PLEASANT BAY ALLIANCE

Memorandum

To: Board of Selectmen
Fr: Carole Ridley
Date: February 15, 2012
Re: Fertilizer Management Plan Implementation Update: Recommended Policy to Reduce Nutrients in Municipal Turf Management

The purpose of this memo is to review the status of the *Pleasant Bay Alliance Fertilizer Management Plan* (Horsley Witten, 2011) and to introduce the first implementation measure, the attached *Municipal Policy to Reduce Nutrients in Municipal Turf Management*. The Pleasant Bay Alliance is recommending that the Board of Selectmen adopt the recommended policy.

Background

Last year, the *Pleasant Bay Watershed Fertilizer Management Plan* was presented to the Boards of Selectmen in each Alliance town, and at a public forum attended by local officials, turf management professionals and interested citizens. An executive summary of the plan is attached, and the full plan is available on the Alliance's website, www.pleasantbay.org.

The plan builds on the Massachusetts Estuary Project findings that nitrogen from fertilizers account for 15% of watershed-based or controllable nitrogen load. Reductions in this source of watershed nitrogen load could reduce nitrogen loading into Pleasant Bay and augment wastewater planning efforts in each Alliance town. To that end, the plan recommends three measures that have a combined potential to reduce existing controllable nitrogen load from fertilizers by approximately 5%. These steps are:

1. To implement best management practices for municipal turf management. This first step, to be implemented through the attached recommended policy, would result in a small reduction in load (.2%). However, this was identified as a vital step because it demonstrates local commitment to fertilizer controls and establishes a firm foundation for public education and outreach to other fertilizer user groups;
2. To work with golf courses in the watershed to achieve a targeted nitrogen reduction. This step could achieve the largest load reduction (3.5%) and will be the focus of the Alliance on-going implementation efforts;
3. To coordinate with other groups in the region in undertaking public education efforts aimed at reducing fertilizer use. This on-going step, which could result in a

1.5% reduction in load, was initiated last March with a public forum on alternative land care practices hosted by the Alliance, in coordination with the Chatham and Orleans Conservation Commissions, Orleans Ponds Coalition, Friends of Pleasant Bay and Friends of Chatham Waterways in 2011.

In addition, the plan recommends continued enforcement of "no disturb buffers", which are implemented through local Conservation Commission regulations, and increased turf management training courses. Regarding turf training, the Alliance has been in touch with the Northeast Organic Farming Association and other regional organizations to explore future training options.

In addition to the measures outlined above which are focused on the reduction of existing nitrogen load, the plan identifies a step aimed at reducing future nitrogen load by limiting the size of lawns for future lots created in the watershed. This step has the potential to reduce nitrogen load by 1.3%.

Implementation of the Recommended Policy

The recommended municipal policy is the first implementation measure recommended in the fertilizer management plan. Over the past several months the Alliance's Watershed Work Group has met with municipal turf managers in the Alliance towns and experts from the Cape Cod Cooperative Extension Service, to discuss the optimal approach to implementing best management practices for town use. The recommended municipal policy is the result of these discussions. The policy provides best management practices aimed at reducing the amount of nitrogen resulting from municipal fertilizer use on town properties. Highlights include:

- Applies to athletic fields; playgrounds (including those on school property); Grounds of town buildings; memorial squares; parks; town greens; cemeteries; and conservation areas. This is not intended to apply to golf courses due to their unique management challenges. As noted above, golf courses will be addressed separately;
- Provides flexible treatment of turf areas based on nature and intensity of use
- Encourages incremental adoption of alternatives to traditional synthetic fertilizer programs;
- Is proposed to apply town-wide, since the effects of nitrogen documented for Pleasant Bay are similar to those documented for other regional embayments.

We respectfully request that the Board vote to adopt this policy and forward to all personnel involved in managing the town properties listed above. We are available to answer any questions the Board may have concerning the policy, and request that you keep us apprised of any action taken.

I. Purpose

The purpose of this policy is to codify practices the Town of [name] will use to reduce or eliminate nutrient loading from the application of fertilizers on town-owned properties by Town employees or private contractors of the Town.

II. Background

The Massachusetts Estuaries Project (MEP) found that fertilizers account for 15.4% of controllable nitrogen load in the Pleasant Bay watershed. Comparable nitrogen loading rates from fertilizers are reported by MEP in other estuarine watersheds. Excessive nitrogen from fertilizers and other watershed sources leads to eutrophication of marine embayments. Other studies have demonstrated that phosphorous from fertilizers can lead to eutrophication in freshwater ponds.

The Pleasant Bay Alliance towns of Orleans, Harwich, Chatham and Brewster are seeking to reduce the share of the watershed nitrogen load resulting from fertilizers as part of nutrient management planning. Reductions in nitrogen loads from fertilizer use is one part of a comprehensive wastewater management strategy and, if successful, could potentially reduce infrastructure costs in future phases of wastewater management implementation.

The Pleasant Bay Fertilizer Management Plan (Horsley Witten Group, 2010) finds that the largest contributors of nitrogen from fertilizer use in the Pleasant Bay watershed are golf courses and residential lawns, which account for 8.3% and 6.8% of controllable watershed load respectively. The Towns, in conjunction with the Pleasant Bay Alliance, will be working with golf courses managers, residents and lawn care professionals to reduce nutrients from fertilizer use from those sources.

The Fertilizer Management Plan recommends adoption of a policy to reduce nutrient impacts from fertilizer use on municipal properties in the Pleasant Bay watershed. Though this Plan addresses Pleasant Bay, fertilizer use is a comparably important source of nitrogen in all estuarine watersheds. Therefore, this policy is proposed town-wide.

Town seeks to demonstrate its commitment to reducing nutrient loading from fertilizer use by adopting this policy. The benefits of a town-wide policy to reduce the use of fertilizers on municipal properties include:

- Setting a positive example for other fertilizer user groups;
- Demonstrating that town greens and fields can be maintained without excessive fertilizers; and
- Potentially reducing long-term municipal costs by reducing fertilizer use/purchase.

III. Identification of Town Properties

Golf courses, because of their unique use and management requirements, are addressed separately.

This policy applies to all turf and green spaces owned and managed by the Town or by contractors on behalf of the Town including, but not limited to:

- Athletic fields;
- Playgrounds (including those on school property);
- Grounds of town buildings;
- Memorial squares;
- Parks;
- Town Greens;
- Cemeteries; and
- Conservation areas.

IV. Practices for Turf Management

The Town hereby agrees to adopt the following best management practices and to require adherence to the practices by any employee or private contractors working on behalf of the Town.

1. Soil Testing

For any property that is managed with water and/or fertilizer, the Town agrees to conduct soil testing and analysis on a biennial or regular basis. Results of the soil analysis shall be used to enhance soil biology in order to reduce the need for fertilizers or herb/pest control products.

2. Soil Biology

The spreading of composted soil or of microbial products such as compost tea or beneficial nematodes is strongly encouraged as a means of enhancing soil biology.

3. Top Soil and Site Preparation

Any new turf areas developed by the Town should be developed with a minimum of 6 inches of high quality top soil, or in accordance with other professional standards appropriate to the type and planned use of the facility.

4. Grass Type

Whenever possible, hardy and drought resistant grass types such as fine leaf fescues (ie., Hard, Chewing, Creeping, Red and Sheep fescues) or minimal mow mixes should be selected so as to minimize the need for watering, mowing or fertilizing. These grass types also should be used when over-seeding established turf areas. Areas intended for special purposes such as athletic fields should use such a grass type appropriate for the intended type and intensity of use.

5. Maintenance Practices

For any property that is managed with water and/or fertilizer the following maintenance practices should be followed:

- Turf areas should be mechanically aerated annually, preferably in the spring;

- Over-seeding of turf areas should be undertaken every spring or fall. Hardy and drought resistant grass types such as fine leaf fescues (ie., Hard, Chewing, Creeping, Red and Sheep fescues) and minimal mow mixes should be used for over seeding unless an alternate grass type is required for an athletic field;
- Turf should be mowed to a height of 3 inches unless otherwise specified for a special use such as an athletic field;
- Mowed clippings should not be bagged and should be left to mulch.

6. Irrigation

Watering should only be undertaken if necessary. If possible, sprinkler systems should be designed to use on site wells instead of potable water supply. Irrigation systems should be equipped with rain, moisture, or evapotranspiration sensors, as appropriate.

7. Fertilizer Application

For any property that is managed with water and/or fertilizer the following fertilizer application practices should be followed:

- To the extent possible, only fertilizers with slow release/slowly soluble organic forms of nitrogen should be used. Fertilizer should be applied in the minimum amount needed for healthy plant growth appropriate to the type and intensity of use of the field or turf area;
- Use of compost and compost teas is highly recommended if required equipment is accessible;
- Fertilizer products should have a minimum of 35% water insoluble nitrogen;
- Fertilizer products containing phosphorous should only be used if required in accordance with the results of a recent soil analysis;
- Fertilizers should be applied to benefit the spring and fall heavy growth periods; Fertilizers should not be applied after October 31st or before April 15th unless required in accordance with the requirements of athletic fields or the results of a soil analysis.

8. Record Keeping

Record should be kept of turf management practices and applications (ie., amount and frequency of application, nutrient content) for all fields and turf areas that are managed with irrigation and/or fertilizer.

9. Training

Municipal personnel and contractors involved in turf management are encouraged to attend regular training on techniques and best practices associated with organic turf management.