MINUTES OF THE SPECIAL MEETING OF THE AMES CITY COUNCIL

AMES, IOWA **SEPTEMBER 16, 2008**

The Ames City Council met in special session at 7:00 p.m. on the 16th day of September, 2008, in the City Council Chambers in City Hall, 515 Clark Avenue, pursuant to law with Mayor Ann Campbell presiding and the following Council members present: Doll, Goodman, Mahayni, Larson, Popken, and Rice.

WORKSHOP ON THE ECOLOGICAL HEALTH OF ADA HAYDEN HERITAGE PARK:

Mayor Ann Campbell welcomed the expert panel in attendance to discuss the ecological health of Ada Hayden Heritage Park. Water and Pollution Control Director John Dunn said the Council gave staff direction to prepare a plan to report on the ecological status of Ada Hayden Heritage Park at the August 12, 2008, City Council meeting. Staff scheduled a work session and invited specific individuals who have completed on-site research at Ada Hayden Heritage Park, and also some individuals that could offer a broader perspective on priorities and options available.

Mr. Dunn described the watershed that drains to the lake at Ada Hayden Heritage Park as 24th Street on the south, 180th Street on the north, George Washington Carver Avenue on the west, and Grand Avenue on the east. Mr. Dunn introduced the first speaker, Dr. Bill Simpkins. Dr. Simpkins, a professor at Iowa State University in Geological and Atmospheric Sciences, conducted research on groundwater quality at Ada Hayden Heritage Park.

Dr. Simpkins spoke of his research, which began in 2005. He said 85% of the water entering the lake is groundwater. He determined nitrate was occurring in shallow groundwater, and phosphorus was occurring in deeper groundwater. He described the nitrate load as insignificant, and the phosphorus as more significant. Dr. Simpkins said the sources are local and, most likely, coming from within the watershed.

Dr. Simpkins said he placed five wells at different locations in the lake to map out water quality. Over two years he found wells had nitrate in them, with the higher concentration of nitrate near the surface. In terms of Iowa standards, Dr. Simpkins described the levels as low. He said bacteria are removing the nitrate before it gets to the lake. He said three wells frequently showed phosphorus, which is more of a problem. Dr. Simpkins said that research shows as much as 42% of the phosphorus could be coming in from the groundwater.

The next speaker, Dr. Tim Stewart, spoke of his research regarding the wetland performance. Dr. Stewart is an assistant professor in the Natural Resource Ecology and Management Department at Iowa State University. Dr. Stewart said the purpose of the wetlands is to filter out sediment and nutrients, most of which enter from surface flow. He described the wetlands as three complexes–the north complex, the west complex, and the south complex.

Dr. Stewart stated that organisms are critical to the performance of wetlands. He said a high number of invertebrates and plant abundance is desired. The presence of fish was also studied. In areas where carp were found, there were not as many invertebrates. Carp feed on the bottom of the wetlands. When they were present, the wetlands were not working as well.

Dr. Stewart stated that fish management is critical, especially in the southwest area of the wetlands. He also said that carp prevention is difficult, labor intensive, and expensive. Another

suggestion he had was posting signs to educate the public on the purpose of wetlands, specifically stating that no fish belong in the wetlands, just plants and invertebrates.

Dr. Chris Rehmann spoke next regarding water quality monitoring. Dr. Rehmann is an associate professor in the Civil, Construction, and Environmental Engineering Department at Iowa State University. Dr. Rehmann has conducted research on water mixing at Ada Hayden Heritage Park. His focus is on finding where the mixing occurs in a body of water. Research equipment was installed in the south basin of the lake, and was part of an instrument called a Lake Diagnostic System (LDS), which is a meteorological station combined with a thermistor chain, a device that measures water temperature at different levels. The LDS measures wind speed and direction, water temperature, relative humidity, air temperature, solar radiation, and net radiation.

Dr. Rehmann went over some examples of water temperature readings taken from the LDS. He also described the ability to measure currents near the bottom of the lake. By getting the currents, it is possible to estimate the forces on the bottom. Dr. Rehmann also told the group about the dye tracking experiments he has been a part of, which estimate vertical mixing. Dye was injected into the water six meters below the surface. Looking at vertical profiles, it was found that there were intrusions from the shores to the interior in 2005, but not in 2007 when the same experiment was done. In 2005, there was a large storm before the dye was injected, and the wind had energized the waves.

The next speaker, Dr. John Downing, spoke about water quality data collected on the lake and tributaries. Dr. Downing is a professor in the Ecology, Evolution, and Organismal Biology Department at Iowa State University. He described the purpose of his research, which was an ongoing assessment of in-lake water quality, and an assessment of the nutrients and materials contributing to the water quality. He also looked at the wetlands to determine if they are working.

Dr. Downing described the lake as having water flowing in and water flowing out, with the main element of concern being phosphorus. He said the surface water quality is good, and the bottom water quality of the lake is poor. He said he has not seen an improving trend in water quality over time. He also said that tributaries are contributing concentrated silt and bacteria. He said the wetlands are not fully functional to remove silt and bacteria.

Dr. Downing described the south wetland complex as generating more nutrient than what goes into it. The wetlands are efficient in trapping nutrients and water when there is no outflow. However, the need is for water to pass through the wetlands to get clean. If that doesn't happen, then there is too much nutrient in the lake. Dr. Downing suggested increasing awareness of nutrient transport, specifically phosphorus and silt runoff. He also suggested encouraging development that does not contribute run-off.

Council Member Goodman asked if there is a saturation point for phosphorus. Dr. Downing said that more nutrients are coming out of the south wetlands than are going in. He said the opposite is true in the north complex. In 2001, there were too many nutrients in the lake, and it was determined that wetlands were needed. He stated that data shows no increase or decrease in concentrations of phosphorus.

Mr. Dunn introduced the other three experts available to answer questions. Mr. Dunn asked them to compare and contrast the differences in managing in-lake water quality when the watershed

is predominantly urban versus rural. He also asked them what the best management practices would look like and consist of.

Aaron Musselman, District Conservationist, of Story County Soil and Water Conservation District, said that they have been working with farmers on nutrient management planning. They are recommending options such as no-till, strip tillage, grass waterways, and basins that would trap sediment.

Council Member Goodman asked if farmers are open to doing some of these things. Mr. Musselman said that there are varied opinions. He said they have had favorable results with the strip till option. Mr. Dunn asked if any of the practices are mandated. Mr. Musselman said with private land ownership, all options are voluntary.

Wayne Petersen, Urban Conservationist, of Iowa Department of Agriculture and Land Stewardship, said there are many options in an urban setting, including rain gardens, permeable pavements, bioswails, native landscaping, and soil quality restoration as part of final landscaping.

Council Member Larson asked if zero phosphorus fertilizers are mandated anywhere. Mr. Petersen said that it is recommended and encouraged, but is not mandatory.

The meeting recessed at 8:55 p.m. and reconvened at 9:03 p.m.

Council Member Rice commented on the map of the watershed. He asked what could be done with the developed area north of 24th Street. Mr. Petersen replied that it is difficult, expensive and disruptive to retrofit. He said soil quality restoration is an option for established lawns and landscapes. Mr. Petersen said that the streets and driveways would not be addressed, and they are constructed to shed run-off into the storm sewer intakes. One option for that is curb cuts in front of a storm sewer intake, if the area allows. Dr. Downing added that it is possible to significantly decrease the nutrients transported to the receiving water body by more frequent street cleaning. He also stated that there are storm drain filtration systems being tested in other communities.

Council Member Larson asked how developers are influenced to take part in water quality practices. Mr. Petersen spoke of Dickinson County, where water quality practices are required by the local code because the lake communities realize the economic importance of lakes to the community and quality of life. Mr. Petersen said he does know of some developers that have been able to cut costs and be profitable by adding water quality practices in their developments. However, he said that the experience he has had with developers shows an increase in cost for adding water quality.

Council Member Goodman asked what the first steps would be beyond fish management in the wetlands. Dr. Simpkins stated that phosphorus runs free when there is no oxygen. He said the problem is that they are studying the groundwater at the end of its flow path, so the exact source of the groundwater is not known.

Council Member Doll asked the panel of experts to comment on their opinion of water quality as it pertains to development to the north. Dr. Simpkins suggested planting prairie grasses to minimize inputs as much as possible. He said he is not a proponent of septic systems, and said at this point in time it is a direction that should not be taken on a large scale.

Dr. Stewart added that there are many aesthetic and practical things that can happen, such as adding prairie grasses and wildflowers. He also suggested promoting plant growth in the wetland areas.

Mr. Petersen said he recommends doing anything and everything to prevent septic systems from going in above this water resource that is used and valued by the community. He stated that the high levels of phosphorus coming into the north cell from surface run-off and high sediment loading is a big problem, and said he is convinced that development in the watershed can take place and enhance ecology and water quality.

Mr. Musselman recommended looking at the management of agricultural systems and urban systems. He said good management is key for whichever decision is made.

Mr. Paulin stated the importance of being proactive versus reactive. He said it is fortunate that a developer has come forward and proposed a low impact development that will take water quality into consideration.

Council Member Larson asked Mr. Paulin what his feelings were on treating raw sewage on-site versus at a municipal facility. Mr. Paulin said that hooking up to a municipal sewer system is the ideal situation.

Dr. Rehmann commented on the design and implementation. He said his concern is that implementation would be done correctly.

Dr. Downing reiterated the value of the lake at Ada Hayden Heritage Park as a valuable resource and attraction. He said prevention of problems is so much more cost effective, and requires great care. He recommended figuring out how much nutrient can cause water quality problems, and what kind of changes can be sustained for any type of development.

Holly Fuchs, 806 Brookridge Avenue, Ames, asked where the run-off from the area north of 24th Street goes. Mr. Dunn said the southern wetland cell is taking run-off from that area.

Tom Culek, 2129 Pintail Ridge Lane, Ames, asked if the phosphorus levels of the groundwater are high before the water reaches the lake area. Dr. Simpkins said they do not know.

Erv Klass 1405 Grand Avenue, Ames, spoke about green roofs. He said he would like to see green roofs in Ames because of their ability to absorb water and remove pollutants.

Bob Gibson, 5501 Northwest 112th Street, Grimes, said he is the land planner working on the Rose Prairie project. He encouraged the City to take a good look at working with them on the project. He said the developer is willing to do something out of the ordinary to protect water quality. He said the tributary that runs through Rose Prairie will collect almost half of the nutrients from the watershed.

Matt Eller, 200 Timber Creek Drive, Ames, introduced himself as the developer of Rose Prairie. He said they have a 12-acre sediment basin in the tributary to slow the water and look at water waves. He said the ability to recover some of the cost related to water quality practices is more feasible as a low-impact developer than a farmer, since a farmer will lose yield.

Chuck Winkleblack, 105 S. 16th Street, Ames, asked the experts if they have seen any proposed legislation regarding options other than curb and gutter. He also commented that an educational component for the public is needed regarding low-impact development.

Mr. Petersen said the key is creating highly functional landscapes, and that if the landscapes are working correctly, they can be socially acceptable.

Holly Fuchs, 806 Brookridge Avenue, asked if the no-till option for farmers is not something that is done locally. Mr. Musselman said the soil in this area is good, but it tends to hold water. To help the soil dry out, it is tilled, which limits no-till in this area.

Margaret James, 2028 Friley Road, Ames, said that septic systems that are maintained correctly could serve an important purpose. She expressed interest in a water-quality discussion regarding the Skunk River.

COMMENTS: There were no comments by the Council.

ADJOURNMENT: Moved by Goodman, seconded by Doll, to adjourn the meeting at 9:51 p.m.

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Diane R. Voss, City Clerk Ann H. Campbell, Mayor

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Erin Thompson, Recording Secretary