**REPORT FROM**

# OFFICE OF THE CITY ADMINISTRATIVE OFFICER

Date: May 22, 2019

CAO File No. 0220-05445-0003
Council File No. 13-1526
Council District: All

To: The City Council
The Mayor

From: Richard H. Llewellyn, Jr., City Administrative Officer
Chair, Proposition O Administrative Oversight Committee

Reference: Proposition O Oversight Committee Recommendations

Subject: **PROPOSITION O CLEAN WATER GENERAL OBLIGATION BOND – BUDGET ADJUSTMENTS**

## RECOMMENDATIONS

That the Council, subject to the approval of the Mayor:

1. Approve the modified Master Schedule in Attachment A for 10 projects and the addition of three projects;

2. Authorize an increase in the Aliso Creek Limekiln Creek Restoration Project of $5,200,000, from $10,940,089 to $16,140,089;

    a. Approve appropriations totaling $3,477,435.82 for the Aliso Creek-Limekiln Creek Restoration Project in the following accounts;

| Fund No. | Account No. | Amount |
|---|---|---|
| 16F/50 | 50KYAG | $ 91,733.31 |
| 16M/50 | 50KYAG | $ 90,532.13 |
| 16Q/50 | 50KYAG | $ 3,295,170.38 |
| | Total: | $ 3,477,435.82 |

    b. Transfer $277 from Fund No. 16T/50, Account No. 50KWAE, Taylor Yard River Park-Parcel G2 Land Acquisition, to Fund No. 16T/50, Account No. 50KYAG, Aliso Creek-Limekiln Creek Restoration Project; and,

    c. Transfer $1,722,287.18 from Fund No. 16V/50, Account No. 50HXAA, Strathern Pit Multiuse project, to Fund No. 16V/50, Account No. 50KYAG, Aliso Creek-Limekiln Creek Restoration Project.

3. Approve the Machado Lake Ecosystem Rehabilitation (Machado Lake) Project – Optimization Phase and the release of $4,800,000 in project savings from the Machado Lake project for the Machado Lake Project - Optimization Phase and the Program Budget Contingency;

a. Authorize the transfer of $4,180,000 from Fund No. 16V/50, Account No. 50HYAC, Machado Lake Ecosystem Rehabilitation Project to a new account entitled "Machado Lake Project-Optimization Phase" within Fund No. 16V/50; and,

b. Authorize the transfer of $620,000 from Fund No. 16V/50, Account No. 50HYAC, Machado Lake Ecosystem Rehabilitation project to Fund No. 16V/50, Account No. 50JYCT, Program Budget Contingency.

4. Approve the Sun Valley/North Hollywood Greenway project;

   a. Transfer $849,030 from Fund No. 16V/50, Account No. 50HXAA, Strathern Pit Multiuse project, to a new account entitled Sun Valley/North Hollywood Greenway project within Fund No. 16V/50.

5. Authorize the City Administrative Officer, in coordination with the Bureau of Engineering and the Bureau of Sanitation, to make technical corrections as needed to the above recommendations to implement Mayor and Council intentions.

## SUMMARY

At the regular meeting of January 31, 2019 and March 28, 2019, the Proposition O (Prop O) Clean Water General Obligation Bond Administrative Oversight Committee (AOC) approved recommendations of the Prop O Citizens Oversight Advisory Committee (COAC) from its Regular Meeting of November 19, 2018 and March 18, 2019. The recommendations include a revision of the Prop O Master Schedule, a budget increase for one existing project, funding for optimization of the Machado Lake Ecosystem Rehabilitation project, and approval of the Sun Valley/North Hollywood Greenway project. These matters are hereby transmitted for Council consideration.

## BACKGROUND

In November 2004, the City of Los Angeles voters passed the Prop O Clean Water General Obligation Bond, authorizing the sale of $500 million in general obligation bonds to finance projects that protect public health by cleaning up pollution in the City's rivers, lakes, and beaches. Since then, the City has issued $439.5 million in general obligation bonds for Prop O. There is still $60.5 million in bond fund authority remaining to be issued.

The total funding for the Prop O Program is $572.8 million consisting of bond proceeds, interest earnings, grants, and special funds.

| Prop O Funding Sources | Amount |
|---|---|
| Bond Proceeds | $ 441,366,298 |
| Interest Earnings, Residual Equity* | $ 30,865,349 |
| Future Bond Sale | $ 60,500,000 |
| Secured Grants Received & Other Sources | $ 40,101,815 |
| **Prop O Funds:** | **$ 572,833,462** |

* Interest Earnings as of September 30, 2018

As shown in the table below and prior to the actions recommended in this report, the current Prop O Program budget is $562.6 million which includes $506.7 million in Council-approved project

budgets (which is allocated to 43 projects consisting of 31 completed projects and 12 active projects) and $56.0 million in funding for other program costs, including City staff. This leaves $10.2 million for Program Contingency, which was established to ensure that sufficient funds exist to complete projects in progress.

| Prop O Budgeted Items | Amount |
|---|---|
| Project Costs | $ 506,680,172 |
| City Staff and Administrative Costs* | $ 55,959,622 |
| **Prop O Program Budget:** | **$ 562,639,794** |
| **Prop O Program Contingency:** | **$ 10,193,668** |
| **Total Prop O Funds:** | **$ 572,833,462** |

* Based on Accounting's Cash Balance Report

UPDATED MASTER SCHEDULE

At the COAC meeting of November 19, 2018 and the AOC meeting of January 31, 2019, a revised Master Schedule for the Prop O Program was approved that modified the project schedule for 10 projects and added three new projects (See Attachment A).

ALISO CREEK LIMEKILN CREEK RESTORATION PROJECT

The Aliso Creek Limekiln Creek Restoration (Aliso Creek) project site is approximately 11.8 acres consisting of Aliso Creek, Limekiln Creek, Los Angeles County Right of Way, and portions of Vanalden Park in Council District 12. The project will divert and treat storm water runoff from Aliso Creek, Limekiln Creek, and an existing open channel stormdrain, for a total a drainage area of approximately 12,091 acres, which will then be pumped into bio-retention basins for further filtration. The current budget is $10,940,089 as approved by the City Council on April 19, 2016. This current budget is insufficient to cover the project costs due to the current construction market in which the average construction bids have been consistently higher than the City Engineer's Estimate. The Bureau of Engineering (Bureau) obtained a third-party construction estimate for the Aliso Creek project, which confirmed the need for a budget increase of $5.2 million in order for the Bureau to deliver the project. This budget increase of $5.2 million will reduce the Prop O Program Contingency from $10.2 million to $5.0 million (See Attachment B).

OPTIMIZATION FUNDING FOR THE MACHADO LAKE ECOSYSTEM REHABILITATION PROJECT – OPTIMIZATION PHASE

At the COAC meeting of March 18, 2019, the Bureau of Sanitation requested $4.56 million in funding for optimization of the Machado Lake Ecosystem Rehabilitation (Machado Lake) project for three years. The COAC reduced the requested amount by $380,000, from $4.56 million to $4.18 million, by reducing contingency to 10 percent from the requested 20 percent contingency.

At the AOC meeting of March 28, 2019, CAO staff reported that COAC approved $4.18 million in funding for optimization of the Machado Lake project. In addition, CAO staff, with concurrence by the Bureau of Engineering staff, reported that the estimated savings from the Machado Lake project is $4.8 million, which is sufficient to fund Machado Lake project optimization and the remaining surplus, $620,000, could be appropriated to the Program Budget Contingency.

The AOC approved the use of $4.8 million in savings to fund the Machado Lake project optimization in the amount of $4.18 million and the transfer of the remaining surplus to Program Budget Contingency. This will increase the Program Budget Contingency by $0.62 million, from $5.0 million to $5.62 million (See Attachment C).

SUN VALLEY/NORTH HOLLYWOOD GREENWAY PROJECT

At the COAC meeting of March 18, 2019, the Bureau of Sanitation, in coordination with the Los Angeles Department of Water and Power (LADWP), provided a presentation of the proposed Sun Valley/North Hollywood Greenway project in Council District (CD) 2. The total cost of the project is $13.3 million. The project will divert and treat stormwater runoff by implementing green infrastructure projects at six sites, Areas 1 – 6, to alleviate localized flooding and recharge the groundwater basin. The COAC approved the project to be added to the list of projects that are in the queue for available Prop O funding.

Subsequently, at the AOC meeting of March 28, 2019, CD 2 staff requested Prop O funding for one of the areas, Area 6, instead of all six sites. Staff reported that the project would be partially funded by LADWP and CRA/LA excess bond proceeds. The estimated total project cost for Area 6 is $2,486,400. The AOC approved COAC's recommendation to add the project to the list of projects in the queue for available Prop O funding. Additionally, the AOC approved Prop O funding to cover the remaining balance of the project at Area 6 as shown in the table below:

| Area 6 Project Funding | Amount |
|---|---|
| LADWP Funds | $ 887,370 |
| CRA/LA Excess Bond Proceeds | $ 750,000 |
| Proposition O | $ 849,030 |
| Total Funding: | $ 2,486,400 |

Typically, a new project is provided with funding from the Available Budget or the Program Contingency. However, since this Office has not issued the remaining $60.5 million in Prop O bonds, there are insufficient funds to fund this project. Therefore, this Office is proposing to use existing funds allocated for the Strathern Pit Multiuse project as these funds are not needed until project completion, which is estimated to be in 2025. Once the remaining Prop O bonds are issued in Fiscal Year 2020-21, the funding will be restored to the Strathern Pit Multiuse project and the overall Program Budget Contingency will be reduced by $849,030, from $5.62 million to $4.77 million.

**FISCAL IMPACT STATEMENT**

There will be no impact to the General Fund as the funding will be provided by the Proposition O Bond Fund. The overall impact of the recommendations, including the budget increase for the Aliso Creek – Limekiln Creek Restoration Project, the release of project savings from the Machado Lake project, the approval of optimization funding for the Machado Lake Ecosystem Rehabilitation project, and the approval of Prop O funding for the Sun Valley/North Hollywood Greenway project at Area 6, is a reduction of $5.4 million to Program Contingency, from $10.2 million to $4.77 million. The recommendations in this report are in compliance with the City's Financial Policies as sufficient funds exist to support these recommendations.

*RHL:SMC:06190052*
ATTACHMENTS

FORM GEN. 160 (Rev. 11-02)

**CITY OF LOS ANGELES**
INTERDEPARTMENTAL CORRESPONDENCE

Date: November 15, 2018

To: Proposition O Citizens Oversight Advisory Committee (COAC)
Proposition O Administrative Oversight Committee (AOC)

From: Christopher F. Johnson, PE, GE, Division Engineer
Proposition O Clean Water Division
Bureau of Engineering

Subject: **PROPOSITION O MASTER SCHEDULE UPDATE FOR 2018**

**RECOMMENDATIONS**

1. Approve 10 modified project schedules, as shown in the Proposition O Master Schedule dated June 2018 (Attachment), and described in this correspondence.

2. Approve 3 added project schedules as shown in the Proposition O Master Schedule dated June 2018 (Attachment), and described in this correspondence.

**10 PROJECT WITH MODIFIED SCHEDULES**

Machado Lake Ecosystem Rehabilitation Project:

It is recommended the construction phase be extended by 4 months and the post-construction phase be extended by 11 months. The construction phase will now end in February 2018 and the post-construction phase will now end in July 2019.

This adjustment to the construction phase is to reflect the date Statement of Completion was issued. The post construction phase adjustment is to account for ongoing close-out negotiations with the Contractor, and a more typical timeframe for acceptance by the Board of Public Works.

Temescal Canyon Stormwater BMP Phase II:

It is recommended the construction phase and post-construction phase be extended by 6 months each. The construction phase will now end in September 2018, and the post-construction phase will now end in October 2019.

Due to field delays the construction duration is being extended. The post-construction phase is being extended to one year to be consistent with typical post-construction durations.

Penmar Water Quality Improvement Phase II:

It is recommended the construction phase and post-construction phase be extended by 6 months each. The construction phase will now end in September 2018, and the post-construction phase will now end in October 2019.

Due to field delays the construction duration is being extended. The post-construction phase is being extended to one year to be consistent with typical post-construction durations.

Machado Lake Pipeline Project:

It is recommended the construction phase be extended by 5 months and will now end in December 2018.

Expired traffic control plans caused delays due to the reapproval process by LADOT and Caltrans.

Mar Vista Recreation Center Stormwater BMP Phase 2:

It is recommended the construction phase be extended 7 months and the post-construction phase be extended 6 months. The construction phase will now in June 2018, and the post-construction phase will now end in July 2019.

LA Sanitation requested an additional change in scope. Additionally, the SCADA operation experienced technical issues occurred during testing.

Albion Riverside Park:

It is recommended the construction phase be extended by 3 months and will now end in March 2019.

Unforeseen quantities of contaminated soil caused delays. The budget was increased by $2.7 million to issue the change order for the unforeseen quantities of contaminated soil and was approved by City Council and the Board.

Argo Drain Sub-basin Facility:

It is recommended the Bid & Award phase be extended by 9 months and will now end in July 2018.

Due to bids coming in high, a request was made for a $15.5 million construction budget increase.

Aliso Creek – Limekiln Creek Restoration Project:

It is recommended that the Design phase be extended 8 months and the Right-of-Way(ROW)/Approvals phase be extended 12 months. The Design phase will now end in September 2018 and the ROW/Approvals phase will now end in December 2018.

The prolonged plan check process by LA County Flood Control District caused delays to the Design phase of the project. Additionally, the Department of Recreation and Parks (RAP) construction permit was not yet secured during the Design phase.

Rory M. Shaw Wetlands Park:

It is recommended the design phase be extended 20 months (ending in June 2019), the Bid and Award phase be reduced by 6 months (ending in September 2019), the construction phase be reduced by 12 months (ending in April 2022) and the post-construction be extended by 6 months (ending in October 2023).

LA County, who controls the schedule of this project, has recommended these changes to the schedule. The schedule has been extended due to the presence of contaminated soil. This required additional design changes to be made including the development of specifications and remediation plans to be applied during construction.

Machado Lake Pipeline Project – Eastern Reach:

It is recommended that the Bid & Award phase be reduced by 1 month, ending in May 2018.

The original Bid & Award duration was scheduled to end in July 2018. However, the project was awarded ahead of schedule on May 25, 2018.

## 3 ADDED PROJECT SCHEDULES

Vermont Avenue Stormwater Capture – Phase I:

The Pre-Design phase is scheduled to be from January 2018 to February 2018 (1 Month), Design phase to be from March 2018 to July 2018 (4 months), Bid & Award phase to be from July 2018 to September 2018 (2 Months), Construction phase to be from September 2018 to June 2019 (9 months), and Post-Construction phase to be from July 2019 to July 2020 (12 Months).

Vermont Avenue Stormwater Capture – Phase II:

The Pre-Design phase is scheduled to be from March 2018 to July 2018 (4 Months), Design phase to be from July 2018 to April 2019 (9 months), Bid & Award phase to be from April 2019 to October 2019 (6 Months), Construction phase to be from October 2019 to February 2021 (17 months), and Post-Construction phase to be from March 2021 to July 2022 (17 Months).

Westwood Neighborhood Greenway:

The Pre-Design phase is scheduled to be from March 2018 to July 2018 (4 Months), Design phase to be from July 2018 to January 2019 (5 months), Bid & Award phase to be from January 2019 to July 2019 (5 Months), Construction phase to be July 2019 to August 2020 (13 months), and Post-Construction phase to be from August 2020 to July 2021 (12 Months).

Attachment
CFJ/kc
Q:\Master Schedule\Master Schedule Memos\2018 Master Schedule Memo Update
cc: David Hirano, CAO
Salyna Cun, CAO
Rafael E. Prieto, CLA
Ken Redd, BOE
Shahram Kharaghani, BOS
Master File

FORM GEN. 160 (Rev. 11-02)

**CITY OF LOS ANGELES**
INTERDEPARTMENTAL CORRESPONDENCE

Date: November 16, 2018

To: Proposition O Citizens Oversight Advisory Committee (COAC)
Proposition O Administrative Oversight Committee (AOC)

From: Christopher F. Johnson, PE, GE, Division Engineer
Proposition O Clean Water Division
Bureau of Engineering

Subject: **ALISO CREEK LIMEKILN CREEK RESTORATION PROJECT BUDGET INCREASE**

## RECOMMENDATIONS

1. Authorize an increase in the Aliso Creek Limekiln Creek Restoration Project (Project) total project budget by $5,200,000 from $10,940,089 to $16,140,089.

2. Authorize the transfer of $5,200,000 from the existing Program Budget Contingency to the Project Account.

3. Authorize the City Administrative Officer, in coordination with the Bureau of Engineering, to make technical corrections, as needed, to the recommendations in this correspondence.

## BACKGROUND

The Project is located in Northridge, in Council District 12. The project site is approximately 11.8 acres and contains the concrete-lined channels of Aliso Creek and Limekiln Creek, Los Angeles County Right of Way and portions of Vanalden Park. The Project will construct several stormwater pollution abatement best management practices including bio-retention ponds, 2-pump stations, instrumentation, SCADA, and a hydrodynamic separator intended to treat onsite and offsite runoff and reduce contamination in Aliso Creek, Limekiln Creek, and the downstream Los Angeles River.

On April 19, 2016 the Los Angeles City Council approved a total project budget in the amount of $10,940,089. The Project is currently in the design phase, and design documents are almost complete. Current average construction bids for Bureau of Engineering projects have been consistently higher than anticipated over the last year due to the current economic reasons. Consequently, construction and delivery estimates were updated now that we have a better understanding of all design elements and the latest cost data. In addition, a third party construction cost was performed to confirm the need for an updated budget. Based on our findings, a project budget adjustment is required to proceed with the Bid and Award phase of the project because the current budget is insufficient to fund the complete delivery of the Project. The project expenditures to date and the expected cost-to-complete requires a total project budget increase of $5,200,000 in order to complete project delivery and construction.

## PROGRAM CONTINGENCY

The program budget contingency was established to fund unforeseen project expenditures when the expenditures exceed the project contingency. The cost of budget increases for the Project in the amount of $5,200,000 will reduce the estimated Program Budget Contingency from $10,152,759 to $4,952,759, subject to verification by the CAO.

CFJ/caf
cc: David Hirano, CAO
Salyna Cun, CAO
Rafael E. Prieto, CLA
Ken Redd, BOE
Shahram Kharaghani, BOS
Master File

Form Gen. 160 (Rev. 6-80)

# CITY OF LOS ANGELES
## INTER-DEPARTMENTAL CORRESPONDENCE

DATE: January 23, 2019

TO: Proposition O Citizens Oversight Advisory Committee (COAC)
Proposition O Administrative Oversight Committee (AOC)

FROM: WING TAM, Proposition O Planning Manager
LA Sanitation and Environment

SUBJECT: **PROPOSITION O MACHADO LAKE ECOSYSTEM REHABILITATION PROJECT - OPTIMIZATION PHASE REQUEST FOR PROPOSITION O FUNDING**

**RECOMMENDATIONS**

1. Approve a total budget of $4,560,000 for the optimization phase of the Machado Lake Ecosystem Rehabilitation Project (Project).

2. Authorize LA Sanitation (LASAN) to commence the optimization phase of this project for a three-year period.

3. Authorize the transfer from the Machado Lake Ecosystem Rehabilitation Project budget in the amount of $4,560,000 to LASAN Project Optimization account to fund specialized optimization activities, such as risk assessment, biological health assessment of wetlands, and monitoring of physical, chemical, and biological characteristics of the Project.

4. Authorize the City Administrative Officer, in coordination with LASAN and the Bureau of Engineering (BOE) to make technical adjustments as necessary.

**BACKGROUND**

Proposition O (Prop O), a $500 Million General Obligation Bond, has been funding numerous water quality improvement projects in the City of Los Angeles since 2004. LASAN manages the water quality and flood protection programs for the City of Los Angeles. These programs are governed by a Municipal Separate Storm Sewer System (MS4) Permit that is issued by the Los Angeles Regional Water Quality Control Board (RWQCB) and approved by the State Water Resources Control Board and the United States Environmental Protection Agency (US EPA). The MS4 Permit enforces compliance with all Total Maximum Daily Loads (TMDLs) that are in effect in the City of Los Angeles and are intended to protect the designated beneficial uses of local receiving waters. Projects funded by Prop O support the larger strategic plan to satisfy Clean Water Act mandates, through inclusion in the City's Enhanced Watershed Management Plans (EWMPs), which are required by the RWQCB to help meet the applicable water quality standards, including those specified by TMDLs.

The Prop O Projects are new, unique, multi-purpose projects that are designed to improve water quality in the City. The Projects include multi-purpose and multi-benefit elements that were conceived and implemented through a stakeholder driven process with community support and the expectation that the

investments will effectively enhance runoff and receiving water quality to support the attainment of beneficial uses. The community expects the constructed projects to be effective in meeting the applicable water quality objectives and to deliver on promises of providing other public benefits (e.g., green space for recreational use, educational opportunities, flood protection, etc.).

Previously, COAC and AOC approved LASAN's requests for funding optimization phase activities for nineteen completed Prop O Projects to ensure that these projects will continue to meet project objectives in a sustainable manner, over the long-term expected project lifespan. The initial eleven projects were authorized for optimization starting in 2013, and additional requests were authorized in 2015. The goal of optimization is to ensure long-term sustainability of Prop O projects by evaluating the effectiveness of the physical, biological, and chemical processes and elements of the projects. Through water quality and project monitoring and assessment, the hydraulic, vegetative/habitat-related, aesthetic, and water treatment elements are rebalanced and protocols for operation and maintenance established. This effort aims to ultimately result in an optimized configuration, designed to maximally achieve intended goals for water quality objectives (Machado Lake TMDLs), and advance the condition of the downstream receiving waters' beneficial uses.

The Machado Lake ecosystem is located within the Ken Malloy Harbor Regional Park (KMHRP) a 231-acres park owned, operated, and maintained by Los Angeles Department of Recreation and Parks (RAP) in the Wilmington community of the City of Los Angeles, approximately 15 miles south of downtown Los Angeles and immediately west of the Harbor Freeway (I-110). Machado Lake is located within the urbanized Dominguez Channel Watershed and has a drainage area of approximately 22 square miles (14,347 acres). The Machado Lake ecosystem is one of the largest remaining coastal wetland ecosystems in Southern California. It is bordered to the north by Pacific Coast Highway, to the south by Anaheim Street, to the east by Figueroa Street, and to the west by Vermont Avenue. Besides local stormwater flow entering the lake from storm drain laterals, the primary inflow to the lake is from Wilmington Drain to the north, which is a 150-foot-wide soft bottom channel maintained by the Los Angeles County Flood Control District (LACFCD).

Machado Lake is comprised of upper and lower basins separated by a low earthen dam. The upper basin contains the 40-acre recreational lake created by impoundment of stormwater runoff; the lower basin is a seasonal freshwater marsh of roughly 63 acres. The dam was designed to maintain the level of the recreational lake at a maximum of ten feet above Mean Sea Level (MSL). During major storms, water flows over the dam into the lower basin freshwater marshes and ultimately to the Harbor Outfall at the southeastern corner of the park, where it is discharged to the West Channel of the Los Angeles Harbor. Within KMHRP, riparian habitat is situated south of Pacific Coast Highway and north of Machado Lake. Runoff from Wilmington Drain passes through the riparian woodland before it enters Machado Lake. Recreational uses of the lake and park include picnic areas, fishing, bird watching, and hiking.

Both Machado Lake and Wilmington Drain are listed on the US EPA 303(d) list of impaired water bodies. Machado Lake is listed for Chem A, chlordane, DDT and dieldrin (fish tissue), algae, ammonia, eutrophic, odor, PCBs, and trash. TMDLs for Machado Lake include trash (effective 2008), nutrients (effective 2013), and toxics (including pesticides and PCBs) (effective 2012). The Regional Board established beneficial uses for surface waters in the Los Angeles region in the "Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties", which include Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), Rare, Threatened or Endangered Species (RARE), Wetland Habitat (WET), and a potential use for Municipal Supply (MUN).

The Machado Lake Ecosystem Rehabilitation Project (Project), which included rehabilitation of 40-acres of Machado Lake and 27 acres of the surrounding park, was designed to support the City's objective to improve water quality in Machado Lake, maintaining TMDL compliance while also enhancing the surrounding park and natural habitat. Prior to the Machado Lake Ecosystem Rehabilitation Project, the accumulation of toxic sediments had degraded habitat, damaged water quality, and prevented boating. The Project budget was approximately $112 million. The Project was constructed between January 2014 and November 2017, and KMHRP was able to re-open to the public in June of 2017 following completion of major Project elements. Water quality improvements funded by Prop O, including planning, design, and construction, totaled $110.5 million. Other Project funding included $780,000 from Proposition K (Park Bond measure), $297,000 from the California Coastal Conservancy, and $352,000 from Quimby Act funds. Community stakeholders and non-profits were also involved in the planning and design phases, as well as numerous permitting and regulatory agencies including California Department of Fish and Wildlife (CDFW) and the U.S. Army Corps of Engineers (USACE).

The Machado Lake Ecosystem Rehabilitation Project included many critical improvements to water quality such as: Dredging of 239,000 cubic yards of contaminated lake sediments and capping the lake bottom with 6-inch AquaBlok and 3-inch layer of sand for aquatic plantings and fish habitat; construction of a 4.3 acre controlled-flow treatment wetland, including recirculation, oxygenation, and aeration diffuser to help meet water quality objectives; new littoral zone plantings; new diversions from adjacent storm drains to the lake and marsh for treatment; several hydrodynamic separators for pretreatment of the diverted flows; a sediment basin; and other drainage improvements including vegetated swales, berms, and rip-rap channels. Additionally, approximately 27 acres of park improvements included "smart" irrigation systems to reduce the irrigation demand, two pedestrian bridges and a boardwalk, four fishing piers, two fishing zones, and recreational amenities for the community. Native habitat was also restored by removing and controlling invasive plants and replacing native vegetation.

Given the Project's scope, complexity, and recent completion, it is essential that the optimization phase begin as soon as possible to allow the key Project elements to function optimally both in the present and into the long-term, for efficient and effective functionality in support of both the Machado Lake TMDL water quality objectives and other local benefits.

## JUSTIFICATION

Project modeling conducted by the City in 2014 estimated that full implementation of the Project would significantly reduce nutrient and toxics concentrations within the lake in order to achieve compliance with applicable TMDLs. However, the modeling also noted the critical importance of upstream load reductions by other agencies in the tributary watershed, since pollutant loading includes:

- Sources external to Machado Lake outside of the City's jurisdiction;
- Sources external to Machado Lake within the City's jurisdiction; and
- Sources within Machado Lake, particularly due to nutrient cycling within the lake.

Since the completion of the Project, water quality monitoring at Machado Lake has been conducted. Interim water quality monitoring results indicate that TMDL limits for Chlorophyll, Nutrients, and Toxics within the lake are not yet being met. Optimization will allow the various Project components to be assessed to analyze effectiveness, thereby allowing focused attention on components that are not currently performing as planned. Such efforts are critical to the overall Project success, particularly with respect to achieving water quality compliance.

The City faces additional challenges in meeting final compliance milestones due to uncertainty of the implementation efforts of other upstream jurisdictions. Eighty-seven percent of the upstream portion of the Project watershed consists of land and other features that are outside of the City of Los Angeles' jurisdiction. Previous modeling demonstrated that in-lake TMDL compliance is dependent on loading reductions throughout the entire watershed. To this end, the effects of dry and wet weather discharges from upstream sources such as Walteria Basin have yet to be quantified. Optimization will provide necessary monitoring and data analysis efforts to help identify these impacts, thereby allowing strategies to be developed to focus on the largest remaining sources of loading to the lake.

Optimization efforts will focus on the four main groups of Project elements and activities: (1) mechanical and instrumentation (oxygenation and recirculation system); (2) lake, wetlands, and other natural treatment systems and vegetation management; (3) structural elements; and (4) general optimization activities. Primary goals and the estimated cost of each of these four elements/activities are summarized in Table 1 and discussed in more detail in the following sections. The Machado Lake Ecosystem Rehabilitation Project Optimization Needs Cost Estimate matrix (attached) more fully expands and elaborates on the Project elements, activities, and optimization goals.

**TABLE 1. Primary Goals and Estimated Costs of Principal Optimization Activities**

| Element/Activity | Goals of Optimization Activities | Estimated Cost |
|---|---|---|
| Mechanical and Instrumentation (Oxygenation and Recirculation System) | Confirm design intent and functionality; monitor and evaluate performance of systems and identify adjustments. | $693,500 |
| Lake, Wetland and other Natural Treatment Systems, & Vegetation Management | Evaluate components of lake including AquaBlok and vegetation; lake and wetland water balance; control undesired vegetation and vectors; develop management plans and control strategies for sustainability and regulatory objectives. Develop Lake Management Plan. | $1,692,900 |
| Structural Elements | Confirm design intent and functionality; monitor and evaluate performance. | $767,600 |
| General Optimization Activities | Water quality monitoring, observations, and analysis. Evaluate overall BMP effectiveness. Develop Standard Operating Procedures and personnel training. | $646,000 |
| Subtotal | | $3,800,000 |
| Estimated Contingency (20%) | | $760,000 |
| TOTAL | | $4,560,000 |

**Mechanical and Instrumentation (Oxygenation and Recirculation System)**

The oxygenation system supplements dissolved oxygen (DO) to enhance water quality and mitigate the potential for eutrophication and odor in the lake. This system is critical to significant water quality improvements in the lake, particularly during the hot, dry months from May through October, when DO in the water column is most critical. Optimization of the mechanical and instrumentation elements is essential to TMDL compliance and sustainable and effective long-term operations.

The goal of evaluating these elements is to confirm that the mechanical and instrumentation systems controlling water flow to the treatment wetlands and oxygenation systems are performing to design criteria, operating within specifications, and providing optimum oxygen transfer efficiency while minimizing power consumption. Mechanical elements to be optimized include the oxygenation system,

pumps, instrumentation and control systems, SCADA system, Speece cone, diffusers, and valves and pipes, all of which are critical to the establishment and sustainment of healthy limnologic conditions in the lake and compliance with the TMDL objectives.

The proposed activities for optimizing these elements includes the observation and monitoring of chemical and biological conditions including dissolved oxygen, nitrogen, and phosphorous levels, evaluation of oxygen transfer efficiency, air supply, water/oxygen mix, and diffuser functionality. The evaluation will also assess water distribution effectiveness, mixing rates between return recirculation line and oxygen injection, as well as applicable chemical, biological, and mechanical parameters to promote lake health, help achieve designated beneficial uses, and make any needed improvements. Findings will be incorporated into the Standard Operating Procedure (SOP) and a Lake Management Plan.

**Lake, Wetlands, and Other Natural Treatment Systems, & Vegetation Management**

Machado Lake and adjacent treatment wetlands are the capstone and the most visible element of the Project. Not only do they critically serve as natural treatment systems for captured runoff, but they also provide aesthetic, habitat, and recreational benefits. Optimization activities are necessary to assess the condition of the lake and lake bottom (including the AquaBlok system and sand layer) to ensure that the specified standard of operation for hoth structural integrity and biological function are optimized and can be maintained following the optimization period. Observation of plant growth through at least two growing seasons is necessary to maximize plant survival, control invasive weeds and associated competition effect on performance, and prevent pest infestation during this sensitive growth period. These observations will help to ensure sustained growth and viability over the Project lifespan, thereby preventing erosion and deposition conditions that hinder Project performance.

These activities will include the development and implementation of a vector control plan/vegetation management plan in consultation with the Greater Los Angeles County Vector Control District (GLACVCD), which will ultimately be incorporated into the Project SOP. A Lake Management Plan will also be created as part of these optimization activities. This plan will establish limnologic parameters, ecological function, and hydrologic operations of the lake, including lake bathymetry and the normal range of water level fluctuation and movement within the lake, water distribution and balance, and recirculation effectiveness and needs.

With the goal of ensuring sustainment of beneficial uses, optimization activities will also evaluate the effectiveness and conditions of the aquatic habitat and AquaBlok at the bottom of the lake, examining the layer for scouring, contaminant release, and other deficiencies, to identify needed improvements. In particular, conditions will be evaluated before and after storm events to evaluate erosion and deposition impacts to the lake bottom. These observations are critical to prevent fish toxicity and comply with TMDL requirements and other water quality standards, as a defective lake bottom will inevitably lead to lake degradation.

The optimization phase will assess areas in which close coordination with RAP could efficiently support a post-optimization long-term management plan for permitted habitat restoration areas, including the ability to implement immediate corrective actions to comply with Department of Fish and Wildlife requirements as needed. Vectors, which are of special concern to GLACVCD due to the potential risk of West Nile Virus, as well as unauthorized uses and damage to the facilities due to vandalism, could also be minimized through local oversight, guided by the long-term management plan developed during the optimization phase. The proposed Lake Management Plan will define potential risk areas, criteria, and triggers for corresponding and sustainable corrective actions (e.g., elimination of standing water for

greater than 72-hours to eliminate the risk of mosquito breeding).

Optimization will include several surveys of plant species over multiple seasons, designed to evaluate the seasonal condition and number of both the designed plantings as well as any invasive or other undesired vegetation. Adaptive management strategies shall be developed for the post-optimization long-term control of weeds, invasive, and other undesirable species, with the intent of maximizing and sustaining a high habitat value for the Machado Lake ecosystem. Additionally, adaptive techniques and strategies will be developed for the treatment wetlands, other BMPs, freshwater marshes, and lake buffer zone and riparian areas, to similarly safeguard the long-term sustainable Project performance.

The longevity of lake itself is highly dependent on the known status of debris and sediment accumulation, other alterations to the lake bottom, and its ecological, chemical, and hydraulic state. Through the optimization phase, the accumulation of sediment and debris will be monitored over at least two wet seasons, providing critical insight as to the need for and objectives of any necessary control strategies. This effort will be coordinated with the optimization of the structural elements, specifically evaluating the effectiveness of the sediment basin and assessing the need for potential structural improvements. The proposed Lake Management Plan will also allow for the characterization of ecological, chemical, hydraulic and hydrologic function over both wet and dry seasons, over the three year period. The critical data collection task will provide a valuable snapshot that could be used to project lake health over the long-term, including compliance with applicable water quality objectives. If adjustments are needed to further enhance limnologic health, these should be identified and developed during the optimization phase. Potential areas of assessment are likely to include an overall water balance to evaluate the inflows, outflows, and recirculation/mixing within the lake, and an assessment of the future impact of potential input connections such as recycled water. This effort is to be integrated with the mechanical element assessment (evaluation of the pumps, Speece cone, etc.).

In summary, meeting the TMDL water quality objectives is directly tied to the condition of both the treatment systems within the lake and the lake/wetlands themselves. Critical to the performance of these elements is a more thorough understanding of the external loading to the system and the internal nutrient cycling that occurs within the lake. Optimizing these key treatment elements will allow LASAN to make any necessary adjustments to the overall design and to focus the Lake Management Plan on the Project elements most critical to maintaining sustained, long-term viability.

**Structural Elements**

The structural elements of the Project include five hydrodynamic separator units, a sediment basin, rip-rap channels/erosion control, energy dissipaters, the intake/sediment tank/return water, an embankment and sheet wall, and check dam improvements. These elements support the physical, chemical, and biological processes that improve water quality and help meet the water quality objectives.

The scope of optimization for the hydrodynamic separator units will include assessment to determine if they are operating within specifications to effectively remove trash and debris from the flow to the lake. An SOP will be developed for the CDS units in the post-optimization period to establish a data-driven condition-triggered schedule for trash removal frequency, based upon season, catchment area trash production rate, and variation in storm discharge. Observations and measurements collected during the optimization phase will inform this schedule.

The sediment basin is designed to allow particulate matter conveyed by runoff from three main drains to settle out before runoff is conveyed to the lake. This will facilitate more efficient and frequent sediment

removal from the lake. The removal of this sediment is intended to directly improve water quality and reduce the amount of sediment accumulated on the lake bottom, enhancing lake longevity. Given the significant loading of sediment-bound toxics that occurred historically in the lake, effective performance of the sediment basin is a critical component to near-term Project effectiveness assessment and long-term compliance efforts. Therefore, it is critical that the sediment basin be optimally functional both in the present and into the future. The optimization phase will observe, measure, and test the settled sediment, potentially supporting a source investigation. Recommended structural improvements or modifications will also be identified and corrected, as needed, to improve the effectiveness and sustainability of the basin, coupled with a data-driven, condition-triggered, long-term maintenance schedule within the SOP.

The velocity of runoff conveyed to the lake is controlled through a combination of equalization (e.g., sediment basin), energy dissipaters, and erosion controls such as the rip-rap channel. The purpose of these devices is to slow the runoff, thus reducing the risk of erosion as well as reduce conveyance and deposition of additional sediments into the lake. The optimization phase will allow for the assessment of these structures, resulting in possible recommendations for further structural enhancements or adjustments, and developing a data-driven condition triggered long-term maintenance schedule within the SOP.

**General Optimization Activities**

The final Project element to be optimized is more generally categorized and is similar to previously implemented Prop O optimization efforts. Such activities include water quality monitoring (influent, effluent, wetlands, and lake), inspections and visual observations, vegetation and algae monitoring, evaluations of water inputs and usage, and the final development and training on the SOPs.

Monitoring, including both qualitative observations and quantitative data collection, will provide data-driven insight to analyze BMP effectiveness and to inform potential structural adjustments and/or control strategies for any of the categorical Project elements. Subtasks will include the collection of both wet and dry weather water samples and visual observations, laboratory analysis of the collected samples, and data analysis including comparison to the relevant water quality objectives, where applicable. Monitoring data could also be used to refine the Project modeling that was conducted during Project design. This would allow for a more thorough investigation into the effectiveness of certain BMPs, such as the AquaBlok system and oxygenation system.

If deemed necessary in assessing the overall water balance, a dry weather flow source tracking study could be developed to minimize the non-authorized non-stormwater discharges to the lake by way of upstream storm drains. Additionally, source tracking during both dry and wet weather could be accomplished using specialized tools (e.g., isotope analyses). Identifying pollutant sources would allow for targeted optimization efforts within the tributary watershed and/or lake.

Lastly, development of the SOPs will provide a sustainable path forward for the integrated and optimized long-term system operations through the well-informed schedule of maintenance for the mechanical, structural, and lake, wetlands, and vegetated Project elements. Effective implementation of the SOPs is further enhanced by staff training, which will be conducted under the optimization phase by staff familiar with the Project elements, both in the field and in a more formal setting. Technological tools could also be developed to assist operations personnel in the field to best follow SOP protocols.

SUMMARY

The Machado Lake Ecosystem Rehabilitation Project utilizes many individual elements and a unique systematic approach to improve water quality and enhance other benefits of the lake. For this reason, and considering the legacy characteristics of the lake, the Project is the largest Prop O-funded project to-date. In order to further enhance the Project to the end of achieving TMDL compliance and improved public benefits, funding is requested for Project optimization.

The amount requested for the optimization phase of this Project is estimated at $4.56M over three years. Recently completed optimization efforts at related Prop O projects such as Echo Park Lake (Approximately $1.5M over 3 years for a 13-acre lake) indicate the cost estimate for Machado Lake ($4.5M over 3 years for a 40-acre lake) is justified. As with Echo Park Lake, the system mimics a natural wetland treatment regime; however, the increased size of both the lake and watershed, the quantity and type of individual Project components, and the complex network of interdependent components pose an increased challenge when it comes to optimization of the Machado Lake Ecosystem Rehabilitation Project.

The optimization phase will enable LASAN to assess and enhance an efficient and sustainable balance of key Project elements, allowing for more effective post-optimization long-term performance, and providing a higher return on investment for the local community. This effort will continue to support the objectives of Proposition O by assessing and implementing any needed adjustments to the Project elements, thereby resulting in enhanced prevention and removal of pollutants from local waterbodies, continued restoration of designated beneficial uses, and furthering compliance with federal Clean Water Act regulations.

We respectfully request that you take immediate action on this important item. If you have any questions or wish to discuss this matter further, please contact me at (213) 485-3985.

WKT:KK:gh

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## Machado Lake Ecosystem Rehabilitation Project
## Optimization Needs Cost Estimate

| *Elements/Activities* | *Goals* | *Cost* |
|---|---|---|
| ***Mechanical and Instrumentation (Oxygenation and recirculation Systems)*** | | **$693,500** |
| Oxygen generator | Confirmation that oxygenation system, pumps, instrumentation, Speece cone, diffusers, valves and pipes are operating within specifications, provides optimum oxygen transfer efficiency while minimizing power consumption. | |
| Speece cone | | |
| Oxygenation system piping | | |
| Recirculation, oxygenation and diffusion to lake | | |
| Pumps, valves, instrumentation and related appurtenances | | |
| ***Lake, Wetlands and other Natural Treatment Systems & Vegetation Management*** | | **$1,692,900** |
| AquaBlok, sand | Confirm effectiveness and condition of lake bottom, AquaBlok, sand layer. Ensure these are maintained to design parameters for structural integrity, biological function and monitor for contaminants. | |
| 8.8-ac and Riparian habitat | Develop management plan and implement improvements. | |
| Vegetated lake buffer | Sustain normal growth through at least two growing seasons to maximize plant survival, control invasive weeds and associated competition effect on performance, and prevent pest infestation during sensitive growth period. Ensure sustained growth and viability over project lifespan. Prevent erosion and deposition conditions that hinder project performance, incorporate into SOP. | |
| Treatment wetlands function and performance | | |
| Freshwater marsh and south riparian zones | | |
| Vegetated berms and swales | | |
| Vegetation and invasive plants | | |
| Vector control | Develop and implement a vector control plan/vegetation management plan in consultation with GLAVCMD, incorporate into SOP. | |
| Lake sediment accumulation | Prevent build-up and develop strategies for control | |
| Lake ecology, water distribution, lake water level, flow and balance, water quality standards | Create Lake Management Plan. Establish limnologic parameters, ecological function, normal range of water level fluctuation and movement within the lake, distribution and balance, and evaluate enhanced recirculation needs. Ensure sustainment of beneficial uses. | |
| ***Structural Elements*** | | **$767,600** |
| Hydrodynamic separator units (5) | Confirmation that CDS units operate within specifications. Establish effect of material loads on trash removal frequency, based upon season, catchment area trash production rate, and storm discharge variation. Maintain function of sediment basin Determine outlet erosion risks and issues. Determine servicing needs and schedule; incorporate information into SOP. | |
| Rip-rap channels/Erosion control | | |
| Energy dissipater | | |
| Intake/Sediment tank/Return water | | |
| Sediment basin | | |
| Embankment and sheet wall | | |
| Check dam improvements | | |

| *Elements/Activities* | *Goals* | *Cost* |
|---|---|---|
| ***General Optimization Activities*** | | **$645,000** |
| Water quality monitoring (influent, effluent, wetlands and lake) | Confirmation that BMPs meet water quality requirements by collecting water samples, conducting laboratory analysis of the collected samples, analyzing the data, evaluating BMPs effectiveness, and revising BMPs to optimize operations. Evaluate upstream sources of pollutants. | |
| Inspections and visual observations | | |
| Vegetation and algae monitoring | Qualitative and quantitative observations to identify issues and develop control strategies | |
| Water inputs and usage evaluation | Assess collective input sources; identify ways to minimize potable inputs | |
| Standard Operating Procedures (SOPs) Manuals & Training | Establish SOPs and provide training for the integrated BMPs system to optimize operations. | |
| **Subtotal** | | **$3,800,000** |
| Estimating Contingency (20%) | | $760,000 |
| **Total** | | **$4,560,000** |