MINUTES OF MEETING
GRAND HAVEN
COMMUNITY DEVELOPMENT DISTRICT

A Community Workshop of the Grand Haven Community Development District's Board of Supervisors was held on **Thursday, March 4, 2010** at **1:00 p.m.,** in the **Grand Haven Room, Grand Haven Village Center, 2001 Waterside Parkway, Palm Coast, Florida 32137**.

Present at the meeting and constituting a quorum were:

Peter Chiodo	Chairman
Charles Trautwein	Vice Chairman
Dennis Cross	Assistant Secretary
Samuel Halley	Assistant Secretary
Dr. Stephen Davidson	Assistant Secretary

Also present were:

Craig Wrathell	Wrathell, Hunt & Associates, LLC
Doug Paton	Wrathell, Hunt & Associates, LLC
Barry Kloptosky	Operations Manager
Howard McGaffney	Amenity Center Manager
Roy Deary	AMG
Mark Clark	Pond Project Planning
Josh Wells	Austin Outdoor
Al Lomanico	Resident
Jim Cook	Resident
Dave Reisman	Resident
Chip Howder	Resident
Frank Benham	Resident
Peyton Fonas	Resident
Shelly Chapman	Resident
Sue Howder	Resident
Otti Bohnweller	Resident
Mary Jaeta	Resident
Tom Lawrence	Resident
Gary Noble	Resident
Ann Leal	Resident
Ricki Leal	Resident
David Cottrell	Resident

FIRST ORDER OF BUSINESS **Call to Order/Roll Call**

The meeting was called to order at 1:02 p.m. Mr. Wrathell called the roll, noting, for the record, that all Supervisors were present.

SECOND ORDER OF BUSINESS **Pledge of Allegiance**

All present recited the Pledge of Allegiance.

THIRD ORDER OF BUSINESS **Continued Discussion: Emergency Planning Committee *(deferred from February 18, 2010 Regular Meeting)***

Supervisor Davidson introduced Chip and Sue Howder to provide an update on the Emergency Planning Committee. He outlined that the group created a list of community hazards, which were separated based on likelihood and impact to the community. He advised that the Committee's next meeting is March 24th and the members are beginning to gather facts. The long-term plan is to develop a comprehensive hazard assessment, including the action needed by the community and present a final report to the Board. He discussed the high priority hazards, including fire and hurricane. Supervisor Chiodo requested an interim report be provided at a future Workshop. Discussion ensued on spending District funds.

Supervisor Davidson stated the creation of another ad hoc committee seemed redundant and the Board concurred.

Supervisor Davidson stated that a Firewise Workshop was held, recognizing Grand Haven as a Firewise Community. He summarized that the advantages include possible funding from FEMA and reduction in insurance costs. He noted there are not many Firewise Communities in Florida. Discussion ensued on the placement of Firewise signs in the community.

Mr. Kloptosky discussed various sinkholes throughout the community, including one (1) located behind 42 Eastlake. He anticipated higher expenses due to issues with the stormwater drain pipe. Mr. Kloptosky discussed the log of stormwater outfalls, as many are cracking and will need future work. He discussed maintenance issues, including road paving and security cameras. Supervisor Cross asked for assurance that the new security cameras meet the Board's established criteria, including being able to see the license plate number, during the day or night,

and the picture is able to be retrieved from the system. Mr. Kloptosky provided an update on the Marlin Drive Pump House situation, including the receipt of the go-ahead from the insurance company. He anticipated being able to turn off the temporary generator within a day and have two (2) of the four (4) pumps up and running.

Supervisor Chiodo explained that he was approached by Preferred Management Services (PMS) regarding stormwater fees being charged by the City of Palm Coast. He discussed a movement in Flagler County to dispute the stormwater fee for communities maintaining their own systems. The Board discussed past experiences of communities challenging the City of Palm Coast's water fees. Supervisor Chiodo stated the City of Palm Coast is drafting a new ordinance regarding the way the charges are applied. Mr. Wrathell recalled a case in St. Lucie County where the city did not hold a public hearing in accordance with a state statute. Supervisor Chiodo stated District Counsel has been informed. Discussion ensued on the stormwater billing with the city and PMS.

FOURTH ORDER OF BUSINESS **Presentation/Report from Dr. Mark Clark, Pond Project Planning**

- **PART I: Effects of Grand Haven Stormwater Pond Alternative Treatment Practices**

Supervisor Cross' Questions

- **Which of the 4 pond treatment methods was the most effective in controlling algae?**
- **Which of the 4 pond treatment methods was the least effective in controlling algae?**
- **Which of the 4 pond treatment methods was the most cost effective?**
- **Which of the 4 pond treatment methods was the least cost effective?**
- **What are the water quality standards for stormwater discharge into a state or federal waterway?**
- **What are the water quality sample readings for each stormwater discharge point into the ICW at Grand Haven?**
- **What are the projected annual maintenance costs for each of the 4 treatment methods on a per pond basis?**

Supervisor Chiodo's Questions

- **I would like to see specific statistics on each of the test ponds that will provide the Board information that will answer whether that particular test**

was successful or not. Photographs of the ponds at various points during the trial would also be very helpful.

- **Should the Board extend the trial(s) and, if so, what should be tested and for how long?**
- **Should the Board eliminate the remainder of the plantings along the bulkhead of Pond #6? Is there benefit to continue to leave the plantings there in that pond and for how long?**
- **Can we rule out any of the ideas that we trialed in any of the ponds based on the data?**
- **If Dr. Clark thinks we should continue the trial in any way, he should be prepared to give us an estimate of the costs to continue the trial.**

Supervisor Davidson's Questions

- **What positive and negative benefits have each of the treatment modalities provided?**
- **Are combinations of treatment modalities recommended?**
- **What other alternative treatment modalities are recommended for trial/study?**
- **What are the recommendations as to continuation/alteration/ or cessation of the study?**

Supervisor Davidson thanked residents for their time and dedication to the pond project. Mr. Wrathell noted that this meeting is a Workshop and the Board will not take any action.

Dr. Clark provided his report in two (2) parts. Part II provides extensive detail on the findings and a proposal of what to do next. He summarized the symposium held over two (2) years ago, in which the Board considered three (3) pond treatment tactics. He noted the control, standard treatment was the conventional treatment of copper sulfate. An alternative treatment was aeration with microbes and was applied to three (3) ponds. The second alternative treatment was littoral shelf planting (LSP), which involves integrating wetland plants within the edge of a pond that can support submerged aquatic vegetation (SAV). The ponds were selected because they had few young carp and the participating ponds were not restocked, in order to prevent the plant life from being consumed by the carp. Dr. Clark explained the selection of the ponds was based on ponds receiving the highest number of copper sulfate treatments between 2006 and 2008; believing that those ponds with the most treatments, probably had the most problems. A total of 12 ponds were tested in the study; each treatment was applied to three (3) ponds. The monitoring method for pond activity included monthly samples taken between August 13th and January 15th, excluding November. The samples compiled by volunteers were on-site

observations, such as water clarity and aquatic life assessment and were measured on scales from 1 to 10. The water sample was collected, beyond the vegetation, with the use of a bottle and is analyzed for various chemicals, including nitrate, nitrite and phosphorous. In addition to the direct observations, photographs were taken with the monthly samples. He discussed the analysis of underwater photos and the determination of open water. He summarized a color clarity index used to measure the water and provided examples of the ratings. He noted that after the August sampling, two (2) of the three (3) SAV ponds were excluded from the study because their SAV was excessive and the traditional treatments resumed. He discussed the progress of ponds from sample to sample. He discussed the classification of SAV and the clarity index. There was significantly less, floating, SAV in the copper sulfate treatment than the aeration; the littoral shelf planting did not have a significant difference. The submerged, SAV was significantly less in the copper sulfate treatment, as compared to the littoral shelf planting. He presented information regarding aquatic life presence in the ponds; noting that the copper sulfate treated ponds had significantly lower amounts than the littoral shelf planting. He noted that littoral shelf planting and aeration ponds had significantly higher numbers of small fish than the control ponds. A significant difference was not found between the treatments as it pertains to reptiles, amphibians and birds. Dr. Clark discussed the water quality measurements; a total of 45 water samples were taken over the months. Ponds treated with copper sulfate had a significantly higher amount of total nitrogen in the water than ponds treated with aeration or littoral shelf planting. He clarified that water clarity improved with littoral shelf planting. He provided ratios of the amount of total nitrogen to the total amount of phosphorous and explained the gradient is inverted. Discussion was held on the good and bad algae. Dr. Clark stated when the ratio of the available nitrogen to the available phosphorous is below 20, the harmful, blue-green algae is promoted.

Dr. Clark summarized the cost for the duration of the study, including corrective action and noted all of the ponds required corrective action throughout the study. He discussed the SAV costs were due to required corrective treatment. He provided an annual, estimated cost to continually implement each treatment process. He noted the cost for microbes was based on a per-acre basis. He summarized the positive and negatives for each type of treatment. The positives for copper sulfate treatment include low-cost, fast acting and the most effective treatment, overall. The negatives for copper sulfate treatment include higher total nitrogen and

phosphate concentration in the water, reduction of water clarity, negative effects on aquatic life, elevated copper levels in sediment and the overall effects are short term. The aeration treatment with microbes positives include increase in aquatic life and improvement in total phosphorous concentrations. It was the least effective in controlling algae and most expensive treatment to operate. The LSP positives include high water clarity, good algae control, good aquatic life abundance and low nitrogen and phosphorous levels. It was the only treatment that had total nitrogen and total phosphorous ratios above 20. The negative for LSP include the need for regular management of exotic and nuisance species and high overall cost. The SAV treatment could reduce nitrogen levels and improve water clarity.

- **PART II: Sources of Nutrients to Grand Haven Stormwater Ponds; Fertilizers, Reclaimed Water and Soils**

Dr. Clark explained that Part II of the study pertains to the quality and components of the watershed and considers the sources of the ponds' nutrients. The methods included collection of soil samples from common areas. The reclaimed water values were provided by Mr. Kloptosky and noted a weak area in the data pertaining to the nutrients within the reclaimed water. Dr. Clark described that pond sediments were taken from pond six (6) and analyzed, individually, to find the total concentrated number of phosphorous, copper and water extractable phosphorous. He noted that 77% of the collected samples contained high or very high levels of phosphorous. He stated the second sampling targeted specific, undisturbed areas that did not contain fill soils, landscaping or buildings. He discussed the difference in soil color between fill soil and native soil. He discussed the pH level in each soil sample and noted pH 7 is neutral. He summarized the extractable phosphorous presence in the community and explained the extractable phosphorous provides an indication of the ability of phosphorous to move within the sediment. He noted the value of the native soil is 1.4 and discussed the probable cause of high phosphorous levels is related to the level of nutrients in the fill soil. He discussed the application of fertilizer, as it pertains to landscaping, and the benefits of a slow release fertilizer. Dr. Clark discussed the use of irrigation water in the community and the annual rainfall amount. He estimated that the needed irrigation, beyond the average rainfall, for hay grass was between 20 and 25 inches; however, the District uses between six (6) and seven (7) times that amount. He discussed the ability to choose an appropriate fertilizer that would provide the needed nutrients. He explained the difference between potable water, which contains some level of nutrients, and reclaimed

water, which is water with added nutrients. He noted the lack of data as to the nutrients in the water. Dr. Clark discussed the high levels of nitrogen found in the reclaimed water.

Dr. Clark discussed the sediment samples in the ponds and noted the variability in findings. He summarized the presence of various elements. He noted copper is a natural element that is present in water runoff and summarized the effect of copper on aquatic species. He stated the overall level of copper in the pond sediment is high.

Dr. Clark discussed the possible next step for the District. He noted the LPS, although it has aesthetic challenges, provided the best alternative for management practices. The plan would have to incorporate a management program to target exotic and nuisance species, with the idea being to suppress the SAV. Supervisor Davidson asked Mr. David Cottrell to discuss the proposed number of carp needed to effectively supplement the ponds. Mr. Cottrell estimated about five (5) to six (6) carp per acre. Dr. Clark summarized the need to balance the SAV with the number of carp. Mr. Cottrell stated the grass carp are exotic to the United States and their use in the water is regulated through a permit by the Department of Fish and Wildlife. Mr. Cottrell summarized the process of obtaining the carp and the requirements of the permit. Supervisor Davidson noted there is no charge to the District for the stock of the fish or the installation of the fish barrier that is required by the permit. Supervisor Davidson clarified that the permit is good for up to 3,000 fish and the wholesale value is about $6 to $9 per fish. An audience member questioned the use of blue tilapia with the copper sulfate process, as blue tilapia are known to feed off of the algae. Supervisor Davidson recalled that Fish and Wildlife stated that if blue tilapia was put in the ponds, the District would be fined.

Supervisor Trautwein discussed the problem of nitrogen concentration in the residential area. Supervisor Halley noted the need to work with the source of the problem. Dr. Clark noted the significance in addressing the source, as the same problem will continue to appear in the ponds.

Dr. Clark discussed the proposal to use an artificial floating platform.

******The Meeting recessed at 3:45 p.m.******

******The Meeting reconvened at 4:00p.m.******

Supervisor Cross discussed the need to treat the problem, beyond the symptoms. Supervisor Trautwein concurred with Supervisor Cross and discussed the different rules and regulations throughout each Village and the need to have all communities on the same page.

Supervisor Chiodo noted the need to educate the community of the need to treat the ponds in a certain manner and recommended using LakeMasters on an as-needed basis for pond problems. Discussion ensued on the balance of plant life in the ponds.

Supervisor Davidson questioned Mr. Josh Wells, of Austin Outdoor, about a reduction in reclaimed water usage. Mr. Wells explained that a lot of the current landscaping is not consistent with Florida-friendly landscaping; however, last year's high usage was related to the really dry June and July months and the need to keep the St. Augustine grass well irrigated.

Supervisor Davidson clarified that Aquatic Systems was not able to treat the spot areas, in order to keep the ponds in compliance with the study. He questioned if Aquatic Systems has the ability to manage littoral shelves in an aesthetic manner, by getting rid of torpedo grass and invasive plants, without killing the littoral plants. Dave, from Aquatic Systems, confirmed.

Supervisor Davidson questioned the need to continue the aeration and microbe treatment. Dr. Clark stated the aeration and microbes do not appear to be beneficial in treating the ponds; however, aeration should be used in a pond stocked with high numbers of fish.

Discussion ensued on using stormwater for irrigation purposes. Supervisor Davidson questioned the difference between potable water and well water. Dr. Clark stated reclaimed water has the highest concentration of phosphorous, followed by well water and potable water. Supervisor Davidson questioned if it was possible to remove the high level of nutrients. Dr. Clark stated it is possible to do a treatment, in the lagoon, and strip phosphorous out of the water column; however, he stated the water plant may be able to change their water treatment. He anticipated the overall cost of the process would be expensive.

Discussion ensued on changes that can take place to help reduce the high level of nutrients in the water. Supervisor Halley noted the need to address the issue of residents blowing their grass into the sewers. Supervisor Trautwein suggested replacing the St. Augustine grass.

The Board discussed how to educate the residents of the need to reduce the nutrients in the water, promote the use of littoral plantings and encourage residents to use Florida-friendly landscaping techniques.

Supervisor Davidson proposed a balanced aquatic treatment of littoral planting and SAV, while using copper sulfate treatments on an as-needed basis. Supervisor Trautwein stressed the need to makes sure residents are in support of the change. The Board discussed the next step for the community in addressing the treatment of the ponds.

Mr. Wrathell proposed having Dr. Clarke assess and create a treatment plan for each individual pond. He proposed a three-pronged approach where Austin Outdoor can review the watering needs of the District. Dr. Clarke can address the littoral plantings and SAV in each pond and Louise Leister, the horticulturalist, will revamp the landscape plan; followed by marketing to the residents that encourages Florida-friendly landscaping. The Board concurred. Discussion ensued on various approaches.

FIFTH ORDER OF BUSINESS **Adjournment**

There being no further business to discuss, the meeting adjourned at 5:02 p.m.

On MOTION by Supervisor Cross and seconded by Supervisor Davidson, with all in favor, the meeting was adjourned at 5:02 p.m.

Secretary/Assistant Secretary

Chairman/Vice Chairman