PUBLIC WORKS DEPARTMENT

ROADS-STORMWATER DIVISION

MEMORANDUM

DATE: October 11, 2006

TO: Cindy Coto, County Manager
Kathy Moore, MSBU Program Manager

FROM: Gloria Eby, Senior Environmental Scientist

RE: Spring Lake Management Plan

On September 27, 2006, Dean G. Barber (Florida Department of Environmental Protection) Gloria Eby (Seminole County) and Travis Conaway (Florida Fish and Wildlife Conservation Commission) surveyed the aquatic plants in Spring Lake. Based on the afternoon observations, Hydrilla was present to a depth of 11 feet covering approximately 80% of the lake. In competition with Hydrilla was eelgrass (a beneficial native aquatic plant), and it was estimated that 20% of the lake was in competition with Hydrilla. Other submersed aquatic vegetation noted during survey (all of which are native): *Nitella*, Baby tears (*Micranthemum glomeratum*), and Southern naiad (*Najas guadalupensis*).

Secchi reading was taken subsequent of the survey and measured 3.8 ft. Historically, Spring Lake secchi readings have averaged 1.5 feet. This increase in secchi depth values (higher clarity) shows that nutrient assimilation (or uptake) is occurring through plant biomass activity. It is important for the lake management approach be conducive to balancing Spring Lake when reducing exotic plant biomass by preserving the native plant biomass to further aid in nutrient uptake.

Recommendations:

1) Hydrilla- Using Endothol product, could be either Aquathol Super K (granular) or Aquathol K (liquid), to 11 ft depth which is approximately 60% treatment. It was recommended that treatment be conducted during the fall months.

2) Integration- Using triploid grass carp as a long term management concept integrated with herbicide treatments. Using grass carp to manage hydrilla through a longer period will decrease the chance that too much aquatic plant biomass is removed to quickly, thus preventing an algae bloom. An algae bloom can reduce light getting to submersed plants, killing more aquatic vegetation than wanted which may cause the lake to stay green for an extended period of time (months, years). Stocking should be during winter months to reduce mortality.

Travis Conaway stated that the stocking rate of carp would be contingent on his re-inspection to determine the success of initial herbicide treatment and estimated a rate of 2-4 fish per acre.

3) **Improve Shoreline Area-** Spring Lake has a large amount of exotic shoreline emergent vegetation, in particular Torpedo grass. A whole lake management plan should also include the cost to chemically treat torpedo grass, Chinese tallow, Brazilian pepper and elephant ear and replant with beneficial natives (such as pickerel weed, duck potato, spikerush, etc.). If herbicides are used (recommended), then a whole lake permit would be required to manage this species over the entire lake through Florida Department of Environmental Protection Bureau of Invasive Plant Management (see #5).

4) **Continue Spring Lake Association Meetings-** Elect a Board of Directors and/or officers, having meetings at the frequency that is necessary, monthly, quarterly or annually. Frequency could be dependent on the type of problem. Considering establishing documents for the association. Invite guest speakers to talk the group about the watershed and best management practices that can aid in the reduction of nutrient runoff. In addition, as Dean stated, each year The Association should have an annual meeting of all the owners around the lake, inviting the agencies (FDEP, FFWCC, County, and City). They will again survey the lake and make up to date recommendations. Part of the recommendations will be whether to add more grass carp or any herbicide management. This will help insure that the grass carp level can be balanced to control the submersed vegetation insuring the success of your long term management plan.

5) **Whole Lake Permit-** Issuing one FDEP aquatic plant control permit, in accordance with Florida Administrative Code 62C-20 and FL Statues Chapter 369.20 & 369.22, to the lake association for management of the aquatic plants for both the lake and lake front owners. Herbicide treatment of the hydrilla would be permitted with this permit. This would put all lake front owners in compliance with this FDEP requirement based on the above FAC and Statues. Contact either Dean Barber or Amy Giannotti (407-275-4004) for more information.

6) **MSBU** - Decide whether to establish an MSBU with the county (recommended) or informally collect funds among the residents to manage the lake.

Approximate Costs:

Endothol approximately $500/acre treating 60% of 88 acres totaling $27,000.00 plus application costs $35,000.00. It was recommended to test product concentration requirements via Fast Test totaling $1,500.00.

Grass carp cost approximately $12.00 per fish plus stocking/transportation fees of $150.00. This does not include costs for potential existing carp barrier repairs necessary for FFWCC permit compliance.

Shoreline treatments should be quoted on a monthly/quarterly application basis. Costs can range from $500-$5000 per treatment dependent on company rates.

Above estimated costs represent initial treatment. Subsequent herbicide treatments may be required and would need to be re-surveyed to develop realistic estimates. The subsequent treatments, however, would cost less.

Cc: Dean Barber, FDEP
Travis Connaway, FFWCC
Vanessa Cruz, City of Altamonte Springs
Amy Giannotti, FDEP
Kim Ornberg, P.E., Water Quality Section Manager
Mr. & Mrs. Vogel, Spring Valley Club Homeowner