



MACHADO LAKE ECOSYSTEM REHABILITATION PROJECT WILMINGTON DRAIN MULTI-USE PROJECT

Meeting Summary #7
May 20, 2009
6:30-8:30 p.m.
Wilmington Senior Center

On May 20, 2009 the Bureau of Engineering held its seventh community outreach meeting for the Machado Lake Ecosystem Rehabilitation and Wilmington Drain Multi-Use Projects. Approximately 14 people were in attendance; see Attachment A for the attendance list. Mr. Alfred Mata, Bureau of Engineering, opened the meeting by welcoming the public to the meeting and initiating a round of self introductions. Mr. Mata gave a brief overview of the project, project goals, and provided a recap of the previous outreach meetings held, including a workshop schedule. The project team then launched into the public presentation. See Attachment B for the slide presentation.

Draft Machado Lake Alternatives

Brian Murphy (CDM) and Stephanie Bache (Parsons) were introduced to give an overview of the proposed alternatives. Preliminary screening for each alternative was conducted for the various project components. Six draft alternatives were developed based on the options discussed at previous workshops. Each draft alternative included a set of common elements and builds upon one another. The City is currently reviewing all alternatives before making a recommendation for Detailed Design.

Major differences between the alternatives include:

- Source of supplemental water: Recycled Water (A) vs. Potable Water (B)
- The extent of wetland expansion and habitat modification
- The level of in-lake water treatment

Common elements among the alternatives include:

- Best Management Practices (BMPs) at major storm drains to remove sediment, metals and trash
- Park improvements including smart irrigation (presented at February 2009 workshop)
- Shoreline stabilization
- In-lake sediment basins
- Constructed islands
- Aquatic plant management
- Invasive plant removal
- Native plant enhancement

Alternative 1 includes:

- Common elements
- Dredging of Machado Lake
- Supplemental water (Recycled or Potable)

Dredging will be a major component of ecosystem rehabilitation: removing lake bottom sediment high in pollutants, increasing lake depth while removing invasive aquatic plants. The current average lake depth is between 3-5 feet. The project seeks to increase the depth to 8 feet. A member of the community inquired as to whether the project team sought to keep the lake at 8 feet throughout the entire year. It was stated that the idea would be to keep the levels constant throughout the wet and dry season. In addition, the intent would be to maintain water in the lake during the dredging process, using hydraulic dredging equipment. This specific technology will help dry out the sediment. A member of the audience requested that the dredging equipment be electric rather than diesel powered.

Another common element would be shoreline stabilization. Stabilizing areas where erosion has occurred due to the disturbance of the lake edge. Will focus on stabilizing areas where believe it that it is necessary. A member of the public noted that to prevent erosion, public access to protected areas could be limited through widening. Make the area wide enough so that people will not trample through it using it as a shortcut.

Project staff then explained that they will use habitat vegetation to direct pedestrian access. The community was interested in learning more about the habitat vegetation. It was explained that this vegetation is designed to maintain the shoreline by using a mix of vegetation and constructed engineered products. The public will not be able to see the engineered product underneath the soil.

A member of the public indicated that a small willow forest is emerging north of Anaheim Street; one used to exist south of Project 77. Incorporating an alternating series of willow forests might help bring migrating birds. It was noted that Willows are great natural bank reinforcement, will look at as many native types of vegetation that can work in this area.

All other common elements will be incorporated into this alternative. To maintain a controlled lake level, the lake will need to be supplemented with water. This will keep the lake full during the summer, and limit the growth of aquatic plants. Two sources of water were being explored: Recycled (A) from Terminal Island Water Reclamation Plant Advanced Treated water and Potable (B).

The public was interested in learning whether potable water would be easier to work with and whether it would be easy to add water to the lake when needed; was there an advantage to potable vs. recycled water? The project team gave a brief explanation on recycled water, explaining that the recycled water that would be used within the lake is of high quality, having gone through reverse osmosis. The recycled water that would be used for irrigating the golf course and the park is of lower quality (Title 22). Recreation and Park staff went on to explain that per Mayoral directive, potable water for irrigation would be restricted.

The public was also concerned about whether chemicals/pharmaceuticals would be sufficiently removed from the water so as not to disrupt fish within the lake.

Mr. Murphy went on to discuss the need to manage the lake's depth, the deeper the lake, the less light can penetrate down into the bed. Dredging the lake will be a key component. The intent is to take the lake to an average depth of 8 feet. The community was interested in learning when the most recent depth study was completed (2008) and how it compared with other studies. Staff indicated that not much change has occurred between studies. On average, it will take over 100 years for lake to be filled in by sediment. Part of this can be attributed to the fact that Wilmington Drain has been acting as a sedimentation basin for the lake.

Alternative 2 includes:

- Common elements
- Dredging of Machado Lake
- Supplemental water (Recycled or Potable)
- Wetlands and Habitat
 - Off-line treatment wetland
 - New emergent wetlands in the Freshwater Marsh

The difference with this alternative is the wetlands.

Off-Line Treatment Wetlands

In the off line treatment wetland, lake water would be re-circulated through constructed wetlands:

- To remove nutrients and filter suspended sediments with minor lake disturbance
- Enhanced aquatic and riparian habitat
- A well designed and constructed system requires less maintenance than existing conditions

Invasive plants will be cleared out to alleviate the vector control problem. The area will be re-vegetated and enhanced with native species.

The following questions and concerns were brought up by community members:

- Will the County and other agencies agree to the siting of constructed wetlands? *Yes, we have been working with County to pay for part of this project.*
- Can you use electric pumps? *Yes we can. Note that low-head pumps don't require a lot of power, and not going a long distance.*
- Birds like mudflats (note: San Joaquin Marsh has mudflats due to varying water levels) and changing water levels, can you look at this? *There will be multi chambers/cells with water at different levels.*

- Can we identify specific locations for mudflats now? *Will be working with that cell, meant to manipulate flow, so can take one cell out of order. Some cells can be used for mudflats.*

Freshwater Marsh Wetlands

The key objective for the Freshwater Marsh Wetlands is to reduce lead and copper discharge to the Harbor by increasing cattail-bulrush wetlands.

Siting Considerations:

- Need to protect/retain existing high quality habitat, including jurisdictional wetlands
- Treatment limited to dry-weather and small storm event flows (very limited land availability)
- Need to consider existing topography and dry weather flows from Figueroa Drain and D-7223

Options considered:

D-7223 Drain

- Flow routed from upper freshwater marsh
- Water routed by gravity to two wetlands areas with a combined area >2 acres
- Run off released to existing wetlands for additional treatment

Figueroa Drain

- Small storm flows diverted to lower Freshwater Marsh for treatment in a new emergent wetland (approx. 1 acre)
- Run off released to existing wetlands

The community had the following questions and concerns:

- Will the new wetlands be designed for high flow/low flow, would they be destroyed? Can adding another underground pipe help? *Don't have the area to take all of the storm events. We can't build treatment wetland big enough. Divert small flushes, getting some treatment from the natural system. These areas have been sited to be out of the path of large storm events. Underground pipe is not feasible from a sizing stand-point. We will include some BMPs to remove trash at Figueroa that will have the ability to divert flow.*
- Creating these wetlands will be of benefit to tri-colored blackbird and others. If done right, can reestablish certain colonies.
- There is leaking water that has created a new wetland further north as well as a possible artesian well that could pose freshwater marsh opportunities, have seen leaking pipes. *The artesian well could be a leaking pipe, we need to look at it again.*
- The drain to Cabrillo Beach has been eliminated, blockage of natural drainage. Should be a priority to bring it back. There was once a freshwater marsh under water.

Alternative 3 includes:

- Common Elements
- Dredging of Machado Lake
- Supplemental Water (recycled or potable)
- Wetlands and Habitat
 - Off-line treatment wetland
 - Freshwater marsh wetland
 - Riparian woodland runoff capture area
- Storm Drain Outfalls
 - Bioengineered swale at Storm Drain 77
 - Trash removal with linear radial devices at minor outfalls
- Lake Water Treatment
 - Aeration
 - Alum, as needed

Aeration is a common lake management technique used throughout the world. Aeration encompasses adding more air or more specifically, more dissolved oxygen into the water. There is an existing aeration system in the lake that was put in to use in the mid 1980's, however it is no longer functioning and so will now be removed. Aeration reduces phosphorus releases by maintaining dissolved oxygen at the sediment-water interface and enhances habitat and food supply for fish species.

The community had the following questions and concerns:

- How often would sediment be removed from optional Riparian Woodland run-off area? *Certainly not annually, but will have to answer at next meeting.*
- Could you use cascading rocks from Wilmington Drain to the lake to complement the aeration? *There is enough of an elevation difference however it is not at the edge of the lake. Need to build it up, pump up to it, and have it steep enough to get oxygen in the water. One option is to build something similar at Project 510. Use a low-head pump to create a natural water feature.*
- Can you provide costs for each component so that the public can understand and compare?
- Questioning aeration as a potential attractive nuisance. (Increase in feral birds, etc.) *Balance between meeting water quality objectives and habitat. Work within the ecosystem limitations. It is beneficial for water quality, but maybe not as beneficial for habitat.*

Alum Treatment

- Used to control sediment phosphorous release
 - Used to inactivate phosphorous in the sediment and water column
 - Eliminate biological uptake of phosphorous
- Treatment of entire lake
- Commonly used lake restoration technique
- May need to be an annual activity

The community had the following questions and concerns:

- Does alum affect species? *There have been a numerous studies showing that there is no impact on fish or vertebrates.*
- Can you rehabilitate the camping area and introduce species so can fish in lake? Best kept secret.
- Bluff and scarred areas may benefit from rehabilitation. (i.e. former dump site; leftover glass)

Approach for Evaluating Alternatives

- Goal driving development of Machado Lake Alternative is: Satisfy Water Quality Objectives
 - Short-term
 - Long-term
- Alternatives are also evaluated on their capacity to meet other Project Goals:
 - Enhance recreational activities
 - Provide flood protection
 - Provide a sustainable project
 - Enhance habitat
 - Achieve cost efficiency
 - Minimize short-term construction impacts

The following questions and concerns were discussed:

- How do you design rubric for performance measures? *Each goal has been assigned performance measures to evaluate how well each of the alternatives meets the project goals. Development of performance measures is crucial, and must be done correctly to have the alternative analysis give appropriate results.*
- Can the public see the costs associated with each alternative to evaluate the options? *Will discuss costs at next meeting.*

- Is Proposition O funding in jeopardy? *No, money was allocated through bond measure, can't be assigned anywhere else. What if there's a problem selling the bonds? If there is a problem selling the bonds, there will be no funding to build project. However, the City has recently sold bonds so we're not expecting a problem.*
- Can CDP consider O+M best and worst case scenarios? *Yes, that can be done.*
- Would like to see land reverted back for community use for camping and lake area atmosphere. Would like wells placed at specific locations, ConocoPhillips may be interested. Funds can go back to the City for use for environmental ecosystem, put money back into community.
- Look at fencing to control access to area, there is currently no controlled access. Carry fence out to waterways. *It is something we can take a note of.*
- Fences in Wilmington have a negative connotation, don't want people to visit park, park should be enjoyed by the community. Don't support fencing.

Wildlife Relocation Plan

All activities will be coordinated with the Department of Fish and Game to:

- Minimize mortality to native species
- Avoid relocation of non-native species to other water bodies
- Avoid disturbance of native species through pre-construction surveys, avoiding nesting period, using buffers and construction monitoring
- Additional information will be included pending Endangered Species Act consultation with USFWS

Wrap Up and Next Steps

Mr. Mata thanked everyone for coming to the meeting and asked whether there were any final questions. The community had the following questions/concerns:

- Post information from tonight's and meeting #6 on project website.
- Any possibility of renaming the Wilmington Drain to a more aesthetically pleasing name? Perhaps rename as a tribute to Shirley Wells who opposed the concrete lining of the Wilmington Drain.
- Anti-feeding ordinances need to be posted. Recommend that staff work with the Chief Ranger to post so that invasive plants don't return once improvements are made.
- Lake itself needs to be stable, at constant level. Need to be cognizant of life zones. Consider fact that want different things at different levels, will change bio dynamics. Vegetation types change to create more diversity.
- Are there any plans to open up drains to West Basin? *Not aware of any plans.*

- Any impact to project from condos being built at Anaheim/Vermont? Are there any groups that can purchase land to donate back to park? *We don't need those areas for the project, but it is something we can note.*

Mr. Mata noted that the next meeting has not been scheduled but will likely take place in June 2009.

Attachment A
May 20, 2009
Meeting Attendees

Juan Garibay
Jess Morton
Pat Rome
Antonio Rios
David Sundstrom
Olivia Fernandez
Michelle Hollingsworth
Diana Diankoff
Rachel Malarich
Daniel Hughes
Martin Byhower
Roxy Lowe
Arthur Hernandez
Jesse Marquez
Alfred Mata
Stephanie Bache
Brian Murphy
Richard Corneille
Nicolas Koniski
Wendy Katagi