to the Board of Appeals created by this Bylaw.~~

~~5.5.2 Time of Appeal~~

~~An appeal may be made at any time not later than thirty (30) days after the occurrence causing the grievance.~~

~~5.5.3 Public Hearings and Notice~~

~~In the case of every appeal made to said Board and of every application for permit or variance made to it under the provisions of this Bylaw, the Board of Appeals shall hold a public hearing to consider the appeal or application in question and shall cause a notice thereof to be published in a newspaper of general circulation in the Town of Blandford not less than fourteen (14) days before the date set for said hearing and shall cause a copy of the notice to be sent by USPS mail to all abutting land owners as shown by the records of the Assessors of the Town of Blandford and to any other~~

~~person or persons who, in the opinion of the Board of Appeals, may be interested in said application or appeal.~~

5.5.4 ~~Special Permits~~

~~At all times hereafter the Board of Appeals may grant a special permit for an exception, as provided by sections of this Bylaw, where it shall have found that the use involved will not be detrimental to the established or future character of the neighborhood and Town and subject to appropriate conditions or safeguards if deemed necessary.~~

5.5.5 ~~Variances~~

~~At all times hereafter, after giving notice and holding any public hearing in the manner provided by this By-law, the Board of Appeals may authorize, with respect to a particular building or parcel of land, a variance from any of the terms of this Bylaw, owing to conditions especially affecting said building or parcel but not affecting generally the Zoning District in which it is located, a literal enforcement of the provisions of this Bylaw would involve substantial hardship to the owner of said building or parcel and where desirable relief may be granted without substantial detriment to the public good and without substantial derogation from the intent or purpose of this Bylaw, but not otherwise.~~

5.6 APPEALS TO HOUSING COURT

~~Any person aggrieved by the decision of the Board of Appeals may appeal to the Superior Court sitting in equity for Hampden County, provided that such appeal is filed in said Court within twenty (20) days after such decision is recorded.~~

Any person aggrieved by a decision of the Board of Appeal or any special permit granting authority, or by the failure of such Board of Appeal or special permit granting authority to take final action within the required time, may appeal from such decision or failure to act to a court of competent jurisdiction within the time and in the manner provided pursuant to G.L. c. 40A, § 17.

5.7 AMENDMENTS

This Bylaw, or any portion thereof, may be amended by a two-thirds vote of any Town Meeting, all in accord with the Massachusetts General Laws.

SECTION VI: VALIDITY

The invalidity of any section or provision of this Bylaw shall not invalidate any other section or provision thereof.

~~SECTION VII: PLANNING AND ZONING AUTHORIZED TO ACT~~

~~A Planning Board and Board of Appeals are hereby authorized to act under the General Laws of the Commonwealth of Massachusetts Chapter 41 – Sections 81K-81GG. The Planning Board shall consist of five elected members.~~

SECTION VII: ADMINISTRATION AND PROCEDURES

7.1 ENFORCEMENT OFFICER; PENALTY; PERMITS; EXEMPTIONS.

7.1.1 BUILDING COMMISSIONER

The Building Commissioner appointed under the provisions of MGL c. 143 and Chapter 753 of the Acts of 1968, as amended, is hereby designated and authorized as the officer charged with the interpretation and enforcement of this bylaw.

7.1.2 VIOLATIONS

If the Building Commissioner is informed or has reason to believe that any provision of this bylaw is being violated, he/she shall make or cause to be made an investigation of the facts and inspect the property where such violation may exist.

7.1.3 ENFORCEMENT

If upon such investigation and inspection he/she finds evidence of such violation, he/she shall give notice thereof in writing to the owner and occupant of said premises and demand that such violation be abated within such time as the Building Commissioner deems reasonable. Such notice and demand may be given by mail, addressed to the owner at his address as it then appears on the records of the Board of Assessors of the Town and to the occupant at the address of the premises.

7.1.4 FURTHER ACTION

If after such notice and demand the violation has not been abated within the time specified therein, the Building Commissioner shall, as he/she may be duly authorized, institute appropriate action or proceedings in the name of the Town of Blandford to prevent, correct, restrain or abate such violation of this bylaw.

7.1.5 PENALTY

Anyone who violates a provision of this bylaw, including without limitation any term or condition of a variance, site plan review decision or special permit, shall be punishable by a

fine of not more than \$300 for each offense. Each day during which any portion of a violation continues under the provisions of this section shall constitute a separate offense.

7.2 BOARD OF APPEALS

7.2.1 Establishment

There shall be a Board of Appeals of three members appointed by the Board of Selectmen for five-year terms. The Board of Selectmen shall also appoint three associate members of the Board of Appeals. The appointment, service and removal or replacement of members and associate members and other actions of the Board of Appeals shall be as provided for in MGL c. 40A.

7.2.2 Powers the Board of Appeals shall have and exercise all the powers granted to it by MGL Chapters 40A, 40B, and 41 and by this bylaw, including but not limited to the following:

- a) To hear and decide applications for special permits when designated as the SPGA herein.*
- b) To grant, upon appeal or petition, with respect to particular land or structures or to an existing building thereon, a variance from the terms of this bylaw where, owing to circumstances relating to the soil conditions, shape or topography of such land or structures and owing to conditions especially affecting such parcel or such building but not affecting generally the zoning district in which it is located, a literal enforcement of the provisions of this bylaw would involve substantial hardship, financial or otherwise, to the appellant, and where desirable relief may be granted without substantial detriment to the public good and without nullifying or substantially derogating from the intent or purpose of this bylaw. The Board of Appeals shall not grant use variances.*
- c) To hear and decide appeals taken by any person aggrieved by reason of his inability to obtain a permit or enforcement action from any administrative officer under the provisions of MGL c. 40A §§ 8 and 15 or by any person including an officer or board of the Town aggrieved by an order or decision of the Building Commissioner or other administrative official in violation of any provision of Chapter 40A or of this bylaw.*
- d) To hear and decide comprehensive permits for construction of low or moderate income housing by a public agency or limited dividend or nonprofit corporation, as set forth in MGL c. 40B, §§ 20-23.*

7.2.3 Rules and Regulations

The Board of Appeals may adopt rules and regulations, not inconsistent with the provisions of this Zoning Bylaw, for the conduct of its business and for purposes of G.L. c.40A, and shall file a copy of such rules in the office of the Town Clerk.

7.2.4 Fees

The Board of Appeals may adopt reasonable technical review fees for petitions for special permits, variances, administrative appeals, and applications for comprehensive permits in accordance with its regulations.

7.2.5 Variances

The Zoning Board of Appeals may grant, upon appeal or petition, with respect to particular land or structures or to an existing building thereon, a variance from the terms of this bylaw where, owing to circumstances relating to the soil conditions, shape or topography of such land or structures and owing to conditions especially affecting such parcel or structures but not affecting generally the zoning district in which it is located, a literal enforcement of the provisions of this bylaw would involve substantial hardship, financial or otherwise, to the petitioner or appellant, and where desirable relief may be granted without substantial detriment to the public good and without nullifying or substantially derogating from the intent or purpose of this bylaw.

The Board of Appeals shall not grant use variances.

7.3 PLANNING BOARD

7.3.1 Establishment

Pursuant to MGL c. 41 and Chapter 753 of the Acts of 1968, there shall be a Planning Board of five elected members.

7.3.2 Powers

The Planning Board shall have and exercise all the powers granted to it by MGL Chapters 40, 40A and 41 and by this bylaw, including but not limited to the following:

- a) To hear and decide applications for special permits when designated as the SPGA herein.*
- b) To review site plans pursuant to § 9.1.*

7.3.3 Associate Member

The Board of Selectmen shall appoint an associate member to serve for one year, or until replaced. In the case where the Planning Board is the SPGA, the Chairman of the Planning Board may have the associate member sit on the Board for the purpose of acting on a special permit application, in the case of absence, inability to act, or conflict of interest on the part of any member of the Planning Board or in the event of a vacancy on the Board.

7.3.4 Rules and Regulations

The Planning Board shall adopt rules and regulations not inconsistent with the provisions of the Zoning Bylaw for conduct of its business and otherwise carrying out the purposes of said Chapter 40A and this bylaw, and shall file a copy of such rules in the office of the Town Clerk.

7.3.5 Fees

The Planning Board may adopt reasonable administrative fees and technical review fees for applications for special permits and site plan approval in accordance with its regulations.

SECTION VIII: GROUND MOUNTED SOLAR PHOTOVOLTAIC INSTALLATIONS

8.1 PURPOSE

The purpose of this Section is to provide standards for the Placement, design, construction, operation, monitoring, modification and removal of Ground Mounted Solar Photovoltaic installations that address public safety and minimize impacts on scenic, natural and historic resources.

8.1.2 Definitions

PROJECT PROPONENT: The applicant, property owner, facility developer, operator and management entity, jointly and severally, of a project. Each of the responsible parties shall be responsible for adhering to the requirements set forth in this bylaw.

RATED NAMEPLATE CAPACITY: The maximum rated output of Electric power production of a Photovoltaic system in Direct Current (DC).

SOLAR PHOTOVOLTAIC INSTALLATION, GROUND MOUNTED: A solar photovoltaic system that is structurally mounted on the ground and is not roof mounted.

SOLAR PHOTOVOLTAIC INSTALLATION, LARGE SCALE GROUND MOUNTED: A solar photovoltaic system that is structurally mounted on the ground and is not roof mounted, and has a rated nameplate capacity greater than 250 KW DC or occupies more than 40,000 square feet of surface area.

SOLAR PHOTOVOLTAIC INSTALLATION, MEDIUM SCALE GROUND MOUNTED: A solar photovoltaic system that is structurally mounted on the ground and is not roof mounted, and has a rated nameplate capacity between 10 KW DC and 250 KW DC, or occupies greater than 1750 square feet and less than 40,000 square feet of surface area.

SOLAR PHOTOVOLTAIC INSTALLATION, SMALL SCALE GROUND MOUNTED: A solar photovoltaic system that is structurally mounted on the ground and is not roof mounted, and has a rated nameplate capacity of less than 10 KW DC, or occupies less than 1750 square feet of surface area.

SOLAR PHOTOVOLTAIC INSTALLATION, ROOF MOUNTED: A solar photovoltaic system that is structurally mounted on the roof of a building.

8.2 APPLICABILITY

8.2.1 This Section applies to all ground mounted solar photovoltaic installations proposed to be constructed after the effective date of this Section. This Section also pertains to physical modifications that materially alter the type, configuration, or size of these installations or related equipment.

8.2.2 All Large Ground Mounted Solar Photovoltaic Installations shall require a Special Permit and Site Plan Approval issued by the Planning Board in accordance with this section and Section IX.

8.2.3 All Medium Ground Mounted Solar Photovoltaic Installations shall require Site Plan Approval issued by the Planning Board in accordance with this section and Section IX.

8.2.4 All Small Ground Mounted Solar Photovoltaic Installations with a maximum height of less than 9 feet shall require a building permit from the building inspector. Small installations with a maximum height between 9 feet and 20 feet, in addition to a building permit shall require Site Plan Approval issued by the Planning Board in accordance with this section and Section IX. Small installations with a maximum height exceeding 20 feet shall require a Special Permit and Site Plan Approval issued by the Planning Board in accordance with this section and Section IX.

8.3 GENERAL REQUIREMENTS FOR ALL GROUND MOUNTED SOLAR PHOTOVOLTAIC INSTALLATIONS

8.3.1 Site Plan Review – All Ground Mounted Solar Photovoltaic Installations shall undergo
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site plan review, in accordance with Section IX, prior to construction, installation or modification as provided in this Section. In addition to the submission requirements of Section IX, the following shall be required:

8.3.1.1 General – All plans and maps shall be prepared, stamped and signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts.

8.3.1.2 Required Documents – Pursuant to the site plan review process, the Project Proponent shall provide the following documents:

- (a) A site plan showing:
 - (1) Property lines and physical features, including roads for the project site;
 - (2) Proposed changes to the landscape of the site, grading, vegetation clearing and planting, exterior lighting, screening vegetation or structures
 - (3) Blueprints or drawings of the Ground Mounted Solar Photovoltaic Installations signed by a Professional Engineer licensed to practice in the Commonwealth of Massachusetts showing the proposed layout of the system and any potential shading from nearby structures
 - (4) One or three line electrical diagram detailing the Ground Mounted Solar Photovoltaic Installations, associated components, and electrical interconnection methods, with all Massachusetts Electrical Code compliant disconnects and overcurrent devices;
 - (5) Documentation of the major system components to be used, including the PV panels, mounting system, and inverter;
 - (6) Name, address, and contact information for proposed Ground Mounted Solar Photovoltaic Installation's installer
 - (7) Name, address, phone number and signature of the Project Proponent;
 - (8) The name, contact information and signature of any agents representing the Project Proponent;
- (b) Erosion and sediment control plan
- (c) Proof of liability insurance and builder's risk insurance
- (d) A public outreach plan, including a project development timeline, which indicates how the Project Proponent will meet the required site plan review notification procedures and otherwise inform abutters and the community.
- (e) Site Control – The Project Proponent shall submit documentation of actual or prospective access and control of the project site sufficient to allow for construction and operation of the proposed Ground Mounted Solar Photovoltaic Installations.
- (f) Operation and Maintenance Plan – The Project Proponent shall submit a plan for the operation and maintenance of the Ground Mounted Solar Photovoltaic Installation, which shall include measures for maintaining safe access to the installation, storm water controls, as well as general procedures for operational maintenance of the installation.

Commented [JS12]: COW 72, Clearing and Grading, limits to disturbance in construction plans
+ Meets LID standard

Commented [DS13]: COW 91 Installation and Maintenance of Practices
> Define erosion and sediment control standards to be included in plan. This could be included in a stormwater bylaw if the town adopted one.

- (g) Abandonment and Decommissioning Plan – The Project Proponent shall submit a Decommissioning Plan. Any Ground Mounted Solar Photovoltaic Installation which has reached the end of its useful life or has been abandoned (i.e., when either it fails to be completed within a commercially reasonable time (such that power generation can commence), or it fails to operate for an elapsed time of more than one year without the written consent of the Planning Board) shall physically remove the installation within 150 days of abandonment or the proposed date of decommissioning. The Project Proponent shall notify the Planning Board by certified mail of the proposed date of the discontinued operations and plans for removal. The Abandonment and Decommissioning Plan shall include a detailed description of how all of the following will be addressed:
- (1) Physical removal of all structures; equipment, building, security barriers and transmission lines from the site, including any materials used to limit vegetation.
 - (2) Disposal of all solid and hazardous waste in accordance with local, state, and federal waste disposal regulations.
 - (3) Stabilization or re-vegetation of the site as necessary to minimize erosion. The Planning Board may allow the Project Proponent to leave landscaping or designated below-grade foundations in order to minimize erosion and disruption to vegetation.
 - (4) Financial surety for decommissioning – Proponents of Ground Mounted Solar Photovoltaic Installations 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 ad 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 requirement set forth herein, as determined by the project proponent and the Town. 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 costs (including “prevailing wages”) associated with removal and full decommissioning of the facility and site, prepared by a qualified engineer. The amount shall include a mechanism for calculating increased removal costs due to inflation during the life of the facility, and the Planning Board may at any time require an increase in surety or a change in the form or security as may be required to ensure continued satisfaction of the requirements of this section. 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 Building Permits or the commencement of construction.

- (5) All legal documents required to enable the Town to exercise its rights and responsibilities under the plan to decommission the site, enter the property and physically remove the installation.

8.3.2 Utility Notification – No Ground Mounted Solar Photovoltaic Installation shall be constructed until evidence has been provided to the Building Inspector that the utility company that operates the electrical grid where the installation is to be located has been informed of the Project Proponent’s intent to install the Ground Mounted Solar Photovoltaic Installation and connect it to the grid. Off grid systems shall be exempt from this requirement.

8.3.3 Dimension and Density Requirement – Ground Mounted Solar Photovoltaic Installations shall comply with the same dimension and density requirements required in the underlying district except that for such facilities of 250 kw or greater the following shall apply:

8.3.3.1 Front, rear and side yard setbacks shall be a minimum 100 feet

8.3.3.2 Access roads or driveways shall be setback at least 25 feet from side and rear lot lines

8.3.3.3 The height of the structures at the tallest point shall not exceed twenty- five feet

8.3.3.4 The minimum lot size for a large scale ground mounted photovoltaic installation is twelve (12) acres

8.3.4 Structures – All structures for largescale Ground Mounted Solar Photovoltaic Installations shall be subject to existing bylaws. All appurtenant structures, including but not limited to, equipment shelters, storage facilities, transformers, and substations, shall be architecturally compatible with each other.

8.3.5 Visual Impact Mitigation – The plan for a Ground Mounted Solar Photovoltaic Installation shall be designed to maximize the preservation of on-site and abutting natural and developed features. In natural (undeveloped) areas, existing vegetation shall be retained to the greatest extent possible, especially where such vegetation provides a benefit to the natural environment. In developed areas, the design of the installation shall consider and incorporate human-designed landscape features to the greatest extent, including contextual landscaping and landscape amenities that complement the physical features of the site and abutting properties. Whenever reasonable, structures should be screened from view by vegetation and/or joined or clustered to avoid adverse visual impacts and be architecturally compatible with each other. Vegetation shall be of varieties native to New England and a mix of deciduous and evergreen species. Vegetative screening shall reach a mature form to effectively screen the installation within five years of installation. The mature height of the vegetated screening shall be such that the installation’s structures are not apparent to a person upon any public road and viewing the installation from a height of 10 feet. Planting of the vegetative screening shall be completed prior to final approval of the photovoltaic installation by the Building Inspector.

8.3.6 Design Standards – Projects shall be designed to:

8.3.6.1 Minimize the volume of cut and fill, the number of removed trees 10” caliper or larger, the length of removed stone walls, the area of wetland vegetation displaced, the extent of storm water flow increase from the site, soil erosion and threat of air and water pollution

8.3.6.2 Maximize pedestrian and vehicular safety both on the site and entering and exiting the site;

8.3.6.3 Minimize obstruction of scenic views from publicly accessible locations;

8.3.6.4 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;

8.3.6.5 Minimize glare from headlights and light trespass;

8.3.6.6 Ensure adequate access to each structure for fire and service equipment and adequate provision for utilities and storm water drainage.

8.3.6.7 Site Lighting – Lighting of Ground Mounted Solar Photovoltaic Installations shall be consistent with local, state and federal law. Lighting of other parts of the installation, 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 Ground Mounted Solar Photovoltaic Installation shall be directed downward and shall incorporate full cutoff fixtures to reduce light pollution.

8.3.6.8 Signage – No signage on Ground Mounted Solar Photovoltaic Installations is permitted other than those required to identify voltage and electrocution hazards as well as the owner, and provide a 24-hour emergency contact phone number. Ground Mounted Solar Photovoltaic Installations shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of Ground Mounted Solar Photovoltaic Installation.

8.3.6.9 Utility Connections – Reasonable efforts, as determined by the Site Plan Review Authority, shall be made to place all utility connections from the Ground Mounted Solar Photovoltaic Installation 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.

8.3.7 Safety and Environmental Standards

8.3.7.1 Emergency Services – The Ground Mounted Solar Photovoltaic Installation Project Proponent shall provide a copy of the project summary, electrical schematic, and sit plan to the local fire chief. Upon request the Project Proponent shall cooperate with

Commented [DS14]: COW 70 Clearing and Grading, preservation of native soils and natural vegetation at development sites
+ Meets LID standards

COW 75 Tree Conservation, conservation of some portion of forests and native vegetation at development sites
+ Prioritizes minimizing removal of larger trees
-Does not identify specific conservation thresholds.
➤ Identify specific conservation thresholds.

COW 87 Stormwater Codes, standards to reduce post-construction runoff volume
-No explicit guidance in Zoning or Town By-Laws
➤ Provide specific standards to reduce post-construction runoff volume

local emergency services in developing an emergency response plan. All means of shutting down the Ground Mounted Solar Photovoltaic Installation shall be clearly marked. The Project Proponent shall identify a responsible person for public inquiries throughout the life of the installation.

8.3.7.2 Land Clearing, Soil Erosion and Habitat Impacts – Clearing of natural vegetation shall be limited to what is necessary for the construction, operation and maintenance of the Ground Mounted Solar Photovoltaic Installation or otherwise prescribed by applicable laws, regulations, and bylaws. Such installations shall not occur on any slopes greater than 15% in order to minimize erosion. No more than 50% of the land parcel utilized for Ground Mounted Solar Photovoltaic Installations shall contain land requiring clearing of forest.

8.3.7.3 No topsoil shall be removed from the land parcel under consideration for Ground Mounted Solar Photovoltaic Installation. If earthworks operations are required, topsoil shall be stockpiled within the property bounds and protected against erosion until such earthwork operations are completed and topsoil can be re-spread over parcel. Earthworks shall be planned to limit export of soil material (non-topsoil) to 1000 cubic yards per acre affected by installation. A detailed earthworks estimate is a required submittal component proving this quantity is maintained.

8.3.7.4 Impact on Agricultural and Environmentally Sensitive Land- The Ground Mounted Solar Photovoltaic Installation shall be designed to minimize impacts to agricultural and environmentally sensitive land and to be compatible with continued agricultural use of the land whenever possible. No more than 50% of the total land area proposed for the Ground Mounted Solar Photovoltaic Installation may be occupied by the solar panels, with the remainder of the land remaining as undeveloped open space left in its natural state.

8.3.7.5 Vegetation Management – Herbicides, pesticides, or chemical fertilizers shall not be used to manage vegetation at the Ground mounted Solar Photovoltaic Installation. Mowing, grazing or using geotextile materials underneath the solar array are possible alternatives. Low growing grasses are optimal. Other grasses must be regularly mowed or grazed so as to minimize the amount and height of “fuel” available in case of fire.

8.3.7.6 All land associated with the Ground Mounted Solar Photovoltaic Installation shall be covered and grown in natural vegetation. All ground surface areas beneath solar arrays and setback areas shall be pervious to maximize onsite infiltration of storm water. Impervious paving of areas beneath solar arrays is prohibited. To the greatest extent possible, a diversity of plant species shall be used, with preference given to species that are native to New England. Use of plants identified by the most recent copy of the “Massachusetts Prohibited Plant List” maintained by the Massachusetts Department of Agricultural Resources is prohibited.

8.3.8 Monitoring and Maintenance

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Commented [JS15]: COW 70 Clearing and Grading, preservation of native soils, natural vegetation, or steep slopes
+ Meets LID standard

COW 71 Clearing and Grading, limits on total portion of site to be cleared
+ Meets LID standard
➤ Consider applying similar design standards for all projects subject to site plan approval.

Commented [DS16]: COW 24. Use of pervious materials for parking areas
Cow 45. Use of pervious materials for driveways
➤ Adopt language from PV Installation for parking and driveways.

8.3.8.1 Maintenance – The Project Proponent shall maintain the Ground Mounted Solar Photovoltaic Installation in good condition. Maintenance shall include, but not be limited to, painting, structural repairs, fencing and integrity of security measures. Site access shall be maintained to a level acceptable to the local Fire Chief and Emergency Medical Services. The Project Proponent shall be responsible for the cost of maintaining the Ground Mounted Solar Photovoltaic Installation and any access road(s) not accepted as public ways.

8.3.8.2 Modifications – All material modifications to a Ground Mounted Solar Photovoltaic Installation made after issuance of the required building permit shall require approval by the Special Permit and Site Plan Review Authority.

8.3.9 Outside Consultant Fees – In accordance with G.L. c.44, §53G, the Planning Board is authorized to retain such registered professional engineers, architects, landscape architects, attorneys, or other professional consultants as may be necessary in the Planning Board’s opinion to review and advise the Board on any or all aspects of applications submitted under this Section VII. The applicant shall be responsible for the cost of such review, and the Planning Board may request the applicant to deposit funds for such review with the Planning Board in advance of such review and to replenish such funds as necessary at the Planning Board’s request. Failure to provide such funds or to pay costs of such professional review when due shall be good grounds for denial of an application.

8.3.10 Waivers – The Planning Board may, upon the prior written request of the applicant and by a 2/3 majority affirmative vote of the members of the Board, waive any of the requirements of this Section VIII, but must state their reasons for doing so in writing as part of their decision.

SECTION IX: SITE PLAN REVIEW

SECTION IX: SITE PLAN REVIEW AND SPECIAL PERMITS

9.1 SITE PLAN REVIEW

9.1.1 Purpose

9.1.1.1 To the health, safety, and general welfare of the inhabitants of the Town of Blandford;

9.1.1.2 To promote attractive and viable residential, business, and agricultural districts; and

9.1.1.3 To protect the rural character, aesthetic visual qualities, natural environmental features, historical features and property values of the Town of Blandford and neighboring properties.

9.1.2 Projects Requiring Site Plan Review

No building permit shall be issued and no application for such permits shall be accepted for construction, exterior alteration, relocation, or change in use except where noted in Section 6.8.3, unless a site plan has been endorsed by the Planning Board, after consultation with other boards, including but not limited to the following: Building Inspector, Board of Health, Board of Selectmen, Historical Commission, Conservation Commission, Highway Department, Fire Department and Police Department. The Planning Board may waive any or all requirements of site plan review for external enlargements of less than 10% of the existing floor area.

9.1.3 Exemptions from Site Plan Review

Site plan review shall not be required for:

9.1.3.1 The construction or enlargement of any single family or two family dwelling or building accessory to such dwelling;

9.1.3.2 Any building used exclusively for agriculture, horticulture or floriculture.

9.1.4 Application Procedure

9.1.4.1 Each application for Site Plan Review shall be submitted to the Planning Board by the current owner of record, accompanied by nine (9) copies of the site plan. The applicant shall file a copy of the application with the Town Clerk and the Tax Collector.

9.1.4.2 The Planning Board shall obtain with each submission a deposit sufficient to cover any fees connected with a public hearing and review of plans, including the costs of any engineering or planning consultant services necessary for review purposes.

9.1.4.3 The following information shall be filed at the time of application: a site plan, which shall include landscape, utility and drainage information, building elevations as illustrated further in Section 6.8.5, and a traffic plan.

An application shall not be considered complete until all required information and fees are submitted.

9.1.5 Required Site Plan Contents

9.1.5.1 An architect, landscape architect, or professional engineer duly licensed by the Commonwealth of Massachusetts shall prepare all site plans unless the Planning Board waives this requirement because of unusually simple circumstances. All site plans shall be on standard 24" x 36" sheets at a scale of one inch equaling 20 feet, with additional narrative as necessary. Site plans shall include the following information:

Commented [DS17]: COW 88 Stormwater Codes, incentives for consideration of runoff reduction
- No process for pre-application meeting in Site Plan Review
> Establish pre-application concept plan meeting in Site Plan Approval with LID checklist

- (a) Name of the project-locus, date and scale plan;
- (b) Name and address of the owner of record, developer, and seal of the engineer, landscape architect or engineer;
- (c) The location and boundaries of the lot, adjacent streets or ways, names of owners and location of all adjacent properties and those within 300 feet of the property line, and any relevant zoning district boundaries;
- (d) Existing and proposed topography at the two foot contour interval, the location of wetlands, streams, water bodies, drainage swales, areas subject to flooding and base flood elevations and unique natural land features;
- (e) Existing and proposed structures, including dimensions and elevations; and all exterior entrances and exits;
- (f) The location of existing and proposed parking and loading areas, public and private ways, driveways, walkways, sidewalks, curbing, access and egress points;
- (g) The location and description of all proposed septic systems, a soil percolation test, water supply, storm drainage systems including existing and proposed drain lines, culverts, drainage swales, catch basins, drainage calculations, and sub-drainage along with soil logs, utilities, hydrants, manholes, lighting fixtures, and refuse and other waste disposal methods and facilities;
- (h) Proposed landscape features including the location and a description of buffers, screening, fencing, and plantings, including the size and type of plants material;
- (i) Location, dimensions, height, color, illumination and characteristics of existing and proposed signs;
- (j) The location and a description of proposed open space or recreation areas;
- (k) A lighting plan, including parking lot and building exterior lighting and any provision of light reduction through the use of shields, screening, or similar actions;
- (l) Estimated daily and peak-hour vehicle trips to be generated by the site and traffic flow patterns for vehicles and pedestrians showing adequate access to and from the site and adequate circulation within the site;
- (m) A plan for the control of erosion, dust, and silt, both during and after construction sequencing, temporary and permanent erosion control, and protection of water bodies;
- (n) For commercial uses, maximum areas of the building to be used for selling, offices, business or other uses, number of employees, seating capacity where applicable, and number of parking spaces required for intended use.

The Planning Board may waive any information requirements it judges to be unnecessary to the review of a particular plan. A request for a waiver(s) by an applicant must be made in writing by the applicant to the Planning Board.

Commented [DS18]: COW 61 Buffer Systems, development standards

- No explicit requirement for a vegetated buffer
- Make an explicit requirement for a vegetated buffer along waterways

COW 70 Clearing and Grading – See Criteria for Review

Commented [DS19]: COW 14-18, 21-24, 26-30 Parking
COW 40-43 Sidewalks
COW 44-47 Driveways

- Provide further guidance on LID standards for parking, sidewalks, and driveways.

Commented [DS20]: COW 73 Clearing and Grading, reserve septic

- No mention of reserve septic field areas
- > Require that reserve septic field areas be left undisturbed

Commented [DS21]: COW 61 Buffer Systems, development standards

- No explicit requirement for a vegetated buffer
- Make an explicit requirement for a vegetated buffer along waterways

COW 72 Clearing and Grading, limits to disturbance

- Provide further guidance on limits to disturbance

COW 75 Tree Conservation, conservation of portion of forests – See 9.1.8 Criteria for Review

COW 80 Tree Pres, specifications for planting methods, species selection, etc.

- No specified landscaping methods
- Provide specifications for planting methods, species selection, and maintenance

Commented [JS22]: COW 72 Clearing and Grading, limits to disturbance

- Provide further guidance on limits to disturbance

Commented [JS23]: COW 91 Installation and Maintenance Practices, erosion and sediment control standards

- > See Criteria for Review, 9.1.8.6
- > Provide more explicit erosion control standards in Site Plan criteria

9.1.6 Review Procedure

The Planning Board shall transmit one copy each to the Building Inspector, Board of Selectmen, Board of Health, Conservation Commission, Highway Department, Historical Commission, Fire Department, and Police Department, who shall review the application and submit their recommendations and comments to the Planning Board concerning:

9.1.6.1 The completeness and adequacy of the data and methodology used by the applicant to determine the impacts of the proposed development;

9.1.6.2 The effects of the projected impacts of the proposed development; and

9.1.6.3 Recommended conditions or remedial measures to accommodate or mitigate the expected impacts of the proposed development.

9.1.6.4 Failure of the above boards, commissions, committees, and town staff to make recommendations within 35 days of the referral of the application from the Planning Board shall be deemed to be lack of opposition.

9.1.7 Planning Board Decision

The Planning Board shall hold a public hearing within sixty-five (65) days of the receipt of an application deemed to be complete and after due consideration of the recommendations received, the Board shall take final action within 90 days from the time of hearing. The Planning Board's final action in writing shall consist of either:

9.1.7.1 Approval of the site plan based on a determination that the proposed project will constitute a suitable development and is in compliance with the standards set forth in this bylaw;

9.1.7.2 Disapproval of the site plan based on a determination that the application was incomplete and insufficient information was submitted to review the proposal; or

9.1.7.3 Approval of the project subject to any conditions, modifications and restrictions which will ensure that the project meets the Criteria for Review.

The period of review for a special permit requiring site plan review shall be the same as any other special permit and shall conform to the requirements of state Zoning Act, M.G.L. Chapter 40A. Specifically, a joint public hearing to address the Special Permit application and Site Plan Review application shall be held within sixty-five (65) days of the filing of a special permit application with the Planning Board or Board of Appeals. The Planning Board shall then have 90 days following the public hearing in which to act.

9.1.8 Criteria for Review

The following criteria and guidelines shall be used by the Planning Board in evaluating the Site Plan and all information submitted as part of the application:

9.1.8.1 The site plan conforms with all appropriate provisions of the Zoning Bylaw.

9.1.8.2 The site plan minimizes traffic and safety impacts of the proposed development on adjacent highways or roads, and maximizes the convenience and safety of vehicular and pedestrian movement within the site.

9.1.8.3 The proposed development, to the extent feasible:

- a) is integrated into the existing landscape and protects abutting properties;
- b) minimizes adverse environmental impacts on such features as wetlands, floodplains, and aquifer recharge areas;
- c) minimizes obstruction of scenic views from publicly accessible locations;
- d) preserves unique natural or historical features;
- e) minimizes removal of trees, vegetation, and soil and grade changes,
- f) maximizes open space retention;
- g) screens objectionable features from neighboring properties and roadways;
- h) complies with all State and Federal requirements for handicap access; and
- i) offsite impacts from noise, temperature and wind conditions.

9.1.8.4 The architectural design, layout and landscaping of the proposed development is in harmony with the historic, rural character of the neighborhood and the Town of Blandford.

9.1.8.5 The proposed development is served with adequate water supply and waste disposal systems and will not place excessive demands on Town services and infrastructure.

9.1.8.6 The site plan shows adequate measures to prevent pollution of surface or groundwater, to minimize erosion and sedimentation, to prevent changes in groundwater levels, and potential for flooding, and a stormwater management plan prepared in accordance with good engineering, hydrologic and pollution control practices.

9.1.9 Enforcement

9.1.9.1 The Planning Board may require the posting of a bond or other adequate security to assure compliance with the site plan and conditions and may suspend any permit or license when work is not performed as required.

9.1.9.2 Any site plan issued under this section shall lapse within one (1) year if a substantially complete use (as defined in this zoning bylaw) thereof has not commenced sooner except for good cause. The time required to pursue and await determination of a judicial appeal pursuant to Chapter 40A of the General Laws shall be included within the one (1) year time limit.

Commented [DS24]: COW 14-18, 21-24, 26-30 Parking
COW 40-43 Sidewalks
COW 44-47 Driveways
➤ Provide further guidance on LID standards for parking, sidewalks, and driveways.

Commented [DS25]: COW 66 Buffer Management, minimum percentage native vegetation
- Site plan criteria do not make explicit requirement for vegetated buffers
> Require vegetated buffer along waterways for site plan criteria, or adopt local wetlands bylaw with expanded buffer requirements that include minimum percentage of native vegetation

Commented [DS26]: COW 70 Clearing and Grading, preservation of native soils, natural vegetation, and steep slopes
- Limited guidance for preserving native soils in Site Plan Criteria
> Apply LID standards for development for all uses based on Ground Mounted Solar PV Installations

COW 75 Tree Conservation, conservation of portion of forests
➤ Provide further guidance on limits to disturbance

Commented [DS27]: COW 12 Vegetated Open Channels, allowance
➤ Explicitly allow use of vegetated open channels for drainage and do not require catch basins unless LID drainage is infeasible.

COW 61 Buffer Systems, development standards require vegetated buffer along waterways
COW 66 Buffer Management, minimum percentage native vegetation
- Site plan criteria do not make explicit requirement for vegetated buffers
> Require vegetated buffer along waterways for site plan criteria, or adopt local wetlands bylaw with expanded buffer requirements that include minimum percentage of native vegetation

COW 70 Clearing and Grading – see note above

COW 77 Tree Conservation, planting new trees
- No mention of planting new trees where none exist.
➤ Require tree planting where none exist in Site Plan Criteria

COW 89 Stormwater Codes, runoff reduction standards
- No specific runoff reduction standards
> Provide specific standards using local design guidance for reducing runoff volume.

COW 90 Stormwater Codes, document consistency
➤ Consider adopting a local stormwater bylaw and regulations and referring to it from Zoning and Subdivision Regs

COW 91 Installation and Maintenance Practices, erosion and sediment control standards
+ Site Plan Criteria mentions "adequate measures" but do not provide explicit practices

Commented [DS28]: COW 68 Buffer Management, enforcement mechanisms
+ Meets LID Standards

COW 92 Installation and Maintenance of Practices, performance bonds and inspections
COW 93 Installation and Maintenance of Practices, runoff reduction easements and post-construction inspections
+ Initial performance bonds for site plan implementation
- No periodic, follow-up inspection or performance reviews
➤ Require periodic performance reviews assessing LID practices

9.1.9.3 The Planning Board may periodically amend or add rules and regulations relating to the procedures and administration of this section.

9.2 SPECIAL PERMITS

9.2.1 Special Permit Granting Authority

Unless specifically designated otherwise, the Board of Appeals shall act as the Special Permit Granting Authority.

9.2.2 Criteria

Special permits shall be granted by the Special Permit Granting Authority, unless otherwise specified herein, only upon its written determination that the adverse effects of the proposed use will not outweigh its beneficial impacts to the town or the neighborhood, in view of the particular characteristics of the site, and of the proposal in relation to that site. In addition to any specific factors that may be set forth in this By-Law, the determination shall include consideration of each of the following:

- a) Social, economic, or community needs which are served by the proposal;*
- b) Traffic flow and safety, including parking and loading;*
- c) Adequacy of utilities and other public services;*
- d) Neighborhood character and social structures;*
- e) Impacts on the cultural, historical, and natural environments; and*
- f) Potential fiscal impact, including impact on town services, tax base, and employment.*

9.2.3 Procedures

An application for a special permit shall be filed in accordance with the rules and regulations of the Special Permit Granting Authority.

9.2.4 Conditions

Special permits may be granted with such reasonable conditions, safeguards, or limitations on time or use, including performance guarantees, as the Special Permit Granting Authority may deem necessary to serve the purposes of this By-Law.

9.2.5 Plans

An applicant for a special permit shall submit a plan as required by and in substantial conformance with the rules and regulations of the Special Permit Granting Authority. The provisions of this Section should not apply to applications for special permits to reconstruct, extend, alter, or structurally change a nonconforming single or two-family structure. The SPGA shall establish procedures governing such applications by

regulation

. 9.2.6 Regulations

The Special Permit Granting Authority may adopt rules and regulations for the administration of this section.

9.2.7 Fees

The Special Permit Granting Authority may adopt reasonable administrative fees and technical review fees for applications for special permits.

9.2.8 Lapse

Special permits shall lapse within 24 months, not including the time required to pursue or await the determination of an appeal referred to in G.L. c. 40A, s.17, from the grant thereof, if a substantial use thereof has not sooner commenced except for good cause or, in the case of permit for construction, if construction has not begun by such date except for good cause.

SECTION X: FLOOD PLAIN DISTRICT

10.1 FLOODPLAIN DISTRICT

10.1.1 Statement Of Purpose

The purposes of the Floodplain District are to:

10.1.1.1 Ensure public safety through reducing the threats to life and personal injury;

10.1.1.2 Eliminate new hazards to emergency response officials;

10.1.1.3 Prevent the occurrence of public emergencies resulting from water quality, contamination, and pollution due to flooding;

10.1.1.4 Avoid the loss of utility services which if damaged by flooding would disrupt or shut down the utility network and impact regions of the municipality beyond the site of flooding;

10.1.1.5 Eliminate costs associated with the response and cleanup of flooding conditions;

10.1.1.6 Reduce damage to public and private property resulting from flooding waters;

10.1.1.7 To protect, preserve, and maintain the water table and water recharge areas within the Town so as to preserve present and potential water supplies for public health and safety; and

10.1.1.8 To assure the continuation of the natural flow pattern of the water course(s) within the Town in order to provide adequate and safe floodwater storage capacity to protect persons and property against the hazards of flood inundation.

10.1.2 Floodplain District Boundaries And Base Flood Elevation And Floodway Data

10.1.2.1 Floodplain District Boundaries and Base Flood Elevation Data

The Floodplain District is herein established as an overlay district. The District includes all special flood hazard areas designated on the Town of Blandford Flood Insurance Rate Map (FIRM) issued by the Federal Emergency Management Agency (FEMA) for the administration of the NFIP dated July 26, 1974 as Zone A, which indicates the 100-year regulatory floodplain. The FIRM is incorporated herein by reference and is on file with the Town Clerk, Planning Board, Building Official, and Conservation Commission.

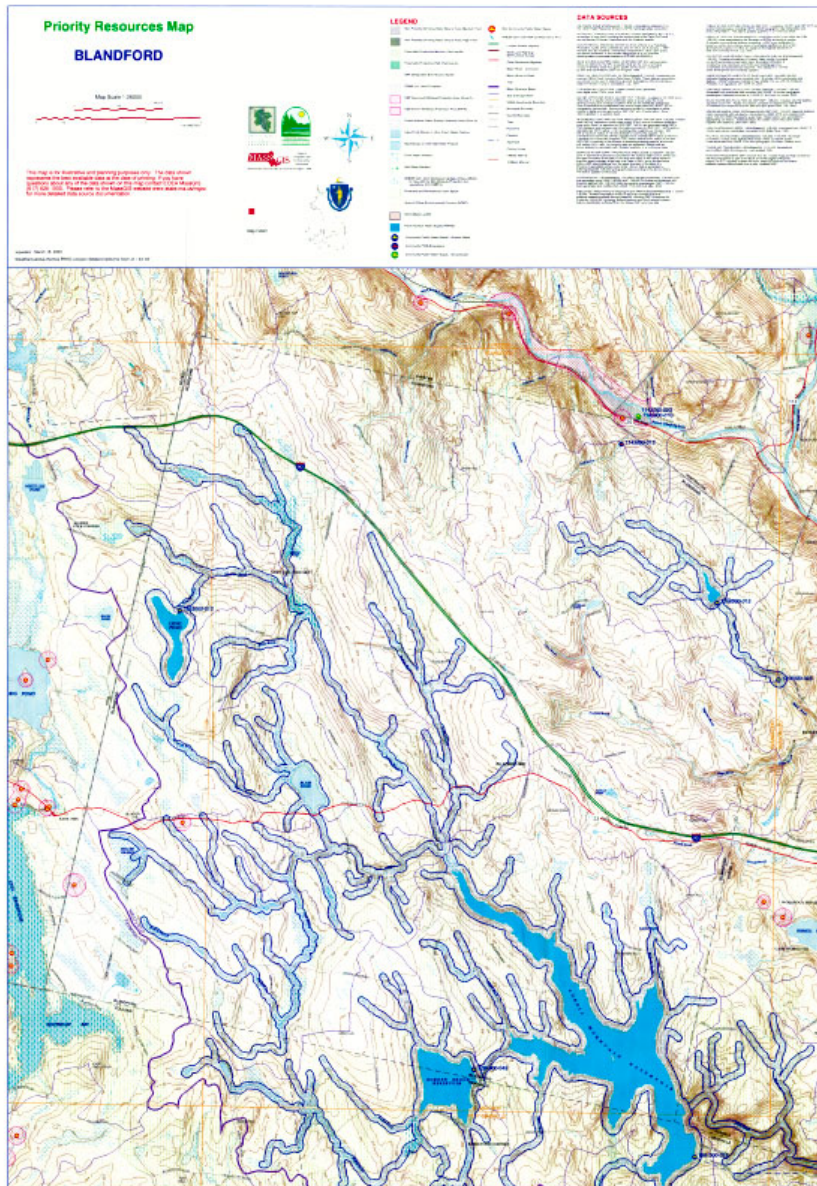
Commented [DS29]: COW 65 Buffer Systems, expansion of buffer to include 100-year floodplain
+ Meets LID Standards: district covers 100-year floodplain and additional areas that may experience flooding (see 10.1.2.2)

10.1.2.2 Base Flood Elevation and Floodway Data

- (a) Floodway Data. In Zone A along watercourses that have not had a regulatory floodway designated, the best available Federal, State, local, or other floodway data shall be used to prohibit encroachments in floodways which would result in any increase in flood levels within the municipality during the occurrence of the base flood discharge.
- (b) Base Flood Elevation Data. Base flood elevation data is required for subdivision proposals or other developments greater than 50 lots or 5 acres, whichever is the lesser, within unnumbered A zones.

Commented [DS30]: COW 61 Buffer Systems, development standards
COW 62 Buffer Systems, definition of waterway
COW 65 Buffer Systems, expansion of buffer to include 100-year floodplain
+ Partially meets LID standards: prohibits encroachments in floodways
-Some ambiguity about which areas are floodways, The Priority Resource Map is not referred to from the text so it isn't clear why it is in the zoning. It is also difficult to read the Priority Resources Map
> Refer to the Priority Resource Map if it is intended to relate to regulations and make the legend in map more legible; Reinforce map with explicit definition of floodplain and watercourses

ZONING BY-LAW of the TOWN OF BLANDFORD, MASSACHUSETTS



10.1.3 Notification Of Watercourse Alteration

In a riverine situation, the Building Inspector shall notify the following of any alteration or relocation of a watercourse:

- Adjacent Municipalities
- NFIP State Coordinator

Massachusetts Department of Conservation and Recreation
251 Causeway Street, Suite 600-700
Boston, MA 02114-2104

- NFIP Program Specialist
- Federal Emergency Management Agency, Region I

99 High Street, 6th Floor Boston, MA 02110

10.1.4 Use Regulations

10.1.4.1 Reference to Existing Regulations

The Floodplain Overlay District is established as an overlay district to all other districts. All regulations in the Town of Blandford Zoning Bylaw applicable to such underlying districts shall remain in effect, except that where the Floodplain Overlay District imposes additional regulations, such regulations shall prevail. All development in the district, including structural and non-structural activities, whether permitted by right or by special permit must be in compliance with Chapter 131, Section 40 of the Massachusetts General Laws and with the following:

- Section of the Massachusetts State Building Code which addresses floodplain and coastal high hazard areas (currently 780 CMR 3107, "Flood Resistant Construction");
- Wetlands Protection Regulations, Department of Environmental Protection (DEP) (currently 310 CMR 10.00);
- Inland Wetlands Restriction, DEP (currently 310 CMR 13.00);
- Minimum Requirements for the Subsurface Disposal of Sanitary Sewage, DEP (currently 310 CMR 15, Title 5);

If any variance from the above-referenced state regulations has been granted, such variance must be included in any building and/or special permit issued for a

Commented [DS31]: COW 65 Buffer Systems, expansion of buffer to include adjacent wetlands 100-year floodplain + Meets LID Standards: district covers 100-year floodplain and additional areas that may experience flooding (see 10.1.2.2)

10.1.4.2 Other Use Regulations

- (a) All applications for a preliminary or definitive subdivision plan must be designed to assure that:
 - (i) Such plans minimize flood damage;
 - (ii) All public utilities and facilities are located and constructed to minimize or eliminate flood damage; and
 - (iii) Adequate drainage is provided to reduce exposure to flood hazards.
- (b) Existing contour intervals of site and elevations of existing structures must be included on plan proposal.
- (c) There shall be established a "routing procedure" which will circulate or transmit one copy of the development plan to the Conservation Commission, Planning Board, Board of Health, and Building Inspector for comments which will be considered by the appropriate permitting board prior to issuing applicable permits.

Commented [DS32]: COW 66 Buffer Management, minimum percentage of buffer maintained with native vegetation
-No mention of native vegetation as part of minimizing flood damage or providing adequate drainage
> Provide explicit guidance for minimum percentage of buffer to be maintained with native vegetation
COW 67 Buffer Management, prohibited and permitted uses
+ Meets LID standards

10.1.4.3 Permitted Uses

The following uses of low flood damage potential and causing no obstructions to flood flows are encouraged provided they are permitted in the underlying district and they do not require structures, fill, or storage of materials or equipment:

- (a) Agricultural uses such as farming, grazing, truck farming, horticulture, etc.
- (b) Forestry and nursery uses.
- (c) Outdoor recreational uses, including fishing, boating, play areas, etc.
- (d) Conservation of water, plants, wildlife.
- (e) Wildlife management areas, unpaved foot, bicycle, and/or horse paths.
- (f) Temporary non-residential structures used in connection with fishing, growing, harvesting, storage, or sale of crops raised on the premises.
- (g) Structures lawfully existing prior to the adoption of these provisions.

10.1.4.4 Uses Allowed by Special Permit

- (a) No structure or building shall be erected, constructed, substantially improved over 50 percent of market value or otherwise created or moved; no earth or other materials dumped, filled, excavated, or transferred, unless a special permit is granted by the Zoning Board of Appeals. Such permit shall be subject to the following provisions in addition to those set forth elsewhere in this Bylaw.

Commented [DS33]: COW 67 Buffer Management, prohibited and permitted uses
+ Meets LID standard.

- (b) Application for special permit shall include plans showing all proposed work with certification by a registered professional engineer that these plans show full compliance with Section 4.5.4.1 above.
- (c) Within ten (10) days of receipt of application, a copy shall be transmitted to the Conservation Commission, Board of Health, Planning Board, and Building Inspector. Final action shall not be taken until reports have been received from all of the above, or until thirty-five (35) days from the date of transmission. A special permit shall not be granted unless the issuing Board finds, on review of the application, submitted reports, and testimony before it, that the application shows full compliance with Section 4.5.4.1 above, and that the proposed use would not create increased flood hazards which would be detrimental to the public health, safety or welfare.
- (d) The following uses may be allowed by special permit from the Zoning Board of Appeals in accordance with the requirements of the Zoning Bylaw and the additional restrictions and criteria contained herein regarding the Floodplain Overlay District:
 - (i) Single family detached dwelling;
 - (ii) Commercial golf course, recreation, or camp facility;
 - (iii) Commercial landing strip or heliport.
- (e) Within a Zone A where base flood elevation is not provided on the FIRM the applicant shall obtain any existing base flood elevation data. This data will be reviewed by the Building Inspector for their reasonable utilization toward meeting the elevation or floodproofing requirements, as appropriate, of the State Building Code.

10.1.4.5 Additional Special Permit Criteria

In addition to the Special Permit criteria specified in the Zoning Bylaw, the Zoning Board of Appeals may grant a Special Permit if it finds:

- (a) The proposed use will not create increased flood hazards which shall be detrimental to the public health, safety and welfare.
- (b) The proposed use will comply in all respects to the provisions of the underlying District or Districts within which the land is located.
- (c) The proposed use is in compliance with all applicable state and federal laws, including the Massachusetts Building Code and the Massachusetts Wetlands Protection Act (M.G.L. Ch. 131. Section 40).

10.1.4.6 Prohibited Uses

The following uses are specifically prohibit and may not be allowed by special permit:

- (a) Solid waste landfills, junkyards, and dumps.

Commented [DS34]: COW 67 Buffer Management, prohibited and permitted uses
-Uses allowed by special permit may significantly impact vegetated buffer without further guidance.
➤ Provide further guidance on maintaining vegetated buffer.

Commented [DS35]: COW 67 Buffer Management, prohibited and permitted uses
➤ Provide further guidance on maintaining vegetated buffer.

- (b) Business and industrial uses, not agricultural, which manufacture, use process, store, or dispose of hazardous materials or wastes as a principal activity, including but not limited to metal plating, chemical manufacturing, wood preserving, furniture stripping, dry cleaning, and auto body repair.
- (c) The outdoor storage of salt, other de-icing chemicals, pesticides, or herbicides shall be prohibited without suitable overhead protection from weather and an impervious containment area to hold the volume of stored chemicals.
- (d) Any encroachments, including fill, new construction, substantial improvements, and other development that would result in any increase in flood levels in the community during the occurrence of the base 100 year flood discharge.

Commented [DS36]: COW 67 Buffer Management, prohibited and permitted uses for vegetated buffer
+ Meets LID standards for Flood Plain District

10.1.5 Definitions

The following Definitions shall apply to the Floodplain Overlay District.

AREA OF SPECIAL FLOOD HAZARD is the land in the floodplain within a municipality subject to a one percent or greater chance of flooding in any given year. The area may be designated as Zone A, AO, AH, A1-30, AE, A99, V1-30, VE, or V.

BASE FLOOD means the flood having a one percent chance of being equaled or exceeded in any given year.

DEVELOPMENT means any manmade change to improved or unimproved real estate, including but not limited to building or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations.

DISTRICT means floodplain district.

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) administers the National Flood Insurance Program. FEMA provides a nationwide flood hazard area mapping study program for municipalities as well as regulatory standards for development in the flood hazard areas.

FLOOD BOUNDARY AND FLOODWAY MAP means an official map of a municipality issued by FEMA that depicts, based on detailed analyses, the boundaries of the 100-year and 500-year floods and the 100-year floodway. (For maps done in 1987 and later, the floodway designation is included on the FIRM.)

FLOOD HAZARD BOUNDARY MAP (FHBM) means an official map of a municipality issued by FEMA where the boundaries of the flood and related erosion areas having special hazards have been designated as Zone A or E.

FLOOD INSURANCE RATE MAP (FIRM) means an official map of a municipality on which FEMA has delineated both the areas of special flood hazard and the risk premium zones applicable to the municipality.

FLOOD INSURANCE STUDY means an examination, evaluation, and determination of

flood hazards, and, if appropriate, corresponding water surface elevations, or an examination, evaluation and determination of flood-related erosion hazards.

FLOODWAY means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation.

LOWEST FLOOR means the lowest floor of the lowest enclosed area (including basement or cellar). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage in an area other than a basement area is not considered a building's lowest floor, PROVIDED that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of NFIP Regulations 60.3.

MANUFACTURED HOME means a structure, transportable in one or more sections, which is built on a permanent chassis and is designed for use with or without a permanent foundation when connected to the required utilities. For floodplain management purposes the term "manufactured home" also includes park trailers, travel trailers, and other similar vehicles placed on a site for greater than 180 consecutive days.

MANUFACTURED HOME PARK OR SUBDIVISION means a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

NEW CONSTRUCTION means structures for which the "start of construction" commenced on or after the effective date of the Floodplain Overlay District Zoning Bylaw.

ONE-HUNDRED-YEAR FLOOD - see BASE FLOOD. REGULATORY FLOODWAY - see FLOODWAY

SPECIAL FLOOD HAZARD AREA means an area having special flood and/or flood-related erosion hazards and shown on an FHBM or FIRM as Zone A, AO, AI-30, AE, A99, AH, V, V1 -30, VE.

STRUCTURE means a walled and roofed building, including a gas or liquid storage tank that is principally above ground, as well as a manufactured home. For the latter purpose, the term includes a building while in the course of construction, alteration, or repair, but does not include building materials or supplies intended for use in such construction, alteration, or repair, unless such materials or supplies are within an enclosed building on the premises.

SUBSTANTIAL DAMAGE means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

SUBSTANTIAL IMPROVEMENT means any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either (a) before the improvement or repair is started, or (b) if the structure has been damaged and is being restored, before the damage occurred. For the purposes of this definition, "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure.

ZONE A means the 100-year floodplain area where the base flood elevation (BFE) has not been determined. To determine the BFE, use the best available federal, state, local, or other data.

ZONE AI-30 and ZONE AE (for new and revised maps) means the 100-year floodplain where the base flood elevation has been determined.

ZONE AH and ZONE AO means the 100-year floodplain with flood depths of 1 to 3 feet.

ZONE A99 means areas to be protected from the 100-year flood by federal flood protection system under construction. Base flood elevations have not been determined.

ZONES B, C, AND X are areas identified in the community Flood Insurance Study as areas of moderate or minimal flood hazard. Zone X replaces Zones B and C on new and revised maps.

SECTION XI: WIRELESS COMMUNICATIONS FACILITIES

11.1 PURPOSE

The Town of Blandford seeks to allow telecommunications and wireless services with minimal effect to the public health, safety and general welfare, and to minimize the visual impact of such facilities.

11.2 DEFINITIONS

11.2.1 ABOVE GROUND LEVEL (AGL): A measurement of height from the natural grade of a site to the highest point of a structure.

11.2.2 CO-LOCATE: A term meaning that more than one wireless communications facility

Revision Date: August 5, 2019

can be installed and operated on a single tower.

11.2.3 ELEVATION: The measurement of height above sea level.

11.2.4 MONOPOLE: A style of tower characterized by a single round pole having the general configuration of a flag pole. The monopole does not appear significantly larger at its base than at the point of maximum height.

11.2.5 S.P.G.A.: Special Permit Granting Authority. In Blandford, the Zoning Board of Appeals serves in this role.

11.2.6 TELECOMMUNICATIONS TOWER: A monopole structure with antennas, if any, designed to facilitate the following types of services: cellular telephone service, personal communications services, and/or enhanced specialized mobile radio service.

11.2.7 WIRELESS COMMUNICATION FACILITY: Any tower (including antennas, if any), or antenna placed on existing building or structure, or any device, wiring or equipment designed to facilitate or be utilized in connection with the provision of the following types of specialized mobile radio service as well as any structures, buildings and/or appurtenances utilized primarily for the installation and operation of equipment necessary for the provision of such services. This definition does not include an antenna used by a federally licensed amateur radio operator or television antennas or satellite dishes which are accessory to a residential use.

11.3 SPECIAL PERMIT REQUIREMENTS

A wireless communications facility shall require a building permit in all cases and may be permitted as follows:

11.3.1 All wireless communications facilities shall require a Special Permit from the Zoning Board of Appeals.

11.3.2 No wireless telecommunications facilities shall be erected or installed except in compliance with the provisions of this Section. Any proposed modifications to an existing wireless communications facility including, but not limited to extension in the height, addition of antennas or panels, or construction of a new or replacement of a facility shall be subject to these provisions and shall require a new application. The SPGA may, at its discretion, waive any application requirements for modifications to existing facilities. Wireless communications facilities shall, if feasible, be located on pre-existing load-bearing structures, buildings or towers, provided such installation shall preserve the character of the structure, building or tower. The applicant shall demonstrate that there are no pre-existing structures, buildings or towers available prior to approaching the SPGA with an application proposing the construction of a new structure or mount for an antenna. If there are no feasible pre-existing structures, buildings or towers, then wireless communication facilities

shall, if feasible, be located on public land. All newly constructed wireless communications facilities shall be located in the Agricultural district.

11.3.3 New towers shall be free-standing monopoles.

11.3.4 Providers of wireless communication services shall report to the Building Inspector and the SPGA any cessation in the use or operation of any wireless communications facility that exceeds 30 days. All facilities, attachments, and accessory structures which have not been used for a period of one (1) year shall be dismantled and removed at the owner's expense. The applicant shall post an initial bond to cover demolition costs and to cover the removal of the facility in the event of non-operation in an amount approved by the Zoning Board of Appeals. Said bond shall be posted with the Town Treasurer.

11.4 SITING AND CONSTRUCTION GUIDELINES

The following guidelines shall be used when preparing plans for the siting and construction of all wireless communications facilities:

11.4.1 To the maximum extent possible, all service providers will co-locate on a single structure. Structures shall be designed to accommodate the maximum number of users technologically practical. The intent of this condition is to reduce the number of towers located within Blandford.

11.4.2 No tower, including any attachments, shall be erected nearer to any existing structure than a distance equal to 125 % of its vertical height.

11.4.3 All towers shall be pre-engineered to fail at a pre-determined height enabling the structure to collapse upon itself in the event of a catastrophic failure.

11.4.4 No wireless communications facility shall exceed 200 feet in height as measured from the mean finished grade at the base of the tower. Exterior lighting of the towers and any accessory structures shall be prohibited.

11.4.5 Facilities shall not be located within 1500 feet of the peak of a significant hill or located in such a way as to adversely impact the view of a significant hill in the community.

11.4.6 Siting shall be such that the view of the facility and tower shall be as limited as possible when viewed off-site. Facilities shall be screened to provide an effective year-round visual buffer. The buffer shall be of sufficient height and depth to sufficiently screen the facility. The Special Permit Granting Authority shall determine the types of plant materials and the size of the buffer based on conditions on the site. Existing vegetation shall be used for screening wherever possible.

11.4.7 Existing on-site vegetation shall be preserved to the maximum extent practicable. Clearing of land shall be performed in a manner which will maximize preservation of natural

beauty and conservation of natural resources and which will minimize scarring of the landscape or siting of streams or wetlands.

11.4.8 All wireless communications facilities shall be painted, colored, and/or constructed of materials that minimize the visual impact of the facility on adjacent abutters, residential neighbors and other areas of town, and blend in with the surrounding landscape or the structure on which they are located.

11.4.9 Fencing shall be provided to control access to wireless communications facilities and shall reflect the visual character of the neighborhood or natural surroundings.

11.4.10 Signage is limited to providing the following information, and must adhere to the Town's current signage bylaw; the facility, the owner and operator and an emergency telephone number where the owner can be reached on a twenty-four (24) hour basis must be clearly displayed; a no trespassing sign; a sign displaying the Federal Communications Commission registration number; and any signs required to warn of danger.

11.4.11 There shall be a minimum of one (1) parking space for each facility, to be used in connection with the maintenance of the site. There shall be no storage of vehicles or equipment on the site.

11.4.12 To the extent feasible, all network interconnections from the communications site shall be via land lines.

11.4.13 Applicants proposing to erect wireless communications facilities on municipally-owned land or structures shall provide evidence of contractual authorization from the Town of Blandford to conduct wireless communications services on municipally owned property.

11.5 APPLICATION REQUIREMENTS

For an application to be considered complete, the following information must be submitted:

11.5.1 A color photograph or rendition of the proposed wireless communication facility including, but not limited to, the proposed tower with its antenna and/or panels. A rendition shall also be prepared illustrating views of the proposed wireless communication facility from the surrounding areas.

11.5.2 A landscape plan showing the proposed site before and after development including topography and screening proposed to protect abutters.

11.5.3 A description of the wireless communication facility including, but not limited to, the height of any towers and antennas, access roads and power supplies, the type, size and number of transmitters and a technical report which demonstrates that the maximum height of the installation is the minimum feasible to provide the intended service.

Commented [DS37]: COW 70 Clearing and Grading, preservation of native soils and natural vegetation at development sites
+ Meets LID standards

11.5.4 The technical and other reasons for the proposed location, height and design including, but not limited to, a survey of all sites which are feasible for providing the intended services both within and directly adjacent to the Town of Blandford and the reason(s) the proposed site was selected over at least one alternative site.

11.5.5 A survey of all pre-existing structures, buildings or towers which are capable of supporting the equipment necessary to provide the intended service, and a technical report which demonstrates why any such structure, building or tower cannot be used by the applicant.

11.5.6 A description of the capacity of the tower including the number and type of panels, antenna and/or transmitter receivers that it can accommodate, and the basis for these calculations.

11.5.7 A statement that the sound levels under normal operating conditions, whether emanating directly from, or as a result of natural wind blowing through the wireless communications facility, measured at the boundary of the total on which it is sited, shall not be greater than would otherwise exist in the absence of such facility.

11.5.8 A statement of the services to be supported by the proposed wireless communication facility and a delineation on the Zoning District Map of all areas in Blandford which will not be served by the proposed installation for the primary site and an alternate site.

11.5.9 A description of the special design features utilized to minimize the visual impact of the proposed wireless communication facilities.

11.5.10 A certification that the applicant possesses all necessary licenses to operate such a facility and has complied with all federal and state requirements to provide the proposed service.

11.5.11 Within thirty days after riling the application for any new tower or extension in height (hereto, the applicant shall arrange to fly a balloon at the primary and an alternate site at the maximum height of the proposed installation on a weekend day and one weekday between the hours of 10 a.m. and 6 p.m. The balloon shall be of size and color that can be seen from every direction for a distance of one mile. The applicant shall be responsible for posting the date and location of the balloon(s) as a legal advertisement at least 14 days, but not more than 21 days before the flights in at least two different issues of a newspaper with a general circulation in the Town of Blandford.

11.6 SEVERABILITY

The invalidity, unconstitutionality, or illegality of any provision in this bylaw shall not have any effect upon the validity, constitutionality, or legality of any other provision of this bylaw.

SECTION XII: SCHEDULE OF USES TABLE

Use	AG	R	B	LPWP	Notes	
2.0 Community Facilities						
2.1	Religious, Educational, or Municipal Use	Y	Y	Y	N	
2.3	Convalescent Home or Nursing Home	SP	N	N	N	
3.0 Agricultural Uses						
3.2	Agriculture, Horticulture, Floriculture, or Viticulture on parcels of land with 5 acres or fewer	Y	Y	Y	N	Excludes the raising of hogs, pigs or fur-bearing animals.
3.3	Raising of Hogs, Pigs, or Fur-bearing Animals on parcels of land with more than 5 acres	∕ SP	∕ N	∕ N	N	Such activity must be carried on at least 500 feet from any property lines.
3.4	Raising of Hogs, Pigs, or Fur-bearing Animals on parcels of land with fewer than 5 acres	SP N	SP N	N	N	Such activity must be carried on at least 500 feet from any property lines.
3.6	Nursery on parcels with fewer than 5 acres	Y	Y	N	N	
3.7	Farm Stand on parcels of land with 5 acres or more	Y	Y	Y	N	For the display and sale of natural products, the majority of which are raised in town during the months of June, July, August and September of every year.
3.8	Farm Stand on parcels of land with fewer than 5 acres	Y	Y	Y	N	For the display and sale of natural products, the majority of which are raised in town during the months of June, July, August and September of every year.

SCHEDULE OF USES TABLE - CONTINUED						
	USE	AG	R	B	LPWP	Notes
3.10	Commercial kennels or stables, riding schools on parcels of land with not fewer than 3 acres	SP	N	N	N	No dogs to be kept in any building or enclosures within 150 feet of any property line.
3.11	Lumbering, portable sawmills, and portable Planing mills	Y	N	N	N	

5.0 Wholesale, Transportation and Industrial Use

5.1	Milk Bottling and Distribution	SP	N	SP	N	
5.2	Soil, Gravel, Loam and Sand Removal	SP	N	N	N	
5.3	Ground Mounted Solar photovoltaic installations	SP	N	N	SP	See sections VII & IX
5.4	Registered Marijuana Dispensary	N	N	SP	N	See sections XIV & IX
5.5	Craft Marijuana Cooperative	SP	N	N	N	See Sections IX & XVI
5.6	Marijuana Cultivator	SP/SPA	N	N	N	See Sections IX & XVI
5.7	Marijuana Product Manufacturer	SP/SPA	N	N	N	See Sections IX & XVI
5.8	Marijuana Product Manufacturer	N	N	SP/S PA	N	See Sections IX & XVI
5.9	Marijuana Independent Testing Laboratory	N	N	SP/S PA	N	See Sections IX & XVI
5.10	Marijuana Microbusiness	SP/SPA	N	N	N	See Sections IX & XVI
5.11	Marijuana Research Facility	SP/SPA	N	N	N	See Sections IX & XVI
5.12	Marijuana Transporter	N	N	SP/S PA	N	See Sections IX & XVI
5.13	Any other type of licensed marijuana-related business, except a medical marijuana treatment center	N	N	N	N	
SP – Special Permit by Planning Board						
SPA – Site Plan Approval						

SECTION XIII: DEFINITIONS

13.1 APPLICANT, ALSO SUBDIVIDER: shall include an owner or his agent or representative, or his assigns.

13.2 BOARD: In the Site Plan Review, shall mean the Planning Board of the Town of Blandford.

13.3 HIGHWAY SUPERINTENDENT: The superintendent of streets or other official designated by the Board of Selectmen in charge of streets and roadways in the Town of Blandford.

13.4 LOT: shall mean an area of land in single ownership, with definite boundaries, used, or available for use, as the site of one or more buildings.

13.5 MUNICIPAL SERVICE: shall mean public utilities furnished by the city or town in which a subdivision is located, such as water, sewage, gas, or electricity.

13.6 RECORDED: shall mean recorded in the registry of deeds of the county or district in which the land in question is situated, except that as affecting registered land. It shall mean filed with the recorder of the land court.

13.7 REGISTER OF DEEDS: shall mean the register of deeds of the county or district in which the land in question, or the city or town in question, is situated, and, when appropriate, shall include the recorder of the land court.

13.8 REGISTERED MAIL: shall mean registered or certified mail.

13.9 S.P.G.A.: Special Permit Granting Authority. In Blandford, the Zoning Board of Appeals or Planning Board serves in this role.

13.10 SUBDIVISION: shall mean the division of a tract of land into two or more lots and shall include resubdivision, and when appropriate to the context, shall relate to the process of subdivision of the land or territory subdivided; provided, however that the division of a tract of land into two or more lots shall not be deemed to constitute a subdivision within the meaning of the Subdivision Control Law if at the time when it is made every lot within the tract so divided has frontage on:

13.10.1 A public way or a way which the Town Clerk of the Town of Blandford certifies is maintained and used as a public way, or

13.10.2 A way shown on a plan theretofore approved and endorsed in accordance with the Subdivision Control Law, or

13.10.3 A way in existence when the Subdivision Control Law became effective in the Town of Blandford, having, in the opinion of the Planning Board, sufficient width, suitable grades and adequate construction to provide for the needs of vehicular traffic in relation to the proposed uses of the land abutting thereon or served thereby, and for the installation of

Revision Date: August 5, 2019

Commented [DS38]: COW 1. Minimum Street Width + "Sufficient width" leaves room for narrower roads where demand is low.
➤ Consider defining more specifically

municipal services to serve such land and the building erected or to be erected thereon.

Such frontage shall be of at least such distance as is required by the Zoning By-Law of the Town of Blandford for erection of a building on such lot. Conveyances or other instruments adding to, taking away from, or changing the size and shape of, lots in such manner as not to leave any lot so affected without the frontage above set forth, of the division of a tract of land on which two or more buildings were standing when the Subdivision Control Law went into effect in the Town of Blandford into separate lots on each of which one of such buildings remains standing, shall not constitute a subdivision.

13.11 SUBDIVISION CONTROL: shall mean the power of regulating the subdivision of land granted by the Subdivision Control Law.

13.12 SUBSTANTIAL IMPROVEMENT, SITE PLAN: Any repair, reconstruction, or improvement of a structure or site, the cost of which equals or exceeds fifty (50) percent of the market value of the structure and other improvements on a site including, but not limited to, utilities, drainage, parking, access ways, lighting, landscaping, signage before the improvement or repair is started.

13.13 SUBSTANTIAL IMPROVEMENT, STRUCTURE: Any repair, reconstruction, or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either (1) before the improvement or repair is started, or (2) if damaged, the value of the structure to be restored prior to being damaged.

13.14 SUBSTANTIAL IMPROVEMENT, SUBDIVISION: Substantial improvement of an approved subdivision shall mean that 1) the construction of all approved streets has been completed with the exception of the final coat of paving, and 2) all required utilities have been installed.

13.14.1 Large-scale ground-mounted solar photovoltaic installations. See Section VIII.

13.15 SUPERINTENDENT OF STREETS: The superintendent of streets or other official designated by the Board of Selectmen in charge of streets and roadways in the Town of Blandford.

13.16 TOWN: The Town of Blandford, Massachusetts.

13.17 TRAILER: A vehicle which can be drawn, carried on or incorporated in a motor vehicle whether on temporary or permanent supports, designed for dwelling or sleeping purposes or as a temporary business or construction office.

13.18 REGISTERED MARIJUANA DISPENSARY (RMD): As defined by 105 CMR 725.000, et al., as those regulations may be amended or superseded, and pursuant to all other applicable state laws and regulations, means an entity registered in accordance with 105 CMR 725.00, also to be known as a Medical Marijuana Treatment Center, that acquires, cultivates, possesses, processes (including development of related products such as edible MIPs, tinctures, aerosols, oils, or ointments), transfers, transports, sells, distributes, dispenses or administers marijuana, products containing marijuana, related supplies, or educational materials to registered qualifying patients or their personal caregivers, as those terms are defined under 105 CMR 725.04. A RMD shall explicitly include facilities which cultivate and process medical marijuana, and which may also dispense and deliver medical marijuana

and related products. Unless otherwise specified, RMD refers to the site(s) of dispensing, cultivation, and preparation of marijuana.

13.19. Cannabis or Marijuana or Marihuana: All parts of any plant of the genus Cannabis, not excepted in 935 CMR 500.002: Cannabis or Marijuana or Marihuana (a) through (c) and whether growing or not; the seeds thereof; and resin extracted from any part of the plant; clones of the plant; and every compound, manufacture, salt, derivative, mixture or preparation of the plant, its seeds or resin including tetrahydrocannabinol as defined in M.G.L. c. 94G, § 1; provided that cannabis shall not include:

- a) the mature stalks of the plant, fiber produced from the stalks, oil, or cake made from the seeds of the plant, any other compound, manufacture, salt, derivative, mixture or preparation of the mature stalks, fiber, oil, or cake made from the seeds of the plant or the sterilized seed of the plant that is incapable of germination;
- b) hemp; or
- c) the weight of any other ingredient combined with cannabis or marijuana to prepare topical or oral administrations, food, drink or other products.

13.20. Cannabis or Marijuana Products: Cannabis or marijuana and its products unless otherwise indicated. These include products have been manufactured and contain cannabis or marijuana or an extract from cannabis or marijuana, including concentrated forms of marijuana and products composed of marijuana and other ingredients that are intended for use or consumption, including edible products, beverages, topical products, ointments, oils and tinctures.

13.21. Commission: The Massachusetts Cannabis Control Commission established by M.G.L. c. 10, § 76, or its designee. The Commission has authority to implement the state marijuana laws, which include, but are not limited to, St. 2016, c. 334 as amended by St. 2017, c. 55, M.G.L. c. 94G, and 935 CMR 500.000.

13.22. Craft Marijuana Cooperative: A Marijuana Cultivator comprised of residents of the Commonwealth and organized as a limited liability company, limited liability partnership, or cooperative corporation under the laws of the Commonwealth. A cooperative is licensed to cultivate, obtain, manufacture, process, package and brand cannabis or marijuana products to transport marijuana to Marijuana Establishments, but not to consumers.

13.23. Hemp: The plant of the genus Cannabis or any part of the plant, whether growing or not, with a delta-9-tetrahydrocannabinol concentration that does not exceed 0.3% on a dry weight basis of any part of the plant of the genus Cannabis, or per volume or weight of cannabis or marijuana product, or the combined percent of delta-9-tetrahydrocannabinol and tetrahydrocannabinolic acid in any part of the plant of the genus Cannabis regardless of moisture content.

13.24. Host Community Agreement: An agreement, pursuant to General Laws, Chapter 94G, Section 3(d), between a Marijuana Establishment and a municipality setting forth additional conditions for the operation of a Marijuana Establishment, including stipulations of responsibility between the parties and up to a 3% community impact fee.

13.25. Licensee: A person or entity licensed by the Commission to operate a Marijuana Establishment

13.26. Manufacture: To compound, blend, extract, infuse or otherwise make or prepare a cannabis or marijuana product.

13.27. Marijuana Cultivation: The use of land and/or buildings for planting, tending, improving, harvesting, processing and packaging, the preparation and maintenance of soil and other media and promoting the growth of marijuana by a marijuana cultivator, micro-business, research facility, craft marijuana cultivator cooperative, registered marijuana dispensary or other entity licensed by the Commission for marijuana cultivation. Marijuana cultivation as defined herein and in accordance with G.L. c.94G and regulations adopted thereunder shall not constitute agriculture, aquaculture, floriculture or horticulture for purposes of this Zoning By-law and G.L. c.40A, §3. Note this term is not defined in 935 CMR 500.

13.28. Marijuana Cultivator: An entity licensed to cultivate, process and package marijuana, and to transfer marijuana to other Marijuana Establishments, but not to consumers. A Craft Marijuana Cooperative and a Marijuana Microbusiness are a type of Marijuana Cultivator.

13.29. Marijuana Establishment: A Marijuana Cultivator, Craft Marijuana Cooperative, Marijuana Product Manufacturer, Marijuana Retailer, Marijuana Independent Testing Laboratory, Marijuana Research Facility, Marijuana Transporter, or any other type of licensed marijuana-related business, except a Registered Marijuana Dispensary or Off-site Medical Marijuana Dispensary. Marijuana Establishments shall not constitute agriculture, aquaculture, floriculture or horticulture for purposes of this Zoning By-law and G.L. c.40A, §3.

13.30. Marijuana Independent Testing Laboratory: A laboratory that is licensed by the Commission and is:

- a) accredited to the International Organization for Standardization 17025 (ISO/IEC 17025: 2017) by a third-party accrediting body that is a signatory to the International Laboratory Accreditation Accrediting Cooperation mutual recognition arrangement or that is otherwise approved by the Commission;
- b) independent financially from any Medical Marijuana Treatment Center (RMD), Marijuana Establishment or licensee for which it conducts a test; and
- c) qualified to test cannabis or marijuana in compliance with 935 CMR 500.160 and M.G.L. c. 94C, § 34.

13.31. Marijuana Microbusiness: A collocated Marijuana Establishment that can be either a Tier 1 Marijuana Cultivator or Product Manufacturer or both, in compliance with the operating procedures for each license. A Microbusiness that is a Marijuana Product Manufacturer may purchase no more than 2,000 pounds of marijuana per year from other Marijuana Establishments.

13.32. Marijuana Process or Processing: To harvest, dry, cure, trim and separate parts of the cannabis or marijuana plant by manual or mechanical means, except it shall not include manufacture as defined in 935 CMR 500.002.

13.33. Marijuana Product Manufacturer: An entity licensed to obtain, manufacture, process and package cannabis or marijuana products and to transfer these products to other Marijuana Establishments, but not to consumers.

13.34. Marijuana Research Facility: An entity licensed to engage in research projects by the Commission.

13.35. Marijuana Retailer: An entity licensed to purchase and transport cannabis or marijuana product from Marijuana Establishments and to sell or otherwise transfer this product to Marijuana Establishments and to consumers. Retailers are prohibited from delivering cannabis or marijuana products to consumers; and from offering cannabis or marijuana products for the purposes of on-site social consumption on the premises of a Marijuana Establishment.

13.36. Marijuana Transporter: An entity, not otherwise licensed by the Commission, that is licensed to purchase, obtain, and possess cannabis or marijuana product solely for the purpose of transporting, temporary storage, sale and distribution to Marijuana Establishments, but not to consumers. Marijuana Transporters may be an Existing Licensee Transporter or Third Party Transporter.

This Zoning By-law also accepts those definitions as contained in MGL 94G as may be amended and regulations as promulgated thereunder.

SECTION XIV – REGISTERED MARIJUANA DISPENSARY (RMD)

14.1 REGISTERED MARIJUANA DISPENSARY (RMD)

14.1.1 Purposes

It is recognized that the nature of the substance cultivated, processed, and/or sold by Registered Marijuana Dispensaries may have objectionable operational characteristics and should be located in such a way as to ensure the health, safety, and general well-being of the public as well as patients seeking treatment. The specific and separate regulation of Registered Marijuana Dispensaries (RMD) is necessary to advance these purposes and ensure that such facilities are not located within close proximity of minors and do not become concentrated in any one area within the Town of Blandford.

Subject to the provisions of this Zoning By-law, Chapter 40A of the General Laws, Chapter 369 of the Acts of 2012; chapter 941 (Medical Use of Marijuana) of the General Laws, and all regulations which have or may be issued thereunder, including, but not limited to 105 CMR 725.000, et seq., Registered Marijuana Dispensaries will be permitted to provide medical support, security, and physician oversight that meet or exceed state regulations.

14.1.2 Additional Requirements/Conditions

In addition to the standard requirements for uses permitted By-right or requiring Permit Site Plan Approval, the following shall also apply to all Registered Marijuana Dispensaries:

14.1.2.1 Use:

- (a) RMD's may only be involved in the uses permitted by its definition and may not include other businesses or services.
- (b) No marijuana shall be smoked, eaten or otherwise consumed or ingested within the premises.
- (c) The hours of operation shall be set by Special Permit Granting Authority, but in no event shall an RMD be open to the public, and no sale or other distribution of marijuana shall occur upon the premises or via delivery from the premises, between the hours of 8:00 p.m. and 8:00 a.m.

14.1.2.2 Physical Requirements

- (a) All aspects of the RMD use/facility relative to the acquisition, cultivation, possession, processing, sales, distribution, dispensing, or administration of marijuana, products containing marijuana, related supplies, or educational materials must take place at a fixed location within a fully enclosed building and shall not be visible from the exterior of the business.
- (b) No outside storage is permitted.
- (c) No RMD facility which serves only to dispense the processed marijuana, related supplies and educational materials to registered Qualifying Patients or their personal caregivers in accordance with the provisions of 105 CMR 725.00 shall have a gross floor area in excess of 2,500 square feet.
- (d) Ventilation – all RMD facilities shall be ventilated in such a manner that no:
 - (1) Pesticides, insecticides or other chemicals or products used in the cultivation or processing are dispersed into the outside atmosphere, and
 - (2) No odor from marijuana or its processing can be detected by a person with an unimpaired and otherwise normal sense of smell at the exterior of the medical marijuana business or at any adjoining use or property.
- (e) Signage shall be displayed on the exterior of the RMD facility's entrance in plain sight of clients stating that "Registration Card issued by the MA Department of Public Health required" in text two inches in height.

14.1.2.3 Location

- (a) No RMD shall be located on a parcel which is within five hundred (500) feet (to be measured in a straight line from the nearest points of each property line) of a parcel occupied by:

- (1) A public or private elementary, junior high, middle, vocational or high school, college, junior college, university or child care facility or any other use in which children commonly congregate in an organized, ongoing, and formal basis, or
 - (2) another RMD.
- (b) No RMD shall be located inside a building containing residential units, including transient housing such as motels and dormitories.

14.1.2.4 Reporting Requirements

- a) All Special Permit and Site Plan Approval holders for an RMD shall provide the Police Department, Fire Department, Building Commissioner/Inspector and the Special Permit Granting Authority with the names, phone numbers and email addresses of all management staff and key-holders, including a minimum of two (2) operators or managers of the facility identified as contact persons to whom one can provide notice if there are operating problems associated with the establishment. All such contact information shall be updated as needed to keep it current and accurate.
- b) The local Building Commissioner/Inspector, Board of Health, Police Department, Fire Department and Special Permit Granting Authority shall be notified in writing by an RMD owner/operator/manager:
 - (1) A minimum of 30 days prior to any change in ownership or management of that facility
 - (2) A minimum of 12 hours following a violation or potential violation of any law or any criminal or potential criminal activities or attempts of violation of any law at the RMD.
- c) RMD's shall file an annual report with and appear before the Special Permit Granting Authority no later than January 31st of each year, providing a copy of all current applicable state licenses for the facility and/or its owners and demonstrate continued compliance with the conditions of the Special permit.
- d) The owner or manager is required to respond by phone or email within twenty-four hours of contact by a town official concerning their RMD at the phone number or email address provided to the Town as the contact for the business.

14.1.2.5 Issuance/Transfer/Discontinuance of Use

- a) Special Permits/Site Plan Approvals shall be issued to the RMD Operator
- b) Special Permits/Site plan Approvals shall be issued for a specific site/parcel
- c) Special Permits/Site Plan Approvals shall be non-transferable to either another RMD Operator or site-parcel
- d) Special Permits/Site plan Approvals shall have a term limited to the duration of the applicant's ownership/control of the premises where the RMD is located, and shall lapse:
 - (1) If the permit holder ceases operation of the RMD, and/or

- (2) The permit holder's registration by MDPH expires or is terminated.
- e) The permit holder shall notify the Zoning Enforcement Officer and Special Permit Granting Authority in writing within 48 hours of such lapse, cessation, discontinuance or expiration.
 - f) An RMD shall remove all material, plants, equipment and other paraphernalia prior to surrendering its state Registration or ceasing its operation.
 - g) Prior to the issuance of a Building Permit for a RMD, the applicant shall provide the Town a bond or other form of financial security in amount and form acceptable to the Planning Board. The amount shall be sufficient to cover the costs to the Town of removing all materials, plants, equipment and other paraphernalia if the applicant fails to do so.
 - h) The Town, acting by and through the Building Inspector, shall provide the applicant 45 days written notice in advance of claiming and applying security. Should the applicant remove all materials, plants, equipment and other paraphernalia to the satisfaction of the Building Inspector prior to the expiration of the 45 days written notice, the security shall be released to the applicant.

14.1.3 Application Requirements

All Registered Marijuana Dispensaries (RMD) require a Special

Permit and Site Plan Review issued by the Planning Board in accordance with these bylaws and Section IX. In addition to the standard application requirements for Special Permits and Site Plan Approvals, such applications for an RMD shall also include the following:

14.1.3.1 The name and address of each owner of the RMD;

14.1.3.2 A copy of its registration as an RMD from the Massachusetts Department of Public Health or documentation demonstrating that said RMD, and its owner/operators, qualify and are eligible to receive a Certificate of Registration and meet all of the requirements of an RMD in accordance with 105 CMR 725.000;

14.1.3.3 Evidence that the Applicant has site control and right to use the site for a RMD facility in the form of a deed or valid purchase and sales agreement or, in the case of a lease a notarized statement from the property owner and a copy of the lease agreement;

14.1.3.4 A notarized statement signed by the RMD's Chief Executive Officer and corporate attorney disclosing all of its designated representatives, including officers, directors, shareholders, partners, members, managers, or other similarly-situated individuals and entities and their addresses. If any of the above are entities rather than persons, the Applicant must disclose the identity of all such responsible individual persons;

14.1.3.5 In addition to what is normally required in a Site Plan, details showing all exterior proposed security measures for the RMD including lighting, fencing, gates and alarms, etc. ensuring the safety of employees and patrons and to protect the premises from theft or other criminal activity;

14.1.3.6 A detailed floor plan identifying the areas available and functional use (including square footage);

14.1.3.7 All signage being proposed for the facility;

14.1.3.8 A traffic study to establish the impacts at peak demand times;

14.1.3.9 A Management Plan including a description of all activities to occur on site including all provisions for the delivery of medical marijuana and related products, including off-site direct delivery to patients.

14.1.4 Findings

In addition to the standard Findings for a Special Permit or Site Plan Approval, the Special Permit Granting Authority must also find all the following:

14.1.4.1 That the RMD facility is designed to minimize any adverse visual or economic impacts on abutters and other parties in interest;

14.1.4.2 That the RMD demonstrates that it will meet all the permitting requirements of all the applicable agencies within the Commonwealth of Massachusetts and will be in compliance with all applicable state laws and regulations;

14.1.4.3 That the applicant has satisfied all of the conditions and requirements of this Section and other applicable sections of the Zoning By-law;

14.1.4.4 That the RMD facility provides adequate security measures to ensure that no individual participant will pose a direct threat to the health or safety of other individuals, and that the storage and/or location of cultivation is adequately secured;

14.1.4.5 That the RMD facility adequately addresses issues of traffic demand, circulation flow, parking and queuing, particularly at peak periods at the facility and its impact on neighboring uses.

SECTION XV – ADULT USE MARIJUANA ESTABLISHMENTS

15.1 PURPOSE

The purpose of this bylaw is to allow for the siting of state-licensed Marijuana Establishments in appropriate locations in accordance with applicable state laws and regulations regarding adult use marijuana in accordance with state law, including G.L. c.94G and 935 CMR 500.00 and G.L. c.94I and 105 CMR 725.00 and to impose reasonable safeguards to govern the time place and manner of Marijuana Establishments to ensure public health, safety, well-being and mitigate against undue impacts on the town and its residents.

15.2 REQUIREMENTS/CONDITIONS

The Planning Board shall be the Special Permit Granting Authority and Site Plan Review authority for Marijuana Establishments. In addition to the standard requirements for uses permitted by-right or requiring a Special Permit or Site Plan Approval, as set forth in Sections V and IX of the By-law, the following shall also apply to all Marijuana Establishments:

15.2.1 Use

15.2.1.1 Any type of Marijuana Establishment may only be involved in the uses permitted by its definition and may not include other businesses or services.

15.2.1.2 No marijuana shall be smoked, eaten, topically applied or otherwise consumed or ingested within the premises of any Marijuana Establishment unless expressly permitted under this law and permitted by state law or regulation.

15.2.1.3 The hours of operation shall be set by the Special Permit Granting Authority, but in no event shall a Marijuana Establishment other than a Marijuana Retailer be open to the public, and no sale or other distribution of marijuana shall occur upon the premises or via delivery from the premises of a Marijuana Retailer between the hours of 8:00 p.m. and 8:00 a.m.

15.2.1.4 No marijuana establishment may commence operation ~~or apply for a building permit~~ prior to its receipt of all required permits and approvals including, but not limited, to its Final License from the Cannabis Control Commission.

15.2.1.5 The number of Marijuana Retailers permitted to be located within the Town of Blandford shall not exceed 20% of the number of licenses issued within the town for the retail sale of alcoholic beverages not to be drunk on the premises where sold under chapter 138 of the General Laws. For the purposes of determining this number, any fraction shall be rounded up to the next highest whole number.

15.2.2 PHYSICAL REQUIREMENTS

15.2.2.1 All aspects of the any Marijuana Establishment, except for the transportation of product or materials, relative to the acquisition, cultivation, possession, processing, sales, distribution, dispensing, or administration of marijuana, products containing

marijuana, related supplies, or educational materials must take place at a fixed location within a fully enclosed building (including greenhouses) and shall not be visible from the exterior of the business. Marijuana Establishments may not be located within a trailer, storage freight container, motor vehicle or other similar type potentially movable enclosure.

15.2.2.2 No outside storage is permitted.

15.2.2.3 No Marijuana Retailer shall have a gross floor area open to the public in excess of 2,500 square feet.

15.2.2.4 Ventilation – all Marijuana Establishments shall be ventilated in such a manner that no:

- a) Pesticides, insecticides or other chemicals or products used in the cultivation or processing are dispersed into the outside atmosphere, and
- b) No odor from marijuana or its processing can be detected by a person with an unimpaired and otherwise normal sense of smell at the exterior of the Marijuana Establishment or at any adjoining use or property.

15.2.2.5 Signage shall be displayed on the exterior of the Marijuana Establishment's entrance in plain sight of the public stating that "Access to this facility is limited to individuals 21 years or older." in text two inches in height. All other signage must comply with all other applicable signage regulations in the Zoning By-law and 935 CMR 500.

15.2.2.6 Marijuana plants, products, and paraphernalia shall not be visible from outside the building in which the Marijuana Establishment is located and shall comply with the requirements of 935 CMR 500. The Board may require or allow the use of vegetative and artificial screening to eliminate the view from the public way. In making its determination, the Board shall consider the surrounding landscape and viewshed, and may require a vegetative screen in addition to or in place of artificial screening if an artificial screen would be out of character with the neighborhood.

15.2.3 Location

15.2.3.1 Marijuana Establishments are encouraged to utilize existing vacant buildings where possible.

15.2.3.2 No Marijuana Establishment shall be located on a parcel which is within three hundred (300) feet (to be measured in a straight line from the nearest point of the property line in question to the nearest point of the property line where the Marijuana Establishment is or will be located) of a parcel occupied by a preexisting public or private school chartered by the state (existing at the time the applicant's license application was received by the Cannabis Control Commission) (homeschools are not included) providing education in kindergarten or any of grades 1-12.

15.2.3.3 No Marijuana Retailer shall be located on a parcel which is within three hundred (300) feet (to be measured in a straight line from the nearest point of the property line in question to the nearest point of the property line where the marijuana retailer is or will be located) of a parcel occupied by another Marijuana Retailer.

15.2.3.4 No Marijuana Establishment shall be located within the town's Residential Zoning District.

15.2.3.5 No Marijuana Establishment shall be located inside a building containing residential units, including transient housing such as motels and dormitories.

15.2.3.6 No Marijuana Establishment is permitted to utilize or provide a drive through service.

15.2.4 Reporting Requirements

15.2.4.1 Prior to the commencement of the operation or services provided by a Marijuana Establishment, the owner/applicant shall provide the Police Department, Fire Department, Building Commissioner/Inspector and the Special Permit Granting Authority with the names, phone numbers and email addresses of all management staff and key-holders, including a minimum of two (2) operators or managers of the facility identified as contact persons to whom one can provide notice if there are operating problems associated with the establishment. All such contact information shall be updated as needed to keep it current and accurate.

15.2.4.2 The local Building Commissioner/Inspector, Board of Health, Police Department, Fire Department and Special Permit Granting Authority shall be notified in writing by the Marijuana Establishment facility owner/operator/ manager:

- a) A minimum of 30 days prior to any change in ownership or management of that establishment.
- b) A minimum of 12 hours following a violation or potential violation of any law or any criminal or potential criminal activities or attempts of violation of any law at the establishment or by its employees.

15.2.4.3 Permitted Marijuana Establishments shall file an annual written report to, and appear before, the Special Permit Granting Authority no later than January 31st of each calendar year, providing a copy of all current applicable state licenses for the facility and/or its owners and demonstrate continued compliance with the conditions of the Special Permit/Site Plan Approval.

15.2.4.4 The owner or manager of a Marijuana Establishment is required to respond by phone or email within twenty-four hours of contact by a duly authorized town official concerning their Marijuana Establishment at the phone number or email address provided to the town as the contact for the business.

15.2.5 Issuance/Transfer/Discontinuance of Use

15.2.5.1 Special Permits/Site Plan Approvals shall be issued to the Marijuana Establishment owner.

15.2.5.2 Special Permits/Site Plan Approvals shall be issued for a specific type of Marijuana Establishment on a specific site/parcel.

15.2.5.3 Special Permits/Site Plan Approvals shall be non-transferable to either another Marijuana Establishment owner or another site/parcel.

15.2.5.4 Special Permits/Site Plan Approvals shall have a term limited to the duration of the applicant's ownership/control of the premises as a Marijuana Establishment, and shall lapse/expire if

- a) the Marijuana Establishment ceases operation (not providing the operation or services for which it is permitted) for 365 days, and/or
- b) the Marijuana Establishment's registration/license by the Cannabis Control Commission expires or is terminated.

15.2.5.5 The Marijuana Establishment shall notify the Zoning Enforcement Officer and Special Permit Granting Authority in writing within 48 hours of such lapse, cessation, discontinuance or expiration or revocation.

15.2.5.6 A Marijuana Establishment shall be required to remove all material, plants equipment and other paraphernalia prior to surrendering its state registration/license or ceasing its operation.

- a) Prior to the issuance of a Building Permit for a Marijuana Establishment the applicant shall post with the Town Treasurer a bond or other form of financial security acceptable to said Treasurer in an amount set by the Planning Board. The amount shall be sufficient to cover the costs of the town removing all materials, plants, equipment and other paraphernalia if the applicant fails to do so. The Building Inspector shall give the applicant 45 days' written notice in advance of taking such action. Should the applicant remove all materials, plants, equipment and other paraphernalia to the satisfaction of the Building Inspector prior to the expiration of the 45 days written notice, said bond shall be returned to the applicant.

15.3 APPLICATION REQUIREMENTS

Applications for Special Permits and Site Plan Approvals for Marijuana Establishments will be processed in the order that they are filed with the town. In addition to the standard application requirements for Special Permits and Site Plan Approvals, such applications for a Marijuana Establishment shall include the following:

15.3.1 The name and address of each owner and operator of the marijuana establishment.

15.3.2 A copy of an approved and fully executed Host Community Agreement.

15.3.3 A copy of its Provisional License from the Cannabis Control Commission pursuant to 935 CMR 500.

15.3.4 If the Marijuana Establishment will be operated in conjunction with an approved RMD, a copy of its registration as an RMD from the Massachusetts Department of Public Health in accordance with 105 CMR 725.000 or from the Cannabis Control Commission in accordance with 935 CMR 500.

15.3.5 Proof of Liability Insurance Coverage or Maintenance of Escrow as required in 935 CMR 500.

15.3.6 Evidence that the Applicant has site control and right to use the site for a Marijuana Establishment in the form of a deed or valid purchase and sales agreement or, in the case of a lease a notarized statement from the property owner and a copy of the lease agreement.

15.3.7 A notarized statement signed by the Marijuana Establishment organization's Chief Executive Officer and corporate attorney disclosing all of its designated representatives, including officers, directors, shareholders, partners, members, managers, or other similarly-situated individuals and entities and their addresses. If any of the above are entities rather than persons, the Applicant must disclose the identity of all such responsible individual persons.

15.3.8 In addition to what is normally required in a Site Plan, details showing all exterior proposed security measures for the Marijuana Establishment including lighting, fencing, gates and alarms, etc. ensuring the safety of employees and patrons and to protect the premises from theft or other criminal activity.

15.3.9 A detailed floor plan identifying the areas available and functional uses (including square footage).

15.3.10 All signage being proposed for the Marijuana Establishment.

15.3.11 A pedestrian/vehicular traffic impact study to establish the Marijuana Retailer's impact at peak demand times, including a line queue plan to ensure that the movement of pedestrian and/or vehicular traffic, including but not limited to, along the public right of ways will not be unreasonably obstructed.

15.3.12 An odor control plan detailing the specific odor-emitting activities or processes to be conducted on-site, the source of those odors, the locations from which they are emitted from the Marijuana Establishment, the frequency of such odor-emitting activities, the duration of such odor-emitting activities, and the administration of odor control including maintenance of such controls.

15.3.13 A Management Plan including a description of all activities to occur on site, including all provisions for the delivery of marijuana and related products to the Marijuana Establishment or off-site direct delivery.

15.3.14 Individual written plans which, at a minimum comply with the requirements of 935

CMR 500, relative to the Marijuana Establishment's:

- a) Operating procedures
- b) Waste disposal
- c) Transportation and delivery of marijuana or marijuana products
- d) Energy efficiency and conservation
- e) Security and Alarms
- f) Decommissioning of the Marijuana Establishment including a cost estimate taking into consideration the community's cost to undertake the decommissioning of the site.

15.4 FINDINGS

In addition to the standard Findings for a Special Permit or Site Plan Approval the Special Permit Granting Authority must also find all the following:

15.4.1 The Marijuana Establishment is consistent with and does not derogate from the purposes and intent of this Section and the Zoning By-law.

15.4.2 That the Marijuana Establishment facility is designed to minimize any adverse visual or economic impacts on abutters and other parties in interest;

15.4.3 That the Marijuana Establishment meets or exceeds all the permitting requirements of all applicable agencies within the Commonwealth of Massachusetts and will be in compliance with all applicable state laws and regulations;

15.4.4 That the applicant has satisfied all of the conditions and requirements of this Section and other applicable Sections of this By-law;

15.4.5 That the Marijuana Establishment provides adequate security measures to ensure that no individual participant will pose a direct threat to the health or safety of other individuals, and that all operations of the facility, including storage, cultivation, and delivery are adequately secured on-site and via delivery.

15.4.6 That the Marijuana Establishment facility adequately addresses issues of traffic demand, circulation flow, parking and queuing, particularly at peak periods at the facility, and its impact on neighboring uses.