BARNES LAKE MANAGEMENT DISTRICT
MEETING AGENDA

Online via Zoom

Wednesday, February 19, 2025
6:00 PM

1. Call to Order
2. Roll Call
3. Introduction and Agenda Review
4. Public Comment
5. Member Comment
6. Lake Management
   a. Aquatechnex 2025 Treatment Proposal (Soderberg)
7. General Business
   a. 2025 Budget (Soderberg)
   b. Reallocation of Duties (Kangiser)
8. Next Meeting Date - April 9, 2025
9. Adjourn

Meeting Information
All committee are attending remotely. The public are welcome to attend by telephone or online via Zoom.

Watch Online
https://us02web.zoom.us/j/85260004177?pwd=qOwGW4jOp9hHNRYJXK8PhgiRjaTfR9.1

Listen by Telephone Call (253) 215-8782, listen for the prompts and enter the Meeting ID 852 6000 4177 and Passcode 669450.

Post Meeting
Video of this meeting will be recorded and posted on our City Meeting page: https://tumwater-wa.municodemeetings.com.

Accommodations
The City of Tumwater takes pride in ensuring that people with disabilities are able to take part in, and benefit from, the range of public programs, services, and activities offered by the City. To request an accommodation or alternate format of communication, please contact the City's ADA Coordinator directly, call (360) 754-4129 or email ADACoordinator@ci.tumwater.wa.us. For vision or hearing impaired services, please contact the Washington State Relay Services at 7-1-1 or 1-(800)-833-6384.

AquaTechnex

Barnes Lake Proposal for Aquatic Vegetation Management 2024-2026

Prepared for
The City of Tumwater &
the Barnes Lake LMD

AquaTechnex, LLC

HEADQUARTERS
Bellingham, WA 98228
www.aquatechnex.co

Local Offices
Centralia, WA
Spokane Valley, WA
Bend, OR
Boise, ID
Missoula, MT
Palm Desert, CA
Santa Ana, CA
Pleasant Hill, CA

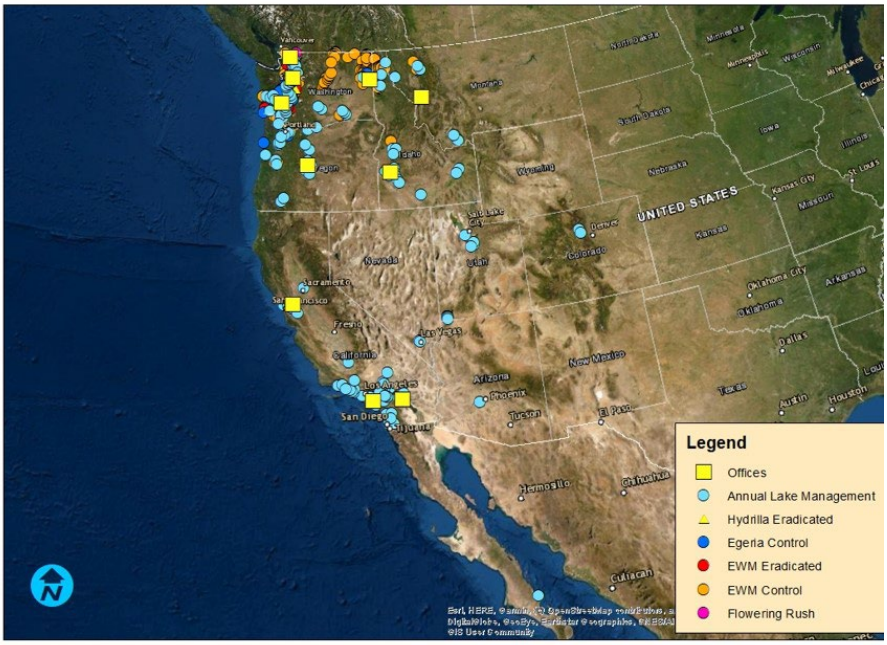
Introduction

Barnes Lake is a 27.09-acre body of water located in Tumwater, WA. The lake has been adversely affected by the presence of nuisance and invasive aquatic plants, notably various species of invasive lilies and bladderwort. While a significant portion of the bladderwort was successfully removed from Barnes Lake following a fluoridone treatment in 2020, there remains a necessity for targeted spot treatments to completely eradicate its presence. Continuous monitoring is imperative to effectively manage and eliminate bladderwort from the lake.

Although bladderwort stands as a primary concern for Barnes Lake, invasive lily species persistently impede recreational activities and compromise water quality seasonally. In response to these challenges, the city of Tumwater and the Barnes Lake Management District (LMD) has enlisted AquaTechnex to devise a comprehensive proposal. This proposal will delineate annual tasks to be undertaken, including two seasonal surveys, drone-based surveillance, recommended products for aquatic plant management, an annual work schedule, estimated timeframes for task completion, and a proposed budget allocation.

Summary of Company Experience and Statement of Qualifications

AquaTechnex, LLC, headquartered in Bellingham, WA, operates from a network of nine additional offices spanning across Washington, Oregon, Idaho, Montana, Utah, and California. Our Centralia, WA office, situated approximately 30 miles from the project sites in Tumwater, Washington, would oversee the implementation of the proposed lake management plan if selected. Our company website, www.aquatechnex.com, serves as a comprehensive resource for information regarding our services, projects, and expertise in aquatic plant management and lake restoration.



Aquatechnex Major Lake Management and Invasive Aquatic Weed Projects

Company History and Team

AquaTechnex has been at the forefront of lake restoration and management for over five decades, specializing in combating invasive aquatic plants and harmful algal blooms (HABs). Renowned for our expertise in restoring water bodies affected by invasive species, we have also spearheaded the development and deployment of innovative technologies to mitigate HABs. Our track record includes successfully restoring several lake systems, some exceeding the scale of Lake Wilderness.

Our journey began in the early 1980s as a prominent lake and aquatic plant management firm in California. In 1984, the Washington Department of Ecology sought assistance for the state's inaugural major herbicide application to combat Eurasian watermilfoil. Undertaking the task at Lake Osoyoos, we administered 2,4-D over 400 acres of invasive weeds in collaboration with the US Army Corps of Engineers Aquatic Plant Control Research Team, achieving remarkable success. This pivotal project solidified our relationship with the Army Corps National Research Program and laid the foundation for future collaborations with the Department of Ecology.

Aquatechnex performing Eurasian Milfoil herbicide application on Lake Coeur d'Alene, ID. This program targeted approximately 900 acres with both granular and liquid formulations.

In 1985, we assumed responsibility for Seattle METRO's aquatic weed harvesting program on Lake Washington, deploying modern equipment to enhance efficiency. This initiative continued until Seattle METRO merged with King County. Subsequently, we established permanent operations in Washington State in 1986, gradually expanding our presence across the Western United States.

Since 1988, AquaTechnex has been a contracted partner of the US Army Corps of Engineers Aquatic Plant Control Research Program, contributing to the development and application of

cutting-edge weed management technologies. Our involvement has enabled us to operationalize various herbicides, pioneer the utilization of airborne imaging systems and aquatic plant harvesting software, and support research initiatives such as flowering rush treatment on the Columbia River system.

Presently, AquaTechnex stands as the largest commercial aquatic application enterprise in Washington State, leading in terms of acres treated and financial volume. Since the inception of the Washington Department of Ecology Freshwater Aquatic Weed Fund in 1993, our team has secured over 80% of competitive Requests for Proposals (RFPs) for control work funded by the program.

Our team possesses extensive experience in surveying and mapping aquatic plants across vast lake and river systems. We were pioneers in utilizing DGPS technologies for aquatic vegetation mapping and have been leveraging Geographic Information System (GIS) technologies since 1994. Noteworthy projects include mapping invasive aquatic weeds along the Columbia River and surveying Eurasian Milfoil in north Idaho lakes using advanced aerial, boat, and hydro-acoustic survey methods.

Moreover, we have embraced the use of aerial drone systems for surveying lakes, allowing for efficient and detailed data collection over large water bodies. By deploying drones equipped with specialized sensors and cameras, we can gather high-resolution imagery and spatial data, facilitating precise mapping of aquatic vegetation, water quality parameters, and shoreline features. This technology enables us to conduct comprehensive assessments of lake ecosystems, aiding in the development of targeted management strategies for invasive species control and habitat restoration.

Resumes of all Personnel

Our Team

If selected for this mission, our team would consist of the following members, with additional field biologists assisting as needed. All personnel listed hold current Washington Department of Agriculture Pesticide Applicators or Operators licenses with an aquatic endorsement.

Terence McNabb, Aquatic Biologist, CLM

Terry is a graduate of Michigan State University with a degree in Water Resource Management. Hs has managed aquatic invasive species and HAB control programs nationally since the early 1970's. He is a Certified Lake Manager, a past president of the North American Lake Management Society (www.nalms.org) and the Aquatic Plant Management Society (www.apms.org) and held office in regional chapters of both groups. He has consulted around the world on water quality, invasive aquatic species and HAB management through the US Asia Environmental Partnership. Terry has managed an extensive number of lake restoration projects since the start of Aquatechnex throughout the Western United States. Terry has developed and managed successful HAB mitigation projects for decades. Terry holds the NALMS Certified Lake Manager (CLM) designation. Terry is also a DOT & FAA-licensed drone pilot (License No. 4930450) who will be responsible for conducting drone video surveys on Barnes Lake.

Kyle Langan, PNW Regional Manager, Aquatic Specialist, CLM – AquaTechnex LLC.

Kyle Langan is a Pacific Northwest Regional Manager and Aquatic Specialist at AquaTechnex, a position he has held for over 20 years. Kyle is responsible for managing over 80 waterbodies per year planning and implementing invasive and nuisance species control projects, water quality monitoring, water quality restorations, HAB management, aquatic plant surveying and GIS mapping. Kyle has a B.S. degree in Natural Resource Science and Management from Washington State University. Our mission is to Advance the Science of Lake Management. Kyle holds the NALMS Certified Lake Manager (CLM) designation. Kyle will be responsible for operating surveying & treatment vessels as well as operating machinery for herbicidal applications.

Braden O'Neil, Aquatic Biologist

Braden graduated from Central Washington University with a Bachelor of Science degree in Biology and a specialization in Ecology. Braden started working with AquaTechnex in 2013 as a seasonal pesticide applicator and began working full-time for the company as a biologist in 2014. During his time working for AquaTechnex, Braden has assisted and lead numerous surveys in lakes and river systems and is proficient in the techniques and technologies used to perform plant identification and mapping.

Scott Conrade, Aquatic Biologist

Scott Conrade graduated from the State University of New York (SUNY) at Oneonta with his undergraduate degree in Environmental Science in 2017. He, however, began his water resource management career in 2015 in New York State. Over the last several years, he has worked across the U.S. doing Army Corp of Engineer/Cornell University PIRTRAM (Point Intercept Rake Toss Relative Abundance Method) vegetation surveys, water sampling, water quality restoration and invasive species management across a diverse array of aquatic systems. Scott has also been part of several cutting-edge projects, including the first Procellacor treatment in the Adirondack State Park in New York at Minerva Lake, water solder removal on the Trent River System in Ontario, CA, and the Erie Canal and Cayuga Lake treatment of Hydrilla for the Army Corps of Engineers. Most recently, he was a part of the Moses Lake phosphorus mitigation project and the Snake River Quagga mussel removal. Scott joined our team in 2021 and has furthered his career here in the PNW.

List of Infractions

Aquatechnex and its staff have not been party to any enforcement action by any state or federal agency.

Reference Projects

Vancouver Lake Eurasian Milfoil Control Program, Friends of Vancouver Lake, Kathy Gillespie 360-901-6538 or kathy.e.gillespie@comcast.net.

Vancouver Lake is a shallow 2700-acre waterbody that was experiencing an expanding population of Eurasian Milfoil. This invasve aquatic weed was impacting the rowing and sailing activities on the lake. By 2020 the infestation had spread to 700 acres. Aquatechnex performed a mapping and treatment plan development, we mobilized three herbicide application teams to the lake and used ProcellaCOR herbicide to remove the Eurasian Milfoil from the system. Surveys by Washington Department of Fish and Wildlife confirmed that the program was a complete success. A video of this project can be viewed at Lake & Pond Heroes - Vancouver Lake on Vimeo

Lake Stevens Aquatic Plant Management and Phosphorus Mitigation Project, Shannon Farrant, 425-622-9442 or sfarrant@lakestevenswa.gov

In 2010, the City of Lake Stevens recognized an expanding problem with invasive aquatic weed growth in this 1,100-acre lake. Through an RFP process, Aquatechnex was selected as the most qualified respondent to develop treatment plans and implement a control program. This project was highly successful, and the city has retained us each year since to manage problem aquatic vegetation. In 2013, the city was faced with capital costs to replace a failing hypo-limnetic aeration system and asked us to begin a program of phosphorus sequestration to prevent Harmful Algae Blooms. We developed a program and have been implementing annual treatments in the years since.

Snohomish County Surface Water Management, Jennifer Oden, 425-262-2601 or jennifer.oden@co.snohomish.wa.us

We have performed several successful aquatic herbicide treatment programs for the county on a number of their lakes since 2000. This includes targeting Eurasian Milfoil and other invasive species on Shoecraft, Goodwin, Twin and Sunday Lakes. In 2022 our team won a multiyear contract to provide all of their aquatic invasive aquatic weed control work county wide.

Kitsap Lake Phosphorus Management and Aquatic Plant Harvesting Project, City of Bremerton, Chance Berthiaume 360-473-5929 or chance.berthiaume@ci.bremerton.wa.us

In 2019, the City at the request of lake residents issued an RFP to develop a phosphorus management plan to deal with Harmful Algae Blooms that caused repeated closures of Kitsap Lake. We performed the data collection and monitoring required to identify the cause and propose solutions to the problem. Our team then won the RFP to implement that plan. We have treated Kitsap Lake with Lanthanum Modified Clay (EutroSORB G) for three summers with a high degree of success. Water transparency has increased from about 2 feet to 18 feet because of limited algae growth. Cyanobacteria blooms have been nonexistent. We also developed and implemented an aquatic plant harvesting program to help suppress aquatic weed growth that has increased with better light penetration resulting from lower algae populations. A video of this project can be viewed at Lake & Pond Heroes – Kitsap Lake on Vimeo

Proposed work plan.

Task 1.1, Pretreatment Aquatic Vegetation Survey

During mid-late spring each year, Aquatechnex biologists will coordinate with residents to launch a boat from a residential property. Biologists will then mobilize to Barnes Lake with a DJI MAVIC 3 Multispectral drone to conduct aerial video surveying of Barnes Lake and an airboat or small jon boat (depending on boat launch conditions) to conduct an aquatic plant mapping survey. A surveying boat will be teamed with experienced scientists who can rapidly quantify aquatic weed problems in large lake systems. We would deploy a mapping vessel to Barnes Lake and collect both aquatic plant biovolume via hydro-acoustic technology and use Trimble TCI600 DGPS data logging receivers. Subsequently, a drone will be used to capture photographs to identify plant growth and changes over time in Barnes Lake, comparing pre-treatment survey images as well as images taken from previous years to track changes in plant communities, specifically bladderwort and white-water lilies. All this data is ported directly to ArcGIS mapping software where it is assembled and then can be presented in a report to the City of Tumwater along with findings and treatment recommendations.

Additionally, these maps are loaded into our ArcOnline account for both presentation to the city and for the LMD. Below are examples of such maps used to communicate the location of treatment zones:

- Lake Tahoe Research Project: https://arcg.is/0jmLv9
- Moses Lake Treatment Program: https://arcg.is/1Kbz9G0
- Okanogan County Aquatic Weed Survey: https://arcg.is/nXKrb

Task 1.2 Post treatment Survey

Aquatechnex biologists would duplicate the boat and drone survey work performed in the pre-treatment effort. Using hydroacoustic systems from our watercraft, we will be able to survey and calculate the percentage of vegetation controlled for that year. This would also be used in the year-end report. If any areas require additional focus, these would be reported to the city with mapping support and suggestions for management.

Note Regarding Drone Surveying

Barnes Lake is located within the Olympia Airport Class D airspace. To fly in controlled airspace, a remote pilot must receive approval from the FAA first. OLM/Olympia Regional Airport is a participant in the Low Altitude Authorization and Notification Capability (LAANC) system. Our team will work within this system, no flights can legally operate without this clearance. We will apply upon the award of contract.

Task 2.1, Aquatic Plant Management

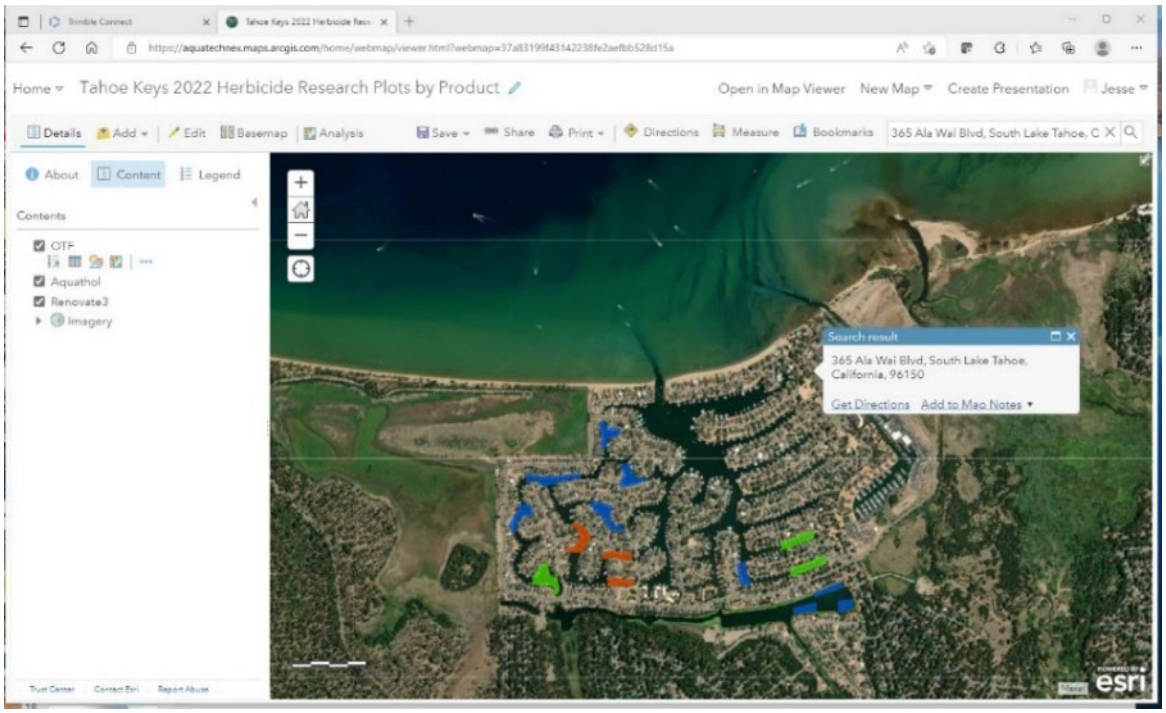
Upon selection for this project, we will seamlessly facilitate the transfer of permit coverage and submit the necessary forms to Ecology. With extensive permit coverage and a team of licensed aquatic applicators, we are well-equipped to manage all aspects of aquatic plant & algae management efficiently.

Task 2.2 Public Notification of treatment

The Ecology NPDES permit requires notification of the public affected by any treatment near their shoreline property. We will provide the required 10-day business and residential notice to all lakeshore properties adjacent to treatment areas and within the prescribed quarter-mile zones.

We will provide the City of Tumwater with a copy of the notice published in the local paper and post all lake properties affected by the treatment restrictions the day prior to application.

In addition, we will publish a treatment map via ArcOnline and put the URL on all notices sent to residents, place on signage and in the paper notice. Residents and interested parties can then go to the ArcOnline map and see exactly where the treatment polygons are in relationship to their property.



There is a box in the top right corner where an address can be entered, and the location will be displayed on the map. People can easily see if they are subject to water use restrictions in this way.

Task 2.3 and 2.4 Herbicide treatments

We will carefully consider the timing and selection of herbicide treatments to maximize effectiveness and minimize environmental impact. Recommendations will be based on thorough analysis of mapping data from previous years. For bladderwort control, we propose utilizing SonarOne (Fluoridone), a proven herbicide known for its effectiveness and selectivity in targeting bladderwort. This would only be for the 2025 season and then we would return to spot treatments utilizing Diquat or Aquathol K (Endothall) in future seasons as needed. Additionally, for white water lily and watershield management, we recommend ClearCast (Imazamox), a targeted herbicide specifically designed to control white water lilies and watershield while minimizing harm to surrounding vegetation. ClearCast is a certified “reduced risk” herbicide by the EPA. This means that it is less harmful to humans and the environment. It also has lower use rates than some other chemistries on the market.

Due to the treatment of White waterlily over the years, sediment rooted floating mats have become problematic on Barnes Lake which can impede recreation and impact water quality. We will move floating mats as reasonably needed by the residents on Barnes Lake.

Approval for these treatments will be sought from the City of Tumwater and Barnes Lake Management District prior to implementation. AquaTechnex anticipates mobilizing to Barnes Lake at least two-three times per year for treatment services. However, this will be dependent upon survey results and possible individual spot treatments for residents on the lake. Our

approach ensures strategic and responsible management of aquatic vegetation, promoting the health and balance of Barnes Lake's ecosystem.

Task 3, Project Reports

Aquatechnex biologists will develop and submit a final report that meets all the conditions outlined in the RFP. We would be available to present this information to the city of Tumwater and residents on Barnes Lake.

Task 4, Communications

Communication can be the most important part of the treatment process. Our team will assign a biologist as a key point of contact (Scott Conrade) who will be fully aware of the program and tasks we are responsible for. We will maintain active communication with the city of Tumwater, the residents of Barnes Lake, and will respond to any questions or concerns.

We will develop an online treatment map and publish that URL so residents can view treatment locations, herbicides to be used and water use restrictions. This map can be zoomed in and out to locate a resident's property and its relationship to a treatment zone. This can dramatically improve people's understanding of the process and impact of nuisance aquatic plants on property owners who live on waterways.

We will be available to meet with the City of Tumwater if necessary to discuss survey analysis and recommendations going forward.

Budget

Management Services	**Unit Cost**	**2024**	**2025**	**2026**	**Total Cost**
Annual Spray Report	$175.20	$175.20	$175.20	$175.20	$525.60
Aquatic Vegetation Survey	$1,314.00	$2,628.00	$2,628.00	$2,628.00	$7,884.00
Drone Survey	$657.00/survey	$1,971.00	$1,971.00	$1,971.00	$5,913.00
Public business and residential notice	$273.75	$273.75	$273.75	$273.75	$821.25
Day of treatment posting	$167.10	$501.30	$501.30	$501.30	$1,503.90
Year End Report	$400.00	$438.00	$438.00	$438.00	$1,314.00
Insurance	$200.00/year	$200.00	$200.00	$200.00	$600.00
Management Services Subtotal		$6,187.25	$6,187.25	$6,187.25	$18,761.75

Treatment Services	Unit cost	2024	2025	2026	Total Costs
Mobilization for treatment	$300.00/trip	$900.00	$900.00	$900.00	$2,710.14
Whole Lake Treatment with SonarOne for Bladderwort (Fluoridone) (Labor included)	Initial app. $29,000.00 Second app. $5,550.00	$0.00	$34,550.00	$0.00	$34,550.00
Bladderwort spot treatments (Diquat)	$380.00/acre of treatment	$766.50	$0.00	$815.00	1,581.50
White water lily and watershield treatment with labor (Imazamox)	$350.00/acre (60% of the lake is 18 acres)	$692.04	$6,300.00 (Max of 18 acres)	$6,489.00 (Max of 18 acres)	$13,481.04
Floating Mats (Labor)	$327.50/trip	$657.00	$657.00	$657.00	$1,971.00
Launch Site Improvements	$500.00	$500.00	$500.00	$500.00	$1,500.00
Treatment Services Subtotal		$5,243.92	$42,907.00	$9,359.00	$55,793.64
Management Reserve		**$5,000.00**	**$5,000.00**	**$5,000.00**	**$15,000.00**
Total Project Budget Amount		**$6,431.43**	**$57,955.88**	**$21,388.56**	**$89,555.39**

Thank you for your time and consideration. For any inquiries, please contact Scott Conrade via email at scott@aquatechnex.com or by phone at 360-330-0152 (Office) or 360-399-9165 (Cell). We look forward to collaborating with the City of Tumwater to enhance the lake's beneficial uses from 2024-2026.

Scott Conrade
Aquatic Biologist
AquaTechnex, LLC.
P.O. Box 118
Centralia, WA 98531

2025 Budget

ACCOUNT DESCRIPTION	BUDGET	TRANFRS/ ADJSMTS	REVISED BUDGET	YTD ACTUAL	AVAILABLE BUDGET	% USED
SPECIAL ASSESSMENTS	$ 292	$ -	$ 292	$ -	$ 292	0%
OFFICE SUPPLIES	$ 350	$ -	$ 350	$ -	$ 350	0%
OPERATING SUPPLIES	$ 1,500	$ -	$ 1,500	$ -	$ 1,500	0%
PROFESSIONAL SERVICES*	**$ 39,500**	$ -	$ 39,500	$ -	$ 39,500	0%
AquaTechnex	$ 17,000	$ -	$ 17,000	$ -	$ 17,000	0%
IAVMP Update	$ 15,000	$ -	$ 15,000	$ -	$ 15,000	0%
Laboratory Services	$ 7,500	$ -	$ 7,500	$ -	$ 7,500	0%
MISC - LICENSES PERMITS & FEES	$ 750	$ -	$ 750	$ -	$ 750	0%
FINANCE / RECORDS MGMT SVCS	$ 2,040	$ -	$ 2,040	$ -	$ 2,040	0%
LMD OPERATING RESERVE	$ -	$ -	$ -	$ -	$ -	0%
TOTAL EXP	**$ 44,432**	**$ -**	**$ 44,432**	**$ -**	**$ 83,640**	**0%**
BEGINNING FUND BALANCE	$ 58,000	$ -	$ 58,000	$ 58,000		
MISC CREDITS	$ -	$ -	$ -	$ -		
ASSESSMENTS	$ 21,034	$ -	$ 21,034			
TOTAL REV	**$ 79,034**	**$ -**	**$ 79,034**	**$ 58,000**		
FUND BALANCE	**$ 34,602**		**$ 34,602**	**$ 58,000**		

* Professional Services include contract services, community outreach, and water quality monitoring.