



TO: Parks and Recreation Advisory Board

FROM: Yvette Bowden, Director, Parks and Recreation Department
Therron Dieckmann, Deputy Director

SUBJECT: Matters from the Department

DATE: October 26, 2015

A. Dream Big - Community Update (verbal)

Presentation: Ali Rhodes, District Services Manager, Boulder Parks & Recreation
Lori Canova, Executive Director, I Have a Dream Foundation Boulder County
René Brodeur, Director of Resident Services, Boulder Housing Partners

**B. Aquatics Feasibility Plan Implementation: Lap Lane Space Allocation Guidelines
Background**

The recently completed Aquatics Feasibility Plan (AFP) includes options for maintaining and improving the city's aquatics facilities as well as recommendations for improving aquatics operations. Next, the department will develop space allocation guidelines for the lap pools to ensure that lap lane allocation aligns with community values. Currently, the department lacks formal pool allocation guidelines for user groups and has relied instead on historical usage data to determine pool schedules.

Using master plan recommendations and data gathered from other known swim communities such as Ann Arbor, MI, Berkeley, CA, Austin, TX and Madison, WI, staff will develop formal guidelines that promote balanced lap lane use. In November and December, staff will present this analysis to the PRAB for review and discussion. The final guidelines will be implemented in 2016.

C. Thunderbird Lake Environmental Study Update

Background:

Thunderbird Lake is located in Admiral Arleigh Burke Park in southeast Boulder, just south of Baseline Road, at the intersection of Mohawk Drive and Thunderbird Drive. The surrounding area is mostly residential. The water in the lake is groundwater that infiltrates directly through the subsurface, in seeps along the edge, and via a tile drain that collects groundwater from the area to the west. In 2002, low water levels caused a fish kill and water levels have remained lower since that time. The lower water levels are believed to have resulted from a combination of factors including drought, reduced

irrigation and neighbors' increased usage of sump pumps that lowered groundwater in the area around the site. The park now has a mosaic of wildlife habitat types including open water, emergent wetland, riparian shrub areas and uplands.

From 2009 to 2012, the department implemented a three-year pilot adaptive management project by adding potable water as an interim measure to try to increase the water level and improve water quality. During the pilot project period, the City's Water Quality staff collected and analyzed lake water samples. When the lake area decreased after 2002, wetland vegetation simultaneously increased along the shoreline. The wetland types also shifted, with riparian woody vegetation establishing in areas that were formerly covered by water. Because the 2009-2012 pilot project had the potential to impact existing wetlands, a mitigation shrub wetland, comparable to existing shrub wetlands at the site, was planted. As part of the pilot project, a lake gage and monitoring wells were installed to collect surface water and groundwater data.

In 2012, available water data and vegetation information were evaluated to help anticipate future conditions and to assist the City in re-evaluating management options (Biohabitats, 2012). This information was integrated into a conceptualized view of possible future conditions compared to current conditions. The observed minimum groundwater elevations were expected to sustain the nearly one-acre lake (without potable water additions) while allowing shifts in vegetation around the lake. Wetland zones were expected to move in toward the lake center, and outer zones were likely shift from wetland to transition and upland zones in response to reduced water availability. The transition zones were expected to range from mesic to dry conditions and their moisture regime was expected to vary over time.

Upon the conclusion of the three-year adaptive management program, the department discontinued potable water additions but continued the monitoring program and the adaptive management actions outlined in the Current Management section. In September 2013, the city experienced significant rainfall and associated flooding. Groundwater elevations rose as the rainwater infiltrated and contributed to flood conditions. For about a month, the lake reached levels similar to its historical extent of 5316 ft and then receded back to 5314 ft by April 2014. No post-flood management actions were required and as of 2015, the flooding did not appear to have any significant impacts on the lake or vegetation. In Spring 2015, the department resumed the water level monitoring program in the lake and wells. The data loggers required servicing by the manufacturers, however, so there are gaps in the data prior to their being re-installed. An annual report will be prepared in December 2015 to summarize the new water level data.

Future Management:

Biohabitats recently submitted a 2016-2019 Draft Adaptive Management Plan Update for Thunderbird Lake. The purpose of this plan is to provide the department with a practical, adaptive management approach for the lake and the adjoining natural areas.

Adaptive management generally refers to an ongoing process of 1) assessing conditions; 2) developing a model based on assumptions of ecosystem functions; 3) implementing a plan based on specific management objectives and operations; 4) monitoring the changes; 5) evaluating the results, and 6) adjusting actions. This updated document is intended to be used in conjunction with other guidance pertaining to the department including the priorities and vision set forth in the Master Plan, the annual work plans, funding priorities, and internal maintenance standards. The Management Plan is intended to balance the following key overarching goals:

- Manage the physical characteristics of the lake (shoreline, area, and depth) to achieve desired conditions for water quality, biodiversity, and access;
- Control pollutant loading and in-lake sources to manage water quality to standards and accepted, practical levels;
- Restore and maintain wildlife habitat to benefit an array of appropriate animal group including fish and other aquatic species, small mammals, songbirds, waterfowl, shorebirds, amphibians, reptiles, and insects; and
- Provide appropriate educational and recreational opportunities for a range of visitor experiences.

The adaptive management actions will help achieve these goals; however, for the longer term management of the lake, the ability to achieve these goals is complicated by the fact that shallow urban lakes are subject to numerous challenges related to water sources, water quality, habitat and wetland functions, physical characteristics, health and safety concerns and aesthetics. Therefore, the management framework is targeted to address priority issues that are expected to arise over the next three years including:

- Potential loss of more open water habitat due to vegetation encroachment and limited water source;
- Phosphorus release from accumulated sediments and resulting algae blooms, and;
- Reduced native habitat values due to terrestrial and aquatic invasive species including koi fish.

In addition to goals and recommendations, the report outlines inspection, monitoring and response actions in line with an adaptive management approach. The framework for the report supports themes established in the Master Plan including taking care of existing assets, financial sustainability, and building community and relationships. Once completed, the 2016-2019 Draft Adaptive Management Plan Update will be provided to the PRAB.