DRAFT Wildlife and Plant Habitat Technical Bulletin

This guidance is intended to clarify how the Wildlife and Plant Habitat Goal and Objectives of the Regional Policy Plan (RPP) are to be applied and interpreted in Cape Cod Commission Development of Regional Impact (DRI) project review. This technical bulletin presents specific methods by which a project can meet these goals and objectives.

Wildlife and Plant Habitat Goal: To protect, preserve, or restore wildlife and plant habitat to maintain the region's natural diversity.

- **Objective WPH1** – Maintain existing plant and wildlife populations and species diversity
- **Objective WPH 2** – Restore degraded habitats through use of native plant communities
- **Objective WPH 3** – Protect and preserve rare species habitat, vernal pools, 350-foot buffers to vernal pools
- **Objective WPH 4** – Manage invasive species
- **Objective WPH 5** – Promote best management practices to protect wildlife and plant habitat from the adverse impacts of development

The applicability and materiality of these goals and objectives to a project will be determined on a case-by-case basis considering a number of factors including the location, context (as defined by the Placetype of the location), scale, use, and other characteristics of a project.

The Role of Cape Cod Placetypes

The RPP incorporates *a framework for regional land use policies and regulations based on local form and context* as identified through categories of Placetypes found and desired on Cape Cod.

The Placetypes are determined in two ways: some are depicted on a map adopted by the Commission as part of the Technical Guidance for review of DRIs, which may be amended from time to time as land use patterns and regional land use priorities change, and the remainder are determined using the character descriptions set forth in Section 8 of the RPP and the Technical Guidance.

The project context, as defined by the Placetype of the location, provides the lens through which the Commission will review the project under the RPP. Additional detail can be found in the Cape Cod Placetypes section of the Technical Guidance.

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INTRODUCTION

Cape Cod is located within the southern Massachusetts Pine Barrens eco-region. Pine barrens are a globally rare habitat comprised of a unique assemblage of plants and animals that thrive in the nutrient poor soils and variable climate found on Cape Cod. The unique assemblage of plants that are known as Pine Barrens is comprised of an open canopy of pitch pines and a dense understory of scrub oak and huckleberry. There are many natural communities associated with the pine barrens, however, which together populate the matrix of habitats that define the eco-region, including thickets, shrub barrens, heathlands and grasslands, and various pond and wetland habitats. Though the entire natural landscape on Cape Cod was altered following European settlement, there remain pockets of mature woodlands containing beech, hickory, red maple, and birch. These woodlands have supported, and continue to support native species and traditional uses, providing important habitat diversity and value to the region.

Many of the plant and animal species found on Cape Cod are rare or declining in number. Seventy-five species of plants and wildlife are listed by the Massachusetts Natural Heritage and Endangered Species Program as endangered or threatened, and another 57 are special concern species that are declining in number or could easily become threatened. Additional species are on a watch list and could become listed in the future based on further review. Threatened and endangered species that are also on the US Fish and Wildlife Service federal list of threatened and endangered species include the northern long-eared bat, sandplain gerardia, northern right whale, piping plover, and roseate tern.

These species depend on undisturbed and healthy habitats for their survival. The Cape's woodlands provide important upland wildlife and plant habitat. Poorly planned development can harm species by fragmenting large tracts of forest and severing wildlife corridors and other ecological connections. The Cape's wetlands, vernal pools, and ponds also provide vital habitat for diverse rare and endangered species. These areas can be damaged not only by adverse impacts such as pollution and disturbance but also by groundwater withdrawals that can reduce water levels needed to support aquatic and shoreline species.

Accurate information about the nature, location, and extent of sensitive resources can result in improved project site selection and site design. Applicants are encouraged to review available mapped information about sensitive resource areas and areas that are priorities for protection prior to selecting a development location. The Regional Policy Plan relies on several sources of mapped data based on existing natural resources and protected open space presently providing a network of wildlife habitats and corridors across the Cape. A compilation of many of these important resource areas is found in the Natural Areas Placetype Map. In addition, several other maps, including the Commonwealth's BioMap2 Core Habitat and Critical Natural Landscapes and the State's Wildlife Action Plan (SWAP), may provide guidance in selecting preferred locations for development. A list of mapped resources available for planning and regulatory review is available at the end of this technical bulletin. Maintaining wildlife corridors and large patches of existing heterogeneous habitat types is a first step toward maintaining the viability of wildlife habitat on Cape Cod.

Growth management approaches are needed to reduce the amount of land converted to development and to improve the design and performance of new development to ensure

protection of valuable habitat. A renewed commitment to protect the most ecologically sensitive undeveloped lands through land acquisition and other permanent conservation measures is also warranted. Restoration and better land stewardship are needed to improve areas that have already been developed.

Habitats found on Cape Cod

According to the State Wildlife Action Plan (SWAP), Cape Cod is defined by many habitat types: Large and Mid-sized rivers, Marine and Estuarine Habitats, Transition Hardwoods-White Pine Upland Forest, Pitch Pine-Oak Upland Forest, Large Unfragmented Landscape Mosaics, Small Streams, Shrub Swamps, Forested Swamps, Lakes and Ponds, Salt Marsh, Coastal Dunes, Beaches, and Small Islands, Grasslands, Young Forests and Shrublands, Vernal Pools, Coastal Plain Ponds, Peatlands and Associated Habitats, Marshes and Wet Meadows.

Stressors to Habitats on Cape Cod

Habitats on Cape Cod may be adversely impacted or threatened by numerous stressors, including: residential and commercial development, agriculture and aquaculture, energy production and mining, transportation and service corridors, biological resource use, human intrusions and disturbance, natural system modifications, invasive and other problematic species, pollution, as well as other stressors that are beyond the control of the typical applicant (i.e. geological events, climate change and severe weather - from a list adopted by the International Union for the Conservation of Nature, and incorporated into the SWAP). In order to protect the remaining habitat areas on Cape Cod, development introducing or expanding these stressors is discouraged, and is not permitted in certain significant habitats such as vernal pools and their buffers, and rare species habitat. The SWAP contains detailed information on the nature of the impacts these stressors may be expected to exert on each of the habitats on Cape Cod.

SUMMARY OF METHODS

Goal: To protect, preserve, or restore wildlife and plant habitat to maintain the region's natural diversity.

Objective WPH1 - Maintain existing plant and wildlife populations and species diversity

Methods

- Minimize clearing of vegetation and alteration of natural topography.
- Plant native vegetation as needed to enhance or restore wildlife habitat.
- Protect standing specimen trees.
- Minimize fragmentation of wildlife and plant habitat and establish greenways/wildlife corridors to protect edge species and species that inhabit the interior forest.
- Maximize the protection of large, contiguous unfragmented areas, and cluster development away from the most sensitive areas of a site.
- Provide opportunities for safe passage for wildlife through developments to maintain the integrity of wildlife corridors.
- Development, including fencing, should not be constructed so as to interfere with identified wildlife migration corridors.
- Avoid development in Key Sites as defined in the State Wildlife Action Plan, and BioMap2 Core Habitat and Critical Natural Landscapes as defined by the Massachusetts Natural Heritage and Endangered Species Program.

Objective WPH1 Areas of Emphasis by Placetype	
Natural Areas	New clearing is strongly discouraged.
Rural Development Areas	New clearing is minimized, does not conflict with rural character, preserves habitat connections
Suburban Development Areas	New clearing is minimized, preserves habitat connections
Historic Areas	New clearing is minimized, does not conflict with character defining landscape
Maritime Areas	New clearing is minimized, preserves habitat connections
Community Activity Centers	
Industrial Activity Centers	
Military and Transportation Areas	

Objective WPH2 - Restore degraded habitats through use of native plant communities

Methods

- Restore altered or degraded habitat areas where ecologically appropriate (for example, sandplain grasslands, pine barrens, etc.).

Objective WPH3 - Protect and preserve rare species habitat, vernal pools, 350-foot buffers to vernal pools
Methods • Locate development outside of rare species habitat, wetlands, vernal pools and their buffers, and BioMap2 Core Habitat and Critical Natural Landscapes. • Where a project is located within mapped rare species habitat, demonstrate that impacts to rare species have been avoided. Comments from the Natural Heritage and Endangered Species Program may be used to support demonstration that the project does not adversely impact rare species or their habitats. For projects adjacent to a vernal pool: • Locate development outside of certified or certifiable vernal pools. • Provide a 350-foot undisturbed buffer to the vernal pool • Locate new stormwater discharges a minimum of 100 feet from vernal pools.
Objective WPH4 - Manage invasive species
Methods • Where invasive species have been identified on a project site, provide an invasive species management plan that helps to prevent the spread of invasive species on the site. • Use Best Management Practices during construction to avoid introduction of invasive species.
Objective WPH5 - Promote best management practices to protect wildlife and plant habitat from the adverse impacts of development
Methods • Use building envelopes to limit the extent of site alteration and disturbance to the minimum areas needed for the project. • Use erosion control barriers during construction to prevent gullying. • Use fencing to protect plants and wildlife from harm during construction.

DETAILED METHODS FOR MEETING OBJECTIVE WPH1

Objective WPH1: Maintain existing plant and wildlife species populations and habitat diversity.

Natural Resources Inventory

Applications for Developments of Regional Impact that propose to alter undeveloped areas should include a natural resources inventory (NRI) as detailed below (see application materials). The NRI should identify the presence and location of wildlife and plant habitat, including vernal pools, and serve as a guide for the layout of the development.

Resource Areas: Important Bird Areas, ACECs, and DCPCs

In addition to the more broadly distributed significant resources such as rare species habitat and BioMap2 habitats discussed in more detail below, several areas on Cape Cod have been designated as significant for more comprehensive resource protection interests. Applicants should review the mapped boundaries of these resources when planning a development activity, and take appropriate steps to address the resource protection interests of each, if applicable:

Important Bird Areas (IBA) are key sites for the conservation of bird species, identified by a set of internationally-accepted, standardized criteria. The sites are small enough to be conserved in their entirety, often form part of a protected-area network, and typically are different in character or habitat or ornithological importance from the surrounding area. Cape Cod hosts several IBAs, illustrated on the map (link). Applicants should avoid development in these significant habitat areas, or if development cannot be avoided, explain in a narrative how the nature or design of the development will not impact, or will minimize impacts to bird habitat.

Areas of Critical Environmental Concern (ACEC) are defined areas which contain concentrations of highly significant environmental resources and which have been formally designated by the state through a public nomination and review process. Following designation, state agencies, communities, and public and private organizations work to protect, preserve and restore the significant resources in these areas. Regulatory agencies are expected to apply stricter standards of review to development activities within ACECs. Cape Cod hosts eight ACECs from Wellfleet to Bourne. If a DRI is proposed within an ACEC, the applicant should explain in a narrative how the project has been designed to avoid or minimize impacts to the natural resource interests identified in the designation documents of the ACEC. Designation documentation on the eight ACECs is available upon request.

Districts of Critical Planning Concern (DCPC) are areas designated by Barnstable County ordinance through review and recommendation by the Cape Cod Commission. DCPCs may be established for many purposes under the CCC Act, but many of those in place today were designated to protect natural resource interests. Where a DRI may be proposed within a DCPC with natural resource protection interests, the applicant should provide a narrative explaining how the siting or design of the project addresses the interests of the DCPC.

Minimize Clearing and Grading

Developments should be planned to minimize adverse impacts to wildlife and plant habitat, including new land clearing and alteration of topography. Reuse of existing buildings, parking, and other infrastructure is strongly encouraged, and clearing of new land for development should be minimized. Minimizing impacts includes designing the project to minimize the total cleared and disturbed area on a site, clustering buildings, locating infrastructure under, on, or adjacent to buildings and paved areas, and utilizing existing disturbed areas. Locating structured parking under buildings or in a multi-level garage is encouraged. Clearing new land for solar field development is strongly discouraged; however, locating solar panels above parking or on rooftops is strongly encouraged. In addition to the benefits to wildlife and plant habitat, reusing existing building and paved or disturbed areas, as well as "co-locating" uses or infrastructure on a site helps to reduce costs associated with heating and cooling new structures, managing stormwater, and the additional infrastructure costs associated with longer site drives and running utility lines.

Specimen Trees

Whenever possible, standing specimen trees should be protected. Possible exceptions include invasive species, which will be evaluated on a case by case basis. Defining a specimen tree on Cape Cod will vary depending on the species of tree, but typically softwoods greater than 18" dbh and hardwoods greater than 12" dbh are considered specimens. Protecting specimen trees means not disturbing an area equivalent to 10 feet greater than the canopy perimeter, at a minimum, and ideally protecting a larger area around them, including trees which provide buffering to the specimen tree from storms.

Habitat Fragmentation

Projects should be designed to minimize fragmentation of wildlife and plant habitat. Greenfield development in the Natural Areas Placetype is strongly discouraged, especially in Key Sites as identified in the State Wildlife Action Plan and in BioMap2 Core Habitat and Critical Natural Landscapes. Development on parcels that may provide connections to a larger habitat network should be laid out to protect large unfragmented areas, and make connections to undeveloped areas offsite. Where appropriate, greenways and wildlife corridors of sufficient width to benefit edge species and those that inhabit the interior forest should be provided. Wildlife should be provided with opportunities for passage under or across roads and safely through developments where such opportunities will maintain the integrity of wildlife corridors. The Commission may require designation of building envelopes (for structures, driveways, lawns, etc.), where appropriate, to limit removal of vegetation. Fencing should not be constructed so as to interfere with identified wildlife migration corridors. See references below for additional guidance on site and subdivision design layout.

DETAILED METHODS FOR MEETING OBJECTIVE WPH2

Objective WPH2: Restore degraded habitats through use of native plant communities

Habitat Restoration

Opportunities to restore native habitat communities that are found within the Southeastern Massachusetts pine barrens eco-region are encouraged. According to the State Wildlife Action Plan (SWAP), Cape Cod hosts many distinct habitat types that together comprise the pine barrens ecoregion: Habitats such as Pitch Pine-Oak Upland Forest, Shrub Swamps, Lakes and Ponds, Salt Marsh, Coastal Dunes, Beaches, and Small Islands, Grasslands, Vernal Pools, and Coastal Plain Ponds are some of the habitats that create the vibrant landscape mosaic of Cape Cod.

Efforts to restore the natural habitats found within the region with native vegetation is strongly encouraged. Restoration projects or development projects, including "undevelopment", with a habitat restoration component should provide a plan detailing the nature of the restoration, including grading changes, native species to be planted (including types, sizes, quantities), plans to ensure establishment (irrigation and/or invasive species management), a narrative discussing the purpose and objectives of the restoration, and monitoring as needed.

DETAILED METHODS FOR MEETING OBJECTIVE WPH3

Objective WPH3: Protect and preserve rare species habitat, vernal pools, 350-foot buffers to vernal pools

Rare Species

Where development is proposed within mapped state or federal rare species habitat areas, the proponent should submit the development proposal to the Massachusetts Natural Heritage and Endangered Species Program (NHESP) for review and comment. As a matter of practice, development that would adversely affect habitat of local populations of rare wildlife and plants is not permitted. However, development in mapped rare species habitat may be allowed if the NHESP provides written comment that the work will not adversely affect rare species (or not result in a "take").

Development which NHESP determines may result in a "take" of state listed species may be permitted where the proponent can demonstrate that such development will not adversely affect rare species habitat. An applicant may be able to address a determination of take or likely take through redesign of the project, utilizing best management practices during construction, timing of construction activities, or occasionally through mitigation. Only through a determination by NHESP will mitigation be allowed to address impacts to rare species. In those cases, a wildlife and plant habitat management plan may be required as a condition of approval when development or redevelopment is permitted in rare species habitat areas.

Vernal Pools

Vernal pools are ephemeral pools of water that typically appear in the spring with winter snowmelt and spring rains, and often (but not always) disappear by summer's end. They are not

resources protected under the state Wetlands Protection Act, but they are recognized as a significant habitat and are protected under the RPP. NRIs should identify vernal pools that may be present on a site according to the criteria established by the Natural Heritage and Endangered Species Program (see reference below and details in NRI).Where a project site is located adjacent to a vernal pool, including pools that include the criteria for certification as a vernal pool, development must be located outside of a 350-foot undisturbed buffer around these resources in order to protect both the pool habitat as well as the important upland habitat around them. Studies have demonstrated that vernal pool species, which spend most of their yearly lifecycles in upland vegetated buffers outside of the pool, may migrate up to 1,000 feet to breed in the temporary pools. Additionally, new stormwater discharges should be located a minimum of 100 feet from vernal pools in order to protect these resources from the adverse effects of sedimentation, nutrient inputs, or significant changes in water level or water period.

DETAILED METHODS FOR MEETING OBJECTIVE WPH4

Objective WPH4: Manage invasive species

Invasive Species

Development on sites where a NRI identifies the presence of invasive plant species should provide and implement a management and restoration plan detailing the management of, and where possible, the eradication of the invasive species present, and the proposed revegetation of the site with native species. Where significant or sensitive wildlife or plant habitat is threatened, the invasive species management plan should strive to eradicate or reduce the threat to those sensitive species. A current listing of invasive species can be found on the web at www.massnrc.org/mipag/invasive.htm .

Development activities permitted by the Commission should also take steps to avoid introducing invasive species to a development site during construction through use of best management practices. Construction vehicles should be washed prior to initiating work on the project site, and should be inspected and/or washed periodically during construction.

DETAILED METHODS FOR MEETING OBJECTIVE WPH5

Objective WPH5: Promote best management practices to protect wildlife and plant habitat from the adverse impacts of development

Protect Habitat from Development Impacts

In general, development on Cape Cod is strongly encouraged to retain as much of the natural vegetation as possible. As discussed elsewhere (above, and in the Community Design technical guidance), development should be clustered on a site to use land as efficiently as possible, minimize impervious surfaces and minimize impacts to native vegetation and habitats. Construction fencing and/or building envelopes may be employed to limit disturbance to existing trees, shrubs, and groundcovers. Building envelopes will typically reduce restoration and other mitigation costs, and help retain native forested and other vegetative covers to protect the services these natural materials provide in filtering nutrients and stormwater, improving air

quality, and providing shade and wildlife habitat. Building envelopes established in a property deed can ensure that impacts from development are not expanded and that these natural services are protected over the long term. The Commission may require the use of building envelopes where sensitive habitats or resources are present.

Erosion control barriers should be used anywhere that slopes or proximity to wetlands or other sensitive resources are present to ensure that the impacts from construction are managed within the construction site. In longer-term construction projects where unvegetated soils may be present through several seasons, seeding and/or erosion control blankets should be employed to manage loss of soils off-site and prevent gullying.

Construction activities can also pose direct threats to wildlife. Where turtles or other slow or sensitive wildlife species may be present (such as vernal pool species or amphibians), construction fencing should be employed to redirect wildlife away from the construction site.

APPLICATION MATERIALS

Applicants should provide the following materials to address consistency with the Wildlife and Plant Habitat Goal and Objectives.

- Prepare a Natural Resources Inventory (NRI) (see guidance below)
- Where a project is located within mapped rare species habitat, provide documentation indicating review by the Massachusetts Natural Heritage and Endangered Species Program.
- Where a NRI indicates the presence of invasive species, provide an Invasive Species Management Plan (see guidance below).

DEFINITIONS

Vernal Pools – a vernal pool is a wildlife habitat that supports standing water for a period of time from spring into summer and which provides habitat for vernal pool species. For the purposes of DRI review, vernal pools include both those sites which have been certified by the Natural Heritage and Endangered Species Program, and those sites which have the characteristics that make them certifiable by the NHESP. Maps of certified vernal pools and potential vernal pools are available on the Commission's Resource Data Portal (link).

"**Take**" is defined under the Massachusetts Endangered Species Act as the following:

In reference to animals, it means to harass, harm, pursue, hunt, shoot, hound, kill, trap, capture, collect, process, disrupt the nesting, breeding, feeding or migratory activity or attempt to engage in any such conduct, or to assist such conduct,

And in reference to plants, means to collect, pick, kill, transplant, cut or process or attempt to engage or to assist in any such conduct. Disruption of nesting, breeding, feeding or migratory activity may result from, but is not limited to, the modification, degradation or destruction of habitat.

RESOURCES AND REFERENCES

See also the Wetlands, Open Space, and Community Design Technical Bulletins

Regional Policy Plan Data Viewer

Vernal Pool Information

The Natural Heritage and Endangered Species Program certifies vernal pools and has established criteria for their certification. Information may be found here: https://www.mass.gov/service-details/vernal-pool-certification

Rare Species

Information on rare species, including current list of state listed species, forms requesting state review and comment, and other pertinent resources may be found at the Natural Heritage and Endangered Species Program website https://www.mass.gov/orgs/masswildlifes-natural-heritage-endangered-species-program

State Wildlife Action Plan

The 2015 update to the Massachusetts State Wildlife Action Plan (SWAP) can be found at this link https://www.mass.gov/service-details/state-wildlife-action-plan-swap

Key sites, as defined by the SWAP and referenced in this technical guidance, may be found in Chapter 4 of the SWAP, starting on page 351.

Site and subdivision design

See the Community Design Technical Bulletin.

Rural by Design, or Conservation Subdivision Design, both by Randall Arendt, provide detailed guidance about layout of new development in greenfield sites, designed to minimize impacts to habitat and views of significant landscapes.

Natural Resources Inventory

Once a site has been selected, applicants for DRI review should prepare a natural resources inventory (NRI) to evaluate the site in more detail. Contents of a NRI should include:

Soils

• Describe soils underlying the development site. Where the Barnstable County Soil Survey indicates the presence of prime agricultural soils, the development site should be surveyed and mapped based on results of field testing.

Vegetation

• Describe the major upland vegetational communities located on the site, include canopy/trees, shrub layer, low ground cover, herbaceous vegetation. Note approximate depth of leaf litter, and size and height of mature trees. Note locations of specimen trees. If several different zones of

vegetation or natural/vegetational communities are present on the site, note the location of these areas on a site plan (suggested scale: 1"=40').

• Identify and delineate wetlands, waterbodies, banks, dunes, flats, and floodplain areas located on the site. Describe the major vegetational communities located in these areas as above. Note whether wetland delineations have been verified by the town conservation commission.

• Note the relative abundance or scarcity of vegetational community(ies) identified on the site in areas immediately surrounding the development site. In particular, note nearby areas of similar unfragmented habitat. Identify vegetational communities that are unique to the development site.

• Identify and delineate the presence of any state listed invasive species

Wildlife

• Identify wildlife species and evidence of wildlife observed in each vegetational community. Search for amphibians and reptiles under rocks and fallen logs. Identification/observations may include sightings of animal species, identification of species from calls/sounds, tracks, scat, burrows, browse marks, nests, feathers, bone fragments, etc. At least two field visits for the purpose of wildlife identification should be made. Such field visits should occur within one hour of sunrise and within one hour of sunset during good weather.

• Identify presence of wildlife migration areas and corridors, denning, nesting and breeding areas, and deer yards and travel corridors.

• Note presence of snags and significant dead vegetation that may serve as nesting sites for bird species.

• Note presence of fish, amphibians and other species associated with wetlands and waterbodies located on the site.

Vernal Pools

• Note presence of kettle hole depressions and other areas that may function as vernal pools (regardless of association with other wetland area or state certification). If such areas exist, note presence/evidence of vernal pool species. Refer to the state vernal pool certification guidelines for identification of vernal pools. When possible, vernal pool surveys should be conducted during April, May and June.

Natural Resource Inventory Narrative

The results of the inventory should be provided in a report format and on plans, as appropriate, and should include a discussion of the short and long-term impacts to existing habitats and natural communities that will result from the development activity. The narrative should discuss how the project's design has minimized impacts to the habitats present, including habitat fragmentation. The narrative should also include a description of any proposed mitigation measures that are specifically intended to reduce the impact of the proposed project upon plant

and wildlife habitat and/or populations. Include any measures designed to enhance existing plant and wildlife habitat that would provide an overall benefit to the area. Include details on best management practices to be employed during construction to avoid gullying and other effects of erosion, and to avoid the introduction of invasive species (see Detailed Methods for Meeting Objectives WPH4 and WPH5). Where appropriate, describe any revegetation and restoration that is planned after development and associated monitoring. Revegetation should emphasize plant species indigenous to Cape Cod.

In addition to the maps referenced (above/below) several resources may be useful in preparing the NRI. These may include:

- mapping of rare species habitat by the Natural Heritage and Endangered Species Program (NHESP),
- BioMap2 Core Habitat and Critical Natural Communities by NHESP
- Massachusetts State Wildlife Action Plan (SWAP), 2015
- Barnstable County Soil Survey, Prime Agricultural soils mapping
- Aerial photography
- DEP Wetlands layer
- FEMA flood zones
- Areas of Critical Environmental Concern (ACEC), maps and designation narrative
- Districts of Critical Planning Concern (DCPC), maps and designation narrative
- Coastal Zone Management Shoreline Change maps
- Natural Areas Placetype Map, Cape Cod Commission
- Important Bird Area maps

Invasive Species Inventory and Management Plan

Projects proposing to alter undeveloped areas should provide an inventory of invasive species on the proposed site. These inventories should include the percent cover of each species and should delineate each species on a site map. Invasive plants should be identified by genus and species names. Where identified state-listed rare or endangered species are present on a project site, a detailed narrative discussing potential threats to the endangered species from the more aggressive and/or successful invasive species should be provided. This narrative should also address potential problems associated with managing invasive species in proximity to endangered species or in ecologically sensitive areas.

Potential Impact of Invasive Plant Species

The management plan should describe:

• how the invasive plants could be expected to spread if left unmanaged in an undeveloped area and the impacts (if any) to the surrounding plant and wildlife community.

• how the invasive plants could be expected to spread if left unmanaged after the proposed development was constructed.

• alternative management options for the invasive plants on site. These options should include examples of mechanical, chemical, and biological control with a full explanation of any potential adverse effects from control measures.

Development of a Preferred Management Plan

A preferred management plan should use a strategy that best manages the invasive species on site with the minimum adverse impacts from control measures. Wherever possible, the goal of the management plan should be to eradicate the species from the site. Mechanical control, such as cutting or pulling, generally has the least adverse impacts, however, it is not effective on some deciduous woody plant species. Chemical control methods are discouraged, except in situations where chemical management would reduce adverse impacts on the environment. When chemical control is the only viable option, modest applications to cut stems or frill cuts are recommended. Foliar spraying is strongly discouraged because of the negative impact to non-target plant and animal species. Biological control, or use of living organisms as a control agent, has been proven effective on some species. However, only well tested, scientifically documented biological control agents should be considered. The goal of biological control strategies should not be to eradicate the species, because if the target species is eradicated, the biological control agent often moves to a non-target species. Where plant removal is proposed, an alternative planting plan, using plants native to the region, should be provided.

Staff is available to consult with applicants to determine the best management plan for invasive species. A variety of information which may assist in developing management plans is available on-line. Suggested website: http://www.mdflora.org/publications/invasives.htm#control

The Massachusetts Invasive Plant List may be found at: https://www.mass.gov/service-details/invasive-plants