

Town of Franklin
Best Development Practices Guidebook



Department of Planning & Community Development
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I. Introduction

The Franklin Best Development Practices Guidebook (Guidebook) is a set of guidelines for homeowners, developers, designers, project reviewers, and land use Boards and Commissions intended to improve the quality of development in Franklin. The Guidebook describes the required and preferred design and construction practices in Franklin related to stormwater management, erosion and sedimentation control, landscape design, and site planning. It is designed to aid the residents of Franklin, developers and designers, throughout the entire permitting and construction process to ensure that the Town is developed in a low impact, self-sustaining way. These practices reinforce the use of Low Impact Development (LID) design strategies to encourage sustainable, meaningful development within the Town of Franklin.

The LID practices in this guidebook are already being used extensively in Massachusetts and in the United States as sustainable development becomes the standard for best practice. The Guidebook outlines these practices as official Town policy, thus taking some of the “guesswork” out of project design and review. The Guidebook is a reference book for designers and reviewers working in Franklin. Recognizing that many best development practices are site-dependent, the Guidebook identifies a range of practices that are relevant to development and redevelopment projects on a variety of sites.

The Guidebook is divided into the following sections:

- I. Introduction
- II. Principals of Low Impact Development
- III. Site Planning
- IV. Stormwater Management
- V. Erosion & Sedimentation Control
- VI. Landscape Design
- VII. Appendix

These sections broadly describe the best development practices that are applicable in different situations and include limited technical details of the practices. References are provided for those who seek more information and design specifications. The Plants section in the appendix includes a list of accepted plants to be used when mitigation plantings and/or landscaping is required.

Any project proposed in Franklin that requires Conservation Commission, Planning Board or Zoning Board of Appeals (ZBA) approval shall comply with the requirements of this Guidebook. It should be remembered that all land use commissions and boards are the final authority in approving land use.

With your participation, the Town of Franklin will become a model for attractive and environmentally responsible community development.

II. Principals of Low Impact Development

The term ‘Low Impact Development’ or LID is an approach to development that integrates ecological and environmental goals into all phases of a project, from the individual lot to the entire watershed, in an effort to help retain as much stormwater as possible. LID development results in low impacts on natural resources by preserving greenspace and managing stormwater, thus minimizing increases in flow and pollutants off site. LID strategies include conservation of forests and sensitive areas, water reuse, utilizing stormwater controls that detain and retain runoff, and planting native or naturalized vegetation. LID considers the following throughout the life of a project:

- Water (stormwater, ground water, surface water)
- Vegetation
- Soils
- Topography

Benefits

LID reexamines traditional development practices and technologies and focuses on identifying project-specific site solutions that benefit the municipality, the developer, the home buyer, and the environment. LID takes advantage of natural resources for both their functional and aesthetic qualities, creating both economic and environmental benefits to a variety of stakeholders. Adopting LID strategies can streamline the review process, saving the applicants and approving agencies time and money. The public benefits from a healthier environment which results directly from cost savings through the reduced need for future remediation of environmental and water resources.

Who	How
Developer	Reduces costs & impact fees Increases lot yields May increase lot or community marketability
Municipality	Protects regional flora and fauna Balances growth needs with environmental protection Fosters public/private partnerships
Homeowner	Preserve and protect amenities that can translate to more desirable homes and communities Provides shade for homes and proper orientation can reduce utility bills
Environment	Preserve integrity of ecological systems Protect site and regional water quality Preserve trees and natural vegetation

Table 1 - Potential Benefits of LID

Source: *Urban Design Tools* (www.LID-Stormwater.net)

Goals of LID

- **Avoid the Impact** - Avoid the disturbance of natural features. This includes identification and preservation of natural areas that can be used in the protection of water resources.
- **Reduce the Impact** - Reduce the impact of land alteration by minimizing impervious areas in order to reduce the volume of stormwater runoff, increase groundwater recharge, and reduce pollutant loadings generated from a site.
- **Manage Impacts at the Source** - Techniques that manage the impacts include “disconnecting” any necessary impervious surfaces and implementing small-scale, “natural system”-based **Best Management Practices (BMP’s)** close to the source.

These goals can be achieved by following the principals of **LID** throughout the design, planning and construction process.

Principals of LID

- Preserve open space and minimize land disturbance;
- Protect natural systems and processes (drainage ways, vegetation, soils, and sensitive areas);
- Reexamine the use and sizing of traditional site infrastructure (including lots, streets, curbs, gutters, and sidewalks) and create a customized design for each site;
- Incorporate natural site elements such as wetlands, stream corridors, and mature forests as design elements
- Manage stormwater at its source.



Raingarden in Franklin
Source: www.soakitupfranklinma.org

III. Site Planning

Franklin's site planning policy is intended to further the Town's goals of:

- Protecting the environment, including wildlife habitat, water resources, and "ecosystem services" such as groundwater recharge, flood attenuation and pollutant removal;
- Creating a visually appealing community;
- Preserving the Town's cultural heritage, including historic sites, view corridors, trees, stonewalls, rock outcroppings, and other unique site features
- Stabilizing and increasing property values; and
- Encouraging sustainable development that minimizes energy, use, pollution and other impacts to the environment.

In order to minimize costs related to design, engineering, and construction, applicants should follow the Guidelines described below. Creative designers will usually be able to find many cost savings in Franklin's site planning guidelines related to a reduction in clearing, cut and fill, replanting, stormwater management and the preservation of environmentally fragile areas.

FRANKLIN POLICY: Subdivision plans and site plans for all forms of development shall adhere to the principals of environmental and aesthetic compatibility, and energy efficient design.

Guidelines and criteria for site planning include the following:

- Refrain from disturbing unique natural features of the site to the maximum extent possible. Sites vary, and could include unique features like wooded areas, specimen trees (e.g. larger than 10" diameter at breast height), knolls, rock outcroppings, streams, wetlands and ponds. They should be identified early in the site planning process and incorporated into the site plan. They should be labeled as suitable areas for development or as protected areas, whichever is more appropriate. Clearing of vegetation and alteration of topography shall be limited to the maximum percent lot coverage stated in the zoning bylaw (structures plus paving) plus 10%.
- Native vegetation shall be planted in disturbed areas as needed to enhance or restore wildlife habitat. Disturbance shall be limited to construction areas only. Preservation of groups of trees (e.g., beech, oak, hickory, etc.) is encouraged. All plant material shall be selected and planted in accordance with the Plants section of the appendix.
- Refrain from disturbing sites of historic and/or cultural significance. Significant sites could include old buildings, cellar holes or graveyards, as well as historic and healthy trees that have a diameter at breast height of 20" or greater.
- Preserve views and vistas both into and out of the site. A visual analysis should be conducted to identify any Scenic "windows" into the site and preserve the aesthetic value of these views whenever possible.

- **Minimize cut and fill.** Roads should follow the natural contours whenever possible, taking a steeper path only if necessary. Steep areas on individual house lots should generally be left as natural vegetation, not re-graded to allow for a sloping lawn. This approach can reduce grading costs and stormwater control costs because it often results in less land being disturbed, thereby creating fewer erosion or runoff problems. In addition, future homeowners will have fewer expenses and hassles related to maintaining steep lawns and landscaped areas, which are often costly to maintain and have low utility as yards. This also helps minimize flooding problems.
- **Locate houses and buildings in a way that blends into the natural topography.** Buildings should not be set high up on a hill where they will be an eyesore or a focus of attention. Generally buildings should be situated near the grade of the road, unless this would require extensive re-grading, in which case they may be higher or lower. For buildings located much above the road, an extra effort should be made to recess these buildings into the tree line to reduce their visual impact.
- **Conserve energy by orienting buildings to the sun and wind for maximum efficiency.** Buildings should be aligned to be protected from cold winter winds, shaded from summer sun, and open to winter sun. Protection from cold winter winds can be achieved by retaining natural vegetation at a building's northwest edge or by planting evergreen species such as white pine or western arborvitae (*Pinus strobus* or *Thuja plicata*) in this location. For summer shading and winter heating, deciduous species can be planted close to the building, along the east, south and west exposures. Winter sunlight will penetrate the empty branches and provide heat. Garages, utility rooms and closets can be positioned to provide insulating barriers on the northeast and northwest sides.



Low Impact Design Condominium Complex

Source: Town of Franklin Department of Planning and Community Development

IV. Stormwater Management

The Conservation Commission, Planning Board, Department of Planning & Community Development and Department of Public Works stress the importance of infiltration and treatment of stormwater at its point of origin to efficiently recharge the Town's groundwater supply. Remediation at the point of origin reduces the amount of runoff and the potential for a higher pollutant load that can be carried to other water bodies and resources areas. The Town of Franklin encourages the use of Low Impact Development (LID) techniques to retain the natural hydrology of the site.

The need for a strong and innovative stormwater management policy is based on Franklin's attempt to address several challenges:

- Franklin has numerous wetlands and water bodies, and is at the headwaters of the Charles River, all of which are affected by polluted runoff.
- The Town relies on local groundwater aquifers for its public water supply. With Franklin facing water shortages, groundwater recharge is an essential function.
- The U.S. Environmental Protection Agency (EPA) has promulgated requirements, which require communities, like Franklin, to manage polluted runoff effectively. Additionally, both the EPA and the Massachusetts Department of the Environment (MassDEP) have issued a "Total Maximum Daily Load Requirement" for communities along the Charles River.

In order to ensure an appropriate level of stormwater management for development and redevelopment projects, Franklin has adopted the following stormwater management performance standards for all activities, project design, and stormwater treatment practices:

- Minimize stormwater runoff
- Maximize infiltration and recharge where appropriate
- Minimize pollutants in stormwater runoff.

FRANKLIN POLICY: In addition to MassDEP's Stormwater Management Standards, all new development projects in Franklin must meet the following performance measures. All redevelopment projects shall meet the standards and if they fail to meet the standards, shall retrofit or expand existing stormwater management systems to improve existing conditions.

1. Post-development peak discharge rates and volumes from the site shall not exceed pre-development peak discharge rates and volumes from the site.
2. All drainage facilities proposed shall utilize best management practices as outlined in the Massachusetts Stormwater Management Standards.
3. All sites will have an Operation and Maintenance plan to insure future compliance.

Additionally, new development projects must:

1. Retain the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface area on the site AND/OR
2. Remove 90% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site AND 60% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site.

And redevelopment projects must:

1. Retain the volume of runoff equivalent to, or greater than, 0.80 inch multiplied by the total post-construction impervious surface area on the site AND/OR
2. Remove 80% of the average annual post-construction load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site AND 50% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site.

The adoption of performance standards allows the design professionals to select one or more stormwater management systems that are most appropriate and cost-effective for the particular site.

There is a growing realization among water resource professionals that conventional systems of stormwater collection, conveyance, and end-of-the-pipe dry-basin detention are not sufficient to improve the water quality of surface water bodies. Therefore, the Town's general preference is that stormwater be conveyed and treated in natural and vegetated systems such as vegetated swales, filter strips, constructed wetlands, and bio-retention cells. These practices provide generally superior performance in attenuating peak runoff rates, filtering pollutants, recharging groundwater; and allowing retention of the natural landscape.

The primary goals of this Guidebook stress the importance of protecting our resource areas. In addition to the aforementioned policies, the Town's land use commissions and development related departments urge that the runoff volume on a site be treated and infiltrated as close to its origin as possible to prevent further contamination. This must be done using appropriate stormwater management practices to ensure that as much water as practical is infiltrated.

The following table outlines the following stormwater management techniques that can be used, alone or in combination, to meet the performance standards and when each practice is encouraged or allowed. Other systems not discussed in this guidebook may also be acceptable if the applicant can demonstrate that they fulfill the above policies and requirements.

Table 2: Typical Stormwater Management Techniques in Franklin

Practice	Franklin's Policy	Appropriate Uses
Vegetated Swales	Strongly encouraged	Roadsides, parking lots
Vegetated Filter Strips	Strongly encouraged	Roadsides, residential frontage areas, parking lots, perimeter protection
Constructed Wetlands	Strongly encouraged	Commercial and industrial sites, office campuses, subdivisions
Bioretention Cells (Rain Gardens)	Strongly encouraged	Residential lots, parking lot islands
Pervious Paving Surfaces	Encouraged	Parking overflow areas
Roof Gardens	Encouraged	Office/industrial buildings
Retention/Detention Basins	May be used in series with other practices to provide pre-treatment	Subdivisions, office developments
Recharge Systems	Strongly Encouraged	All areas of development
Drain Pipe/Catch Basin System	As required to collect runoff when other systems are not practical	All areas of development, if necessary

For additional information, please see:

- Massachusetts Stormwater Handbook (Volume 2, Chapter 2)
- Franklin Zoning Bylaw Chapter 185, Section 31-C-3-m

- Franklin Subdivision of Land Bylaw Chapter 300, Section 11
- Franklin Stormwater Management Bylaw Chapter 153
- Massachusetts Inland Wetlands Regulations 310 CMR 10.00

V. Erosion & Sedimentation Control

Erosion and sedimentation control practices should be incorporated into the planning, construction, and operation of any project in Franklin. Specific measures must be presented for review prior to construction. The most important erosion control practice is to minimize clearing and re-grading.

The initial step to control erosion and sedimentation lies in establishing Erosion and Sedimentation Control Plan that is appropriate to the site features including topography, soils, drainage, subsurface conditions and natural vegetation. Erosion is the degradation of the surface land as a result of passing ice, water and other factors that can cause soil movement. The lighter and more sand-concentrated the soil, the more will be carried away. Sedimentation is the relocation and placement of the carried soil particles, changing the natural landscape, drainage characteristics and topography of a site.

As mentioned in the site planning section, the site planning process should begin with a thorough evaluation of sensitive areas requiring protection and areas suitable for development. The sensitive areas, including wetlands resource areas, are vulnerable to contamination and pollution caused by erosion and sedimentation as a result of construction and land disturbance. The site plan should delineate a limit of work that conditions clearing and re-grading while protecting the most sensitive areas. The potential hazards that may result from the proposed work must be identified and remediation techniques must be investigated. Five factors that induce probable erosion are construction practices, soil type, surface cover, topography and climate. The steeper the slope, the greater the velocity of runoff. The most common hazards that result from land disturbance are soil erosion, sedimentation; higher peak stormwater flows and increased runoff. Many alterations to the land may reduce the environment's natural ability to treat incoming stormwater. Where practical, native vegetation should be retained on development sites and individual house lots to the maximum extent possible, to aid in the pretreatment of runoff and to preserve the natural drainage pattern on site.

The Erosion and Sedimentation Control Plan must identify who is responsible for implementation and monitoring of the measures in place. At a minimum, the erosion control plan must include:

- Narrative of site, project and proposed control measures;
- Map of the site with a locus map;
- Contour lines, both existing and proposed, certified by a licensed surveyor;
- Materials and clearly state placement and specifications;
- Plan for preserving existing vegetation; and
- Any re-vegetation that may be necessary and the type, location and number of plantings to be used.

Projects in Conservation Commission Jurisdiction

FRANKLIN POLICY:

1. Any proposed project on a previously undeveloped site shall accommodate the development program in a way that minimizes clearing and re-grading, especially in areas of steep slopes, erosion-prone soils, or sensitive vegetation. For redevelopment projects, the site plan shall concentrate development in previously disturbed areas to the extent possible.
2. As a condition of approval, every proposed project shall submit and adhere to an erosion control plan that addresses soil stabilization, sediment retention, perimeter protection, construction scheduling, traffic area stabilization and dust control.
3. If the proposed project is in an area under conservation jurisdiction, the project will require permitting deemed appropriate by the Conservation Commission.

When an application is submitted to and approved by the Conservation Commission, some very specific requirements are in place concerning erosion control. The Conservation Commission only allows the use of straw wattles and filter mitts as erosion control barriers. Haybales and filter fabric are not allowed under any circumstances.

- Straw Wattles, also known as straw worms, bio-logs, or straw noodles, are manmade cylinders of compressed, weed free straw (wheat or rice), 8 to 12 inches in diameter and 20 to 25 feet long. They are encased in jute, nylon, or other photo degradable materials;
- Filter mitts are burlap covered barriers similar in appearance to a straw wattle and filled with biodegradable compost material.

These barriers will usually be placed at the limit of work as shown on the plan, and staked into the ground. The installation needs to be inspected by the project engineer, construction administrator, or Town's peer review consultant. This inspection will then need to be verified in writing to the Conservation Agent who will also inspect the barriers. Erosion control barrier installation and removal will be written on the Conservation Commission approval via special stipulations and may include, but not be limited to, the following:

20. Erosion Control Barriers: Erosion control barriers must be installed, inspected, and approved by a professional engineer or licensed wetlands scientist. Before any work commences (including any land and/or vegetation cutting, removal, or disturbance) said professional shall submit to the Conservation Commission a written statement confirming the erosion control barriers are installed according to the approved plan. The statement shall be signed and stamped by said professional. All erosion control barriers must be biodegradable.

34. No Straw Bales: In order to help prevent the spread of invasive plant species, the use of straw hay bales as a means of erosion control is prohibited.

44. Removal of Barriers: No sedimentation barrier may be removed without the prior approval of the Commission or its staff

VI. Landscape Design

This section of the Guidebook addresses three critical goals for the Town: 1.) stabilize water use at a sustainable level; 2.) create landscapes that minimize natural habitat destruction and maximize habitat value; and 3.) encourage the development of landscapes that provide environmental quality and visual relief through the planting of native or naturalized landscape plants.

Water-Sensitive Landscaping

Franklin suffers from a seasonal water supply shortage due in large part to lawn and garden watering. At the same time, development and the associated rise in impervious surfaces has and is altering the natural hydrological cycle and reducing recharge to the aquifers. Without careful attention to water use and hydrologic systems, Franklin could face continued water shortages as well as large future expenditures related to public water supply.

On previously undeveloped (“greenfield”) sites, the most important water-sensitive practice is to minimize the disturbance and clearing of natural vegetation. Typically, this will mean preserving some portion of the site as open space, plus reducing the area of lawn and garden in favor of native vegetation in both residential and commercial/industrial projects. In places where native vegetation is cleared, at least some of the area should function as a groundwater recharge system. For example, a landscaped garden could function as a bio-retention cell through appropriate subsurface design and selection of species, or portions of a lawn could serve as a vegetated filter strips for driveway runoff if properly graded. In general, the landscape design should:

- Retain and recharge water onsite;
- Preserve existing vegetation to the maximum extent possible;
- Preserve soil permeability during development;
- Utilize water efficient irrigation
- Minimize the use of turf grass; and
- Specify variety of native or naturalized species.

To meet its water conservation objectives, Franklin discourages in-ground irrigation systems. However, if irrigation systems are proposed, they shall be water-efficient drip systems or soil soakers equipped with automatic sensors that prevent watering when soils are already wet, or when it is raining. Drip irrigation is defined as the frequent slow application of water to a very small area in the root zone of the plant. Water slowly drips through either porous plastic pipes or emitters located below the soil surface. Drip systems have been found to reduce water use by 20-50%. Soil soakers consist of long plastic or canvas tubes perforated with tiny holes through which the water seeps as a fine mist. Soil soakers are connected to a garden hose and can be left in place on the surface of the planting bed or buried under the mulch.

FRANKLIN POLICY: Landscape plans shall follow the guidelines in this section for selecting species that are most appropriate to the site conditions and the intent of the plantings. Native species and habitat-creating species shall be used in all landscape plans to the maximum extent possible. Invasive species identified in this section shall not be planted in Franklin under any condition.

To keep the water onsite, impervious areas need to be reduced to the maximum extent practical. Planting beds should be designed to conserve the water they receive. This can be achieved by grading the beds so that slope is gradual and stormwater runoff will have more time to percolate into the soil, and by using plant species that do not require large amounts of water.

Planting Beds

For planting beds, landscape plans should specify the use of shredded pine bark mulch. Riverstone mulch may also be used in acceptable areas that require little to no water. The use of mulch in planting and garden areas is beneficial for several reasons:

- Help capture moisture for vegetation that would normally be lost through evaporation
- Prevent erosion by protecting the soil surface from raindrop impacts and by reducing the velocity of overland flow
- Help prevent crusting, sealing and compaction of the surface, thereby preserving the infiltration rate;
- Protect seeds by forming an insulating layer against extreme heat and cold and by creating a suitable microclimate for seed germination
- Reduce weed growth and the need for herbicide application

Planting Bed Guidelines

- All planting beds should be excavated to a depth of 8” below finished grade
- The bottom of the bed shall be scarified to encourage drainage and prevent compaction
- All planting beds are to be backfilled with loose, friable, organic loam or compost.

Seeding Guidelines

- Areas to be seeded shall be brought to an elevation of 6” below the proposed finished grade.
- The subgrade is to be scarified to result in uncompacted subsoil.
- 6” of good quality topsoil is then to be applied and raked to finished grade.
- Seed should be broadcast evenly and worked into the top 1” of soil.

Recommended Planting & Seeding Dates: March 15 - June 15 & September 15 - November 15

FRANKLIN POLICY:

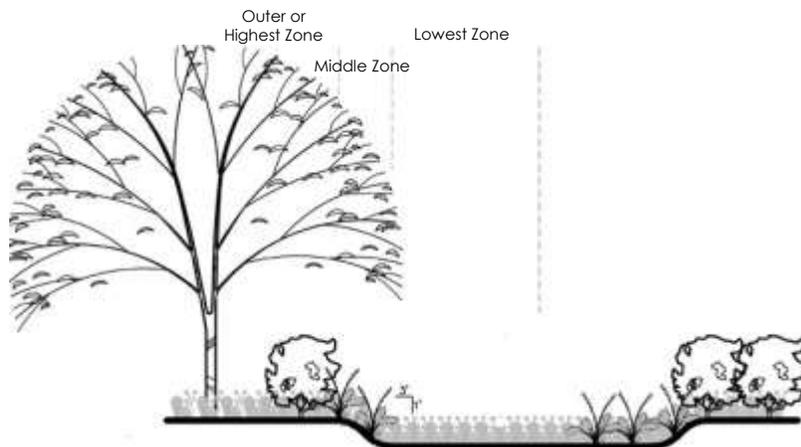
1. Site plans and landscape plans for all proposed projects shall take appropriate steps, as outlined in the Guidebook, to minimize water use for irrigation and to allow for natural recharge of groundwater. Landscape plans shall follow the guidelines in the Guidebook for selecting species that are most appropriate to the site conditions.
2. Native and habitat-creating species shall be used in all landscape plans to the maximum extent possible while still meeting the site's landscaping needs. Invasive species may not be planted in Franklin under any condition. Refer to the Massachusetts Prohibited Plant list for more information.
3. Actively promote the Town of Franklin's Water Conservation Measures.

Bioretention Cell Planting Guidelines

Bioretention systems can be applied to a wide range of commercial, residential, and industrial developments and work well on small sites and on large sites divided into multiple small drainage areas. Residential bioretention cells should be located in a low spot on the property with water routed from a downspout or sump pump into it. They should be located to receive full sun or at least a half-day of sunlight. Bioretention cells should not be excavated under large trees as digging shallow roots can weaken or kill a tree, or additional groundwater could damage it. Bioretention areas should not be located on slopes greater than 20%.

The mulch layer plays an important role in the performance of the bioretention system. It helps maintain soil moisture and avoids surface sealing which reduces permeability. Mulch helps prevent erosion, and provides a micro-environment suitable for soil biota at the mulch/soil interface. Mulch also serves as a pretreatment layer, trapping the finer sediments which remain suspended after the primary pretreatment.

Bioretention cells shall be planted, mulched, designed and maintained in accordance with Volume 2, Chapter 2: Structural BMP Specifications for the Massachusetts Stormwater Handbook.



Typical Planting Zones in a Raingarden

Source: Town of Franklin Department of Planning and Community Development

Planting Design Guidance

Plant material should be selected to establish a diverse, dense plant cover to treat stormwater runoff and withstand stresses from insect and disease infestations, drought, temperature, wind, and exposure. The proper selection and installation of plant material is essential to a successful system.

There are essentially three zones within a bioretention cell. The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports a slightly drier group of plants, still capable of tolerating fluctuating water levels. The outer edge is the highest elevation and supports plants adapted to dryer conditions.

The layout of plant material, whether in a planting bed or bioretention cell, should be flexible yet follow the design considerations listed below:

- Native or naturalized plant species should be selected from the approved list in the Appendix.
- Aesthetics and visual characteristics should be a principal consideration.
- Appropriate vegetation should be selected based on the size of the area.
- Species layout should be random and natural, to mimic a natural habitat.
- Where feasible, a tree canopy should be established and supplemented with an understory of shrubs and herbaceous materials.
- Wind, sun, exposure, insect and disease infestation, and drought should be considered when laying out the planting plan and selecting the materials.
- Noxious weeds should not be specified.
- Safety and circulation should be considered.
- Existing and proposed utilities must be identified and considered.

The planting design should resemble a random and natural plant layout, while maintaining optimal conditions for plant establishment and growth. Nearly every plant and plant location should be chosen to serve some function in addition to an aesthetic appeal.

In addition, other plant characteristics must be considered during the selection process. These are important to understand whether or not the selected plant will work in the location today and in the future. These include:

- Size
- Shape
- Color
- Texture
- Aesthetics (stems, bark, flowers, fruit)
- Growth rate and habitat.



Plant Species

In the interest of striking an appropriate balance between community development and conservation, the Town of Franklin is committed to retaining natural habitats and habitat functions on developed sites to the maximum extent possible. In addition, to further the Town's water conservation goals, drought-tolerant species should be used in appropriate situations.

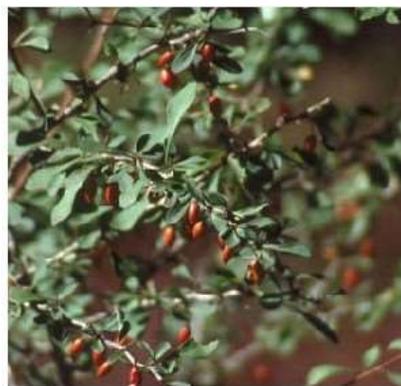
Landscape designers working on Franklin projects should use the plant list in the Appendix to select the most appropriate species for each portion of their site. Recognizing that many species are well-suited to several circumstances, there is much overlap among the lists of species provided below. The lists are not all-inclusive, and landscape designers may propose the use of other species not included here, provided they are not invasive species. These lists are intended to provide a wide range of species that the Town considers acceptable under different circumstances. Plant species not listed in the Best Development Practices Guidebook will be considered acceptable for use only after they are submitted to the Conservation Committee, describing the plants hardiness, native or naturalized status, water consumption and reason for selection.

The plant list is divided into three groups: Native, (North America) NA Native, and Non-Native. Within these groups, the plants are then sorted by category (fern, grass/sedge, herbaceous, shrub, tree, and vine).

Invasive Plants

Invasive species are recognized as one of the greatest threats to the integrity of natural communities and as direct threats to the survival of indigenous species. Invasive plants are introduced species that tend to spread into natural habitats and compete with native or naturalized species because of their superior reproductive ability, aggressive growth pattern, or lack of native competitors, herbivores, parasites or diseases. In terms of maintaining biodiversity, invasive species are a serious threat because they compete with natives species for limited land, water and sunlight. The Massachusetts Division of Fisheries and Wildlife has a complete listing of Prohibited and Invasive Plants, and additional resources on their website.

(www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/land-protection-and-management)



Invasive plants: (from left) *Euonymus alatus* (burning bush), *Berberis thunbergii* (Japanese barberry), *Lythrum salicaria* (Purple loosestrife) Source: www.nps.gov

APPENDIX

PLANT LIST

Recommended Plant List

The following plant list was provided by New England Wetland Plants, Inc. The plant list is divided into three groups: Native (to Massachusetts), NA (North America) Native, and Non-Native.

What are Native Plants?¹

Native plants are adapted to the local climate and soil conditions where they naturally occur.

They provide nectar, pollen, and seeds that serve as food for native butterflies, insects, birds and other animals.

Benefits of Native Plants:

- Do not require fertilizers and require fewer pesticides than lawns.
- Require less water than lawns and help prevent erosion;
- Can significantly reduce water runoff and, consequently, flooding;
- Help reduce air pollution;
- Do not require mowing;
- Remove, carbon from the air;
- Provide shelter and food for wildlife;
- Promote biodiversity and stewardship of our natural heritage; and
- Increase scenic value.

What are Non- Native Plants?¹

Non-native plants are introduced with human help (intentionally or accidentally) to a new place or new type of habitat where it was not previously found. Not all non-native plants are invasive. When many non-native plants are introduced to new places, they cannot reproduce or spread readily without continued human help. Non-native plants can become naturalized over time. Even though their offspring reproduce and spread naturally (without human help), naturalized plants do not become native members of the local plant community. Many naturalized plants are found near human-dominated areas. The term ‘naturalized’ is used to refer specifically to naturally reproducing, non-native plants that do not invade areas dominated by native vegetation.

Invasive plants also reproduce and spread without human help, and are a small, sub-category of naturalized plants.¹ For more information on invasive species, refer to the Massachusetts Department of Agricultural Resources Massachusetts Prohibited Plant List.

¹*United States Department of Agriculture, Technical Resources, Native, Invasive, and Other Plant-Related Definitions*

Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Ornamental / Showy	Salt Tolerant	Erosion Control	Wetland	Moist soils	Dry soils	Notes
Fern	northern maidenhair fern	Adiantum pedatum			x				x		
Fern	northern lady fern	Athyrium angustum			x			x	x		
Fern	eastern hayscented fern	Dennstaedtia punctilobula					x			x	
Fern	male wood fern	Dryopteris filix-mas							x	x	
Fern	marginal wood fern	Dryopteris marginalis							x	x	
Fern	ostrich fern, fiddlehead fern	Matteuccia struthiopteris ssp. pensylvanica			x			x	x		
Fern	sensitive fern	Onoclea sensibilis					x		x		
Fern	interrupted fern	Osmunda claytonia						x	x		Transitional
Fern	royal fern	Osmunda regalis			x			x	x		Transitional
Fern	cinnamon fern	Osmundastrum cinnamomea						x	x		Transitional
Fern	Christmas fern	Polystichum acrostichoides								x	
Fern	marsh fern	Thelypteris palustris						x	x		Shallow
Fern	Virginia chain fern	Woodwardia virginica						x	x		
Grass/Sedge	big bluestem	Andropogon gerardii			x		x			x	
Grass/Sedge	chruchose threeawn	Aristida dichotoma								x	
Grass/Sedge	Canada reed grass	Calamagrostis canadensis			x						
Grass/Sedge	Appalachian Sedge	Carex appalachica							x		
Grass/Sedge	fibrous-rooted sedge	Carex communis								x	
Grass/Sedge	fringed sedge	Carex crinata						x	x		Shallow
Grass/Sedge	hop sedge	Carex lupulina						x	x		Shallow
Grass/Sedge	sallow sedge	Carex lurida						x	x		Shallow
Grass/Sedge	Pennsylvania sedge	Carex pensylvanica								x	
Grass/Sedge	tussock sedge	Carex stricta						x			Shallow
Grass/Sedge	three-way sedge	Dulichium arundinaceum						x			Medium
Grass/Sedge	blunt spikesedge	Eleocharis obtusa									Shallow
Grass/Sedge	purple lovegrass	Eragrostis spectabilis			x					x	
Grass/Sedge	cotton grass	Eriophorum virginicum							x		
Grass/Sedge	rattlesnake manna grass	Glyceria canadensis						x			Shallow
Grass/Sedge	toad rush	Juncus bufonius				x			x	x	
Grass/Sedge	common soft rush	Juncus effusus ssp. solutus						x	x		Shallow

Source: New England Wetland Plants, Inc

Native Plants

Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Ornamental / Showy	Salt Tolerant	Erosion Control	Wetland	Moist soils	Dry soils	Notes
Grass/Sedge	switch panic grass	Panicum virgatum			x					x	
Grass/Sedge	little bluestem	Schizachyrium scoparium					x			x	
Grass/Sedge	chair-maker's bulrush	Schoenoplectus americanus						x			Medium
Grass/Sedge	three-square bulrush	Schoenoplectus pungens						x			Medium
Grass/Sedge	soft-stemmed bulrush	Schoenoplectus tabernaemontani						x			Deep
Grass/Sedge	black-girdled woolsedge, woolgrass	Scirpus atrocinctus						x			Shallow
Grass/Sedge	common woolsedge, woolgrass	Scirpus cyperinus						x			Shallow
Grass/Sedge	Indian grass	Sorghastrum nutans			x				x	x	
Herbaceous	sweet flag	Acorus americanus						x			Medium
Herbaceous	wild leek	Allium tricoccum var. <i>tricoccum</i>							x		
Herbaceous	jack-in-the-pulpit	Arisaema triphyllum						x	x		
Herbaceous	watershield	Brasenia schreberi						x			Deep
Herbaceous	water arum	Calla palustris						x			Medium
Herbaceous	alum-root	Heuchera americana							x	x	
Herbaceous	rosemallow	Hibiscus moscheutos			x			x	x		Shallow
Herbaceous	Canada-mayflower	Maianthemum canadense							x	x	
Herbaceous	spatterdock	Nuphar luteum						x			Deep
Herbaceous	fragrant white lily	Nymphaea odorata						x			Deep
Herbaceous	arrow arum	Peltandra cordata						x			Medium
Herbaceous	Pennsylvania smartweed	Polygonum coccineum						x			Shallow
Herbaceous	pickerelweed	Pontederia cordata						x			Medium
Herbaceous	ribbon-leaved pondweed	Potamogeton epihydrus						x			Deep
Herbaceous	clasping-leaved pondweed	Potamogeton perfoliatus						x			Deep
Herbaceous	white water buttercup	Ranunculus aquatilis						x			Deep
Herbaceous	yellow water buttercup	Ranunculus flabellaris						x			Deep
Herbaceous	arrowhead	Sagittaria latifolia						x			Medium
Herbaceous	hooded skullcap	Scutellaria galericulata						x	x		
Herbaceous	mad dog skullcap	Scutellaria lateriflora						x	x		

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Native Plants

Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Ornamental / Showy	Salt Tolerant	Erosion Control	Wetland	Moist soils	Dry soils	Notes
Herbaceous	American bur-reed	Sparganium americanum						x			Medium
Herbaceous	great bur-reed	Sparganium eurycarpum						x			Medium
Herbaceous	Sago false pondweed	Stuckenia pectinata						x			Deep
Herbaceous	skunk-cabbage	Symplocarpus foetidus						x	x		
Herbaceous	American false hellebore, Indian poke	Veratrum viride ssp. viride						x	x		
Herbaceous	goldthread	Coptis trifolius							x		
Herbaceous	water smartweed	Polygonum amphibium						x			Shallow
Shrub	dwarf shadbush	Amelanchier spicata		x							
Shrub	bog rosemary	Andromeda polifolia		x					x		
Shrub	Devil's walking stick	Aralia spinosa		x	x				x	x	
Shrub	bearberry	Arctostaphylos uva-ursi		x		x				x	
Shrub	red chokeberry	Aronia arbutifolia		X	x				X	X	
Shrub	purple chokeberry	Aronia floribunda		x	x			x	x		
Shrub	black chokeberry	Aronia melanocarpa		x	x	x			x	x	
Shrub	New Jersey redroot, New Jersey tea	Ceanothus americanus		x						x	
Shrub	buttonbush	Cephalanthus occidentalis		x					x		
Shrub	leatherleaf	Chamaedaphne calyculata	x	x				x			Bogs only
Shrub	pepperbush	Clethra alnifolia		x	x			x	x		
Shrub	sweet-fern	Comptonia peregrina		x						x	
Shrub	American hazelnut	Corylus americana		x						x	
Shrub	beaked hazelnut	Corylus cornuta		x						x	
Shrub	Shrubby-cinquefoil	Dasiphora floribunda		x	x			x			Prefers Bogs
Shrub	bush-honeysuckle	Diervilla lonicera		x					x	x	
Shrub	swamp dog-hobble	Eubotrys racemosa		x				x	x		
Shrub	eastern spicy-wintergreen, wintergreen	Gaultheria procumbens	x							x	
Shrub	black huckleberry	Gaylussacia baccata		x			x			x	
Shrub	blue huckleberry	Gaylussacia frondosa		x				x	x	x	
Shrub	inkberry	Ilex glabra	x		x				x	x	

Source: New England Wetland Plants, Inc

Native Plants

Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Ornamental / Showy	Salt Tolerant	Erosion Control	Wetland	Moist soils	Dry soils	Notes
Shrub	American holly	Ilex opaca	x		x						
Shrub	Common winterberry	Ilex verticillata		x	x			x	x		
Shrub	common juniper	Juniperus communis	x							x	
Shrub	creeping juniper	Juniperus horizontalis	x							x	
Shrub	sheep laurel	Kalmia angustifolia	x		x			x	x	x	
Shrub	mountain laurel	Kalmia latifolia	x		x				x	x	
Shrub	northern spicebush	Lindera benzoin		x				x	x		
Shrub	partridge-berry	Mitchella repens	x							x	
Shrub	bayberry	Morella caroliniensis		x	x	x	x		x	x	
Shrub	sweetgale	Myrica gale		x	x			x	x		
Shrub	beach plum	Prunus maritima		x		x				x	
Shrub	Rhodora	Rhododendron canadense		x	x				x		Bogs only
Shrub	Labrador tea	Rhododendron groenlandicum		x					x		Prefers Bogs
Shrub	great rosebay, great laurel	Rhododendron maximum	x		x		x		x	x	
Shrub	pink azalea	Rhododendron periclymenoides		x	x						
Shrub	early azalea	Rhododendron prinophyllum		x	x						
Shrub	clammy azalea, swamp azalea	Rhododendron viscosum		x	x			x	x		
Shrub	fragrant sumac	Rhus aromatica		x	x		x		x	x	
Shrub	winged sumac	Rhus copallinum		x			x			x	
Shrub	smooth sumac	Rhus glabra		x		x	x			x	
Shrub	staghorn sumac	Rhus hirta		x		x	x			x	
Shrub	Carolina rose	Rosa carolina		x	x		x				
Shrub	swamp rose	Rosa palustris		x	x		x		x		
Shrub	Virginia rose	Rosa virginiana		x	x		x			x	
Shrub	red raspberry	Rubus idaeus		x			x			x	
Shrub	black raspberry	Rubus occidentalis		x			x			x	
Shrub	purple-flowering raspberry	Rubus odoratus		x	x		x				
Shrub	prairie willow	Salix humilis		x		x				x	
Shrub	shining willow	Salix lucida		x		x		x	x		

Source: New England Wetland Plants, Inc

Native Plants

Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Ornamental / Showy	Salt Tolerant	Erosion Control	Wetland	Moist soils	Dry soils	Notes
Shrub	black-elderberry	<i>Sambucus nigra</i> ssp. <i>canadensis</i>		x	x			x	x	x	
Shrub	red-elderberry	<i>Sambucus racemosa</i>		x	x		x	x	x		
Shrub	white meadowsweet, white Spiraea	<i>Spiraea alba</i>		x	x				x	x	
Shrub	rosy meadowsweet, steeplebush	<i>Spiraea tomentosa</i>		x	x					x	
Shrub	silky dogwood	<i>Swida amomum</i>		x					x		
Shrub	gray dogwood	<i>Swida racemosa</i>		x				x	x		
Shrub	round-leaved dogwood	<i>Swida rugosa</i>		x	x				x	x	
Shrub	red-osier dogwood, red twig dogwood	<i>Swida sericea</i>		x	x			x	x		Disease: canker
Shrub	American yew	<i>Taxus canadensis</i>	x			x			x		
Shrub	lowbush blueberry	<i>Vaccinium angustifolium</i>		x		x				x	
Shrub	highbush blueberry	<i>Vaccinium corymbosum</i>		x	x	x		x	x		
Shrub	large cranberry	<i>Vaccinium macrocarpon</i>		x				x	x		Bogs only
Shrub	hillside blueberry	<i>Vaccinium pallidum</i>		x		x			x	x	
Shrub	maple-leaved viburnum	<i>Viburnum acerifolium</i>		x	x					x	
Shrub	arrowwood	<i>Viburnum dentatum</i>		x		x		x		x	
Shrub	nannyberry	<i>Viburnum lentago</i>		x	x					x	
Shrub	withe-rod, possum haw	<i>Viburnum nudum</i> var. <i>cassinoides</i>		x	x	x			x		
Tree	balsam fir	<i>Abies balsamea</i>	x					x	x	x	
Tree	white fir	<i>Abies concolor</i>	x							x	
Tree	striped maple	<i>Acer pensylvanicum</i>		x							
Tree	red maple	<i>Acer rubrum</i>		x	x			x	x		Plant away from walks or roads
Tree	sugar maple	<i>Acer saccharum</i>		x	x					x	
Tree	downy shadbush, downy serviceberry	<i>Amelanchier arborea</i>		x	x					x	
Tree	smooth shadbush, Allegheny serviceberry	<i>Amelanchier laevis</i>		x	x					x	
Tree	yellow birch	<i>Betula allegheniensis</i>		x	x	x					
Tree	black birch	<i>Betula lenta</i>		x		x					

Source: New England Wetland Plants, Inc

Native Plants

Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Ornamental / Showy	Salt Tolerant	Erosion Control	Wetland	Moist soils	Dry soils	Notes
Tree	white birch	Betula papyrifera		x	x	x					Pest: bonze birch borer
Tree	grey birch	Betula populifolia		x	x	x					
Tree	American hornbeam	Carpinus caroliniana		x	x				x	x	
Tree	bitternut hickory	Carya cordiformis		x					x		
Tree	pignut hickory	Carya glabra		x						x	
Tree	shagbark hickory	Carya ovata		x						x	
Tree	mockernut hickory	Carya tomentosa		x						x	
Tree	hackberry	Celtis occidentalis		x	x						
Tree	Atlantic white cedar	Chamaecyparis thyoides	x						x	x	
Tree	Bicknell's hawthorn	Crataegus chrysocarpa		x							
Tree	Cockspur hawthorn	Crataegus crus-galli		x						x	
Tree	three-seeded hawthorn	Crataegus macrosperma		x	x					x	
Tree	dotted hawthorn	Crataegus punctata		x	x						
Tree	beech	Fagus grandiflora		x	x						Disease: beech bark disease
Tree	White ash	Fraxinus americana		x		x		x			Pest: emerald ash borer; plant away from walks or roads
Tree	Green ash	Fraxinus pennsylvanica		x				x		x	Pest: emerald ash borer
Tree	butternut	Juglans cinerea		x							Disease: butternut canker
Tree	American larch	Larix laricina		x	x				x		
Tree	sweet gum	Liquidambar styraciflua		x						x	Extra care for fall planting
Tree	tulip Tree	Liriodendron tulipifera		x	x						
Tree	sweet-bay Magnolia	Magnolia virginiana		x	x				x		
Tree	red mulberry	Morus rubra		x	x					x	
Tree	black tupelo	Nyssa sylvatica		x		x		x	x		
Tree	American hop hornbeam	Ostrya virginiana		x	x						
Tree	black spruce	Picea mariana	x					x			
Tree	red spruce	Picea rubens	x								Extra care for fall planting
Tree	pitch pine	Pinus rigida	x			x					
Tree	eastern white pine	Pinus strobus	x							x	

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Native Plants

Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Ornamental / Showy	Salt Tolerant	Erosion Control	Wetland	Moist soils	Dry soils	Notes
Tree	sycamore	Platanus occidentalis		x				x	x		
Tree	bigtooth aspen	Populus grandidentata		x							
Tree	eastern cottenwood	Populus deltoides		x				x			
Tree	quaking aspen	Populus tremuloides		x							
Tree	pin cherry	Prunus pennsylvanica		x	x	x				x	
Tree	black cherry	Prunus serotina		x	x			x	x		
Tree	choke cherry	Prunus virginiana		x	x	x				x	
Tree	eastern white oak	Quercus alba		x	x	x				x	
Tree	swamp oak	Quercus bicolor		x				x	x		Tolerates flooding up to 30 days per season
Tree	scarlet oak	Quercus coccinea		x						x	
Tree	pin oak	Quercus palustris		x	x			x	x	x	
Tree	red oak	Quercus rubra		x		x				x	
Tree	black oak	Quercus velutina		x							
Tree	black willow	Salix nigra		x				x	x		
Tree	sassafras	Sassafras albidum		x					x	x	
Tree	American mountain-ash	Sorbus americana		x	x			x	x		
Tree	American linden, basswood	Tilia americana		x				x	x		
Tree	eastern hemlock	Tsuga canadensis	x								
Tree	American elm	Ulmus americana		x	x						Disease: Dutch Elm disease
Tree/Shrub	speckled alder	Alnus rugosa		x	x		x	x	x		
Tree/Shrub	eastern shadbush, serviceberry	Amelanchier canadensis		x	x	x			x	x	
Tree/Shrub	witchhazel	Hamamelis virginiana		x	x				x		
Tree/Shrub	eastern red cedar	Juniperus virginiana	x			x				x	
Tree/Shrub	scrub oak	Quercus ilicifolia		x			x			x	
Tree/Shrub	pussy willow	Salix discolor		x					x		
Tree/Shrub	alternate-leaved dogwood, pagoda dogwood	Swida alternifolia		x	x				x	x	Disease: golden canker
Vine/Liana	Virginia virgin's-bower	Clematis virginiana		x							
Vine/Liana	Virginia creeper	Parthenocissus quinquefolia		x			x		x	x	

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Native Plants

Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Ornamental / Showy	Salt Tolerant	Erosion Control	Wetland	Moist soils	Dry soils	Notes
Herbaceous	white bane berry	Actaea pachypoda			x				x		
Herbaceous	red baneberry	Actaea rubra			x				x		
Herbaceous	white snakeroot	Ageratina altissima var. altissima			x				x		
Herbaceous	sharp-lobed hepatica	Anemone acutiloba			x				x	x	
Herbaceous	Canada windflower, Canada anemone	Anemone canadensis			x		x			x	
Herbaceous	tall windflower	Anemone virginiana			x					x	
Herbaceous	Parlin's pussytoes, plantain pussy-toes	Antennaria parlinii ssp. fallax			x					x	
Herbaceous	red columbine, Canada columbine	Aquilegia canadensis			x					x	
Herbaceous	American spikenard	Aralia racemosa ssp. racemosa			x			x	x		
Herbaceous	swamp milkweed	Asclepias incarnata			x			x	x		
Herbaceous	common milkweed	Asclepias syriaca			x		x			x	
Herbaceous	butterfly milkweed, butterfly weed	Asclepias tuberosa			x					x	
Herbaceous	yellow wild indigo	Baptisia tinctoria			x					x	
Herbaceous	marsh-marigold	Caltha palustris			x			x	x		
Herbaceous	scotch bellflower, harebell	Campanula rotundifolia			x					x	
Herbaceous	blue cohosh	Caulophyllum thalictroides			x				x		
Herbaceous	bunchberry	Chamaepericlymenum canadense			x				x		
Herbaceous	white turtlehead	Chelone glabra			x			x	x		
Herbaceous	spotted prince's-pine, spotted wintergreen, pipsissewa	Chimaphila maculata			x					x	
Herbaceous	tall white-aster	Doellingeria umbellata			x			x	x	x	
Herbaceous	white wood-aster	Eurybia divaricata			x					x	
Herbaceous	large-leaved wood-aster, big leaf aster, lumberjack's toilet paper	Eurybia macrophylla			x					x	
Herbaceous	spotted Joe-Pye weed	Eutrochium maculatum			x				x		
Herbaceous	purple Joe-Pye weed	Eutrochium purpureum			x				x		

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Native Plants

Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Ornamental / Showy	Salt Tolerant	Erosion Control	Wetland	Moist soils	Dry soils	Notes
Herbaceous	Andrew's bottle gentian	<i>Gentiana andrewsii</i> var. <i>andrewsii</i>			x				x		
Herbaceous	meadow bottle gentian, meadow closed gentian	<i>Gentiana clausa</i>			x				x		
Herbaceous	spotted crane's bill	<i>Geranium maculatum</i>			x						
Herbaceous	woodland sunflower	<i>Helianthus divaricatus</i>			x						
Herbaceous	swamp rose-mallow	<i>Hibiscus moscheutos</i>			x				x		
Herbaceous	little bluet, bluets, Quaker ladies	<i>Houstonia caerulea</i>			x				x	x	
Herbaceous	flax-leaved stiff-aster, bristly aster	<i>Ionactis linariifolia</i>			x					x	
Herbaceous	Blue flag iris	<i>Iris versicolor</i>			x			x	x		Medium
Herbaceous	Canada lily	<i>Lilium canadense</i>			x			x	x	x	Pest: red Lily beetle
Herbaceous	wood lily	<i>Lilium philadelphicum</i>			x					x	Pest: red Lily beetle
Herbaceous	Turk's-cap lily	<i>Lilium superbum</i>			x			x	x		Pest: red Lily beetle
Herbaceous	cardinal flower	<i>Lobelia cardinalis</i>			x			x	x		Shallow
Herbaceous	feathery false Solomon's-seal	<i>Maianthemum racemosum</i>			x				x	x	
Herbaceous	star-like false Solomon's-seal	<i>Maianthemum stellatum</i>			x			x	x		
Herbaceous	wild bee-balm, wild bergamot	<i>Monarda fistulosa</i> ssp. <i>fistulosa</i>			x					x	Disease: powdery mildew
Herbaceous	narrow-leaved evening-primrose	<i>Oenothera fruticosa</i> ssp. <i>glauca</i>			x		x			x	
Herbaceous	golden groundsel, golden ragwort	<i>Packera aurea</i>			x			x	x		
Herbaceous	may-apple	<i>Podophyllum peltatum</i>			x				x	x	
Herbaceous	King Solomon's seal	<i>Polygonatum biflorum</i>			x				x		
Herbaceous	hairy Solomon's seal	<i>Polygonatum pubescens</i>			x				x	x	
Herbaceous	broad-leaved mountain mint	<i>Pycnanthemum muticum</i>			x					x	
Herbaceous	narrow-leaved mountain-mint	<i>Pycnanthemum tenuifolium</i>			x					x	
Herbaceous	Virginia meadow-beauty	<i>Rhexia virginica</i>			x				x		
Herbaceous	green-headed coneflower	<i>Rudbeckia laciniata</i>			x				x		
Herbaceous	bloodroot	<i>Sanguinaria canadensis</i>			x				x		
Herbaceous	purple pitcherplant	<i>Sarracenia purpurea</i> ssp. <i>purpurea</i>			x			x	x		Bogs only

Source: New England Wetland Plants, Inc

Native Plants

Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Ornamental / Showy	Salt Tolerant	Erosion Control	Wetland	Moist soils	Dry soils	Notes
Herbaceous	narrow-leaved blue-eyed-grass	Sisyrinchium angustifolium			x			x	x	x	
Herbaceous	axillary goldenrod, blue-stemmed goldenrod	Solidago caesia			x					x	
Herbaceous	seaside goldenrod	Solidago sempervirens var. sempervirens			x			x		x	
Herbaceous	showy goldenrod	Solidago speciosa			x					x	
Herbaceous	nodding ladies'-tresses	Spiranthes cernua			x			x	x		
Herbaceous	heart-leaved American-aster, blue wood aster	Symphyotrichum cordifolium			x				x	x	
Herbaceous	smooth aster	Symphyotrichum laeve			x					x	
Herbaceous	New England American-aster	Symphyotrichum novae-angliae			x					x	
Herbaceous	New York American-aster	Symphyotrichum novae-belgii			x	x		x	x		
Herbaceous	wild goat's-rue	Tephrosia virginiana			x		x			x	
Herbaceous	early meadow-rue	Thalictrum dioicum			x			x	x		
Herbaceous	tall meadow-rue	Thalictrum pubescens			x			x	x		
Herbaceous	foam-flower	Tiarella cordifolia var. <i>cordifolia</i>			x			x	x		
Herbaceous	blue vervain	Verbena hastata			x			x	x		
Herbaceous	New York ironweed	Vernonia noveboracensis			x			x	x		
Herbaceous	blue marsh violet	Viola cucullata			x			x	x		
Herbaceous	American dog violet, Labrador violet	Viola labradorica			x			x	x	x	
Herbaceous	bird's-foot violet	Viola pedata			x				x	x	
Herbaceous	woolly blue violet	Viola sororia			x				x	x	
Herbaceous	common golden Alexanders	Zizia aurea			x			x	x	x	

Source: New England Wetland Plants, Inc

Native Plants

North America Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Salt Tolerant	Moist Soils	Dry Soils	Notes
Grass	blue gramma	Bouteloua gracilis					x	
Grass/sedge	palm sedge	Carex muskingumensis				x		
Grass/sedge	northern sea oats	Chasmanthium latifolium						
Herbaceous	wild monkshood	Aconitum uncinatum				x		
Herbaceous	nodding onion	Allium cernuum var. <i>cernuum</i>						
Herbaceous	autumn onion	Allium stellatum						
Herbaceous	eastern bluestar	Amsonia tabernaemontana				x		
Herbaceous	goat's beard	Aruncus dioicus				x		
Herbaceous	purple poppymallow	Callirhoe involucrata					x	
Herbaceous	pink turtlehead	Chelone lyonii				x		
Herbaceous	blue mistflower	Conoclinium coelestinum						
Herbaceous	whorled tickseed	Coreopsis verticillata						
Herbaceous	tall larkspur	Delphinium exaltatum						
Herbaceous	wild bleeding-heart	Dicentra eximia						
Herbaceous	American umbrellaleaf	Diphylleia cymosa						
Herbaceous	beetleweed	Galax urceolata						
Herbaceous	old man's whiskers	Geum triflorum						
Herbaceous	bowman's root	Gillenia trifoliata				x		
Herbaceous	sawtooth sunflower	Helianthus grosseserratus					x	
Herbaceous	sunflower-everlasting, oxeye	Heliopsis helianthoides					x	
Herbaceous	sedum	Hylotelephium telephioides					x	
Herbaceous	blazingstar	Liatris spicata				x		
Herbaceous	Meehan's mint	Meehania cordata						
Herbaceous	blue bells	Mertensia virginica						
Herbaceous	scarlet bee-balm	Monarda didyma				x		
Herbaceous	wild feverfew	Parthenium integrifolium					x	
Herbaceous	Woodland Phlox	Phlox divaricata				x		
Herbaceous	summer phlox	Phlox paniculata						
Herbaceous	creeping phlox	Phlox stolonifera						
Herbaceous	moss pink	Phlox subulata					x	
Herbaceous	obedient false dragonhead	Physostegia virginiana						
Herbaceous	Jacob's ladder	Polemonium caeruleum					x	
Herbaceous	Greel valerian	Polemonium reptans						
Herbaceous	fringed wild petunia	Ruellia humilis						
Herbaceous	starry campion	Silene stellata					x	
Herbaceous	Celandine poppy	Stylophorum diphyllum						
Perennial	purple coneflower	Echinacea purpurea					x	

Source: New England Wetland Plants, Inc.

North America Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Salt Tolerant	Moist Soils	Dry Soils	Notes
Shrub	red buckeye	Aesculus pavia					x	
Shrub	eastern sweetshrub	Calycanthus floridus		x		x		
Shrub	flowering quince	Chaenomeles speciosa					x	
Shrub	mountain sweet pepperbush	Clethra acuminata				x		
Shrub	dwarf witchalder	Fothergilla gardenii		x				
Shrub	American hydrangea	Hydrangea arborescens		x				
Shrub	oak-leaved hydrangea	Hydrangea quercifolia		x				
Shrub	Canby's mountain-lover	Paxistima canbyi						
Shrub	Atlantic ninebark	Physocarpus opulifolius		x		x		
Shrub	smooth asalea	Rhododendron arborescens						
Shrub	dwarf azalea	Rhododendron atlanticum						
Shrub	flame azalea	Rhododendron calendulaceum						
Shrub	white spiraea	Spiraea betulifolia						
Tree	pawpaw	Asimina triloba		x				
Tree	redbud	Cercis canadensis		x				
Tree	white fringe-tree	Chionanthus virginicus		x				
Tree	Kentucky yellow-wood	Cladrastis kentukea						
Tree	Turkish hazelnut	Corylus colurna		x			x	
Tree	Washington hawthorn	Crataegus phaenopyrum		x				
Tree	Kentucky coffee tree	Gymnocladus dioicus				x	x	
Tree	blackwalnut	Juglans nigra		x				
Tree	Osage -orange	Maclura pomifera		x				
Tree	sourwood	Oxydendrum arboreum		x				Extra care for fall planting
Tree	White spruce	Picea glauca	x					
Tree	Colorado blue spruce	Picea pungens	x		x			
Tree	jack pine	Pinus banksiana	x				x	
Tree	Ponderosa pine	Pinus ponderosa	x		x			
Tree	American plum	Prunus americana		x				
Tree/shrub	Carolina silverbell	Halesia carolina				x		
Tree/shrub	Ozark witchhazel	Hamamelis vernalis		x		x	x	
Vine/liana	trumpet creeper	Campsis radicans		x			x	
Wildflower	blue wild indigo	Baptisia australis						
Wildflower	white doll's-daisy, false aster	Boltonia asteroides				x	x	
Wildflower	green and gold	Chrysogonum virginianum						

Source: New England Wetland Plants, Inc.

Non-Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Salt Tolerant	Drought Tolerant	Notes
Grass/sedge	Chinese fountaingrass	Pennisetum alopecuroides					
Herbaceous	false rock cress	Aubrieta deltoidea				x	
Herbaceous	basket-of-gold	Aurinia saxatilis				x	
Herbaceous	mountain bluet	Centaurea Montana				x	
Herbaceous	snow-in-summer	Cerastium tomentosum				x	
Herbaceous	chamomile (Anthemis tinctoria)	Cota tinctoria				x	
Herbaceous	queen of the meadow	Filipendula ulmaria		x		x	
Herbaceous	blanket flower	Gaillardia x grandiflora				x	
Herbaceous	cranesbill	Geranium dalmaticum				x	
Herbaceous	Bigroot	Geranium macrorrhizum				x	
Herbaceous	poppy	Papaver orientale				x	
Herbaceous	Balloon flower	Platycodon grandiflorus				x	
Herbaceous	whorled sage	Salvia verticillata				x	
Herbaceous	woolly hedge-nettle, lamb's ear	Stachys byzantina				x	
Perennial	Carpathian bellflower	Campanula carpatica				x	
Shrub	bottlebrush buckeye	Aesculus parviflora		x			
Shrub	fountain buddleia	Buddleja alternifolia				x	
Shrub	orange-eye butterfly-bush	Buddleja davidii					
Shrub	heather	Calluna vulgaris					
Shrub	Rockspray cotoneaster	Cotoneaster horizontalis	x				
Shrub	weeping forsythia	Forsythia suspensa					
Shrub	English ivy	Hedera helix	x				
Shrub	rose-of-Sharon	Hibiscus syriacus				x	
Shrub	Japanese pachysandra	Pachysandra terminalis	x				
Shrub	Russian sage	Perovskia atriplicifolia				x	
Shrub	Japanese spiraea	Spiraea bumalda		x			
Tree	horse-chestnut	Aesculus hippocastanum		x	x		
Tree	ruby red horsechestnut	Aesculus x carnea				x	
Tree	European hornbeam	Carpinus betulus				x	
Tree	pyramidal European hornbeam	Carpinus betulus fastigiata		x			Extra care for fall planting
Tree	katsuratree	Cercidiphyllum japonicum		x			

Source: New England Wetland Plants, Inc.

Non-Native Plants

Form	Common Name	Species Names	Evergreen	Deciduous	Salt Tolerant	Drought Tolerant	Notes
Tree	yellow-wood	Cladrastris lutea		x			
Tree	European smoketree	Cotinus coggygria				x	
Tree	hardy rubber tree	Eucommia ulmoides		x			
Tree	maidenhair tree (female +)	Gingko biloba		x			
Tree	European larch	Larix decidua		x			
Tree	star magnolia	Magnolia stellata		x			Extra care for fall planting
Tree	crabapple	Malus spp., most					
Tree	mugo pine	Pinus mugo	x	x	x	x	
Tree	Austrian pine	Pinus nigra	x		x	x	
Tree	London plane tree	Platanus hybrida		x		x	Extra care for fall planting
Tree	Sargent's cherry	Prunus sargentii		x			Extra care for fall planting
Tree	English oak	Quercus robur		x	x		
Tree	European mountain ash	Sorbus aucuparia					
Tree	Japanese pagoda tree	Styphnolobium japonicum		x		x	
Tree	Japanese tree lilac	Syringa reticulata		x			
Vine/liana	yam-leaved virgin's-bower	Clematis terniflora					

Source: New England Wetland Plants, Inc.

PLANNING & PERMITTING PROCESS

Planning & Permitting Process Assistance

Below is a summary of information intended to assist Developers/Applicants with planning and permitting development projects in the Town of Franklin.

Permit Application Requirements. Depending on the type development, applications are submitted according to the Town of Franklin Subdivision Rules & Regulations (Town Code Chapter 300) or Town of Franklin Zoning Bylaw (Town Code Chapter 185). Copies of these documents are available in the Town Clerk's office, or on the Town's web site. Also on the web site are additional regulations as well as permit applications, forms and permit process information. The Applicant should contact the Town during the early stages of a development project to discuss permitting and plan review requirements and procedures.

This Guidebook requires that site plan and subdivision plan applications consider the presence of natural, cultural, and aesthetic features on proposed development or redevelopment sites. Identification, protection of, and planning for these features is the responsibility of all Applicants. Please contact Town Planning, Conservation, DPW or Engineering staff for questions related to these issues.

All Town of Franklin Boards, Commissions, Committees and Departments are committed to streamlining the permitting processes where possible and to assuring decisions are reached on all required land development permits within a reasonable amount of time. However, for permitting of development projects to move forward swiftly the quality of the Applicant's submittals are the most important factor.

Concurrent Application Submittals. Concurrent submittal and review of all development applications can help to substantially shorten the permitting process. However, keep in mind projects requiring decisions by both the Conservation Commission and the Planning Board must have Conservation Commission approval before the Planning Board acts on an application.

A Note Regarding Projects Within or Adjacent to Wetland Resource Areas. The Massachusetts Wetlands Protection Act prohibits any filling, excavation, or other alteration of the land surface, water levels, or vegetation in wetlands, floodplains, riverfront areas or other wetland resource areas regardless of ownership without a permit from the local Conservation Commission. The Commission is charged with administering the State Wetlands Protection Act (M.G.L. Ch. 131 sec. 40) and the Town's Wetland Protection Bylaw (Town Code, Chapter 181). If you are planning any landscaping or construction within 100 feet of a wetland or 200 feet of a stream or within a flood plain, please contact Franklin's Conservation Agent to determine the level of permitting required.

Early Pre-permit Discussions. The Town recommends an Applicant wishing to permit a development in Franklin arrange a face-to-face scheduled meeting with the Zoning Enforcement Officer and or Planning & Community Development Director to discuss their proposed project. Dependent upon the complexity and scale of the proposed project, additional Town staff (Conservation Agent, Town Engineer) may be asked to attend the meeting. Often it's appropriate and helpful for the Applicant's attorney or engineer to attend this initial inquiry meeting.

Applicants will be asked to provide a summarized description of the proposed project and conceptual level plans. The applicant is welcome to bring detailed site plans, photographs, diagrams and reports if available, but this level of detail is not necessary.

The meeting is intended to facilitate the permitting process by clarifying requirements, which may eliminate problems or misunderstandings. Town staff will assist the Applicant as needed to develop a list of required land-use related permit application materials, including plans, reports, forms, certifications and required fees; discuss in general terms issues that could arise; and discuss reasons for and purpose of any needed variances, special permits or waivers.

Technical Review Committee. Once an Applicant has further developed their Site Plan or Subdivision plan, the Town recommends Applicants attend Franklin’s Technical Review Committee (TRC) meeting to present the project. TRC members include Franklin’s Town Administrator, Building Commissioner/Zoning Enforcement Officer, Town Engineer, Board of Health Director, Conservation Agent, Fire Chief, Town Attorney, Planning & Community Development Director and other Planning staff. The TRC meets weekly (normally Wednesday at 3:00 p.m.). These interdepartmental meetings serve as a way for the Town to meet with applicants to work out technical issues, and provide advice and assistance in identifying common problems and uncovering any hidden issues, prior to submitting applications and attending Board and Commission hearings.

TRC does not provide a formal application review. Attending a TRC meeting normally serves to expedite the project review and approval process, as well as minimizes the need for redesigns. But the Town does not guarantee all permit requirements and potential problems will be identified.

TRC meetings are not required of the Applicant and are for informational purposes only. However, Applicants that meet with TRC before formally submitting their project’s permit applications normally have an easier time getting through the permitting process.

Dependent upon the scope of the project the Applicant may desire to meet with the TRC a second time or with individual Town staff before formal submittal of applications. These meetings can be arranged by contacting Town staff directly. Please note, speaking to individual Town staff or attending a Technical Review Committee meeting does not guarantee approval of a development project.

Please contact the following individuals and Departments for guidance:

Zoning Enforcement Agent, ZBA, Building Department	(508) 520-4926
Planning Board, Planner Staff	(508) 520-4907
Planning & Community Development Director	(508) 520-4907
Conservation Agent, Conservation Commission	(508) 520-4929
DPW Engineering Division, Town Engineer	(508) 553-5500
Health Department - Board of Health	(508) 520-4905
Fire Department	(508) 528-2323
DPW Water and Sewer Division	(508) 553-5500

CHECKLIST FOR DESIGNERS

GOALS and NEEDS Addressed:

1. Create a visually appealing community
2. Stabilize and increase property values
3. Encourage low impact development
4. Preserve the Town's historic and cultural heritage
5. Protect Franklin's natural environment, including habitat, water resources, and ecosystem services

FRANKLIN POLICY:
 Subdivision plans and site plans for all forms of development shall adhere to the principles of environmental and aesthetic compatibility and energy-efficient design.

BEST DEVELOPMENT PRACTICES	Incorporated into Project?
The site plan should be designed to address the following to the maximum extent practicable	
Unique natural features have been preserved <i>(the development program should either avoid altering or showcase significant natural features)</i>	
Native vegetation planted in disturbed areas as needed to enhance or restore habitat	
Historic and cultural resources have been preserved <i>(the development program should either avoid altering or showcase significant historic and cultural features)</i>	
Clearing, grading, and building placement consider view sheds	
Cut and fill have been minimized	
Buildings blend into the natural topography	
Buildings are oriented to the sun and wind for maximum energy efficiency <i>Vegetated protection from northwest (winter) winds is provided Deciduous species planted or retained close to the East, South and West building edges</i>	
Conforms to §185-31 of the Town of Franklin Zoning Code and/or Chapter 300 of the Town of Franklin Subdivision Regulations	

GOALS and NEEDS addressed:

1. Protect local and regional wetlands and water bodies;
2. Maximize groundwater recharge to retain a viable local groundwater supply; and
3. Minimize pollutants in stormwater runoff.

FRANKLIN POLICY: In addition to MassDEP's Stormwater Management Standards, all new development projects in Franklin must meet the following performance measures. All redevelopment projects shall meet the standards and if they fail to meet the standards, shall retrofit or expand existing stormwater management systems to improve existing conditions.

1. Post-development peak discharge rates and volumes from the site shall not exceed pre-development peak discharge rates and volumes from the site.
2. All drainage facilities proposed shall utilize best management practices as outlined in the Massachusetts Stormwater Management Standards.
3. All sites will have an Operation and Maintenance plan to insure future compliance.

Additionally, new development projects must:

1. Retain the volume of runoff equivalent to, or greater than, one (1.0) inch multiplied by the total post-construction impervious surface area on the site AND/OR
2. Remove 90% of the average annual load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site AND 60% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site.

And redevelopment projects must:

1. Retain the volume of runoff equivalent to, or greater than, 0.80 inch multiplied by the total post-construction impervious surface area on the site AND/OR
2. Remove 80% of the average annual post-construction load of Total Suspended Solids (TSS) generated from the total post-construction impervious area on the site AND 50% of the average annual load of Total Phosphorus (TP) generated from the total post-construction impervious surface area on the site.

BEST DEVELOPMENT PRACTICES	Incorporated into Project?
The site plan should be designed to address the following to the maximum extent practicable	
Vegetated swales <i>(recommended to convey runoff from roadways & parking lots)</i>	
Vegetated filter strips <i>(recommended to filter and infiltrate runoff from roadways, parking lots, and driveways; use along roadsides and parking lots)</i>	
Constructed wetlands <i>(preferred method for stormwater retention & pollutant removal)</i>	
Bioretention cells (rain gardens) <i>(recommended on residential lots and parking lot islands)</i>	
Pervious paving surfaces <i>(recommended in overflow parking and low-traffic areas)</i>	
Sediment Forebays <i>(use in combination with other BDP)</i>	
Roof gardens <i>(encouraged on flat or gently sloped commercial and industrial rooftops)</i>	
Retention/Detention basins <i>(may be used in series with other practices to provide pre-treatment)</i>	
Recharge Systems <i>(suitable for all areas of development)</i>	
Drain pipe/catch basin systems <i>(as required to collect runoff when other systems are not practical)</i>	
If utilizing drain pipe and/or catch basin systems, have you documented that other systems are infeasible?	

GOALS and NEEDS addressed:

1. Minimize clearing and regrading
2. Prevent erosion and sedimentation

FRANKLIN POLICIES:

- a) Any proposed project on a previously undeveloped site shall accommodate the development program in a way that minimizes clearing and re-grading, especially in areas of steep slopes, erosion-prone soils, or sensitive vegetation. For redevelopment projects, the site plan shall concentrate development in previously-disturbed areas to the extent possible.
- b) As a condition of approval, every proposed project shall submit and adhere to an erosion control plan that addresses soil stabilization, sediment retention, perimeter protection, construction scheduling, and traffic area stabilization and dust control.
- c) If the proposed project is in an area under conservation jurisdiction, the project will require permitting deemed appropriate by the Conservation Commission.

BEST DEVELOPMENT PRACTICES

The site plan should be designed to address the following to the maximum extent practicable.

Incorporated into Project?

Clearing and re-grading have been minimized

Plan identifies sensitive areas to be protected and areas that are suitable for development

Conservation Permits have been obtained
(when applicable)

The erosion and sedimentation control plan addresses:

- Soil stabilization
 - *(cover or stabilize erodible surfaces not in immediate use)*
- Sediment retention
 - *(runoff interceptors and sediment traps/ponds)*
- Perimeter protection
 - *(vegetated buffers, compost socks or straw wattles at limit of work)*
- Construction scheduling
 - *(minimize disturbed area at any given time)*
- Traffic area stabilization
 - *(crushed rock or similar at construction vehicle entrance and parking areas)*
- Dust control
 - *(plan for stabilizing dry, dust-prone surfaces when necessary)*
- Vegetation
 - *(preserve existing vegetation and/or identify areas to be revegetated including proposed planting species, quantity and planting specifications)*

GOALS and NEEDS addressed:

1. Stabilize water use at a sustainable level;
2. Create landscapes that minimize habitat destruction and maximize habitat value;
3. Encourage the development of landscapes that provide environmental quality and visual relief through the planting of native or naturalized species

FRANKLIN POLICIES:

- a) Site plans and landscape plans for all proposed projects shall take appropriate steps, as outlined in the Guidebook, to minimize water use for irrigation and to allow for natural recharge of groundwater. Landscape plans shall follow the guidelines in the Guidebook for selecting species that are most appropriate to the site conditions.
- b) Native and habitat-creating species shall be used in all landscape plans to the maximum extent possible while still meeting the site’s landscaping needs. Invasive species may not be planted in Franklin under any condition. Refer to the Massachusetts Prohibited Plant list for more information.
- c) Actively promote the Town of Franklin’s Water Conservation Measures.

BEST DEVELOPMENT PRACTICES

Incorporated into Project?

The site plan must address all of the following principles.

Retain and Recharge water on site (<i>install bio-retention cells, vegetated filter strips and minimize lawn areas where feasible</i>)	
Preserve natural vegetation to the maximum extent practicable	
Irrigation system is water efficient (<i>if an in-ground irrigation system is proposed, it is a water efficient system with timers and automatic sensors to prevent overwatering</i>)	
Preserve soil permeability (<i>minimize disturbing existing landscapes. Prepare new planting beds in accordance to the Planting Bed Guidelines on p. 13, and install 1-2” of shredded pine bark mulch on new planting areas</i>)	
Minimize the use of turf grass (<i>when applicable, reduce the size of the lawn area; instead, plant a bio-retention cell, use alternative, drought tolerant groundcover</i>)	
Specify variety of native and naturalized species (<i>species from the plant list have been incorporated into the landscape design, and no invasive species are used. Refer to the Plant Species Section and the Massachusetts Prohibited Plant List</i>)	
Species are appropriate to the soil, site, and microclimate conditions (<i>select appropriate species from the plant list in this guidebook</i>)	

