



**TWSA BOARD MEETING
PACKET
For 03/03/2021**

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NOTICE OF MEETING:

The next regular meeting of the Tahoe Water Suppliers Association (TWSA) is:

TWSA Board Meeting Quarter 1 – virtual via GO TO MEETING

Wed., March 3, 2021 - REVISED START TIME > 1:00 PM - 4:00 PM (PST)

Please join my meeting from your computer, tablet or smartphone.

<https://global.gotomeeting.com/join/831590261>

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A. Introduction of Guests

B. Public Comment Conducted in accordance with Nevada Revised Statute (NRS) Chapter 214.020 and limited to a maximum of 3 minutes in duration.

C. Presentations – none scheduled

D. Approval of Agenda for the March 3, 2021 TWSA Board Meeting

E. Approval of Minutes for the December 2, 2020 TWSA Board meeting

F. Reports

a. **Staff Reports** (Outreach, 2021 Events, Special Projects)

b. **Snapshot Day Agency Participation**

c. **Current budget** - see attached and Open Gov. link for current budget and expenses:

https://inclinevillageidnv.opengov.com/transparency#/49095/accountType=revenuesVersusExpenses&embed=n&breakdown=types¤tYearAmount=cumulative¤tYearPeriod=years&graph=bar&legendSort=coa&month=12&proration=true&saved_view=180055&selection=A8D4ADCA6B83446B5B0998AC00CF6C02&projections=null&projectionType=null&highlighting=null&highlightingVariance=null&year=2021&selectedDataSetIndex=null&fiscal_start=2021&fiscal_end=latest

d. **TWSA Chair Report**

G. General Business (for possible action):

a. TWSA Proposed Budget for 2021-22

b. TKPOA Control Methods Test update

c. COVID-19 operations roundtable discussion

H. Purveyor Updates

I. Public Comment

J. Adjournment

2021 TWSA Board Meetings – First Wednesdays, quarterly, held from 1 to 4 pm; virtual until further notice.

- March 3
- June 2
- Sept 1
- December 1

TWSA Board of Directors

Suzi Gibbons (Chair)	North Tahoe Public Utility District
Andrew Hickman	Round Hill General Improvement District
Richard Robilliard; Phil Ritger (alternate)	Douglas County Systems
Patrick McKay; Mike McKee (alt.)	Edgewood Water Company
Cameron McKay	Glenbrook Water Cooperative
Keith Rudd; Bob Lochridge (alt.)	Incline Village General Improvement District
Cameron McKay; Brandon Garden (alt.)	Kingsbury General Improvement District
Nakia Foskett	Lakeside Park Association
Kim Boyd; Tony Lalotis (alt.)	Tahoe City Public Utility District
Shelly Thomsen (Vice-chair); Lynn Nolan (alt.)	South Tahoe Public Utility District

For more information, please contact: Madonna Dunbar, TWSA Executive Director
1220 Sweetwater Road, Incline Village, Nevada 89451
(775) 832-1212 office / (775) 354-5086 cell /email: mod@ivgid.org

Certification of posting of agenda = Physical Posting Suspended - Covid-19 restrictions.

Online posting and email delivery of notice provided.

In compliance with State of Nevada Executive Department, Declaration of Emergency Directive 006, 016 and 018, this meeting is closed to the public and attendance is limited to members of the Board of Trustees and essential staff. Public comment is allowed and the public is welcome to make their public comment either via e-mail (please send your comments to mod@ivgid.org by 5 p.m. on Tuesday, March 2, 2021 or via telephone (775-354-5086) on the day of the meeting.

By, Madonna Dunbar, Executive Director, TWSA

Notes:

Items on the agenda may be taken out of order; combined with other items; removed from the agenda; moved to the agenda of another meeting; moved to or from the Consent Calendar section; or may be voted on in a block. Items with a specific time designation will not be heard prior to the stated time, but may be heard later. Members of the public who are disabled and require special accommodations or assistance at the meeting are requested to call IVGID at 832-1212 at least 24 hours prior to the meeting.

TWSA agenda packets are available at the TWSA website www.TahoeH2O.org or the TWSA office at 1220 Sweetwater Road, Incline Village, Nevada 89451.



**The regular meeting of the Tahoe Water Suppliers Association (TWSA) was held on
Wednesday, December 2, 2020, noon to 3:30 pm
GoToMeeting web conference
Minutes**

A. Introduction of Guests

Joanne Marchetta (TRPA), Rob Tucker (Lahontan), Jeremy Pratt (TRC), Jim Good (ESA), Caelan McGee (Zephyr Collaborative), Dennis Zabaglo (TRPA), Jesse Patterson (League to Save Lake Tahoe), Kim Caringer (TRPA), Kirk Wooldridge (Tahoe Keys POA), Russell Norman (Lahontan), Jennifer Mair (Zephyr Collaborative), Joe Pomroy (NTPUD)

B. Presentations

The TWSA Board was presented TKPOA Control Methods Test presentations from TRPA, Lahontan, League to Save Lake Tahoe, and Zephyr Collaborative.

Roll Call - Members in Attendance: Suzi Gibbons (NTPUD), Keith Rudd (IVGID), Brandon Garden (KGID/Glenbrook), Kim Boyd (TCPUD), Richard Robillard (Douglas County), Philip Ritger (Douglas County), Shelly Thomsen (STPUD), Patrick McKay (Edgewood).

TWSA Staff in attendance: Madonna Dunbar and Sarah Vidra
Regulators: Reginald Lang (NDEP)

C. Public Comment Conducted in accordance with Nevada Revised Statute (NRS) Chapter 214.020 and limited to a maximum of 3 minutes in duration.

No public comment was given.

D. Approval of Agenda for the December 2, 2020, TWSA Board Meeting

Motion to approve agenda as submitted made by Shelly Thomsen, second by Brandon Garden, all in favor; motion carried.

E. Approval of Minutes for the August 26, 2020, TWSA Board meeting.

Motion to approve minutes from August 26, 2020, as submitted made by Brandon Garden, second by Patrick McKay, all in favor; motion carried.

F. Reports

a. Staff Reports (Outreach, Events, Projects)

- Staff highlighted several activities from the quarter; a full activity report is available in the Board Packet.
- *NDEP 319 (h) Pilot Project to Reduce Source Water Plastic Pollution at Lake Tahoe* is moving forward. Raley's Klean Kanteen "Drink Tahoe Tap" bottles are in seven regional stores, with a planned 2021 Earth Day campaign in additional locations. Raley's will be giving a portion of the proceeds back to the Tahoe Fund for a water-related project. The educational portion of the project will be implemented in 2021, with the Envriolution Student group doing a sustainability tour/walkthrough with Raley's staff on plastic reduction and green business practices. The Executive Director is providing grant administration for the collaborative group.

- Staff will be submitting the *2020 Watershed Control Program Annual Report* by the end of the year. Data submissions can be made to TWSA Staff on a monthly to streamline the process.
- b. Current budget - see attached and Open Gov. link for current budget and expenses.
 - FY19-20 closed. The current budget is \$120K, and the reserve is holding \$167K.
- c. TWSA Chair Report
 - The chair recognized Joe Pomroy for his dedicated service to the TWSA during his time as IVGID representative. The TWSA presented him with a TRPA 50th-anniversary coin.

“The Tahoe Water Suppliers Association would like to honor Joe Pomroy for his 13 years of dedicated service on the TWSA Board. Joe has taken a position with the North Tahoe PUD as the Engineering and Operations Manager, replacing Will Stelter, who has taken a position with the Tahoe City PUD.

Among one of Joe’s many contributions as a member of the TWSA Board was to work with TRPA to revise the Public Works MOU. This was a major accomplishment benefitting member agencies, allowing the agencies to do more work as Exempt or Qualified Exempt activities.”
- Suzi Gibbons, TWSA Chair, December 2, 2020.

G. General Business (for possible action):

- a. TKPOA Control Methods Test (CMT) – discussion

Open forum, no action taken.

The Board discussed the presentations on the TKPOA Control Methods Test. Highlights are summarized as follows:

- The proposed test timeline is implementing a project in May/June 2021 after certification of the EIR, granting a Basin Plan Prohibition Exemption and adoption of an individual NPDES permit for pesticide discharge in May/June 2021.
- Commending the project team on the concrete science, implementation of new technologies, and the opportunity to participate in the boat tour of the keys.
- Is the current CMT application for pesticide application really a one-time application of herbicide? How does it look on the large scale if the test finds herbicides are the tool?
 - Based on the CMT results, a holistic approach to the keys' full-scale treatment will be evaluated with an additional environmental assessment and permitting process.
 - The Executive Director suggested the 2018 full-scale treatment application as the plausible execution of a treatment plan, with one treatment of each site, phased throughout the lagoons.

- If herbicides are going to be used after the CMT, it's not really a one-time application treatment.
- How many days will recreation be restricted for herbicide treatment
 - Each area one week to one month, depending on the herbicide used at the treatment site.
- Antidegradation Analysis (AA) Status
 - The Antidegradation Analysis is a discretionary action for the Lahontan Board. TRPA will not be taking action.
 - The AA will be provided alongside the NPDES permit, as it is a federal requirement associated with water quality.
 - Citations in the AA will be from the CEQA EIR/EIS analysis. Some additional information will be provided, but the required analysis has already been provided in the draft EIR/EIS documentation.
 - The AA is not required for the CEQA EIR/EIS certification, though referenced throughout the provided CMT DEIR/EIS documentation. An individual NPDES permit will be used, not the statewide general permit for pesticide application. Water Quality Order No. 2013-0002-DWQ; General Permit No. CAG990005- "STATEWIDE GENERAL NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR RESIDUAL AQUATIC PESTICIDE DISCHARGES TO THE WATER OF THE UNITED STATES FROM ALGAE AND AQUATIC WEED CONTROL APPLICATIONS" December 1, 2013.
 - The AA is not required to grant the Lahontan Basin Plan Prohibition Exemption because an individual NPDES permit will be used to discharge aquatic pesticides.
- Contingency monitoring stations discussion: As proposed in the Aquatic Pesticide Application Plan (APAP), monitoring will be done just outside and in-between treatment areas. The contingency monitoring in the center of the main lagoon, if detected, then the enhanced monitoring locations would be sampled in Lake Tahoe.
- APAP (Application) information provided by TWSA Staff to clarify to Lahontan Staff:

<https://www.trpa.org/wp-content/uploads/Tahoe-Keys-DRAFT-Appendices-A-H.pdf>

Appendix C: Aquatic Pesticide Application Plan, page 30/394

 - 6.0 Containment and contingency control structures used to control movement to receiving waters, page 62/394.
 - 8.0 Description of the Monitoring program, 68/394.
- Final mitigation and monitoring plan will the equipment be on site?

- The suite of monitoring plans are in development.
 - EIR/EIS Mitigation/monitoring/reporting program
 - Pre/post application biological monitoring reporting program
 - NPDES water quality monitoring and reporting program
- The TWSA AIS subcommittee will reconvene in 2021 to discuss additional documentation, including the draft NPDES permit and the final EIR/EIS.

b. Adoption of 2021 Board Dates

Motion to approve dates as submitted starting at 1:00 pm, made by Patrick McKay, Second Kim Boyd, all in favor; motion carried.

c. COVID-19 operations roundtable discussion

NTPUD – No Changes

IVGID - No Changes

KGID- closed office to the public, staff that is available to work from home is. No more than two people in the same building at the same time. Direct laboratory drop point to reduce contact with KGID staff. NDEP provided operators with critical worker cards.

NDEP- staff doing half-day a week in the office.

Douglas County – two operators at the lake system are alternating ten days apart.

STPUD- had moved back to normal operations, and will be back to staggered schedules, and closed front office. Increased water production, possibly influenced by additional occupancy due to COVID-19 relocation.

Edgewood – No changes

TCPUD- No update provided.

H. Purveyor Updates

IVGID - The district completed the slip line of 10-inch fusible PVC pipe into a 14-inch pipe under HW-28. The water tank safety upgrades were completed. Water production numbers were increased for October, and any influence from increased occupancy has been overshadowed by snow production at Diamond Peak starting in November.

KGID – Completed waterline and service line replacements. Final touches on approval for chlorine generation with NDEP.

Glenbrook – no update provided.

RHGID- no update provided.

NDEP – Sanitary surveys were canceled or postponed until they can be done in person. Surface water systems can be visited every three years.

Douglas County – Cave Rock water system is working on capital improvement projects with Sierra Nevada Construction via CMAR with HDR as the design engineer. ZWUD system PLC upgrades to get rid of the current system is currently under bid.

STPUD – increased water usage in November, possibly due to increased occupancy due to Covid-19. The district finished 4700 feet of water line replacement. The pilot for the *Urban Water*

Budget for Outdoor Landscaping draft report assessed a 3% irrigable area for the STPUD service area (significant underestimation of irrigable landscaping).

NTPUD – The Zone Two water main loop project is complete. The districts’ water modeling software has been updated to include hydrants. The district is looking into future co-located projects with utilities to upgrade water mains.

Edgewood- Relocation of 1700 feet of 14-inch water main pipe is complete through the Mont Bleu Casino to access the event center in 2021.

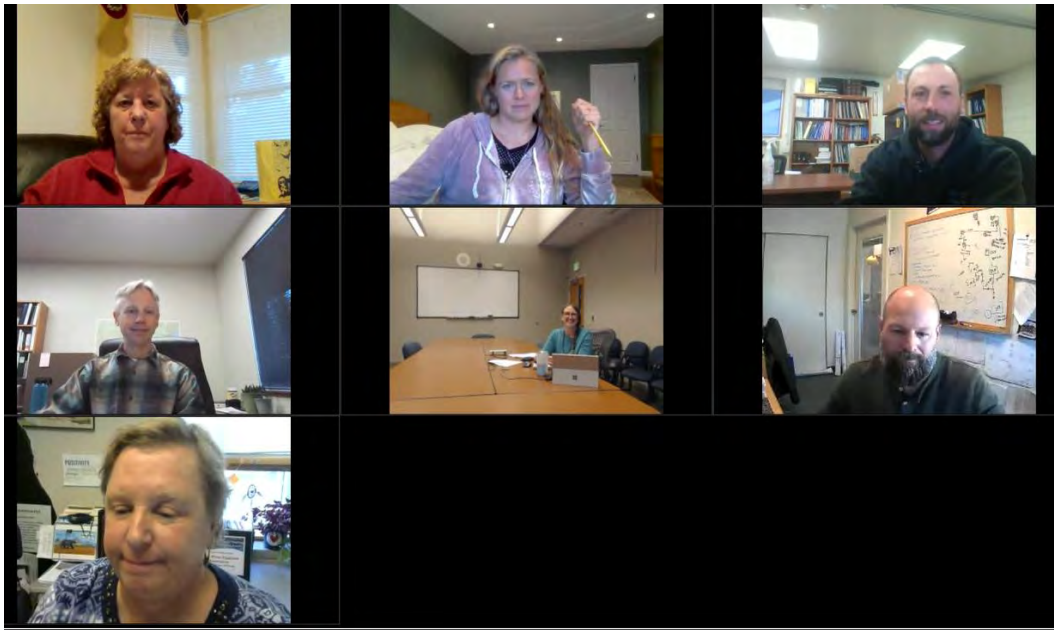
TCPUD- no update provided.

Public Comment

No public comment was given.

I. Adjournment

Motion to adjourn made by Shelly Thomsen, second by Patrick McKay, all in favor motion passes Meeting Adjourned at 3:27 pm.



MEMORANDUM

TO: TWSA Board
 CC: Suzi Gibbons, TWSA Chair
 FROM: Madonna Dunbar, IVGID Resource Conservationist
 SUBJECT: TWSA – Q1 - 2021 Activities / Events
 DATE: February 19, 2021

On-site events are not being planned for 2021 due to COVID-19 restrictions.

School Programs:

On-site student activities are on hold due to Covid-19 crisis. However, the outreach continues. We are collaborating with TERC and SWEP to support regional peer student on-line education efforts through 2021. The micro-plastics reduction education project is actively in place, with local students collaborating with the Raley's supermarket Sustainability team on ways to reduce single use plastics in the stores. There was a presentation offered to the Tahoe Truckee Envirolution Club on January 25, 2021 where the Raley's Sustainability team, presented on the company sustainability commitments and operation as well as benchmarking. The students also had follow-up questions and are slated for further engagement in spring 2021.

Project Coordinators:

- Heather Segale & Elise Matera, UC Davis TERC
- Ashley Phillips & Missy Mohler, SWEP
- Madonna Dunbar, IVGID
- Sarah England, Raleys

Student Groups:

- Envirolution Club, North Tahoe High School
- Envirolution Club, Truckee High School
- Roots & Shoots Club, Incline High School
- Generation Green, South Tahoe High School

TWSA / Water Conservation / Water Quality:

TWSA staff have initiated the DRINK TAHOE TAP trademark renewal process to maintain the brand trademark for 5 more years.

TWSA staff completed the production and distribution of the *2020 TWSA Annual Watershed Control Program Annual Report*. This 500+ page report is an annual submittal required by the US EPA filtration exemption permits for 6 of the TWSA members.

The report is posted online at: [https://www.yourtahoepace.com/uploads/pdf-public-works/CORRECTED - 2020 TWSA Annual Report \(NO MAPS\) - smaller size.pdf](https://www.yourtahoepace.com/uploads/pdf-public-works/CORRECTED - 2020 TWSA Annual Report (NO MAPS) - smaller size.pdf)

TWSA staff facilitated the TWSA quarterly Board meeting on Dec 2, 2020, by virtual format. At the meeting, TRPA, League to Save Lake Tahoe and Lahontan Water Board staff offered 2 hours of presentation to the Board on the Tahoe Keys Controls Methods Test. This test (seeking approval for the potential use of herbicides) has been a major focus for staff, and is projected for decision making (by Lahontan Water Board) in late 2021.

Earlier in fall, staff prepared and submitted public comment letters on:

- 1) TAHOE KEYS CONTROLS METHODS TEST environmental review documents (CEQA/NEPA) https://www.trpa.org/wp-content/uploads/Tahoe-Keys_DRAFT-EIR-EIS.pdf and
- 2) LAKE-WIDE CONTROL OF AQUATIC INVASIVE PLANTS PROJECT LAKE TAHOE, CALIFORNIA AND NEVADA https://tahoercd.org/wp-content/uploads/2020/08/TRCD_Lakewide_Control_of_AIP_IS_IEC_EA.pdf

Staff has prepared and distributed a comprehensive summary document on the current status of the TKPOA application and review process. This is posted at:

https://www.yourtahoepace.com/uploads/pdf-public-works/TKPOA_CMT_TWSA_Staff_Summary_01292021.pdf

Website for current information is: <https://tahoekeweeds.org>.

Staff continues to meet with the multi-agency Stakeholder Circle members including League and Tahoe RCD staff to discuss potential AmeriCorps AIS diver team, next steps. Several meetings were held with stakeholders to discuss this and share other potential grant resources. A proposal is being drafted where the League to Save Lake Tahoe (League) could host six half-year positions (22.5 weeks/900 hours per position) as part of the Sierra Nevada Alliance Partnership (SNAP) summer/fall Serve the Sierra AmeriCorps 2022 program.

Staff monitors the monthly TRPA Shorezone Project Review Committee Project Application Meetings.

A Drink Tahoe Tap ad is running in the (summer and winter) Tahoe.com regional publication.

Staff initiated the TWSA/Tahoe Fund Water Bottle Filling Station Grant Program on Aug. 1, 2019. Tahoe Fund has provided a \$10K match for the project. To date, 10 grants have been issued with 10 applications active.

Media coverage: <https://www.kolotv.com/content/news/Tahoe-business-owners-could-add-water-refill-station-inside-stores--525119571.html>

Mobile water station event use has been temporarily stopped due to Covid-19 crisis. Staff has prepared a BMP factsheet of enhanced sanitation practices for station maintenance.

Work is also being conducted to bolster the number of available refill stations on the Tap App. 48 fill station locations are logged on the TAP APP, up from 22 in Dec. 2019. Details are posted at www.TahoeH2O.org

Staff attends the bi-weekly Tahoe Care Marketing and Outreach meetings. The Microplastics Education and Drink Tahoe Tap Water Projects are key current Take Care Partner messages. TWSA/WasteNot messages remain active in the Take Care messaging pool.
<https://takecaretahoe.org>
www.DrinkTahoeTap.org

The 'Cigarette Bin Collection Project' initiated between TWSA, League to Save Lake Tahoe and Keep America Beautiful (KAB) began region-wide bin distribution/installation in June 2019. More than 110 bins are installed now in the Basin. More than 8,000 butts have been recorded for collection (this is from a portion of the distributed containers). KAB has provided 250 metal cigarette filter collection bins to IVGID Waste Not (for TWSA) for distribution and use within the Tahoe Basin. Project is ongoing. <https://www.keeptahoeblue.org/our-work/combating-pollution/cigdisposal>

Bottle Filling Stations Installed 2020

Tunnel Creek Café, Incline	1	indoor café at East Shore Trail
Homewood Mnt Resort	1	indoor café
TCPUD – Commons Beach	1	outdoor pedestal
TCPUD – PW offices	2	indoor offices
Boatworks Mall, TC	1	indoor common area
Inn at Boatworks, TC	1	indoor common area
TCPUD Pomin Park	1	outdoor pedestal
TCPUD - Kilner Park	1	outdoor pedestal
Suzi Scoops, Incline	1	indoor at mini-mall

Active / Interested Applicants

Watermans Landing	1	outdoor pedestal
Sunnyside Marina	1	outdoor pedestal
Kahle Park - Douglas County	1	Tahoe Yacht Harbor
UCDAVIS	1	indoor TCES building
Granlibakken	1	lobby
Granlibakken	1	tennis center
Resort at Sq Creek	3	
Mourelatos	1	
Austins/Fumo	2	2 x restaurants
Tahoe Tutoring	1	
South Tahoe Middle School	2	outdoor freeze proof

2

**INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT
STATEMENT OF OPERATING SOURCES AND USES**

TAHOE WATER SUPPLIERS ASSOCIATION

CURRENT YEAR TO BUDGET COMPARISON

For Period Ending 02/28/2021

GL Account Number	GL Account Description	Current Month Budget	Current Month Actual	Month Budget Variance	Current YTD Budget	Current YTD Actual	YTD Budget Variance	Total Budget	Remaining Budget
OPERATING SOURCES									
200-28-990-4417	Service & User Fees	0	0	0	171,800	149,203	-22,597	178,800	-29,597
	Sales and Fees	0	0	0	171,800	149,203	-22,597	178,800	-29,597
	Fines and Penalties	0	0	0	0	0	0	0	0
	TOTAL OPERATING SOURCES	0	0	0	171,800	149,203	-22,597	178,800	-29,597
OPERATING USES									
200-28-990-5010	Regular Earnings	4,529	961	3,568	35,503	32,083	3,420	53,327	21,244
200-28-990-5020	Other Earnings	0	0	0	684	13	670	684	670
	Salaries and Wages	4,529	961	3,568	36,186	32,096	4,090	54,011	21,915
200-28-990-5050	Taxes	351	76	275	2,751	2,395	356	4,132	1,737
200-28-990-5100	Retirement Fringe Ben	794	166	628	6,221	5,210	1,011	9,344	4,134
200-28-990-5200	Medical Fringe Ben	1,010	307	703	7,815	6,038	1,777	11,857	5,819
200-28-990-5250	Dental Fringe Ben	79	25	54	628	502	126	942	440
200-28-990-5300	Vision Fringe Ben	9	3	7	75	59	16	113	54
200-28-990-5400	Life Ins Fringe Ben	7	0	7	54	24	30	81	57
200-28-990-5500	Disability Fringe Ben	34	9	25	271	163	108	407	244
200-28-990-5600	Unemployment Fringe Ben	69	16	53	539	477	63	810	333
200-28-990-5700	Work Comp Fringe Ben	115	24	90	899	767	132	1,350	583
	Employee Fringe	2,467	625	1,842	19,254	15,635	3,619	29,037	13,402
	Total Personnel Cost	6,996	1,586	5,411	55,441	47,732	7,709	83,048	35,316
200-28-990-6030	Professional Consultants	0	850	-850	25,000	18,637	6,363	25,000	6,363
	Professional Services	0	850	-850	25,000	18,637	6,363	25,000	6,363
200-28-990-7010	Advertising - Paid	1,000	0	1,000	8,000	3,000	5,000	12,500	9,500
200-28-990-7405	Office Supplies	117	0	117	933	280	653	1,400	1,120
200-28-990-7415	Operating	4,509	500	4,009	36,075	28,345	7,729	54,112	25,767
200-28-990-7460	Postage	25	0	25	125	178	-53	200	22
200-28-990-7470	Printing & Publishing	792	63	729	6,333	5,935	398	9,500	3,565
200-28-990-7680	Training & Education	1,250	0	1,250	10,000	0	10,000	15,000	15,000
200-28-990-7685	Travel & Conferences	200	0	200	1,750	329	1,421	2,500	2,171
	Services and Supplies	7,893	563	7,330	63,216	38,067	25,149	95,212	57,145
	Insurance	0	0	0	0	0	0	0	0
200-28-990-7840	Telephone	0	0	0	270	96	174	540	444
	Utilities	0	0	0	270	96	174	540	444
	Cost of Goods Sold	0	0	0	0	0	0	0	0
200-28-990-7980	Central Services Allocation Cs	500	500	0	4,000	4,000	0	6,000	2,000
	Central Services Cost	500	500	0	4,000	4,000	0	6,000	2,000
	Defensible Space	0	0	0	0	0	0	0	0
	TOTAL OPERATING USES	15,389	3,499	11,890	147,927	108,532	39,395	209,800	101,268
	OPERATING SOURCES(USES)	-15,389	-3,499	11,890	23,873	40,671	16,798	-31,000	71,671

Does not include labor

INCLINE VILLAGE GENERAL IMPROVEMENT DIST
G/L TRANSACTION DETAIL

12

From Date: 07/01/2020
 To Date: 02/19/2021
 From Account: 200-28-990
 To Account:
 Exclude Accounts With No Activity
 Run Date: 02/19/2021
 User: mod

G/L#	EFFECTIVE DATE	DESCRIPTION	STPSOURCE	JE#	DEPOSIT	CHECK	VENDOR	VENDOR INVOICE#	INVOICE TYPE	PO	PROJECT	DEBIT	CREDIT	BALANCE
200-28-990-4417		Service & User Fees										Balance	Forward	0
	07/22/2020	IVGID TWSA Membership Dues FYE 6.30.2021	AJ	GL	339783								31,560	31,560 CR
	08/26/2020	Lakeside Park Association	AJ	GL	342815								6,979	38,539 CR
	08/26/2020	North Tahoe Public Utility District	AJ	GL	342815								15,687	54,226 CR
	08/26/2020	South Tahoe Public Utility	AJ	GL	342815								14,920	69,146 CR
	08/26/2020	Round Hill General Improvement District	AJ	GL	342815								7,456	76,602 CR
	08/26/2020	Kingsbury General	AJ	GL	342815								12,682	89,284 CR
	08/26/2020	Glenbrook Water Cooperative	AJ	GL	342815								8,554	97,838 CR
	08/26/2020	Douglas County Nevada	AJ	GL	342815								22,790	120,628 CR
	08/26/2020	Edgwood Companies	AJ	GL	342815								11,138	131,766 CR
	10/08/2020	Tahoe City Public Utility District	AJ	GL	345314								17,437	149,203 CR
		TOTAL										0	149,203	149,203 CR
200-28-990-4510		Operating Grants - State										Balance	Forward	0
	08/13/2020	NDEP MicroPlastics Grant Receipt	AJ	GL	343858								15,000	15,000 CR
		TOTAL										0	15,000	15,000 CR
200-28-990-5016		Accrued Hourly										Balance	Forward	0
	07/02/2020	Daily Payroll Estimate	AJ	GL	338247							232		232
	07/04/2020	Daily Payroll Estimate	AJ	GL	338249							232		464
	07/07/2020	Daily Payroll Estimate	AJ	GL	338283							232		696
	07/09/2020	Daily Payroll Estimate	AJ	GL	338868							232		928
	07/10/2020	Daily Payroll Estimate	AJ	GL	338899							236		1,163
	07/11/2020	Reverse PR Estimate 7/1/20 - 7/11/20 - Hourly	AJ	GL	338981								1,163	0
	07/16/2020	Daily Payroll Estimate	AJ	GL	339253							232		232
	07/17/2020	Daily Payroll Estimate	AJ	GL	339735							232		464
	07/23/2020	Daily Payroll Estimate	AJ	GL	339772							232		696
	07/24/2020	Daily Payroll Estimate	AJ	GL	339816							232		928
	07/27/2020	Daily Payroll Estimate	AJ	GL	339861							232		1,160
	07/28/2020	Daily Payroll Estimate	AJ	GL	339902							232		1,391
	07/31/2020	Reverse PR Estimate 7/12/20 - 7/25/20 - Hourly	AJ	GL	339858								928	464
	07/31/2020	Reverse PR Estimate 7/26/20 - 7/31/20 - Hourly	AJ	GL	341641								464	0
	08/05/2020	Daily Payroll Estimate	AJ	GL	341442							232		232
	08/06/2020	Daily Payroll Estimate	AJ	GL	341555							232		464
	08/07/2020	Daily Payroll Estimate	AJ	GL	341587							232		696

G/L#	EFFECTIVE DATE	DESCRIPTION	STPSOURCE	JE#	DEPOSIT	CHECK	VENDOR	VENDOR INVOICE#	INVOICE TYPE	PO	PROJECT	DEBIT	CREDIT	BALANCE
13	08/12/2020	Daily Payroll Estimate	AJ	GL	341900							232		928
	08/13/2020	Daily Payroll Estimate	AJ	GL	342073							232		1,160
	08/14/2020	Reverse PR Estimate	AJ	GL	341642								696	464
		8/1/20 - 8/11/20 - Hourly												
	08/14/2020	Daily Payroll Estimate	AJ	GL	342106							232		696
	08/17/2020	Daily Payroll Estimate	AJ	GL	342124							232		928
	08/20/2020	Daily Payroll Estimate	AJ	GL	342410							232		1,160
	08/21/2020	Daily Payroll Estimate	AJ	GL	342493							232		1,391
	08/27/2020	Daily Payroll Estimate	AJ	GL	343027							232		1,623
	08/28/2020	Reverse PR Estimate	AJ	GL	342633								1,391	232
		8/9/20 - 8/22/20 - Hourly												
	08/28/2020	Daily Payroll Estimate	AJ	GL	342921							232		464
	08/31/2020	Reverse PR Estimate	AJ	GL	343530								464	0
		8/30/20 - 8/31/20 - Hourly												
	09/01/2020	Daily Payroll Estimate	AJ	GL	343241							232		232
	09/02/2020	Daily Payroll Estimate	AJ	GL	343242							232		464
	09/03/2020	Daily Payroll Estimate	AJ	GL	343391							232		696
	09/04/2020	Daily Payroll Estimate	AJ	GL	343395							232		928
	09/07/2020	Daily Payroll Estimate	AJ	GL	343398							232		1,160
	09/11/2020	Reverse PR Estimate	AJ	GL	343531								928	232
		9/01/20 - 9/05/20 - Hourly												
	09/11/2020	Daily Payroll Estimate	AJ	GL	343844							232		464
	09/16/2020	Daily Payroll Estimate	AJ	GL	344365							232		696
	09/17/2020	Daily Payroll Estimate	AJ	GL	344366							232		928
	09/18/2020	Daily Payroll Estimate	AJ	GL	344367							232		1,160
	09/22/2020	Daily Payroll Estimate	AJ	GL	345450							245		1,405
	09/23/2020	Daily Payroll Estimate	AJ	GL	345451							238		1,642
	09/24/2020	Daily Payroll Estimate	AJ	GL	345452							241		1,883
	09/25/2020	Reverse PR Estimate	AJ	GL	344523								1,160	724
		9/6/20 - 9/19/20 - Hourly												
	09/25/2020	Daily Payroll Estimate	AJ	GL	345453							232		955
	09/28/2020	Daily Payroll Estimate	AJ	GL	345456							290		1,245
	09/29/2020	Daily Payroll Estimate	AJ	GL	345457							290		1,535
	09/30/2020	Reverse PR Estimate	AJ	GL	345335								0	1,535
		9/20/20 - 9/30/20 - Hourly												
	09/30/2020	Daily Payroll Estimate	AJ	GL	345458							290		1,825
	09/30/2020	Daily Payroll Estimate	AJ	GL	345464								1,825	0
		Clearing												
	09/30/2020	Reverse PR Estimate	AJ	GL	345690								0	0
		9/30/20 - Hourly												
	10/01/2020	Daily Payroll Estimate	AJ	GL	345459							290		290
	10/05/2020	Daily Payroll Estimate	AJ	GL	345426							232		522
	10/06/2020	Daily Payroll Estimate	AJ	GL	345427							238		759
	10/07/2020	Daily Payroll Estimate	AJ	GL	345431							238		997
	10/08/2020	Daily Payroll Estimate	AJ	GL	345432							238		1,235
	10/09/2020	Daily Payroll Estimate	AJ	GL	345433							238		1,473
	10/09/2020	Daily Payroll Estimate	AJ	GL	345466								290	1,183
		Clearing												
	10/16/2020	Daily Payroll Estimate	AJ	GL	345931							238		1,420
	10/20/2020	Daily Payroll Estimate	AJ	GL	346599							238		1,658
	10/21/2020	Daily Payroll Estimate	AJ	GL	346600							238		1,896
	10/22/2020	Daily Payroll Estimate	AJ	GL	346601							238		2,134
	10/23/2020	Daily Payroll Estimate	AJ	GL	345935								1,420	713
		Clearing												
	10/23/2020	Daily Payroll Estimate	AJ	GL	346602							238		951
	10/26/2020	Daily Payroll Estimate	AJ	GL	346605							238		1,189

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14	10/27/2020	Daily Payroll Estimate	AJ	GL	346606						238		1,426
	10/28/2020	Daily Payroll Estimate	AJ	GL	346607						238		1,664
	10/29/2020	Daily Payroll Estimate	AJ	GL	346608						238		1,902
	10/30/2020	Daily Payroll Estimate	AJ	GL	346609						238		2,139
	10/31/2020	Daily Payroll Estimate Clearing	AJ	GL	346614							2,139	0
	11/04/2020	Daily Payroll Estimate	AJ	GL	346997						238		238
	11/05/2020	Daily Payroll Estimate	AJ	GL	346998						238		475
	11/06/2020	Daily Payroll Estimate	AJ	GL	346999						238		713
	11/11/2020	Daily Payroll Estimate	AJ	GL	347181						238		951
	11/19/2020	Daily Payroll Estimate	AJ	GL	347578						238		1,189
	11/20/2020	Daily Payroll Estimate Clearing	AJ	GL	347220							951	238
	11/20/2020	Daily Payroll Estimate	AJ	GL	347579						238		475
	11/24/2020	Daily Payroll Estimate	AJ	GL	347592						238		713
	11/25/2020	Daily Payroll Estimate	AJ	GL	347614						238		951
	11/26/2020	Daily Payroll Estimate	AJ	GL	347615						238		1,189
	11/28/2020	Daily Payroll Estimate Clearing	AJ	GL	347623							1,189	0
	11/29/2020	Daily Payroll Estimate	AJ	GL	347618						238		238
	11/30/2020	Daily Payroll Estimate Clearing	AJ	GL	348660							238	0
	12/04/2020	Daily Payroll Estimate	AJ	GL	348125						238		238
	12/08/2020	Daily Payroll Estimate	AJ	GL	348482						238		475
	12/09/2020	Daily Payroll Estimate	AJ	GL	348483						238		713
	12/10/2020	Daily Payroll Estimate	AJ	GL	348484						238		951
	12/11/2020	Daily Payroll Estimate	AJ	GL	348528						238		1,189
	12/17/2020	Daily Payroll Estimate	AJ	GL	348907						238		1,426
	12/18/2020	Daily Payroll Estimate Clearing	AJ	GL	348661							1,189	238
	12/18/2020	Daily Payroll Estimate	AJ	GL	348908						238		475
	12/21/2020	Daily Payroll Estimate	AJ	GL	348944						238		713
	12/22/2020	Daily Payroll Estimate	AJ	GL	348945						238		951
	12/28/2020	Daily Payroll Estimate	AJ	GL	349532						267		1,218
	12/29/2020	Daily Payroll Estimate	AJ	GL	349533						327		1,545
	12/30/2020	Daily Payroll Estimate	AJ	GL	349534						238		1,783
	12/31/2020	Daily Payroll Estimate Clearing	AJ	GL	349526							951	832
	12/31/2020	Daily Payroll Estimate	AJ	GL	349535						238		1,070
	12/31/2020	Daily Payroll Estimate Clearing	AJ	GL	349851							1,070	0
	01/01/2021	Daily Payroll Estimate	AJ	GL	349536						475		475
	01/07/2021	Daily Payroll Estimate	AJ	GL	349835						238		713
	01/08/2021	Daily Payroll Estimate	AJ	GL	349836						238		951
	01/12/2021	Daily Payroll Estimate	AJ	GL	349892						238		1,188
	01/13/2021	Daily Payroll Estimate	AJ	GL	349893						238		1,426
	01/14/2021	Daily Payroll Estimate	AJ	GL	349894						238		1,664
	01/15/2021	Daily Payroll Estimate Clearing	AJ	GL	349852							713	951
	01/15/2021	Daily Payroll Estimate	AJ	GL	350316						238		1,189
	01/18/2021	Daily Payroll Estimate	AJ	GL	350319						238		1,426
	01/22/2021	Daily Payroll Estimate	AJ	GL	350571						238		1,664
	01/29/2021	Daily Payroll Estimate Clearing	AJ	GL	350578							1,664	0
		TOTAL									20,830	20,830	0
200-28-990-5020		Other Earnings									Balance	Forward	0
	09/30/2020	PAYROLL FOR 100920	AJ	PR	345162						10		10
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161						3		13
		TOTAL									13	0	13

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200-28-990-5050		Taxes										Balance	Forward	0
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221							118		118
	07/31/2020	PAYROLL FOR 073120	AJ	PR	339997							155		273
	07/31/2020	PAYROLL FOR 081420	AJ	PR	341895							63		336
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894							84		420
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817							148		568
	08/31/2020	PAYROLL FOR 091120	AJ	PR	343675							96		664
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676							54		718
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501							150		868
	09/30/2020	PAYROLL FOR 100920	AJ	PR	345162							120		988
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161							33		1,021
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134							152		1,172
	10/31/2020	PAYROLL FOR 110620	AJ	PR	346622							152		1,324
	11/20/2020	PAYROLL FOR 112020	AJ	PR	347415							152		1,476
	11/28/2020	PAYROLL FOR 120420	AJ	PR	347672							152		1,627
	11/30/2020	PAYROLL FOR 121820	AJ	PR	348663							22		1,649
	12/18/2020	PAYROLL FOR 121820	AJ	PR	348662							130		1,779
	12/31/2020	PAYROLL FOR 123120	AJ	PR	349295							162		1,941
	12/31/2020	PAYROLL FOR 011521	AJ	PR	349859							54		1,995
	01/15/2021	PAYROLL FOR 011521	AJ	PR	349860							97		2,092
	01/29/2021	PAYROLL FOR 012921	AJ	PR	350667							151		2,243
	01/30/2021	PAYROLL FOR 021221	AJ	PR	351484							76		2,319
	02/12/2021	PAYROLL FOR 021221	AJ	PR	351485							76		2,395
		TOTAL										2,395	0	2,395
200-28-990-5100		Retirement Fringe Ben										Balance	Forward	0
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221							258		258
	07/31/2020	PAYROLL FOR 073120	AJ	PR	339997							328		586
	07/31/2020	PAYROLL FOR 081420	AJ	PR	341895							139		725
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894							185		910
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817							323		1,233
	08/31/2020	PAYROLL FOR 091120	AJ	PR	343675							211		1,444
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676							117		1,561
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501							328		1,889
	09/30/2020	PAYROLL FOR 100920	AJ	PR	345162							263		2,152
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161							72		2,224
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134							332		2,556
	10/31/2020	PAYROLL FOR 110620	AJ	PR	346622							332		2,887
	11/20/2020	PAYROLL FOR 112020	AJ	PR	347415							332		3,219
	11/28/2020	PAYROLL FOR 120420	AJ	PR	347672							332		3,551
	11/30/2020	PAYROLL FOR 121820	AJ	PR	348663							47		3,598
	12/18/2020	PAYROLL FOR 121820	AJ	PR	348662							284		3,883
	12/31/2020	PAYROLL FOR 123120	AJ	PR	349295							332		4,214
	12/31/2020	PAYROLL FOR 011521	AJ	PR	349859							118		4,333
	01/15/2021	PAYROLL FOR 011521	AJ	PR	349860							213		4,546
	01/29/2021	PAYROLL FOR 012921	AJ	PR	350667							332		4,878
	01/30/2021	PAYROLL FOR 021221	AJ	PR	351484							166		5,044
	02/12/2021	PAYROLL FOR 021221	AJ	PR	351485							166		5,210
		TOTAL										5,210	0	5,210
200-28-990-5200		Medical Fringe Ben										Balance	Forward	0
	07/02/2020	PAYROLL FOR 070220	AJ	PR	338135							286		286
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221							524		810
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894							286		1,096
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817							524		1,620
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676							286		1,906
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501							524		2,430
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161							286		2,716
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134							524		3,240
	11/06/2020	PAYROLL FOR 110620	AJ	PR	346621							286		3,526
	11/20/2020	PAYROLL FOR 112020	AJ	PR	347415							524		4,050

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16	12/04/2020	PAYROLL FOR 120420	AJ	PR	347715							286		4,336
	12/18/2020	PAYROLL FOR 121820	AJ	PR	348662							524		4,860
	01/15/2021	PAYROLL FOR 011521	AJ	PR	349860							307		5,167
	01/29/2021	PAYROLL FOR 012921	AJ	PR	350667							563		5,730
	02/12/2021	PAYROLL FOR 021221	AJ	PR	351485							307		6,038
		TOTAL										6,038	0	6,038
200-28-990-5250		Dental Fringe Ben										Balance	Forward	0
	07/02/2020	PAYROLL FOR 070220	AJ	PR	338135							25		25
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221							43		68
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894							25		93
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817							43		136
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676							25		161
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501							43		205
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161							25		230
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134							43		273
	11/06/2020	PAYROLL FOR 110620	AJ	PR	346621							25		298
	11/20/2020	PAYROLL FOR 112020	AJ	PR	347415							43		341
	12/04/2020	PAYROLL FOR 120420	AJ	PR	347715							25		366
	12/18/2020	PAYROLL FOR 121820	AJ	PR	348662							43		409
	01/15/2021	PAYROLL FOR 011521	AJ	PR	349860							25		434
	01/29/2021	PAYROLL FOR 012921	AJ	PR	350667							43		478
	02/12/2021	PAYROLL FOR 021221	AJ	PR	351485							25		502
		TOTAL										502	0	502
200-28-990-5300		Vision Fringe Ben										Balance	Forward	0
	07/02/2020	PAYROLL FOR 070220	AJ	PR	338135							3		3
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221							5		8
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894							3		11
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817							5		16
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676							3		19
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501							5		24
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161							3		27
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134							5		32
	11/06/2020	PAYROLL FOR 110620	AJ	PR	346621							3		35
	11/20/2020	PAYROLL FOR 112020	AJ	PR	347415							5		40
	12/04/2020	PAYROLL FOR 120420	AJ	PR	347715							3		43
	12/18/2020	PAYROLL FOR 121820	AJ	PR	348662							5		48
	01/15/2021	PAYROLL FOR 011521	AJ	PR	349860							3		51
	01/29/2021	PAYROLL FOR 012921	AJ	PR	350667							5		56
	02/12/2021	PAYROLL FOR 021221	AJ	PR	351485							3		59
		TOTAL										59	0	59
200-28-990-5400		Life Ins Fringe Ben										Balance	Forward	0
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221							3		3
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817							3		7
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501							3		10
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134							3		14
	11/20/2020	PAYROLL FOR 112020	AJ	PR	347415							3		17
	12/18/2020	PAYROLL FOR 121820	AJ	PR	348662							3		21
	01/29/2021	PAYROLL FOR 012921	AJ	PR	350667							3		24
		TOTAL										24	0	24
200-28-990-5500		Disability Fringe Ben										Balance	Forward	0
	07/02/2020	PAYROLL FOR 070220	AJ	PR	338135							8		8
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221							11		19
	07/31/2020	PAYROLL FOR 073120	AJ	PR	339997							8		28
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894							8		36
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817							11		47
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676							8		55
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501							11		67
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161							9		75
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134							11		87

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17	11/06/2020	PAYROLL FOR 110620	AJ	PR	346621							9		95
	11/20/2020	PAYROLL FOR 112020	AJ	PR	347415							11		106
	12/04/2020	PAYROLL FOR 120420	AJ	PR	347715							9		115
	12/18/2020	PAYROLL FOR 121820	AJ	PR	348662							11		126
	12/31/2020	PAYROLL FOR 123120	AJ	PR	349295							9		135
	01/15/2021	PAYROLL FOR 011521	AJ	PR	349860							9		143
	01/29/2021	PAYROLL FOR 012921	AJ	PR	350667							11		155
	02/12/2021	PAYROLL FOR 021221	AJ	PR	351485							9		163
		TOTAL										163	0	163
200-28-990-5600		Unemployment Fringe Ben										Balance	Forward	0
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221							21		21
	07/31/2020	PAYROLL FOR 073120	AJ	PR	339997							26		47
	07/31/2020	PAYROLL FOR 081420	AJ	PR	341895							11		58
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894							15		73
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817							30		103
	08/31/2020	PAYROLL FOR 091120	AJ	PR	343675							20		123
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676							11		134
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501							31		165
	09/30/2020	PAYROLL FOR 100920	AJ	PR	345162							25		190
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161							7		196
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134							31		228
	10/31/2020	PAYROLL FOR 110620	AJ	PR	346622							31		259
	11/20/2020	PAYROLL FOR 112020	AJ	PR	347415							31		290
	11/28/2020	PAYROLL FOR 120420	AJ	PR	347672							31		321
	11/30/2020	PAYROLL FOR 121820	AJ	PR	348663							4		325
	12/18/2020	PAYROLL FOR 121820	AJ	PR	348662							27		352
	12/31/2020	PAYROLL FOR 123120	AJ	PR	349295							31		383
	12/31/2020	PAYROLL FOR 011521	AJ	PR	349859							11		394
	01/15/2021	PAYROLL FOR 011521	AJ	PR	349860							20		414
	01/29/2021	PAYROLL FOR 012921	AJ	PR	350667							31		446
	01/30/2021	PAYROLL FOR 021221	AJ	PR	351484							16		461
	02/12/2021	PAYROLL FOR 021221	AJ	PR	351485							16		477
		TOTAL										477	0	477
200-28-990-5700		Work Comp Fringe Ben										Balance	Forward	0
	07/17/2020	PAYROLL FOR 071720	AJ	PR	339221							38		38
	07/31/2020	PAYROLL FOR 073120	AJ	PR	339997							48		86
	07/31/2020	PAYROLL FOR 081420	AJ	PR	341895							20		107
	08/14/2020	PAYROLL FOR 081420	AJ	PR	341894							27		134
	08/28/2020	PAYROLL FOR 082820	AJ	PR	342817							48		182
	08/31/2020	PAYROLL FOR 091120	AJ	PR	343675							31		213
	09/11/2020	PAYROLL FOR 091120	AJ	PR	343676							17		230
	09/25/2020	PAYROLL FOR 092520	AJ	PR	344501							48		278
	09/30/2020	PAYROLL FOR 100920	AJ	PR	345162							39		317
	10/09/2020	PAYROLL FOR 100920	AJ	PR	345161							11		328
	10/23/2020	PAYROLL FOR 102320	AJ	PR	346134							49		376
	10/31/2020	PAYROLL FOR 110620	AJ	PR	346622							49		425
	11/20/2020	PAYROLL FOR 112020	AJ	PR	347415							49		474
	11/28/2020	PAYROLL FOR 120420	AJ	PR	347672							49		523
	11/30/2020	PAYROLL FOR 121820	AJ	PR	348663							7		530
	12/18/2020	PAYROLL FOR 121820	AJ	PR	348662							42		572
	12/31/2020	PAYROLL FOR 123120	AJ	PR	349295							49		621
	12/31/2020	PAYROLL FOR 011521	AJ	PR	349859							17		638
	01/15/2021	PAYROLL FOR 011521	AJ	PR	349860							31		669
	01/29/2021	PAYROLL FOR 012921	AJ	PR	350667							49		718
	01/30/2021	PAYROLL FOR 021221	AJ	PR	351484							24		743
	02/12/2021	PAYROLL FOR 021221	AJ	PR	351485							24		767
		TOTAL										767	0	767
200-28-990-6030		Professional Consultants										Balance	Forward	0
	09/13/2020	CEQA Review for	SYS	AP	344961	774795	Water Quality	20-3141	Default	20-0265		16,262		16,262

G/L#	18	EFFECTIVE DATE	DESCRIPTION	STPSOURCE	JE#	DEPOSIT	CHECK	VENDOR	VENDOR INVOICE#	INVOICE TYPE	PO	PROJECT	DEBIT	CREDIT	BALANCE
		01/05/2021	TWSA, per Proposal dated April 24, 2020. TM Registration Renewal	SYS AP	349994		775417	& Treatment Solutions, Inc Law Office of Lara Pearson LTD., PBC	827	Default Invoice			1,525		17,787
		02/04/2021	USPTO filing fees of \$850, 1 @ \$850.00	SYS AP	351206		775565	Law Office of Lara Pearson LTD., PBC	840	Default Invoice			850		18,637
			TOTAL										18,637	0	18,637
200-28-990-7010		09/27/2020	Advertising - Paid SPITSEN LUMBER COWood for framing of concrete pad for backflow enclosures - Capital project #3241GC1404	AJ GL	345388								Balance	Forward	0
		09/27/2020	MOTB - advertizing		345388								250		250
		09/27/2020											1,000		1,250
		10/10/2020	Business Partner 6th Annual Tahoe Film Fest	SYS AP	346681		775000	Tahoe Film Fest	9012	Default Invoice			1,000		2,250
		10/27/2020	TAHOE.COMTWSA web ads	AJ GL	346802								63		2,313
		11/27/2020	TAHOE.COM,twsa web ad	AJ GL	347881								63		2,375
		12/21/2020	Tahoe In Depth - Winter 2020, Issue 18, Bronze Underwriting Level	SYS AP	349055		775330	TRPA	0003925	Default Invoice			500		2,875
		12/27/2020	TAHOE.COM,TWSA Tahoe.com ad	AJ GL	349504								63		2,938
		01/27/2021	TAHOE.COM,TWSA Ad	AJ GL	350779								63		3,000
			TOTAL										3,000	0	3,000
200-28-990-7405			Office Supplies										Balance	Forward	0
		07/09/2020	LE SERV, BOOK, MEMO, WRBND, TOP, CR, 6, Notebook 9.5x6" College		339308		774247	Office Depot	104792455001	Default Invoice			249		249
		07/09/2020	Reclass Office Depot inv.104792455001	AJ GL	342397									249	0
		10/06/2020	Office Supplies	SYS AP	347051		775035	Rainbow Printing & Office Supplies, Inc.	60308	Default Invoice			66		66
		12/01/2020	Flash Drives	SYS AP	350396		775471	Rainbow Printing & Office Supplies, Inc.	60715	Default Invoice			214		280
			TOTAL										529	249	280
200-28-990-7415		07/30/2020	Operating Replenish Petty Cash July 2020	SYS AP	340983		774358	Petty Cash	2020.07.30	Default Invoice			Balance	Forward	0
		08/12/2020	NDEP Grant - TERC microplastics display materials - reimbursable expense	SYS AP	342990		774574	The Regents of the University of California	58604631	Default Invoice			36		36
		08/26/2020	Water Fill Station Grant Program -1 outdoor station @ \$1000 Kilner Park	SYS AP	343096		774573	Tahoe City Public Utility District	2020.08.26	Default Invoice			1,513		1,549
													1,000		2,549

G/L#	EFFECTIVE DATE	DESCRIPTION	STPSOURCE	JE#	DEPOSIT	CHECK	VENDOR	VENDOR INVOICE#	INVOICE TYPE	PO	PROJECT	DEBIT	CREDIT	BALANCE
19	08/27/2020	ACROBAT PRO SUBS Adobe Acrobat Distiller software for MD laptop	AJ GL	344894								180		2,729
	09/21/2020	Reimbursement - Lunch for partnership volunteer team conducting underwater dive trash sort	SYS AP	345110		3945	MADONNA DUNBAR	2020.09.21	Default Invoice			69		2,798
	09/27/2020	AMZN MKTP US MVOQE4W20Sunscreen	AJ GL	345388								81		2,879
	09/27/2020	SELECT	AJ GL	345388								40		2,919
	11/27/2020	AMZN MKTP US KY4738CZ3,dog waste bags refill rolls	AJ GL	347881								467		3,386
	12/16/2020	MittN BAG DISPENSERS	SYS AP	348995		775289	A-#1 Chemical, Inc	6770640	Default Invoice			2,651		6,037
	12/27/2020	PARASOL TAHOE COMM FDN,PARASOL COIN - TWSA	AJ GL	349504								129		6,166
	12/30/2020	NDEP 319 Micro-plastics Grant Expenses; Award #A20-4287; UCD Ref. #126613. Remit to UC Davis Cashiers Office.	SYS AP	350102		775435	The Regents of U.C.	59521392	Default Invoice	21-0128		16,524		22,690
	12/31/2020	Replenishment December 2020	SYS AP	349689		775386	Petty Cash	2020.12.31	Default Invoice			20		22,710
	01/13/2021	Union Negotiations Arbitrator - MISCODE	SYS AP	349898		775431	Renee V Mayne DBA Renee Mayne, Labor-ADR	2021.01.13	Default Invoice			734		23,444
	01/13/2021	Reclass Renee Mayne Invoice 21-003244	AJ GL	350747									734	22,710
	01/23/2021	NDEP 319 Micro-plastics Grant Expenses; Award #A20-4287; UCD Ref. #126613. Remit to UC Davis Cashiers Office.	SYS AP	350798		775536	The Regents of U.C.	59999224	Default Invoice	21-0128		136		22,845
	01/25/2021	Student educational services. Expense reimbursable through NDEP 391h micro-plastics grant.	SYS AP	350869		775530	Sierra Watershed Education Partnerships	2021 383	Default Invoice	20-0272		5,000		27,845
	02/01/2021	Water Bottle Filler Station Grant Program -1 station installed @ Suzi Scoops @ 899 Tahoe Blvd in Building Lobby	SYS AP	350792		775535	Susie Scoops	2021.02.01	Default Invoice			500		28,345
		TOTAL										29,080	734	28,345
200-28-990-7460		Postage										Balance	Forward	0
	01/01/2021	PW Shipping	SYS AP	349672		775374	FedEx	7-232-54978	Default Invoice			57		57

G/L#	EFFECTIVE DATE	DESCRIPTION	STPSOURCE	JE#	DEPOSIT	CHECK	VENDOR	VENDOR INVOICE#	INVOICE TYPE	PO	PROJECT	DEBIT	CREDIT	BALANCE
	01/27/2021	USPS PO 3117600402,TWSA Annual Report Distribution TOTAL	AJ GL	350779								120		178
200-28-990-7470		Printing & Publishing										178	0	178
	07/01/2020	CN12777-01 PW Copier IN541831-B : BALFWD-Sales Invoice	SYS AP	343464	3854		Sierra Office Solutions	C-IN54183 1-B	Default Invoice			Balance	Forward 1	0 1 CR
	07/02/2020	CN12777-01 PW Copier Base 07/01/20-07/31/20	SYS AP	339317	3658		Sierra Office Solutions	IN1515802	Default Invoice			63		62
	08/03/2020	CN12777-01 PW Copier Base 08/01/20-08/31/20	SYS AP	341066	3717		Sierra Office Solutions	IN1551039	Default Invoice			63		125
	08/27/2020	STICKER MULE DTT stickers 1000 units	AJ GL	344894								691		816
	09/01/2020	CN12777-01 PW Copier Base 09/01/20-09/30/20	SYS AP	343286	3854		Sierra Office Solutions	IN1592996	Default Invoice			63		879
	09/25/2020	36 month maintenance contract for PW Admin Xerox effective 1/1/18.	SYS AP	344958	3954		Sierra Office Solutions	IN1629108	Default Invoice	18-0204		49		928
	10/01/2020	36 month maintenance contract for PW Admin Xerox effective 1/1/18.	SYS AP	345488	3986		Sierra Office Solutions	IN1640787	Default Invoice	18-0204		63		991
	11/02/2020	36 month maintenance contract for PW Admin Xerox effective 1/1/18.	SYS AP	347062	4081		Sierra Office Solutions	IN1686825	Default Invoice	18-0204		63		1,054
	12/01/2020	36 month maintenance contract for PW Admin Xerox effective 1/1/18.	SYS AP	348680	4174		Sierra Office Solutions	IN1726570	Default Invoice	18-0204		43		1,097
	12/27/2020	RICKS AEC REPROGRAPHICS,15 Annual Report Print copies	AJ GL	349504								3,467		4,563
	12/29/2020	CN12777-01 PW Copier Base 09/01/20-12/29/20	SYS AP	350342	4308		Sierra Office Solutions	IN1764305	Default Invoice			33		4,596
	01/01/2021	20-934,933 Waste not 30-Dog Doody signs	AJ GL	351111								298		4,894
	01/05/2021	36 month maintenance contract for PW Admin Xerox effective 1/1/18.	SYS AP	349886	4279		Sierra Office Solutions	IN1769849	Default Invoice	18-0204		63		4,957
	01/27/2021	STICKER MULE,DTT Drop stickers	AJ GL	350779								915		5,872
	02/02/2021	36 month maintenance contract for PW Admin Xerox effective 1/1/18. TOTAL	SYS AP	351671	4409		Sierra Office Solutions	IN1812145	Default Invoice	18-0204		63		5,935
200-28-990-7685		Travel & Conferences										5,936	1	5,935
	07/27/2020	LOGMEIN GOTOMEETING, toll free number monthly	AJ GL	341590								5	Forward	0 5
	08/27/2020	LOGMEIN GOTOMEETING	AJ GL	344894								5		10
	09/27/2020	AMZN MKTP US MV89Z5710Masks	AJ GL	345388								5		15
	10/27/2020	LOGMEIN GOTOMEETINGvideo conference call in number	AJ GL	346802								5		20
	11/27/2020	LOGMEIN	AJ GL	347881								5		25

G/L#	EFFECTIVE DATE	DESCRIPTION	STPSOURCE	JE#	DEPOSIT	CHECK	VENDOR	VENDOR INVOICE#	INVOICE TYPE	PO	PROJECT	DEBIT	CREDIT	BALANCE
		GOTOMEETING,conferencing - toll free number monthly												
	12/27/2020	LOGMEIN	AJ	GL	349504							5		30
		GOTOMEETING,toll free number monthly charge												
	01/01/2021	Membership Dues 04/01/21-03/31/22 Member # 00626955	SYS	AP	350795	775499	American Water Works Assoc.	700188320 8	Default Invoice			294		324
	01/27/2021	LOGMEIN	AJ	GL	350779							5		329
		GOTOMEETING,toll free number												
		TOTAL										329	0	329
200-28-990-7840		Telephone										Balance	Forward	0
	09/30/2020	1st QTR Stipend 7/1/2020 - 9/30/2020	SYS	AP	345861	4012	MADONNA DUNBAR	1stQTR Stipend 20-21	Default Invoice			48		48
	12/21/2020	2nd QTR Stipend 10/1/2020 - 12/31/2020	SYS	AP	348954	4203	MADONNA DUNBAR	2ndQTR Stipend 20-21	Default Invoice			48		96
		TOTAL										96	0	96
200-28-990-7980		Central Services Allocation Cs										Balance	Forward	0
	07/31/2020	Record Central Services Cost Allocation for July 2020	AJ	GL	342077							500		500
	08/31/2020	Record Central Services Cost Allocation for August 2020	AJ	GL	342078							500		1,000
	09/30/2020	Record Central Services Cost Allocation for September 2020	AJ	GL	342079							500		1,500
	10/31/2020	Record Central Services Cost Allocation for October 2020	AJ	GL	342080							500		2,000
	11/30/2020	Record Central Services Cost Allocation for November 2020	AJ	GL	342081							500		2,500
	12/31/2020	Record Central Services Cost Allocation for December 2020	AJ	GL	342082							500		3,000
	01/31/2021	Record Central Services Cost Allocation for January 2021	AJ	GL	342083							500		3,500
		TOTAL										3,500	0	3,500
		GRAND TOTAL										97,763	186,017	88,254 CR

Does not include labor

2021-22 TWSA BUDGET WORKSHEET (200.28.99)

	Proposed 2021-22	Approved 2020-21	Approved 2019-20
Paid Advertising			
ADS: TV/Radio/Print	\$ 6,000	\$ 6,000	\$ 6,000
Tahoe In Depth Sponsorship (\$500 x 3)	\$ 1,500	\$ 1,500	\$ 1,500
Earth Day events (North and South Shore) sponsorships (\$500 each)	\$ 1,000	\$ 1,000	\$ 1,000
Regional conference sponsorships	\$ 1,500	\$ 1,500	\$ 1,500
State of the Lake Report sponsorship	\$ 2,500	\$ 2,500	\$ 2,500
Total:	\$ 12,500	\$ 12,500	\$ 12,500
Office Supplies			
Monthly Xerox machine costs, Board materials, brochures, in-house printing	\$ 1,400	\$ 1,400	\$ 1,400
Total:	\$ 1,400	\$ 1,400	\$ 1,400
Operating General			
TWSA staff uniforms / member logo trademarked clothing	\$ -	\$ 1,000	\$ 1,000
NDEP Grant - water bottles	\$ 10,000	\$ 10,000	
NDEP 319h Grant MicroPlastics Ed	\$ 21,000	\$ 21,000	
TWSA Water Bottles	\$ 16,000	\$ 16,000	\$ 16,000
Board meeting hospitality (lunches)	\$ 1,600	\$ 1,600	\$ 1,600
Monitoring Supplies	\$ 600	\$ 600	\$ 600
Snapshot Day	\$ 600	\$ 600	\$ 600
Water Fill Station Rebate Program	existing budget rollover /reserves	existing budget rollover /reserves	\$ 10,000
Dog Waste Campaign (bags, small dispensers)	\$ 3,500	\$ 2,500	\$ 2,500
Booth fees and event supplies	\$ 1,000	\$ 1,000	\$ 1,000
Total:	\$ 54,300	\$ 54,300	\$ 33,300
Printing / Publishing			
'Drink Tahoe Tap' stickers	\$ 5,500	\$ 6,000	\$ 6,000
Postage	\$ 200	\$ 200	\$ 200
Annual Report Printing (outsourced)	\$ 3,300	\$ 2,500	\$ 2,500
Watershed Protection signs	\$ 1,000	\$ 1,000	\$ 1,000
Total:	\$ 10,000	\$ 9,700	\$ 9,700
Professional Services *			
Professional Services (WQTS estimate for technical reviews) ^	existing budget rollover /reserves	25,000	\$ 50,000
Reserve fund	\$ -	\$ 15,000	\$ 10,000
Total:	\$ -	\$ 40,000	\$ 60,000
Education/conferences			
Annual Mileage - personal vehicles	\$ 1,000	\$ 1,000	\$ 1,000
Phone	\$ 200	\$ 200	\$ 200
Trainings/Memberships	\$ 800	\$ 800	\$ 800
Conference Call service for meetings	\$ 500	\$ 500	\$ 500
Total:	\$ 2,500	\$ 2,500	\$ 2,500
Grand Total Operating:	\$ 80,700	\$ 120,400	\$ 119,400
Total Budgeted Salary and Benefits 1366 combined hours, annual (MOD&SGV)	\$ 84,805	\$ 84,805	\$ 79,800
Total Annual Budget (Operating & Salaries)	\$ 165,505	\$ 205,205	\$ 199,200
Revenue from reserves allocated to WQTS professional services^		\$ (25,000)	\$ (50,000)
Grant Funds (NDEP - Microplastics)	\$ (31,000)	\$ (31,000)	
Total Budget minus reserves/grant funds	\$ 134,505	\$ 149,205	\$ 149,200
STPUD Fee (10% of total budget minus addl. revenue) - fee based on no data mgmt. in annual reporting	\$ (13,451)	\$ (14,921)	\$ (14,920)
Members Cost share TOTAL minus STPUD fee	\$ 121,055	\$ 134,285	\$ 134,280

REFERENCE (as of 2/4/2021):

* TWSA Total Reserve (deferred revenue) = \$167,925.85. This = appx. 1 full year of reserve operating and salaries. IVGID would prefer this reserve go down for administrative reasons. Therefore \$0 proposed for 2022 budget.

Current Budget Remaining Balance = \$75,884.57 w/addl. \$18,000 grant funds incoming

Shared Costs are 25% staff/75% operating
Dependent Costs are 75% staff/25% operating

updated 2 3 2021

	Shared	\$52,629	TOTAL TO
	Depend	\$68,426	SHARE
			\$121,055

2021-22 TWSA Cost Share (PROPOSED) based on 3 year average / production daily flow

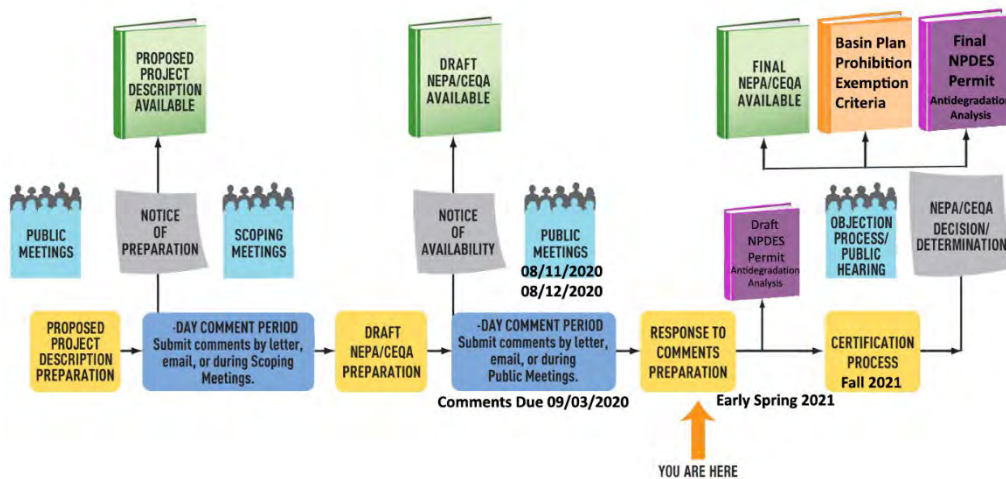
	Shared Costs	Dependent Costs	Avg Daily Flow gpd	Member cost share - FINAL	% of Total	Shared Cost	Depend Cost	Flow Ratio	Member cost share - previous year
Incline Village General Improvement District	9.10%	35.17%	2,527,667	\$ 28,855	23.84%	\$4,789	\$24,066	0.352	\$ 31,560
Kingsbury General Improvement District	9.09%	9.93%	713,792	\$ 11,580	9.57%	\$4,784	\$ 6,796	0.099	\$ 12,682
Round Hill General Improvement District	9.09%	2.61%	187,244	\$ 6,567	5.42%	\$4,784	\$ 1,783	0.026	\$ 7,456
Edgewood Water Company	9.09%	7.69%	552,384	\$ 10,043	8.30%	\$4,784	\$ 5,259	0.077	\$ 11,138
Zephyr Water Utility	9.09%	2.64%	189,883	\$ 6,592	5.45%	\$4,784	\$ 1,808	0.026	\$ 7,724
Glenbrook Water Company	9.09%	3.56%	255,966	\$ 7,221	5.97%	\$4,784	\$ 2,437	0.036	\$ 8,554
Tahoe City Public Utility District	9.09%	17.47%	1,255,644	\$ 16,739	13.83%	\$4,784	\$11,955	0.175	\$ 17,437
Skyland	9.09%	2.43%	174,284	\$ 6,443	5.32%	\$4,784	\$ 1,659	0.024	\$ 7,533
Cave Rock	9.09%	2.43%	174,284	\$ 6,443	5.32%	\$4,784	\$ 1,659	0.024	\$ 7,533
Lakeside Park Association	9.09%	2.1%	148,777	\$ 6,200	5.12%	\$4,784	\$ 1,417	0.021	\$ 6,979
North Tahoe Public Utility District	9.09%	14.01%	1,006,858	\$ 14,370	11.87%	\$4,784	\$ 9,586	0.140	\$ 15,687
Total to split	100.00%	100.00%	7,186,783	\$ 121,055	100.00%	\$52,629	\$68,426	1	\$ 134,284
STPUD 10%				\$13,451					\$14,920
Total Budget less grant				\$ 134,506					\$ 134,284

Member 3 year production water averages

Daily Flow averages (GALLONS)	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	3 year GPD rolling average
IVGID	2,800,000	3,163,000	3,025,000	2,876,000	2,557,000	2,520,830	2,806,000	2,989,000	2,914,000	2,771,943	2,903,000	2,891,648	2,593,000	2,541,000	2,449,000	2,527,667
KGID	1,140,000	1,230,000	1,160,000	1,114,839	984,900	908,719	916,869	849,235	835,980	793,712	757,226	759,511	624,595	786,482	730,300	713,792
RHGID	224,216	224,216	236,175	224,785	209,405	202,440	209,595	241,350	211,311	200,418	184,090	177,643	175,915	195,718	190,100	187,244
Edge	868,537	880,621	874,500	750,000	694,000	788,900	675,273	693,234	700,829	601,715	551,896	540,377	574,000	577,149	506,004	552,384
Zephyr	223,756	220,704	222,855	233,553	225,532	211,704	206,460	217,301	204,644	322,735	182,745	260,321	181,510	190,371	197,769	189,883
Glenbrook	140,085	140,085	213,000	215,000	690,000	149,480	281,255	325,065	288,700	248,300	232,233	365,850	243,857	280,197	243,845	255,966
TCPUD	1,300,000	1,610,000	1,740,000	1,626,000	1,278,484	1,259,218	1,139,000	1,326,000	1,210,000	1,038,131	890,713	964,018	1,210,000	1,472,000	1,084,931	1,255,644
C Rock	174,514	197,454	197,119	202,660	180,163	169,692	177,359	172,252	145,122	313,500	152,561	230,667	159,393	183,060	180,399	174,284
Skyland	174,514	197,454	197,119	202,660	180,163	169,692	177,359	172,252	145,122	313,500	152,561	230,667	159,393	183,060	180,399	174,284
NTPUD	1,480,000	1,470,000	1,470,000	1,402,000	1,372,000	1,325,000	1,217,217	1,264,000	1,190,000	1,160,000	951,046	1,082,030	1,016,718	1,004,203	999,654	1,006,858
Lakeside	242,000	217,000	217,000	156,000	129,000	101,600	108,100	125,000	140,000	100,000	97,000	70,000	134,000	197,330	115,000	148,777
TOTAL USE	8,767,622	9,550,534	9,552,768	9,003,497	8,500,647	7,807,275	7,914,487	8,374,689	7,987,722	7,863,954	7,055,071	7,572,732	7,072,380	7,610,570	6,877,401	7,186,784

1 Get annual data from TWSA annual reports (Table 2 Ch.V Description of Water Supply)
Average Daily Flow (GPD)

Tahoe Water Suppliers Association Staff Summary



Tahoe Keys Lagoons Aquatic Weed Control Methods Test (CMT)

Environmental Certification Process

Lahontan RWQCB Board Meeting Fall 2021

Certify-Final EIR/EIR Grant-Basin Plan Prohibition Exemption Adopt-NPDES Permit

Full Documents: https://tahoekesweeds.org/environmental_analysis/

Executive Summary

The Tahoe Keys Property Owners Association (TKPOA) is seeking approval for their exemption to the basin plan amendment on the prohibition of herbicide use in Lake Tahoe, as represented in the 2018 Aquatic Pesticide Application Plan (APAP), the goal of the project is to reduce aquatic weed biomass by 75% to improve water quality and recreation for beneficial use. The Lead Agency (Lahontan) is requiring full environmental review of the proposed project, due to the proposed discharge of aquatic herbicides into receiving waters of the Tahoe Keys Lagoons, a Tier III Outstanding National Resource Water (ONRW Tier III) for ecological and recreational value. After designation of the Tahoe Keys Lagoons as the greatest threat to the environmental health of Lake Tahoe, the TRPA has secured federal funding through the Lake Tahoe Restoration Act (\$3M) to facilitate a solution to the aquatic weed problem at the Tahoe Keys Lagoons. As part of the California Environmental Quality Act (CEQA) process, the TKPOA has worked with regulators and stakeholders to produce a proposed project for herbicide use, and after an initial public scoping process, three additional project alternatives. The proposed project, and three alternatives underwent review by an independent third party consultants chosen by the lead agencies, and produced the DEIR/EIS. As required by the (CEQA) Process, the DEIR/EIS is not recommending a project action to the lead agencies; it is providing the necessary information for informed decision making, with the required designation of an Environmentally Superior Alternative. The DEIR/EIS has chosen a project alternative as the **Environmentally Superior Alternative, Action Alternative 1 (Testing of Non-Herbicide Methods Only)**. The Proposed Project, Action Alternative 2 (Tahoe Keys Dredge and Replace Substrate), and the No-Action Alternative would have unavoidable impacts on recreational boating that would not occur under Action Alternative 1 (Testing of Non-Herbicide Methods Only). Additionally, the permitting process for the proposed project requires an Antidegradation Analysis, to be released in the fall of 2020, as part of the Draft National Pollutant Discharge Elimination System (NPDES) permit.

The DEIR/EIS has found that the proposed project and the alternative actions will have **no significant impact** to Environmental Health, Aquatic Biology, Utilities, and all reviewed objectives, that cannot be avoided with mitigation measures including early treatment, real time monitoring, pretreatment surveys, and containment. The non-action alternative has been found to have **potentially significant unavoidable impact** due to the increase infestation of aquatic weeds from the Tahoe Keys Lagoons throughout greater Lake Tahoe.

Due to NPDES permit data gaps the certification process will be delayed until fall 2021, with implementation in 2022.

Project Details (Proposed Project)

The proposed project is a 2 phase, 3 year Control Methods Test (CMT) with a goal of 75% plant biomass reduction. Year 1 includes the testing of Group A Methods: two herbicides, in standalone test sites plus combination UV-C & Herbicide test sites. Additionally, the proposed project will include testing of UV-C Light, LFA, and no action. Years 2/3 will include testing of mechanical methods (Group B) with no herbicide use.

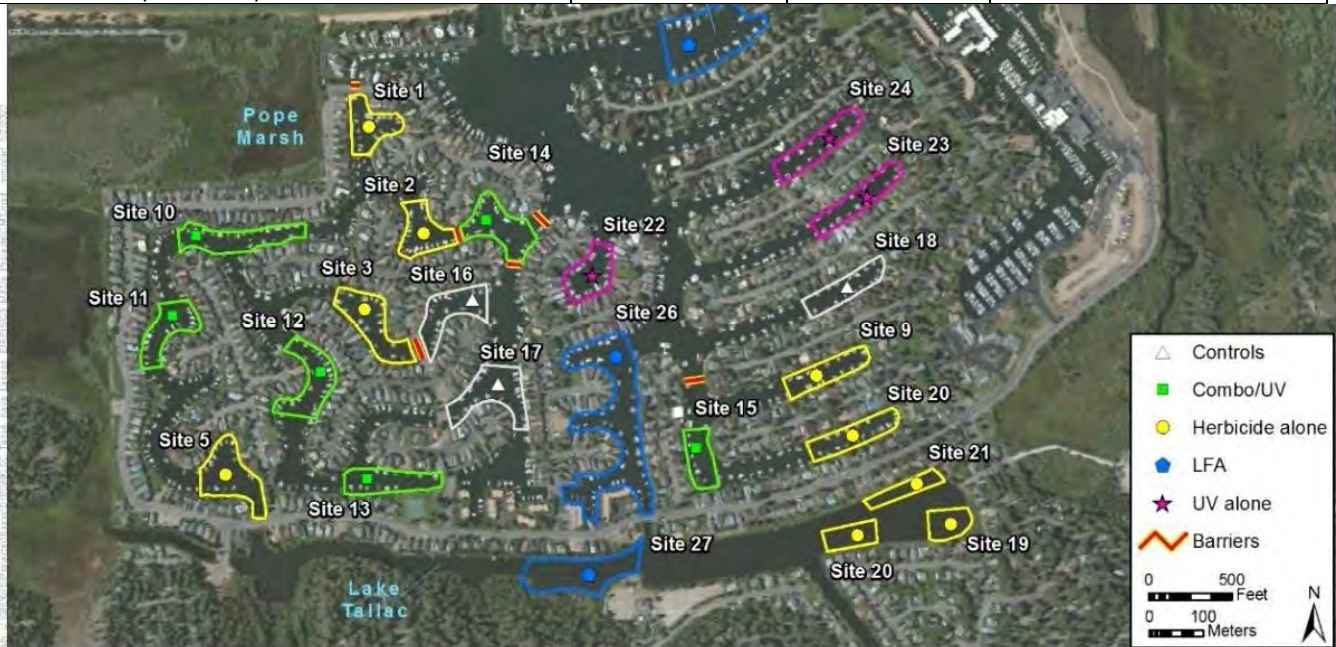
Year One – 2021

Group A West Lagoon- 21 Test Sites total. Triplicate use of methods (selection condition dependent).

- 6 herbicide-only (3 sites for 2 herbicides)
- 3 UV-C Light only
- 6 combination Herbicide and UV-C Light
- 3 LFA-only
- 3 Control
- 3 (herbicides only) Lake Tallac

Proposed Group A Treatment Site Details.

Table 2-3 Proposed Test Herbicide Application Treatment Site Details. Site Number/Treatments	Application Rate (ppm)	Plot Size (acres)	Actual Herbicide/ Zone Size (acres)
1 Herbicide (Endothall)	5	1.5	1.5
2 Herbicide (Triclopyr)	0.003	1.5	1.5
3 Herbicide (Triclopyr)	0.003	2.1	2.1
5 Herbicide (Endothall)	5	2.2	2.2
8 Herbicide (Endothall)	5	1.6	1.6
9 Herbicide (Triclopyr)	0.003	1.5	1.5
10 Combo Herb/Ultraviolet (Endothall)	5	2.0	0.7
11 Combo Herb/ Ultraviolet (Triclopyr)	0.003	1.6	0.5
12 Combo Herb/ Ultraviolet (Triclopyr)	0.003	1.9	0.7
13 Combo Herb/ Ultraviolet (Endothall)	5	1.7	0.6
14 Combo Herb/ Ultraviolet (Endothall)	5	2.0	0.7
15 Combo Herb/ Ultraviolet (Triclopyr)	0.003	1.2	0.4
16 Control	N/A	1.8	0.0
17 Control	N/A	2.2	0.0
18 Control	N/A	1.5	0.0
19 Herbicide (Endothall)	2 to 5	1.0	1.0
20 Herbicide (Endothall)	2 to 5	1.0	1.0
21 Herbicide (Endothall)	2 to 5	0.9	0.9



SOURCE: DigitalGlobe, 2016

Tahoe Keys Lagoons Restoration Program EIR/EIS, D180990

Herbicide Only (10.4 acres in Lagoons, 2.9 acres in Lake Tallac)

The DEIR/EIS reviewed the environmental impacts of three aquatic herbicide, if the proposed project is executed only two herbicides will be used, Endothall and Florpyrauxifen-benzyl or Triclopyr.

Proposed Herbicides, Application Rates, and Application Methods. Herbicide* Active Ingredient (Product Name)	USEPA Reg. No.	Maximum Allowable Rate (ppm)	Application Method (s)	Target Plants per Product Labeling
Endothall (Aquathol K) Contact-type	USEPA Reg. No. 70506- 176	5.0	Drop hoses	Eurasian watermilfoil Coontail Curlyleaf pondweed
Triclopyr (Renovate 3 [liquid] or OTF [granular])	USEPA Reg. No. 67690-42	2.5	Drop hoses (liquid) or granular spreader (solid)	Eurasian watermilfoil
*No adjuvants (i.e., additives to enhance herbicide activity) would be used. Only products approved for use in California would be used.				

Containment- Double Turbidity Curtains, Applicator Control, Monitoring and Reporting Program described in the 2018 Aquatic Pesticide Application Plan (APAP).

Ultraviolet Light C (UV-C) Stand Alone (4.9 acres)

“The current proposed methodology includes initial ultraviolet light treatments in May and June with the array two to three feet off the lagoon bottom, to stunt growth when the plants are small. A second treatment would occur in July and August, and in the case of curlyleaf pondweed, would target irradiating the crowns of the plants causing mortality before they drop turions. A final round of treatments could occur in September and October, as needed.” (TKPOA CMT, page 2-19)

“The total area proposed for stand-alone tests of ultraviolet light in the CMT is 4.9 acres, which represents less than three percent of the total surface area of the 172-acre lagoon system. Based on the Lakeside Marina and Beach testing and using an average time of 15 minutes for treatment and repositioning of the light array, approximately 640 square feet could be treated per hour and one acre could be treated in 68 hours, using the existing eight-foot by 20-foot array. This information was used to project how long UV light treatment might take for the proposed testing:

- Coverage using the existing ultraviolet light boat would require four to five days of operation at ultraviolet light-only test site. Continuous operations for seven days per week could accomplish a single round of treatment at all three test sites in approximately three weeks using the existing ultraviolet light boat, assuming no down time for cleaning, maintenance, and other activities.
- To complete two rounds of ultraviolet light treatment during the active growing season for target aquatic weeds at all ultraviolet light test sites, including the six ultraviolet light/herbicide test sites described in Section 2.3.5, it is assumed that a mid-sized ultraviolet boat with a 320 square-foot light array would need to be deployed in addition to the existing small ultraviolet boat.
- Working together the two boats could complete one round of treatment in approximately 270 operating hours, or about seven weeks using a normal work schedule.
- Given the plan for two or three rounds of ultraviolet light treatment, it is likely that the two boats could need to work continuously from late May until October if a third round is necessary based on results from the first two rounds.” (TKPOA CMT, Page 2-21)

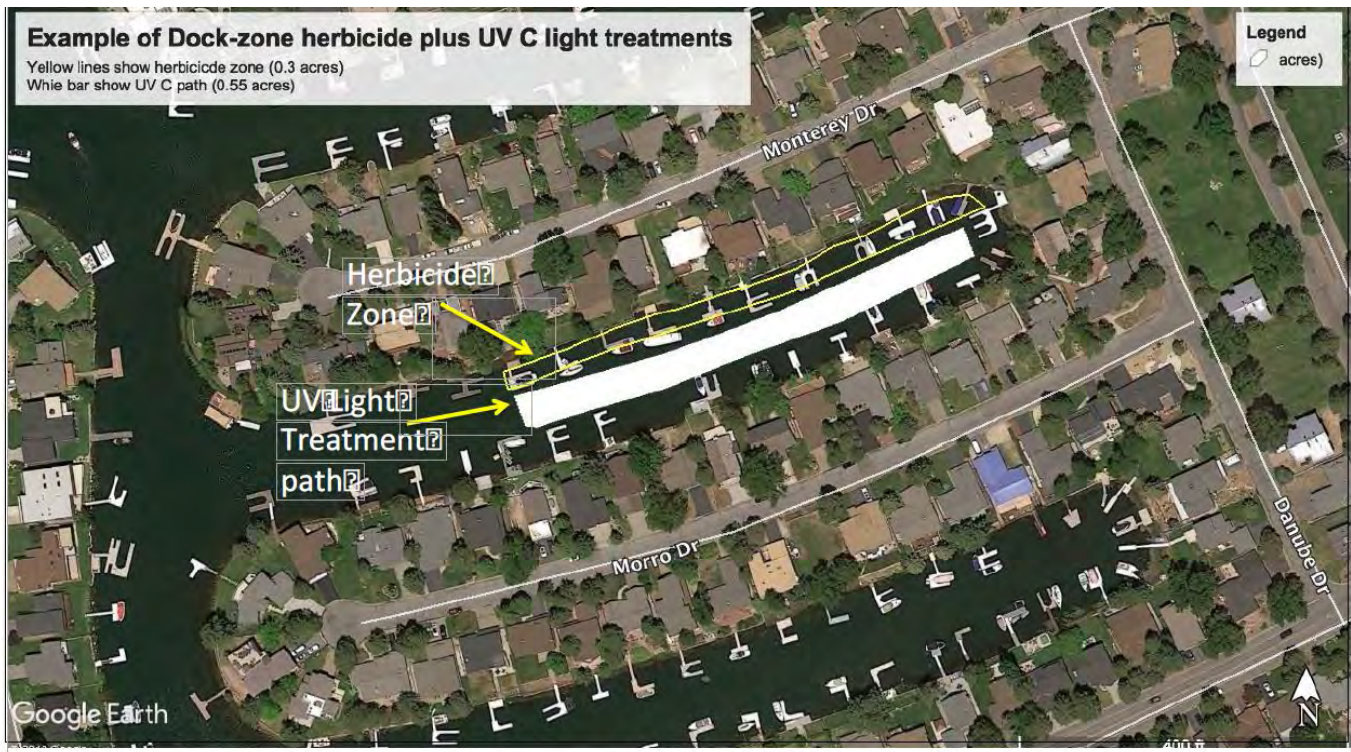
Laminar Flow Aeration (LFA) – Stand Alone (12.8 acres)

“Three test sites would be treated with LFA. LFA treatment would involve the temporary installation of five to 10 ceramic air diffusers on the bottom of the channel at each treatment site, together with weighted airlines. The diffusers and airlines would be connected to a land-based electrically powered air compressor, which would be placed in a sound-reducing cabinet. TKPOA was issued permits by TRPA, the Army Corps of Engineers (USACE) and Lahontan Water Board to install a six-acre LFA project at Site 26 in the south-central part of the West Lagoon (Figure 2-4) in April 2019. Two additional smaller test sites are planned to begin operation in the spring of 2021, for a total of 12.8 acres of LFA operation during the CMT.

The LFA test would not disrupt existing recreation uses in the Tahoe Keys since all equipment would be located on the bottom of the channel (except for air compressors that would be located within utility enclosures). No modifications to existing uses or structures are proposed, and no barriers would be used to isolate the LFA treatment areas.” (TKPOA CMT, page 2-22)

Herbicide & UV-C Light combined (10.4 acres)

TKPOA will test three combined Herbicide and UV-C light sites. The combination of the two group a methods “sites would be used to study the efficacy of combining ultraviolet light treatments applied in linear, unobstructed reaches, with herbicide treatments applied in the relatively narrow zone between the dock footprints and the shorelines. The objective of this combination is to optimize ultraviolet light exposure efficiency by combining it with the application of herbicides in generally “obstructed” areas.” (TKPOA CMT, Page 2-22)



Year 2 & 3 (2022-2023)

Group B West Lagoon – methods to be used; Diver-Assisted suction/Hand Pulling, Bottom Barriers (with or without hot water, steam or acetic acid injections), Localized spot treatment with ultraviolet light, localized suction dredging. The Group B method to be used will be dependent on the results of the Group A treatment, the size of the infestation and limitations and constraints to the method type based on lagoon morphology or physical obstructions.

“Group B methods would be implemented following the testing of Group A methods, depending on the target aquatic weeds present, size of infestation, and location of infestation. Where the target plant biovolume reduction does not achieve the 75% reduction goal for Group A methods, that site would be considered a failed test and Group B follow-up maintenance would not be performed. Group B methods are included in the CMT to evaluate their ability to provide sustainable, long-term maintenance options that preclude the need for repeated use of herbicides or other Group A methods. During the Spring of the year following Group A testing at each site, hydroacoustic and macroinvertebrate surveys would be performed to determine the size of the remaining infestation. Group B methods would be implemented during the years following Group A tests.” (TKPOA CMT, page 2- 23/24)

Alternative 1 (Testing of non-herbicide methods only):

Action Alternative 1 would proceed only with tests of non-herbicide methods of aquatic weed control. Under this alternative, no treatments with herbicides would be conducted, and other elements of the test program (i.e., ultraviolet light, LFA, and Group B methods) would be as described above for the Proposed Project. This alternative was identified as the environmentally superior alternative (Section 5.7).

Year One – (2021)

- UV-C Light – Stand Alone Test as described in the proposed project
- LFT – Stand Alone test as described in the proposed project

Year 2 & 3 (2022-2023)

- Group B maintenance as described in the proposed project

Alternative 2 (Tahoe keys dredge and replace substrate)

Action Alternative 2 responds to comments received during public scoping and would consist of hydraulic dredging (i.e., wet excavation or suction dredging) of the bottom layers of organic material and sediment to remove the roots and turions of aquatic weeds at three test sites in the Tahoe Keys lagoons, followed by placement of a new layer of bottom sediment (e.g., coarse sand or gravel). (TKPOA CMT, Page ES-7)

No Action Alternative

The No Action Alternative considers the long-term consequences to the Tahoe Keys lagoons and Lake Tahoe of undertaking no new weed control activities in the Tahoe Keys lagoons. Under this alternative only current control methods would be employed by TKPOA and individual property owners (e.g., voluntary use of bottom barriers, the existing LFA project, mechanical harvesting, and weed fragment control). Because herbicide and ultraviolet light applications would not be tested under this alternative, it is assumed that these methods for target aquatic weed control would not be used in the foreseeable future under a No Action Alternative. (TKPOA CMT, Page ES-7)

TWSA Staff Draft EIR/EIS Highlights for Purveyors

No Finding of significant impact to all objectives from proposed project, alt. 1, Alt. 2

- Detectable Concentrations of Herbicides and Degradates in Receiving Waters.** The potential impact of detectable concentrations of herbicides and degradates in receiving waters will be **less than significant** for the Proposed Project, given the timing and limited extent of application. A spill response plan would also be employed, and double turbidity curtains would be used to prevent movement of herbicides toward the West Lagoon connecting channel. LFA or other aeration technology will be used at test sites to accelerate the degradation of herbicide active ingredients and degradates.
- Protection of Drinking Water Supplies.** This issue would have **less than significant** effects for the Proposed Project, given measures to contain the herbicide applications with double turbidity curtains to prevent movement of active ingredients toward the West Lagoon connecting channel and Lake Tahoe. Dye tracing and well monitoring will document herbicide movement, and existing or mobile carbon filtration systems would be activated to remove herbicide residues if they reach wells.
- Effects on Water Supply (Utilities).** No impact to this issue would occur under the Proposed Project or any of the alternatives. **No significant unavoidable environmental effects would occur** for this issue under the Proposed Project and Action Alternatives. Though the degree of potential significance is speculative, the No Action Alternative could result in a potentially significant turbidity-related impact if intakes are located in shallow waters where habitat could support uncontrolled growth of aquatic weeds.

Significant impact of non-action alternative

Environmental Health as aquatic weed infestations persist and grow in the Tahoe Keys lagoons, conditions may become increasingly favorable for HABs. Past detections of cyanotoxins have reached caution levels at Tahoe Keys, and continuation of the existing programs to monitor and warn people at Tahoe Keys when cyanotoxins are present may continue to be effective in protecting against any additional risks of exposure to cyanotoxins. However, the conditions that cause cyanobacteria to produce cyanotoxins are not well understood, and it is uncertain whether concentrations of these toxins would increase in the future. Given this uncertainty, the impact of HABs may present a **potentially significant unavoidable impact** of the No Action Alternative.

Aquatic Biology The No Action Alternative is expected to lead to expansion of aquatic weed growth in the lagoons and in other nearshore areas of Lake Tahoe, particularly with continued spread of curlyleaf pondweed infestations. Therefore, **significant and unavoidable** impacts would be expected (1) in aquatic macrophyte community composition, (2) in the expansion of curlyleaf pondweed, (3) to further degrade habitat conditions for the larger aquatic BMI community, similar to that for the Tahoe Keys lagoons, and (4) to further degrade habitat conditions for special status fish species and native or recreationally important game fish species, potentially blocking access to spawning habitat.

Built/Human Environment Long-term **significant unavoidable impacts** to recreational boating could accumulate for this issue under the No Action Alternative, if the continued harvesting of aquatic weeds as currently practiced by the TKPOA is ineffective in preventing the spread of the weeds to Lake Tahoe.

Mitigation Measures (Feasible, measureable and specific)

Mitigation measures for the proposed project are provided in the 2018 Aquatic Pesticide Application Plan (APAP), the draft EIR provides the following mitigation measures:

- Applicator qualifications
- Spill response plan
- Dye tracing
- Well monitoring and contingencies
- West Channel monitoring and contingencies
- Public outreach
- Carbon filtration contingency (wells only)
- Double turbidity curtain barriers
- Best management practices
- Timing and size of treatments
- Aeration

ONRW Tier III Status References

The following federal, state, and local regulatory requirements are listed in the Draft EIR for projects in an ONRW Tier III water.

Federal

- USEPA Antidegradation Policy: The Tier III designation of Lake Tahoe (including the West and East lagoons) under the State and federal Antidegradation Policies requires that states may allow some limited activities that result in temporary and short-term changes to water quality, subject to protection of beneficial uses. These changes would not be allowed to adversely affect existing uses or alter the essential character or special uses for which Lake Tahoe was designated as an ONRW. As discussed in Section 1.4.1.1, if detectable concentrations of applied aquatic herbicide active ingredients or select degradation byproducts are present longer than “weeks to months, not years” the discharges would be assessed to cause long-term water quality degradation. The LWB has discretion in determining the allowable time frames for what constitutes long-term and short-term existing water quality degradation within the “weeks to months, not years” guidance from USEPA.

State

- California’s antidegradation policy in State Water Board Resolution 68-16, which incorporates the requirements of the federal antidegradation policy. The requirements for an exemption to the prohibition apply both to proposed aquatic herbicide testing in the West Lagoon, which is part of the Tier Three designation of Lake Tahoe as an ONRW, and to herbicide testing in Lake Tallac, which has Tier Two protection under the antidegradation regulations. If approved for use, detectable concentrations of herbicide active ingredients and degradates above background would be allowed within treatment areas only for a short-term period (i.e., weeks to months, not years). This requirement is described in Section 1.4. In receiving waters outside of treatment areas, short-term detectable concentrations of herbicide active ingredients and degradates are only allowable if beneficial uses are protected and maintained.

Local

- **Obstruction of Direct Access to Lake Tahoe for Recreational Boating.** Lake Tahoe offers an exceptional recreational experience as a unique alpine lake known worldwide for the clarity and purity of its outstanding blue waters. The Lake was designated an Outstanding National Resource Water (ONRW) by the State of California and the USEPA in 1980. The recreational quality of Lake Tahoe was a primary attraction in developing the Tahoe Keys, and in the ongoing use of the Lake. The Keys is a boat-oriented development, and much of the recreation use enjoyed by Tahoe Keys property owners and their guests is mediated by direct access to Lake Tahoe for boat use. The primary potential impact of the Proposed Project and Action Alternatives on recreation occurs through its effects on boat access and displacement of use to nearby marinas and other facilities.

Filtration Exemption References

Issue UT-1: Effects on Water Supply. A primary concern raised by water purveyors sourcing Lake Tahoe has been the potential to affect the quality of water taken at their drinking water intakes, such that they would no longer qualify for the filtration exemption. Of the six treatment requirements listed in Table 3.4.2-1, the only one that could be affected by the Proposed Project would be turbidity. The Proposed Project has no potential to influence microbial contamination or trihalomethanes in Lake Tahoe. This analysis of potential impacts also considers the potential for herbicides or degradates to reach water intakes in detectable concentrations, such that drinking water sourced at these intakes would be rendered contaminated or unsuitable for human use.

No mitigation would be required beyond that proposed for water quality (Section 3.3.4) and designed as part of the Proposed Project, as no impacts to utilities would occur. TKPOA has proposed contingency plans, including monitoring and alert systems (TKPOA 2018e; see also the IEC/IS), that would be implemented if necessary, to remove herbicides and other chemicals to treat the potable water before distribution. The negligible potential for impact forestalls the need for other mitigation.

No significant unavoidable impacts to utilities would occur.

Environmentally Superior Alternative (Requirement & How chosen)

CEQA Guidelines 15126.6 address Alternatives to the Proposed Project, stating that *“an EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives,”* and further, *“The range of potential alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects.”*

Sections 15126.6(a) and 15126.6e(2)) require that an EIR’s analysis of alternatives identify the “environmentally superior” alternative among all of those considered. In addition, if the No-Project Alternative is identified as the environmentally superior alternative, then the EIR must also identify the environmentally superior alternative among the other alternatives. Under CEQA, the goal of identifying the environmentally superior alternative is to assist decision makers in considering project approval. CEQA does not require an agency to select the environmentally superior alternative (State CEQA Guidelines Section 15042–15043).

In this case, the No Action Alternative is not the environmental superior alternative; in fact, as shown in Table 5-1, it would have the greatest potentially significant unavoidable impacts of the four alternatives considered.

Action Alternative 1 (Testing of Non-Herbicide Methods Only) was selected as an alternative that might reduce the potentially significant effects of the Proposed Project by avoiding the application of herbicides.

Action Alternative 2 (Tahoe Key Dredge and Replace Substrate) was selected after scoping as an alternative suggested by stakeholders that also might reduce impacts by avoiding the application of herbicides.

As shown in Table 5-1, both the Proposed Project and Action Alternative 2 would have potentially significant unavoidable impacts on recreational boating. In addition, although the Proposed Project and both Action Alternatives mitigate all other identified environmental issues to less than significant, both the Proposed Project and Action Alternative 2 entail activities (application of herbicides and the dredging, dewatering and disposal of sediment) that would not occur under Action Alternative 1. Although mitigated, these additional activities entail some measure of potential risk and reduced impact. For all these reasons, Action Alternative 1 is the environmentally superior alternative.

Benthic Macro Invertebrates

Effects on the Aquatic Benthic Macroinvertebrate Community. Implementation of the Proposed Project or Action Alternatives would not be expected to result in a substantial change or reduction in the diversity or distribution of the aquatic BMI community and this impact would be less than significant. Continued spread of aquatic invasive weeds under the No Action Alternative has the potential to further change the plant community composition in deeper water areas of the lagoons, and also further spread in nearshore areas of Lake Tahoe proper. This would be expected to further degrade conditions for aquatic BMIs, similar to that for the Tahoe Keys lagoons. If the continued spread of aquatic invasive weeds goes unchecked under the No Action Alternative, the resulting changes to the BMI community composition could be significant.

Competiveness & Regrowth of Curlyleaf Pondweed

Competitive Exclusion of Aquatic Macrophytes Due to Increased Growth of Curlyleaf Pondweed. Given the small areas proposed for testing aquatic herbicides under the Proposed Project, and the ability to adjust test site locations to avoid areas dominated by native plant communities, changes or reduction in the diversity or distribution of the non-target macrophyte community or increased growth of curlyleaf pondweed would be less than significant.

Contingency Monitoring Locations

The following locations will be sampled **IF** Rhodamine Aquatic Dye is detected in the west channel lagoon.

Figure 8: Contingency Herbicide Monitoring Sites and Tracks for Herbicide Validation Study



NOTE: These sites will only be monitored if herbicide residues are detected in the West Channel.

Tahoe Water Suppliers Association (TWSA) Agreement

This Tahoe Water Suppliers Agreement is entered into this December 8, 2016, by and between Douglas County (“Zephyr Cove, Skyland, Cave Rock”), Incline Village General Improvement District (“IVGID”), Glenbrook Water Cooperative (“Glenbrook”), Round Hill General Improvement District (“Round Hill”), Kingsbury General Improvement District (“Kingsbury”), Edgewood Water Company (“Edgewood”), Lakeside Park Association, North Tahoe Public Utility District (“NTPUD”), South Tahoe Public Utility District (“STPUD”), Tahoe City Public Utility District (“TCPUD”) (collectively referred to herein as the “Parties” or “Water Supplier”).

Recitals

1. Each of the Parties owns and operates a public water system within the Lake Tahoe Basin (Basin).
2. In order to assure a safe water supply and promote responsible use of a natural resource water suppliers must conduct watershed sanitary surveys on a regular basis, participate in an active watershed protection program, and comply with additional requirements and regulations.
3. The Parties desire to create the Tahoe Water Suppliers Association whose purpose is to develop, implement and maintain an effective watershed control program in order to satisfy recommendations in watershed sanitary surveys, advocate for the protection of Lake Tahoe as a viable source of drinking water and to satisfy additional state and federal requirements.

NOW, THEREFORE, based upon the foregoing, the Parties hereto agree as follows:

ARTICLE I

INTENT

With the execution of this agreement, it is the intent of the Parties to provide for the establishment of the Tahoe Water Suppliers Association (“Association”) to assist the Parties in:

- a) Meeting federal and state requirements for filtration avoidance and other requirements; promulgated by the Surface Water Treatment Rule and its amendments.
- b) Maintaining an active watershed management control program, and carrying out the goals of the Association.
- c) Promoting and protecting Lake Tahoe and other sources in the Basin as viable sources of drinking water
- d) Defining the roles and responsibilities of the Executive Director and securing funding for the Executive Director to coordinate and execute the activities of the Association.

ARTICLE II

CREATION OF THE TAHOE WATER SUPPLIERS ASSOCIATION

Section 2.1. Establishment of Association. The Parties to this Agreement agree to establish the Tahoe Water Suppliers Association with the authority and responsibilities set forth in this Agreement.

Section 2.2. Executive Director. IVGID shall designate one of its staff persons to act as the Executive Director for the Association and IVGID may assign additional staff to perform the activities of the Association.

Section 2.3. Association Board. The Association shall be managed by the Board of Directors (“Board”). The Board shall consist of one representative appointed by each dues paying Water Supplier. The position of Board Chair and Vice Chair will be elected annually by the Board. The Board shall also have the position of Vice Chair to act as Chair in their absence. The Chair shall conduct the Association Board meetings and participate with the Executive Director

in preparation of the agenda. The Chair shall act as the spokesperson for the Association Board on matters of concern to the Association or assign this to the Vice Chair or Executive Director, or other members of the Board.

Water Suppliers List

Douglas County – Zephyr Cove
 Douglas County – Skyland
 Douglas County – Cave Rock
 Edgewood Water Company
 Glenbrook Water Cooperative
 Incline Village General Improvement District
 Kingsbury General Improvement District
 Lakeside Park Association
 North Tahoe Public Utility District
 Round Hill General Improvement District
 South Tahoe Public Utility District
 Tahoe City Public Utility District

Section 2.4. Duties. The Board shall be responsible for implementing the terms and conditions of this Agreement including, without limitation, the following:

- 2.4.1 Setting of periodic meetings to insure dissemination of information and discussion of issues.
- 2.4.2 Providing for cooperation among the Parties and with local, state and federal agencies and private entities with respect to watershed evaluation and watershed management.
- 2.4.3 Providing for the prevention of watershed degradation through advertising and education, conducting studies, retaining consultants as needed.
- 2.4.4 Developing a budgeting and funding process that ensures that the Association's cooperative efforts will be adequately staffed and funded.

Section 2.5. Appointment Alternatives. Each of the Parties to this Agreement shall name an alternate Board member representative to act in the event a Party's appointed Board representative is not in attendance at the meeting. In the event that the Party's appointed Board member is not in attendance at the meeting, the alternate Board member shall be entitled to one (1) vote in conducting the business of the Board. A Board member may also assign its voting privileges by standard proxy provisions.

Section 2.6 Meetings.

- 2.6.1. Regular Meetings. Regular meetings of the Board shall be held at least quarterly or at such other time as decided by the Board majority and shall be held at such place as the Chair or members of the Board may determine. Members can attend via conference call or other electronic communication methods.
- 2.6.2. Special Meetings. Special meetings of the Board may be called by or at the request of the Chairman or any two (2) members of the Board, and shall be held at such place as the Chairman or members of the Board may determine.
- 2.6.3 Emergency Meeting. An emergency meeting can be convened at any time with 100% concurrence of the Board members and shall be held at such place as the Chairman or members of the Board may determine.

Section 2.7 Notice of Meetings. Meeting notices will be posted according to Nevada Revised Statutes 241 and the California Brown Act, whichever is more restrictive. The Board shall be given notice of meetings and meeting agenda packets, delivered personally, sent by email, or sent by mail to each Board member at the Board member's address as provided in the Association records. If mailed, such notice shall be deemed to be delivered when deposited in the United States mail in a sealed envelope, so addressed, with postage thereon prepaid.

Section 2.8. Quorum. A majority of the members of the Board shall constitute a quorum for the transaction of business at any meeting of the Board. Each water supplier as listed in Section 2.3 is entitled to one vote. A single person may represent more than one water supplier and therefore have more than one vote.

Section 2.9. Voting Requirements. An affirmative vote of a majority members of the Board at any meeting shall be required to take action. Votes can be either voice votes or other methods of tabulating votes by electronic communication means.

Section 2.10. Books and Records. The Board shall keep correct and complete books and records of account, minutes of its proceedings and record giving the names and addresses of the members entitled to vote. All books and records of the Board shall be kept at a location determined by the Board and may be inspected by any Board member, or that member's agent or attorney, for any proper purpose at any reasonable time. Records shall be retained in accordance with record retention policies.

ARTICLE III

CHARGES

Section 3.1. Establishment. Consistent with this Agreement, the Board shall establish charges to be paid by each Party to finance all necessary activities. Necessary activities are those identified by the Board in an approved annual budget.

Section 3.2. Apportionment of Charges. Parties shall pay the percentages of the annual budget. Each party's costs include shared program costs and dependent program costs, other than STPUD which pays 10% of total TWSA costs. Shared program costs are defined as 25% of TWSA staff costs and 75% of TWSA operating costs and account for activities that are necessary for all members. The shared costs effort does not vary based on size of the member's service area. Dependent program costs are defined as 75% of TWSA staff and 25% of TWSA operating. The dependent costs account for activities such as mapping and monitoring that inherently are more time and resource demanding for members with larger service areas and greater number of customers/connections than members with smaller services areas and customers/connections. Shared costs are appropriated equally to all Parties while, dependent costs are proportioned according to the size of the service area, customers, and connections.

Section 3.3. Use of Funds. Funds received from such charges shall be used for those purposes for which the Association has established.

Section 3.4. Budget and Charges. The Executive Director shall prepare an annual budget that will include a budget for all anticipated shared program and dependent program costs by the third quarterly meeting proceeding the budget year which begins on July 1st. The Board shall review and direct charges to the budget proposal and shall approve an annual budget at the March Meeting. The charges paid by each Party for the succeeding budget year shall be based on the approved budget.

Section 3.5. Account. The Executive Director will establish an account called the Tahoe Water Suppliers Association Account ("Account") to be used exclusively for purposes of the Association. Annual budget will determine the amount budgeted in the Account. The budget will be prorated for the Parties according to Section 3.2 and billed out on or about July 1 annually and become due 45 days later. Any monies not utilized during the budget year will be allocated to the next budget cycle unless allocated to the TWSA reserve fund. IVGID manages the reserve fund.

Section 3.6. Account Disbursements. All disbursements from the Account will be used for expenditures authorized by the Board in accordance with this Agreement. Except as otherwise provided in this section, the Board shall approve all TWSA programs and related payments from the Account in the annual Association budget process. The TWSA Director is authorized to approve all transactions as already defined and specified in the approved Association budget. Payments

of \$500 or less may be made by the Executive Director for actions not previously approved or detailed in the Association budget. All disbursements from the Account of greater than \$500 and less than \$1,000 shall require the approval of the Chairman for actions not previously approved or detailed in the Association budget. All disbursements from the Account \$1,000 or greater shall require approval of the majority of the Board for actions not previously approved or detailed in the Association budget.

ARTICLE IV

MEMBERSHIP PROCESS

Section 4.1. Admission of New Association Members. Public Water Systems desiring to join the Association shall submit a written request for consideration. The Board shall consider and discuss the request at a regularly scheduled Board meeting and conduct a vote on whether to admit the new member at a following regularly scheduled Board meetings. Public Water Systems requesting consideration of admission shall not have interests in conflict with TWSA's Mission Statement. A prospective member must receive approval by a minimum of at least 75% of the whole Board at the regularly scheduled meeting. Membership dues will be prorated for the current budget year based on the date of becoming a member and will become payable within 45 days of issuing the membership bill.

ARTICLE V

MISCELLANEOUS

Section 5.1. No Joint Venture / No Joint Power Authority. The Parties specifically acknowledge that no Party is acting as the agent of any other Party in any respect, and that each Party is an independent entity with respect to the terms, covenants and conditions contained in this Agreement. None of the terms or provisions of this Agreement shall be deemed to create a partnership between or among the Parties in their businesses, operations, affairs, or otherwise; nor shall it cause them to be considered joint ventures, joint power authority or members of any joint enterprise.

Section 5.2. No Third-Party Beneficiary. This Agreement is not intended, nor shall it be construed, to create any third-party beneficiary rights in any person or entity that is not a Party to this Agreement.

Section 5.3 Entire Agreement. This written Agreement constitutes the entire Agreement between the Parties with respect to the subject matter of the Agreement and supersedes all negotiations, prior agreements, and understandings between the Parties with respect to the subject matter.

Section 5.4. Further Actions. Each Party agrees to take all reasonable actions, to do all reasonable things, and to execute any and all documents and writings that may reasonably be necessary or proper to achieve their purposes and objectives of this Agreement.

Section 5.5. Good Faith. The Parties recognize and adopt the covenant of good faith and fair dealing in carrying out this Agreement.

Section 5.6. Modification. The Parties may not modify the terms of this Agreement except by approval of 75% of all Association members.

Section 5.7. Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Nevada.

Section 5.8. Construction. The Parties acknowledge that each had the benefit of legal counsel, has had an opportunity to review this Agreement with its legal counsel, and that this Agreement shall be construed as if jointly drafted by all Parties.

Section 5.9. Counterparts. This Agreement may be executed by the Parties in counterparts, each of which shall be deemed an original instrument, and all of which shall constitute one and the same instrument.

Section 5.10. Notices. Any and all notices or other communications required or permitted by this Agreement or by law

to be served on or given to any Party by any other Party, shall be in writing, and shall be deemed duly served and given when personally delivered to the Party to whom it is directed, or in lieu of such personal service, then deposited in the United States Mail, first class postage prepaid, addressed to the Party at its last known address.

Section 5.11. Severability. In the event that any provision of this Agreement shall be held to be invalid or otherwise unenforceable, the Parties agree that the remaining provisions shall be valid and binding on the Parties hereto.

Section 5.12. Clarifying Statement. No member is delegating any of its authority or granting any right to act on its behalf by participation, except as to the specific tasks and revenues referenced. This Agreement provides no authority to bind its members.

Section 5.13. Termination. Any Party to this Agreement may withdraw from the Association for the upcoming year by giving notice of withdrawal to the other Parties at any time. No refund will be made of sums paid under this Agreement.

####

In WITNESS WHEREOF,
The Parties hereto have executed this Agreement on the date and year above first written:

LAKESIDE PARK ASSOCIATION
P.O. BOX 1775
ZEPHYR COVE, NV 89448

BY

PRINT NAME: Bob Lodings

SIGNATURE: Bob Lodings

DATE: 2/7/17

In WITNESS WHEREOF,
The Parties hereto have executed this Agreement on the date and year above first written:

ROUND HILL GENERAL IMPROVEMENT DISTRICT
P.O. BOX 976
ZEPHYR COVE, NV 89448

BY

PRINT NAME: A. Gregory Reed

SIGNATURE: 

DATE: 1-30-2017

In WITNESS WHEREOF,
The Parties hereto have executed this Agreement on the date and year above first written:

INCLINE VILLAGE GENERAL IMPROVEMENT DISTRICT
1220 SWEETWATER
INCLINE VILLAGE, NV 89451

BY

PRINT NAME: Joseph J. Pomroy

SIGNATURE: Joseph J. Pomroy

DATE: 1/18/17

In WITNESS WHEREOF,
The Parties hereto have executed this Agreement on the date and year above first written:

NORTH TAHOE PUBLIC UTILITY DISTRICT
P.O. BOX 139
TAHOE VISTA, CA 96148

BY

PRINT NAME: Duane Whitelaw

SIGNATURE: AT Whitelaw

DATE: 1/23/17

In WITNESS WHEREOF,
The Parties hereto have executed this Agreement on the date and year above first written:

SOUTH TAHOE PUBLIC UTILITY DISTRICT
1275 MEADOW CREST DRIVE
SOUTH LAKE TAHOE, CA 96150

BY

PRINT NAME: Richard Solbrig
SIGNATURE: Richard Solbrig
DATE: 1-24-17

In WITNESS WHEREOF,

The Parties hereto have executed this Agreement on the date and year above first written:

DOUGLAS COUNTY (ZEPHYR, CAVE ROCK, SKYLAND WATER COMPANIES)
P.O. BOX 218
MINDEN, NV 89423

BY

PRINT NAME: Timothy M. DeTurk

SIGNATURE: 

DATE: 1-25-2017

In WITNESS WHEREOF,
The Parties hereto have executed this Agreement on the date and year above first written:

TAHOE CITY PUBLIC UTILITY DISTRICT
P.O. BOX 5249
TAHOE CITY, CA 96143

BY

PRINT NAME: CINDY GUSTAFSON

SIGNATURE: 

DATE: 3/14/17

In WITNESS WHEREOF,
The Parties hereto have executed this Agreement on the date and year above first written:

GLENBROOK WATER COOPERATIVE
POBox295
Glenbrook, NV 89413

BY

PRINT NAME: Ken Riley


SIGNATURE: Ken Riley

DATE: 4-27-17

In WITNESS WHEREOF,
The Parties hereto have executed this Agreement on the date and year above first written:

KINGSBURY GENERAL IMPROVEMENT DISTRICT
P.O. BOX 2220
STATELINE, NV 89449

BY

PRINT NAME: CAMERON HICKMAN
SIGNATURE: 
DATE: 3-6-17

In WITNESS WHEREOF,
The Parties hereto have executed this Agreement on the date and year above first written:

EDGEWOOD WATER COMPANY
P.O. BOX 5400
STATELINE, NV 89449

BY

PRINT NAME: KING

SIGNATURE: *[Handwritten Signature]*

DATE: 3.8.17

Tahoe Water Suppliers Association (TWSA) Membership Summary

- The TWSA mission statement was created and adopted in June 2008:
 “The mission of the Tahoe Water Suppliers Association is to develop, implement and maintain an effective watershed control program in order to satisfy recommendations in watershed sanitary surveys, advocate for the protection of Lake Tahoe as a viable source of drinking water, and to satisfy additional state and federal requirements.”

Major Membership Benefits:

The (6) TWSA members with USEPA designated ‘filtration exempt’ water systems (which includes DC Purveyors) receive the benefit of a TWSA staff produced, comprehensive, annual *USEPA Watershed Control Program Annual Report*. This annual report fulfills the mandatory 5 year Watershed Sanitary Survey requirement, for filtration-exempt systems, for both the CA and NV water utility regulatory agencies. Each year’s publication is accepted as a rolling update for this filtration exempt system reporting requirement. The long-term data compilation supports the tracking of drinking water quality for the members, and fulfills mandatory regulatory reporting requirements.

The 2019 Report is posted at: https://www.yourtahoeplace.com/uploads/pdf-public-works/TWSA_2019_Watershed_Control_Program_Annual_Report_-_full_document_11-8-2019_-_NO_MAPS.pdf

TWSA members receive the benefit of having dedicated staff to research and monitor emerging topics, ongoing projects and public policy, related to watershed protection and drinking water quality from a variety of federal and bi-state agencies. Staff maintains a strong communication relationship with Tahoe Regional Planning Agency (TRPA), Nevada Department of Environmental Protection (NDEP), Lahontan Regional Water Quality Control Board (LRWQCB) and other regulatory agencies on source water protection.

Staff spends extensive time on project review / policy development process with TRPA, NV State Lands, Lahontan Water Board and other planning/regulatory agencies.

Current active projects include:

- Aquatic Invasive Species (AIS) Programs (threats/prevention programs, treatment methods, Integrated Weeds Management Plan)
- Groundwater Contamination at the ‘Y’ / PCE Plume Project
- Tahoe Regional Planning Agency Shoreline Plan and Project Reviews
- Nevada State Lands notifications on occupancy of lake bottom
- Truckee River Operating Agreement (TROA) Ongoing regulatory updates
- Emerging Contaminants including micro-plastics
- Ongoing federal and state regulatory updates

Staff provides a unified message with extensive education and outreach on focus topics of source water protection and the value of municipal tap water. Our regional outreach campaigns (Drink Tahoe Tap®, Take Care, Protect the Source) cover a gamut of topics in source water protection. Staff conducts outreach at multiple events each year.

Activities include hosting the ‘water taste test’ at our educational booth, offering student field lessons, leveraging volunteers for dog waste collection stations, collaborative programs with other non-profits, and more. Currently we are partnered on a source water protection micro-plastics education outreach campaign, with local researchers, with NDEP grant support on the project.

The new TWSA/Take Care Campaign website is www.DrinkTahoeTap.

The TWSA informational site is www.TahoeH2O.org.

Staff facilitates a social media and print media program as well.

Member agencies collaborate on advocacy efforts for federal infrastructure funding, especially for fire flow capacity.

Member agencies share institutional knowledge on operations, problem solving, vendors, staffing and industry trends.

The power of philanthropy starts with partnerships.



Researchers studying impact of microplastics

Campaign urges residents and visitors to ditch plastic bottles in favor of pure tap water

Have you visited one of the exquisite beaches at Lake Tahoe only to find plastic trash left behind? Maybe you've seen a public trash enclosure with litter piled up around it and scattering in the wind?

Over time, sunlight, heat, wave action, and chemicals break up plastic litter into smaller and smaller pieces known as microplastics. Microplastics are smaller than 5 millimeters.

"Because plastics do not biodegrade or decompose, every piece of plastic ever made still exists," said Heather Segale, education and outreach director at UC Davis Tahoe Environmental Research Center (TERC). "When they end up in our environment, these everlasting microplastics threaten the health of our ecosystems."

Microplastics have been found in many of the sediment and water samples collected around the lake.

Teams researching plastic

Scientists from the UC Davis Tahoe Environmental Research Center (TERC) and Desert Research Institute (DRI) are collaborating to study the threat microplastics pose to the health of Lake Tahoe. Each team is studying different aspects of the problem. While TERC is researching the fate of deposited microplastics to determine where they end up in the lake, DRI is studying the inputs — inflowing streams, accumulation on snow, storm drains, and even dryer vents.

In summer 2018 and 2019, field researcher Katie Senft led a pilot project through a summer internship program with TERC and found microplastics in many of the samples of beach sand collected. Building on that pilot project with funding from the Nevada Division of Environmental Protection (NDEP) and the U.S. Environmental Protection Agency (EPA), Senft's team continues to investigate the fate of microplastics in Lake Tahoe.

Regular net trawls funded by the Tahoe Water Suppliers Association (TWSA) at various depths throughout the lake are performed, as well as the collection of deep-water sediment samples to test for heavier plastics that have settled. Researchers will also sample municipal water treatment facilities and Kokanee salmon and Asian clam tissues to



Photo: Tahoe Environmental Research Center

Researcher Katie Senft sorts plastic litter as part of a research project to measure the impact of microplastics on the Tahoe environment.



The plastic reduction team partnered with local grocer Raley's to encourage the use of Drink Tahoe Tap® reusable water bottles instead of single-use plastics.

assess the impacts on filter-feeding biota. Sampling protocols will build on previous studies to measure microplastics at every depth of the lake and other areas of the surrounding watershed.

Meanwhile, Monica Arienzo, assistant research professor, and Meghan Collins, education program manager at DRI, are working to understand microplastic contamination and develop novel methodologies that will enhance our understanding of microplastics in

freshwater environments. Throughout the spring, the DRI team used a system of pumps, funnels, tubing, and filters to collect water samples 20 feet from the water's edge at eight diverse locations, including areas of both high and low human activity. The sampling was conducted at the Tahoe Keys, a popular boating area; Emerald Bay State Park, where boat access is limited; and at other locations around Lake Tahoe.

In addition, DRI is collaborating

with the nonprofit League to Save Lake Tahoe's citizen science "Pipekeepers" program to study stormwater outlets as a source of microplastics to Lake Tahoe. This program was conducted in 2019 and 2020 and has found microplastics in stormwater outflow. DRI's research into the sources of microplastics in Lake Tahoe will inform mitigation strategies based on scientific findings.

Campaign to reduce plastic pollution

Reducing plastic pollution and educating residents and visitors about its impacts has never been more important. Numerous efforts are underway to help with this initiative.

Clean Up the Lake, a nonprofit organization, removed trash from Lake Tahoe in summer 2020. Dive teams covering depths up to 25 feet worked along the shoreline, removing all the smaller trash they could find, and marking other items for later removal. A recent 6-mile clean-up of Nevada's Lake Tahoe subsurface shoreline, yielded over one ton of trash from areas like Nevada Beach, Zephyr Cove, Secret Beach, and areas near Incline Village.

Researchers, nonprofit sorting a ton of trash

Continued from page 8

“Other than surface runoff and stormwater, Lake Tahoe does not receive any wastewater, which is domestic, industrial, commercial, or agricultural water that has been contaminated by human use,” Senft said. “This means that much of the plastic entering Lake Tahoe is the result of litter.”

The clean-up was funded by a License Plate Grant from the Nevada Division of State Lands and a subgrant by the NDEP and EPA. Clean Up the Lake, UC Davis TERC, and DRI are sorting and categorizing the 2,248 pounds of trash. The data will be used to develop educational programs, better inform policy makers, and generate public awareness about microplastics so they do not make it back into the lake.

In another effort to reduce plastic litter in the region, a collaborative pilot project to reduce source water plastic pollution at Lake Tahoe was funded by NDEP with the Tahoe Water Suppliers Association, IVGID Waste Not, UC Davis TERC, and Sierra Watershed Education Partnerships.

“Through education and public outreach, our goals are to change behavior, raise awareness about the impacts of plastic pollution, increase understanding of the different types of plastics and the impacts of consumer choices, reduce the use of single-use plastic, and ultimately reduce the presence of plastic in Lake Tahoe’s waters and beaches,” Segale said.

To begin the public education process, a microplastics exhibit was installed at the Tahoe Science Center in Incline Village over the summer. It features lessons on sources of plastic at Lake Tahoe, how plastics break down, quantifying them, and identifying where they end up around the lake.

Partnership with Raley’s

The plastic reduction team partnered with local grocer Raley’s to encourage the use of Drink Tahoe Tap® reusable water bottles instead of single-use plastics. The pilot launched on July 3 at the Raley’s store in Incline Village and has been well-received. The co-branded Klean Kanteen bottles and in-store displays use thought-provoking Take Care messaging, such as “less plastic, more good,” and



Regular trawls (above) with a net at various depths throughout the lake are performed, as well as the collection of deep-water sediment samples to capture heavier plastics that have settled. In summer 2018 and 2019, a pilot project through the Tahoe Environmental Research Center found microplastics in many of the samples of beach sand collected.

Drink Tahoe Tap®

Tap water is better than bottled water when it comes to people’s health, wallets, and the environment. Municipal water systems are much more rigorously tested and monitored than the bottled water industry.

Tahoe Tap is sourced from rain and snowmelt, then minimally treated using state-of-the-art disinfection processes. Tahoe Water Suppliers Association (TWSA) water purveyors deliver this award-winning drinking water to your home or business, 365 days a year, 24 hours a day, for less than a penny per gallon.

To find water bottle refill stations in the Tahoe Truckee region, visit www.findtap.com.

“one less plastic bottle. Well, probably thousands” to get people to think about their consumption.

Based on the success of the pilot, Raley’s expanded the sale of the Drink Tahoe Tap reusable water bottles to six additional stores in October 2020. The water bottles can now be found at participating Raley’s stores in Incline Village, Truckee, South Lake Tahoe, and Reno, with plans to expand to an additional 80 stores in spring 2021.

“Raley’s has taken an active stance on sustainability because it creates value for our customers, and it’s the right thing to do,” said Mark Koppang, director of sustainability at Raley’s. “We are continuously looking for new technologies and strategies to reduce our impact on the environment. Partnering with Drink Tahoe Tap was a natural fit.”

Learn more about how to reduce microplastics in Lake Tahoe at takecaretahoe.org/take-action/microplastics.

The Tahoe Microplastics Solutions Team includes researchers from UC Davis Tahoe Environmental Research Center, UC Davis Microplastics Research Lab, and Desert Research Institute; educators from UC Davis, Tahoe Water Suppliers Association, and Sierra Watershed Education Partnerships; and members of the Take Care Tahoe outreach team.







Liquid Assets: How the Business of Bottled Water Went Mad

How did a substance that falls from the air, springs from the earth, and comes out of your tap become a hyperactive multibillion-dollar business?

[The Guardian](#)

- Sophie Elmhirst

https://getpocket.com/explore/item/liquid-assets-how-the-business-of-bottled-water-went-mad?utm_source=pocket-newtab



Getty Images

The dress code of the clientele in Planet Organic, Notting Hill is gym chic. On a hot day in mid-August 2016, the men wore mid-thigh shorts, pectoral-enhancing vests, neon Nikes; the women were in black leggings and intricate ensembles of sports bras and cross-strapped Lycra. They had all either just worked out, were about to work out, or wanted to look as if working out was a constant possibility.

They examined the shelves. As well as the usual selection of kale crackers and paleo egg protein boosters, there were promises of wizardry, such as a packet of Alchemy Organic Super Blend Energy Elixir (£40 for 300g of powder). But never mind the food. Life today is liquid. Opposite

a display of untouched pastries and assorted bread products (who, in Planet Organic in Notting Hill, still eats bread?), were the waters.

There was Life, Volvic, Ugly, Sibberi (birch or maple), Plenish, What A Melon watermelon water, Vita Coco, Coco Pro, Coco Zumi, Chi 100% Pure Coconut Water, Rebel Kitchen Coconut [Water](#) and coconut water straight from the nut (“you have to make the hole yourself”, explained a shop assistant). Also: an electrolyte-enhanced water pledging to hydrate you with 40% less fluid than ordinary water (Overly Fitness), a birch water offering “a natural source of anti-oxidising manganese” (Tapped) and an alternative birch water promising to “eliminate cellulite” (Buddha). There was also a “water bar” – a tap in the corner of the shop – that, according to the large sign hanging from the ceiling, offered, for free, the “cleanest drinking water on the planet”, thanks to a four-stage process conducted by a “reverse osmosis deionising water filter.”

Planet Organic’s display was impressive, but only hinted at the full range of waters available to the hydration-conscious consumer. Right now, the global bottled water industry is in one of those strange and energetic boom phases where every week, it seems, a new product finds its way on to the shelves. Not just another bland still or sparkling, but some entirely new definition of the element. It is a case of capitalism at its most hyperactive and brazenly inventive: take a freely available substance, dress it up in countless different costumes and then sell it as something new and capable of transforming body, mind, soul. Water is no longer simply water – it has become a commercial blank slate, a word on to which any possible ingredient or fantastical, life-enhancing promise can be attached.

And it’s working. Over the past two decades, bottled water has become the fastest-growing drinks market in the world. The global market was valued at \$157bn in 2013, and is expected to reach \$280bn by 2020. In 2015, in the UK alone, consumption of water drinks grew by 8.2%, equating to a retail value of more than £2.5bn. Sales of water are 100 times higher than in 1980. Of *water*: a substance that, in developed countries, can be drunk for free from a tap without fear of contracting cholera. What is going on?

For a substance that falls out of the sky and springs from the earth of its own accord, water has always had an extraordinary commercial lure. According to James Salzman, the author of *Drinking Water: A History*, monks at holy wells produced special water flasks for pilgrims to take away as proof of their visit – a medieval example of the power of branding. For centuries, wealthy Europeans travelled to spa towns to sample the water in a bid to cure specific ailments. The spa visit was a signal of health, but also of status: somewhere to be seen, an association of liquid and individual that broadcasted social elevation – a distant precursor to Kim Kardashian clutching a bottle of Fiji, if you like. In 1740, the first commercial British bottled water was launched in Harrogate. By 1914 Harrogate Spring was, according to its website, the largest exporter of bottled water in the country, “proudly keeping the troops hydrated from England to Bombay.”

In the early 20th century, however, a water revolution nearly killed the nascent business. After early attempts in Germany and Belgium to chlorinate municipal drinking water, a typhoid epidemic in Lincoln in 1905 prompted the public health crusader Alexander Cruickshank Houston to try out the first extended chlorination of a public water supply. His experiment

worked, and soon, chlorination of municipal water had spread around the world. In 1908, Jersey City became the first US city to use full-scale water chlorination, and the practice quickly spread across the country.

The bottled water industry almost collapsed as a result. In the past, buying clean water had been a necessity for the rich (the poor simply endured centuries of bad drinking water, and often died from the experience). Now it was freely available to all. Why would you continue to spend money on something that now came, miraculously, out of a tap in your kitchen?

The answer arrived in 1977, in the form of what must be one of history's greatest pieces of television advertising narration. "Deep below the plains of southern France," [rumbled Orson Welles](#) in a voice that sounded as if it were bubbling up from some unreachable subterranean cave, "in a mysterious process begun millions of years ago, Nature herself adds life to the icy waters of a single spring: *Perrier*." As viewers watched the water descend into a glass, and admired the glistening green bottle, marketing history was made. The advert was part of a \$5m campaign across America – the largest ever for a bottled water – and proved a major success. From 1975 to 1978, Perrier sales in the US increased from 2.5m bottles to more than 75m bottles.

The Perrier triumph was part of "a perfect confluence", Salzman told me, of a sudden craze for aerobics in the US, prompted, in part, by Jane Fonda releasing her first exercise video – Jane Fonda's Workout, the highest-selling video of all time – in 1982. There was a new drive not just to be healthy, but to be seen to be healthy. In 1985, Time magazine noted that "water snobbery has replaced wine snobbery as the latest noon-hour recreation. People order their *eau* by brand name, as they once did Scotch."

Soon enough, rumours circulated of Madonna bathing in bottled water, and Jack Nicholson was photographed brandishing a bottle of Evian at the Oscars as if it were Cristal. There was also a key practical innovation: in 1977, plastic or PET (polyethylene terephthalate) bottles were introduced into the soft drink market. By 1990, they were being used for bottled water, making it as convenient and portable as a fizzy drink. The big soft drink brands, spotting the obvious commercial opportunity, soon launched their own waters: PepsiCo's Aquafina in 1994, Coca-Cola's Dasani in 1999, and Nestlé's Pure Life in 2002. Water was back.

Water's glorious renaissance wasn't just about fashion or convenience. Bottled water can be marked up like no other substance on earth. The £1 that a bottle of water often costs could pay for around 1,000 gallons of tap water. Some waters – Evian, Perrier, Highland Spring and Harrogate Spring – come from natural sources, so at least you feel you're paying for geography, for the fantasy of a shepherd sitting on a rock catching the icy flow in a glass jar specifically for your pleasure. But plenty of bottled waters are simply refashioned tap water.

In February 2004, Coca-Cola attempted to launch Dasani in the UK. ("Dasani", by the way, means nothing.) Five weeks later, the company took all 500,000 bottles off the shelves after headlines such as the Daily Star's "Are They Taking Us For Plonkers!" Coca-Cola had followed its successful strategy in the US and purified tap water, added some mineral salts, and was selling it for 95p a bottle. The company hadn't, however, accounted for Britain's long memory

for sitcom storylines – in this case, the episode of *Only Fools and Horses* when Del Boy and Rodney bottle tap water in their flat and sell it as Peckham Spring. Then there was the issue of a batch of minerals contaminating Dasani with a possibly carcinogenic bromate. In a little more than a month, [Dasani was dead](#).

Ten years later, Coca-Cola launched a new bottled water in the UK. In the intervening decade, the industry, after a brief dip following the 2008 financial crash, had entered its hyperactive new phase. Vita Coco – one of the first of the “new” waters – came to the UK in 2009, and in its wake soon appeared a flotilla of further [coconut waters](#) (the coconut water market is now worth £100m in the UK).

The industry received a further boost from the former chancellor George Osborne, who announced a sugar tax on soft drinks in his final budget. As the “plain” bottled water market continued to expand, new inventions began to spring up. “Strong established growth leads to offshoots,” explained Richard Hall, chairman of Zenith International, a market research company that organises the annual and thrillingly named [Global Bottled Water Congress](#). Water had begun its reinvention: enter maple, birch, energy and even ocean.

Coca-Cola’s new water is called Glacéau Smartwater. The water, which comes from a spring in Morpeth, Northumberland, is “vapour distilled,” then injected with electrolytes. In other words, the water is evaporated and then condensed again, a process Coca-Cola describes as being “inspired by the clouds.”

In 2006, this, surely, would have got the Peckham Spring treatment from the media. But we live in new times. As of 2016, Glacéau Smartwater is worth £21.9m, and, Coca-Cola has announced an investment of £15m to expand the factory where it is produced. At present, it turns out 56,000 bottles of water per hour.

If the last decade witnessed water’s great commercial expansion, 2016 could perhaps be defined as the year the market lost its mind. There now seems to be no limit on what a water can be, or what consumers are willing to buy. It is no longer enough for water to simply be water: it must have special powers.

That summer alone saw the launch of Flō Essence Water, Omega Enhanced Health Water, BiPro Protein Water and Svalbarði polar iceberg water. Other recent additions include blk. water (black water), FATwater (water containing “quality fat”) and deep ocean water harvested from off the coast of Hawaii (which allegedly hydrates you twice as fast as “normal” water). The *Evening Standard* ran an article that only semi-ironically described water as a “superdrink.”

Powering this proliferation of new brands is a new breed of start-upper: the water entrepreneur. I met one such man – a 27-year-old named Rahi Daneshmand – in Planet Organic on that hot August day, doling out samples of his new product, Virtue Energy Water. Virtue offers, in a 250ml can (£1.35), a sugar-free sparkling water that contains “yerba maté”, ginseng, citric acid, guarana and natural fruit flavours, and offers a “natural” caffeine hit equivalent to a cup of coffee. It comes in two flavours, berries and lemon and lime. The response from the clientele was varied: “More fun than normal water!” said one woman, taking a sip. “It’s not too sweet,”

approved another. “I’m trying to avoid sweetness.” Some were a little bemused. “Natural caffeine? What’s that?” asked a younger customer. “Is it for the 3pm slump or after clubbing? What’s it *for*?”

Virtue is Daneshmand’s big idea. In fact, it’s his second big idea – after Virtue Iced Tea, which did quite well (it’s stocked on Ocado). In his mind, iced tea has now been surpassed by the great hope of his new creation, which he claims is Britain’s first ever naturally sugar-free energy water. Daneshmand is a committed, joyous entrepreneur. After a few childhood years in Iran, he moved back to England with his family, went to Newcastle University, and somewhere along the way picked up the look and accent of an indefatigably cheerful rugby player. He wears polo shirts, lives by mantras – “nothing in life is worth getting stressed about” – and is the kind of hyper-motivated person who reads two business books in a weekend. (In mid-August: *Tribal Leadership: Leveraging Natural Groups to Build a Thriving Organisation* and *Ego is the Enemy*.)

Daneshmand says he went into water because he wanted to make something pure. “Water is something that everyone needs and something that everyone drinks,” he explained. “We went with the term water because it has zero sugar.”

This, he pointed out, is not always the case. Many of the so-called “waters” crowding the market are jammed with sugar. Coca-Cola’s Glacéau Vitaminwater (“vitamins. electrolytes. unstopableness”) used to contain 23g of sugar, until the public outcry forced the company to start swapping sugar for the sweetener stevia. (Then there was a subsequent outcry about the new taste, so it swapped back.)

“People are just trying to put water into everything,” said Daneshmand, shaking his head. His water, from the mains supply, is subject to “ultra-filtration and reverse osmosis” to remove minerals and make it “clean”. Its added ingredients are entirely natural. On this point, Daneshmand is evangelical: “That’s what a water is and what a water should always be.”

One afternoon in the summer of 2016 I watched Daneshmand pitch his water to Rahil Vora, managing director of the health food chain Revital. Things seemed to be going well. It was a fiercely hot day, which made any cold liquid seem appealing, and there was the happy synchrony that both Virtue and Revital had incorporated a leaf into their logo. Moreover, Vora was buying into the concept. “I like the fact that it’s an energy ‘water’ rather than an energy ‘drink’,” he said. He liked the can, too – more environmentally friendly than a plastic bottle – and the natural ingredients, yerba mate in particular.

“You know about it?” said Daneshmand, almost disappointed. “In south America they drink it religiously – it’s their equivalent of tea.”

Vora didn’t need schooling. “It’s going to pick up as a trend,” he said. “Give it a year and you’ll see it become not quite as big as green tea but ... it’s one of those ingredients.”

“Yeah,” said Daneshmand. “We put the accent on the maté as I think people were reading it as yerba mate.”

New water samples were arriving on Vora's desk every week. "It's a fashion thing," he said. "Water in a can was the craziest thing I've ever seen." Water in a can? "Literally. I got sent a box of samples. And it was just water. In a can."

Vora shook his head in disbelief. No yerba mate, no aloe, nothing – 330ml for 99p. Vora paused. "For *water*, though."

Water in a can, it turned out, was CanO water, launched by three young British entrepreneurs in 2016. I went to see them in their office in Stanmore, north London – one room, laptops, a mini basketball hoop on the wall. Ariel Booker, 24, and Perry Fielding, 29, sat opposite each other. (Their third cofounder, Josh White, was away.) Business was going well.

Before they had formally launched, CanO had secured the right to supply London Fashion Week and a purchase order from Selfridges, which has banned all plastic bottles from its store as part of its environmental programme, Project Ocean. (CanO also managed to land a celebrity endorsement on Instagram from the model David Gandy: "No excuses not to be hydrated this summer".) By March, CanO was stocked in Whole Foods.

I mentioned Vora's bewilderment at their product. "We have this problem on the phone," said Booker, the fast-talker, in a monochrome printed shirt and silver bracelet. "Without seeing it, it can be a bit mind-boggling! Why? What? How? When?"

"People just think of it as a Coke can filled with water," said Fielding, the creative, a sun tattoo on his arm and silver chain around his neck. "It seems very unexciting when you think of it like that."

Everything changes, they believe, when you see CanO. The water, which comes from the foothills of the Austrian alps, is packaged in a minimalist black (sparkling) or white (still) can. "The visual aspect dictates everything we do," said Fielding. "So it's not just a product or a company or a drink, it's actually an aspirational brand that you'd want to buy into." On the brand's Instagram feed, the cans pose sexily next to MacBook Airs, old-fashioned cameras, swimming pools and YSL handbags. Water just happens to be the thing inside.

Fielding had the eureka moment last year while drinking a canned fizzy drink. "It just dawned on me, 'Wouldn't it be great to be able to drink water out of a *can*?' " The can, made of aluminium, is easily recyclable and has a resealable lid – a piece of German design that means you can put the can back in your bag without worrying about it leaking.

"I think some people look at this and think it's a gimmick," said Fielding. "Just because we've packaged it nicely doesn't actually make it a gimmick."

The brand name, meanwhile, was their second choice. Fielding originally wanted to call the product "Water", but lawyers informed him that you couldn't trademark the word that simply described the contents of the can.

The arrival of plain water in a pretty German-engineered can feels like some kind of apex, where the market's relentless demand for novelty has pushed a basic substance to its limit. We are surely only a small step from the unquestioned purchasing of emotions or air. (This, inevitably, is already happening: as Andrea Leadsom excitedly pointed out in her recent Tory party conference speech, a young British entrepreneur, Leo de Watts, now sells glass jars of Dorset, Wiltshire, Somerset, Welsh or Yorkshire air for £80 each, mostly to the Chinese.)

Even those in the bottled water industry find some of the newer arrivals perplexing. Everyone has their pet farce. For Ariel Booker of CanO, it was black water: "What is the need to have water that's black?" he said. "There is none." For Daneshmand, it was Rockstar, an American "energy water" brand that had the same sugar volume as Red Bull (9g per 100ml). "Absolutely *mad*, that was."

Martin Riese, whose website describes him as "the world's foremost expert on water," directs his disdain at Glacéau Smartwater: "Sorry, Smartwater, but you are not a premium product," he told me in his thick German accent. "You are a highly processed product and your water belongs in the trash can, nowhere else!" For Riese, a purist, "bottled water has to come from nature". Any kind of processing is, he believes, "the biggest scam on planet Earth!"

Riese really, really loves water. "It started for me as a very small child," he told me. "I was four years old, on vacation with my parents, and I was blown away by the fact that the tap water in the city tasted differently." After school, he started working in restaurants in Germany, put together what was possibly the world's first water menu in 2005 for a Berlin bistro, and wrote a book: *Die Welt des Wassers* (The World of Waters). "It's a German book, so you'll have to learn to read German to read it."

Over the years, Riese has become part of water history. After receiving his certificate as a mineral water sommelier from the German Mineral Water Trade Association, he moved to America in 2010 and became that country's first water sommelier. In 2013, he launched the longest water menu in Los Angeles at Ray's and Stark Bar, and cofounded his own brand of mineral water: Beverly Hills 90H20.

This self-proclaimed "champagne of waters" quickly won FoodBev Media's Beverage Innovation award for the "World's Best Still or Sparkling Water". A case of 24 500ml bottles is \$72, while a bottle from the "Luxury Collection, Diamond Edition" will cost you \$100,000. It has a white gold cap set with more than 850 white and black diamonds and holds the profoundly questionable honour of being the world's most expensive bottle of water. If you buy it, Riese will present the bottle to you in person at a private water tasting anywhere in the world.

At present, Riese sommeliers at Patina, a restaurant in the Walt Disney Concert Hall in Los Angeles. There, he guides the diners through his water menu, helping them to select the ideal water to accompany their meal.

Riese talked me through his technique.

First: "Do you prefer sparkling or flat?"

Then: “Do you prefer your bubbles a little bit more progressive, like very intense, or do you like your bubbles a little bit on the smaller side, like champagne bubbles, very tiny?”

Finally: “Do you prefer something on the high mineral end, on the salty and bitter side, or do you prefer something on the smoother side, with a lower mineral composition, like maybe a little bit on the fruitier side?”

“People will tell you right away, then, what they want,” said Riese. Perhaps the clientele at the Patina restaurant are better versed in the mineral composition and fruity or salty aspects of water than the rest of us. At a basic level, the taste of water varies according to the total dissolved solids (TDS) it contains. These solids can be any substance, but the key elements are sodium, magnesium and calcium. Any filtered or chemically treated tap water will usually contain fewer solids than a bottled water that still carries the minerals from the water’s source, be it glacial, maple sap or spring.

[Fiji water](#), for example, contains 210mg/L TDS, including 18mg/L sodium, 13mg/L magnesium and 18mg/L calcium. (Fiji appears to have pulled off some fairly heavy-duty trademarking, including “Untouched by man™” and “Earth’s finest water™”.) Compare those numbers to San Pellegrino, which contains quadruple the TDS, at 925mg/L, including 33.6mg/L sodium, 53.8mg/L magnesium and 178mg/L calcium. Fiji, with far fewer solids, tastes smoother, while the San Pellegrino is bolder, saltier and naturally fizzy.

Nothing, however, compares to Riese’s favourite water, the Slovenian spring water Roi. “I’m always calling it the Big Boy,” said Riese. Roi has a TDS of 7,400mg/L, including more than 1,000mg/L of magnesium. For Riese, the experience of drinking this water is extraordinary, and emotional. He sits with a glass on its own – no mixer, no food, no distraction – as if he’s drinking a rare cognac. “This is something very, *very* special.”

Riese knows how his obsession with water might be perceived. “Some people think I’m the biggest scam artist,” he told me. He believes that he is simply applying the principle of wine to water – terroir. The taste of natural water, just like wine, is affected by geography, earth, the rock it passes through. And Roi is the ultimate example: “It has way more electrolytes than Gatorade,” Riese said, his voice climbing in ecstasy. “Think about it! Way more electrolytes than Gatorade! But it’s from Mother Nature!”

Take an investigation into the bottled water industry to its logical conclusion and you find yourself drinking melted icebergs. In 2015, the Merchant hotel in Belfast launched its water menu to a global chorus of tabloid mockery. “Would you pay £26 for a bottle of water (even if it IS from a Canadian glacier)?” ran the Daily Mail headline. Gavin Carroll, the Merchant’s general manager, gave the whole episode its only possible name: Watergate. When I visited in summer 2016 to sample the menu, he still seemed a little puzzled by the reaction. “We’re like, ‘Really? It’s just water.’” For £26? “We’re a five-star hotel. We have to offer our customers choice.”

The Merchant’s executive chef, and the chief architect of the water menu, Patrick Leonard – a man so passionate about water that before every sip I took, I could sense him shuffling to the edge of his seat in anticipation – brought out the notorious £26 bottle, called Iceberg. The water

comes from the Canadian Arctic ice shelf in Newfoundland, frozen around 10,000 years ago. “They’re not allowed to remove parts of icebergs,” said Leonard, “so they have to wait until they separate. They detach naturally, and then they’re netted, brought on a boat to land and allowed to melt.”

It’s a beautiful thing, this bottle – more like a premium vodka bottle, made of thick glass, decorated with white snowflakes. Leonard poured a portion of the ancient iceberg into a tumbler. The pressure mounted; I was painfully aware that the glass of water in front of me was worth a tenner, and I still had my bottle of airport-purchased Boots’ own brand on the table. I sipped, swallowed, felt the passage of liquid down my oesophagus – and couldn’t taste anything at all. This was not a total failure of my unsophisticated palate. Melted iceberg essentially has no taste, having the lowest TDS (9mg/L) of any water on earth. It is like the ur-water, the water that pre-dates all other waters. “This is your starting point,” said Leonard, gravely. “Your baseline.”

We moved on to Whitehole Springs, a Somerset-sourced, calcium-rich still water that passes through Tufa rock; Vichy Catalan, a salty Spanish sparkler; and finally De L’Aubier Sap Water, from Canada, a byproduct of the maple syrup manufacturing process. Along the way, Leonard explained the origin of his water preoccupation: a radio interview he heard with – who else? – Martin Riese: “It just got me hooked; that was it.” For a chef already infatuated by taste, water was the natural extension. “We pay so much attention to food and wine, but we forget about the water,” he said. His favourite? Vichy Catalan. “I just had friends for dinner, and instead of bringing out the wine, I brought out three bottles of that.” He looked absolutely delighted. “It was so much fun!”

It’s hard to maintain cynicism in the face of a true enthusiast. Leonard loves water so much he has water parties. This is not to be mocked. And, I’ll admit it, tasting this quartet of waters taught its own lesson. Pay attention, as with anything, and you notice more, appreciate more. These waters tasted dramatically different from each other, had their own peculiarities and characteristics. The maple sap water was sweet, earthy; Whitehole Springs thicker and chalky. And after the featureless purity of the melted iceberg, the Vichy Catalan was like snorting peppercorns.

Of course, there is [something deranged about the idea](#) of netting an iceberg and waiting for it to melt – apparently, applying heat would ruin the taste. There is also something disturbing about paying nearly £30 for the experience of drinking the end result. But, for the connoisseur, all of this makes as much sense as buying a vintage claret instead of Jacob’s Creek, a fillet steak instead of a Peperami. Passion has no limit.

At some point, surely, we will reach “peak” water. Perhaps it will be the moment consumers lose faith in the cellulite-eradicating powers of Buddha water or wonder if it’s really worth paying over the odds for birch sap . You hope for cold logic to kick in, some sort of mass awakening to this lunatic capitalist experiment. What are we even looking for, in all these waters? The same thing, perhaps, that we are hoping to find when we buy quinoa crisps, or gluten-free seed bars: perfect health, moral relief, a sense of inner purity that somehow erases all the wine we drank last night. We want to be better people.

The peak, however, is not in sight: for now, experts can only see growth steadily increasing in the bottled water market, at 5-6% across the industry over the next five years, according to Zenith's Richard Hall. The water entrepreneurs are yet to run out of ideas. There are waters that haven't even been thought of yet, niches still to be fully explored. Minor brands – the endless coconut waters – will fall away over time, said the water historian James Salzman, and “you'll be left with those who have survived, who will be purchased by the major players.”

For the young entrepreneurs, like CanO and Virtue, the future is about staying in the game, making a product that a consumer didn't even know they needed six months ago, but that now inhabits their fridge door with the permanence of ketchup. In early autumn 2016, things were going well – both Revital and Holland & Barrett had ordered Virtue for their shops and Daneshmand had meetings set up with two of the four largest supermarket chains (he was too coy to name them). CanO, meanwhile, had shipped its first orders to China, Germany and Thailand.

If there is a final frontier of water, then perhaps it is the waters now being invented for children. Zenith have forecasted that the kids' water category is set to grow even faster than “adult” water. In August, Capri-Sun (owned by Coca-Cola) launched a range of juicy waters; in November 2015, Volvic released its Star Wars collection, including bottles decorated with Chewbacca and Darth Vader; and in May this year, the first ever sparkling water for kids was launched in the US, called Tickle Water.

According to Heather McDowell, CEO, Tickle Water was her son's idea. When he was two, he asked for a sip of her sparkling water, loved it, “and the next day he was like, ‘Mommy, I want tickle water!’” she told me enthusiastically. Tickle Water comes in a transparent plastic can with an aluminium lid. “So the kids can feel like they're drinking a soda because it looks like a soda can, but the parents feel good because they see that it's clear, plain, transparent water.”

For McDowell, if making water look like Coke means kids drink more water and less Coke, this can only be a good thing. True, undoubtedly, but somehow it feels like the final twist in water's elaborate rebrand, the last stop on a journey that starts with turning on a tap and marvelling that something clean, healthy and potable comes out, and then pauses – for years – to watch an iceberg melt very, very slowly, and ends with a child drinking “cola” water (one of Tickle Water's natural flavours), because he likes the style of the can.

From element to commodity, we finally got there: welcome to the age of Water™.

Guidance for Developing a Water Utility Innovation Program

AWWA Innovation Initiative

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GUIDANCE FOR DEVELOPING A WATER UTILITY INNOVATION PROGRAM

December 2020

The American Water Works Association is the largest nonprofit, scientific, and educational association dedicated to managing water, the world's most vital resource. With approximately 51,000 members, AWWA provides solutions to improve public health, protect the environment, strengthen the economy, and enhance our quality of life.

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Foreword

This guidance document to assist utilities with the development of their own innovation program emerged from the work of the AWWA Innovation Initiative. The Innovation Initiative was launched by the AWWA's Manufacturers & Associates Council at ACE13 in Denver as one of their technical sessions. The Initiative's original mission was to explore ways to overcome the barriers to innovation in the water sector. At ACE17, the Innovation Initiative announced a new strategic plan with a vision "to inspire innovative thinking and best practices" throughout the water sector, a mission "to advance a culture and structure for innovation to address the water sector challenges", and three goals to achieve this mission. One of the goals was to provide an innovation roadmap guidance document to help utilities develop their own unique innovation program. An Innovation Initiative Subcommittee was formed chaired by Clifford Chan of the East Bay Municipal Utility District to develop this guidance. We must thank and acknowledge Clifford and the other members of this Subcommittee (see Acknowledgements) who contributed a significant number of volunteer hours to create this important and useful document.

The Innovation Initiative has evolved over the years and at the 2019 AWWA Winter Board meeting an Innovation Initiative Executive Ad Hoc Committee was formed to oversee and help guide the Initiative. This important milestone means that each of AWWA's six Council Chairs is part of the Initiative, demonstrating AWWA's commitment to core principle to "Inspire Innovation" throughout the Association and water sector. The Innovation Initiative will continue to evolve and strive to advance a culture and structure for innovation to address the challenges facing the water sector – an ambitious, yet noble cause, led by utilities aided by this innovation guidance document challenging themselves to establish and implement their own innovation programs.

Randy Moore & Peter Kraft
Innovation Initiative Co-Chairs

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GUIDANCE FOR DEVELOPING A WATER UTILITY INNOVATION PROGRAM

WHY INNOVATE

Innovation is essential for utilities to meet increasingly stringent regulatory requirements, improve efficiency and effectiveness, reduce costs, meet increasing customer expectations and workforce needs, and attract future talent. A structured innovation program can improve a utility's ability to realize these benefits.

AWWA's Innovation Initiative developed this guidance document to help your utility start or

improve its innovation program. The guidance is designed to focus your innovation efforts on your utility's challenges and to mitigate and adapt to future risks. Innovation is an important part of AWWA's Total Water Solutions® – an approach to ensure the long-term reliability and resiliency of water services while protecting public health and the environment.

Innovation is the adoption of sustainable methods, ideas, and products that increase value to utility customers and/or increase utility productivity.

HOW TO USE THE INNOVATION GUIDANCE DOCUMENT AND WORKBOOK

"The key to embracing innovation is that change is undertaken in partnership, helping to solve problems our colleagues face – so that change is 'with and for' them and not 'to and at' them. We can deliver cleaner water at affordable prices when we work together to enable our ingenuity to improve the delivery of a service fundamental to every living organism."

George Hawkins – Founder and President, Moonshot Missions

INTRODUCTION

This Innovation Guidance document, along with the companion Innovation Guidance Workbook found at the end of the document, is designed to help your utility start an Innovation Program or improve its existing program. The document provides a structured process that is scalable and can be used by utilities of any size.

As you begin to develop your innovation program (whether formal or informal), you will often face the reality that your utility has more things to do than resources to accomplish them. Thus, innovation may not seem like a priority. But fostering innovation should be a priority and thought of as a tool to help address the perceived –or real –gap between resources and the ability to get the work done and provide sustainable services.

Using the roadmap outlined in this document will enable you to create your Innovation Program. While there is a step-by-step process to develop your Innovation Program, you can start anywhere in the process. It is not critical that you follow every step. What is important is that you start innovating.

WHAT IT MEANS TO INNOVATE

The definition of innovation used in this guidance includes the adoption of "methods, ideas, and products." This could be business process improvements, or new ideas, policies, techniques, products, or technologies. And innovations do not need to be innovative for the entire drinking water or clean water sector, just for your utility. It is advisable, and most often a best practice, to learn and borrow from others.

Most innovation programs start informally. As you begin to develop your innovation program, consider what the appropriate fit for your utility is right now. Trying to do too much can be overwhelming. It is important to start by nurturing a culture of innovation and encouraging staff to find and suggest creative ways to solve problems. However, regardless of the maturity of your innovation program, it is important to understand the problem that you are trying to solve and the value of any innovation effort.

HOW TO GET STARTED

The process (i.e., roadmap) to develop your Innovation Program has three steps

- Step 1 – Identify Where You Are
- Step 2 – Decide Where You Want to Go
- Step 3 – Determine How to Get There

The first two steps are your Needs Assessment. They will help you understand and articulate your current priorities

(Step 1) and align these priorities with your desired future state (Step 2). The third step leads you towards creating your Innovation Program based on your Needs Assessment. Each of these steps is described in detail in the following sections.

As you work through each step, you are encouraged to seek out additional resources as needed. There are many resources available to help you complete some activities in the steps (e.g., conducting gap and benefit-cost analyses) that are not included in this guidance.

KEYS TO SUCCESS

Successfully developing the roadmap and implementing your Innovation Program requires a strong team, sustained senior management support, discipline, and a process to manage change.

Start by assembling an Innovation Team within your organization. Key roles include:

- Program manager
- Leads
- Executive sponsor(s)
- Internal partners/stakeholders (e.g., Finance, Information Technology, Operations and Maintenance, Engineering, and Administration)

Many innovation efforts start at a grassroots level. By aligning efforts with the organization's desired outcomes using the needs assessment, even grassroots efforts will incorporate the direction and guidance from key stakeholders (e.g., governing body) that are in the utility's mission and vision statements, strategic plans, budgets, performance indicator reports, and other documents. However, it is important to involve the governing body more directly when developing a formal program and as the program matures to gain the support needed to succeed.

For smaller utilities, the program manager and lead may be a single person, and there may not be an executive sponsor. In this situation, support from management is still important.

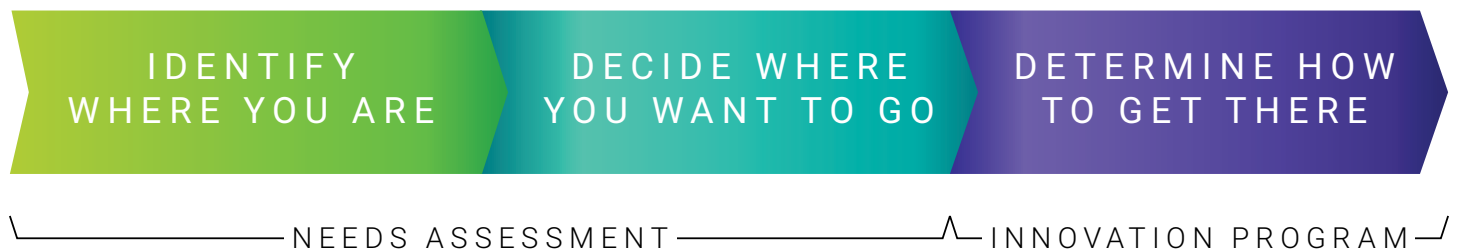
Implementing change can be challenging. Some staff may resist change because they feel the status quo is working or they do not believe anything is "broken" or "needs to be fixed." Other staff may be open to change but feel they do not have the time or resources to work on developing your utility's innovation roadmap and program. As you begin your work on the innovation roadmap, consider the following.

- Meet with staff and listen to and understand their challenges and what types of changes could help them with their work.
- Ask staff how open they are to change. Understand their concerns.
- Have the Innovation Team familiarize themselves with change management best practices and discuss strategies to manage change.
- Identify change champions within your organization.

DEVELOPING AN INNOVATION ROADMAP – OVERVIEW

As previously mentioned, there are three steps to developing an **Innovation Roadmap**. The first two steps represent your utility's **Needs Assessment** and the third is the Innovation Program. The following is a brief overview of the three steps. The rest of this guidance describes how to complete each step.

Innovation Roadmap



STEP 1: IDENTIFY WHERE YOU ARE

Understanding where you are starting from will help determine the best path to develop your Innovation Program and ensure that you use resources efficiently to meet your utility's greatest needs. Start by reviewing readily available documents and resources (e.g., mission or vision statement, strategic plan, and capital and operating budget program documents) and understanding your existing priorities, processes, policies, staff, skills, and tools.



STEP 2: DECIDE WHERE YOU WANT TO GO

Get feedback from stakeholders and staff across your utility, review your utility's priorities and performance against targets, and identify challenges, threats, and risks to your utility. Identify innovation needs and conduct a gap analysis to finalize your Needs Assessment. Try to minimize the time to complete Step 2 and move to Step 3 to maintain stakeholder interest.



STEP 3: DETERMINE HOW TO GET THERE

Identify and prioritize your needs and resources, develop an action plan, finalize your Innovation Program, and implement a culture of innovation.



STEP 1: IDENTIFY WHERE YOU ARE

"Innovation is important in creating increased well-being, in facilitating economic growth and promoting positive impact on the community we serve. Innovation in this sector is key to solving challenges, increasing productivity, and improving access to water that leads to better lives and living in our society."

Kurt Vause, P.E. – Principle Engineer, StreamlineAM, LLC

GATHER BACKGROUND INFORMATION



GATHER BACKGROUND DOCUMENTS AND REPORTS

Gather existing documents and information to understand your current priorities.

Examples of useful documents include:

- Mission and/or vision statement
- Strategic Plan
- Capital and operating budget reports
- Annual reports
- Key performance indicator reports or summaries
- Master plans
- Operational reports
- Customer newsletters
- Relevant board or city council reports

Do not be concerned if your utility does not have some or any of these documents. The goal of this step is to understand your utility's priorities based on either your formal or informal mission and strategies, where you are making infrastructure investments, what your operational priorities are, and what you are telling your leadership and customers.

Use information from the background documents and reports to complete SECTION 1 - UTILITY BACKGROUND of the Innovation Program Document, which is in the Workbook that accompanies this guidance. Information from the background documents and reports will also be used in the following steps.

SUMMARIZE VISION, MISSION, AND STRATEGIC PLAN GOALS



The Innovation Program should align with your utility's vision, mission, and strategic plan to get support from stakeholders, focus the program's activities on your greatest needs, and ultimately make the organization more successful. The following describes how you can ensure your program will align the mission, vision, and strategic plan.

VISION AND MISSION STATEMENTS

Review your utility's vision and mission statements and discuss how innovation can support them. The following are examples of vision statements:

- Aspire to be the best water utility in the nation.
- Lead in delivering responsible water services for life.
- Set the standard for utility excellence.

A utility's **vision statement** describes what the organization aspires to be while its **mission statement** describes how the utility will achieve its vision.

The following are three example mission statements with some keywords italicized.

- To manage the natural resources with which the utility's district is entrusted; to provide *reliable, high quality* water and wastewater services at *fair and reasonable rates* for the people you serve; and to *preserve and protect the environment* for future generations.
- To strategically provide a *reliable* supply of *high-quality* water at the *lowest cost possible*, in an *environmentally responsible* manner.
- To *expertly manage* and supply an essential natural resource to *sustain your vibrant community*.

Enter your utility's Vision and Mission Statements in SECTION 2 – VISION, MISSION, AND STRATEGIC PLAN GOALS of the Innovation Program Document.

STRATEGIC PLAN GOALS

Review and summarize your utility's Strategic Plan goals, objectives, and initiatives. You will use these to help prioritize your needs and create action plans as part of your Innovation Program (see Step 3) to ensure that investments in innovation align with utility goals. The following are some examples of Strategic Plan goals.

- Long-Term Water Supply: Ensure a reliable high-quality water supply for the future.
- Water Quality and Environmental Protection: Meet or surpass environmental and public health standards and protect public trust values.
- Long-Term Infrastructure Investment: Maintain and improve the District's infrastructure in a cost-effective manner to ensure sustainable delivery of reliable, high quality service now and in the future, addressing economic, environmental, and social concerns.
- Long-Term Financial Stability: Manage the District's finances to meet funding needs and maintain fair and reasonable water and wastewater rates.
- Customer and Community Services: Build stakeholder trust and long-term relationships through service excellence, proactive communication, and education.
- Workforce Planning and Development: Create an environment that attracts, retains, and engages a high performing diverse and inclusive workforce in support of the District's mission and core values.

Complete the Strategic Plan Goals, Objectives and/or Initiatives part in SECTION 2 of the Innovation Program Document.



SUMMARIZE BUDGET PRIORITIES AND PERFORMANCE



While not all innovation efforts are driven by budget priorities or performance metrics, it is important to understand where your utility is spending money and may be falling short of its performance goals. This step will help focus your efforts on the areas of greatest interest or need for the entire organization.

BUDGET PRIORITIES

Your Innovation Program should align with or focus on your budget priorities; that is, where you are spending your capital and operating funds. Using your utility's capital and operating budget reports and/or Comprehensive Annual Financial Report, identify your utility's top ten capital and operating budget expenditures. For the capital budget, list expenditures by asset class and include the five-year budgeted cash flow. For the operating budget, list the largest operating expenditures and include at least the prior year's expenditure (see Appendix A for examples of Asset Classes and Operating Budget Categories).

Complete the Capital and Operating Budget parts in Section 3 – Budget Priorities and Performance of the Innovation Program Document.

PERFORMANCE METRICS AND INDICATORS

Review the performance metrics and indicators used at your utility (see Appendix A for some examples). Rather than focus on all the measures used by your utility, identify those that you consider the most important and/or the ones where you are not meeting targets. Your Innovation Program should focus on improving performance related to these metrics and indicators.

If your utility does not have any formal performance metrics or indicators, review those in Appendix A and make a qualitative assessment of how your utility is performing in areas that are most important to your utility. Also consider adopting formal indicators over time.

Complete the Performance Metrics and Indicators part in Section 3 of the Innovation Program Document.

"For the past decade, average water utility rate increases have exceeded inflation...This trend is expected to continue into the foreseeable future.

Utilities will need to increasingly innovate to provide more cost-effective solutions to ensure water is affordable, especially for disadvantaged communities. Innovative cost-effective solutions will help control rate increases so that utilities can maintain service levels customer expect."

Andrew DeGraca, P.E. – Water Quality Division Director, San Francisco Public Utilities

INTERVIEW STAFF AND ASSESS FEEDBACK



The final activity in Step 1 is to meet with staff to understand 1) the current state of innovation at your utility; and 2) their priorities, pain points, and challenges.

Using the Staff Feedback Interview Form in the workbook, meet with and interview staff throughout your organization, including management and frontline staff from all departments (e.g., engineering, operations and maintenance, finance, information technology, and administration). **Record information obtained during the interviews on the form.** Once all interviews are completed, the Innovation Team should meet to assess and summarize the information.

CONDUCT STAFF INTERVIEWS

DETERMINE YOUR CURRENT STATE OF INNOVATION

During the interviews, share with staff the definition of innovation: *Innovation is the adoption of sustainable methods, ideas, and products that increase value to utility customers and/or increase utility productivity.*

For the purpose of this definition, sustainable means practices that support social, economic, and environmental needs in a responsible manner to meet the needs of today without compromising the ability of future generations to meet the needs of tomorrow.

Describe the four types of innovators below to staff.

BEGINNING INNOVATOR

- No support for strategic innovation or no formal innovation program
- Innovation is ad-hoc or opportunistic

ASPIRING INNOVATOR

- Some innovation exists
- Focus on incremental improvement

INSPIRED INNOVATOR

- Working on many innovations
- Focus on incremental innovations

STRATEGIC INNOVATOR

- Identify and develop disruptive innovations
- Innovation is part of the culture

Ask staff what type of innovator they feel your utility is currently and why; and what type of innovator they want the utility to be in the future.

"Innovation can help utilities. Your current workforce is asking for innovation, the new workforce will demand it.

Successfully launching an innovation program starts with creating the right culture. Water utilities have some of the most creative people in the business - empower them to solve our challenges and recognize their success."

Clifford Chan - General Manager, East Bay Municipal Utility District

ASSESS STAFF PRIORITIES, NEEDS, AND CHALLENGES

Next, ask staff the following questions.

- What do you feel are the top three barriers to innovation?
- What are your top five priorities?
- What do you think are your utility's top five priorities?
- Which of those priorities do you have difficulty meeting?
- What are your pain points and what keeps you up at night (i.e., what area of your operation are you most concerned about)?
- What do you view as the most significant vulnerabilities?
- What processes or procedures do you feel are inefficient?
- What would make your job easier (e.g., technology, equipment, process improvement)?
- In what areas are you currently struggling?
- If you could improve one thing what would be and why?

EXISTING INNOVATION EFFORTS

During the last part of the interview ask staff about existing innovation efforts so you can understand your utility's innovation accomplishments, existing efforts, and the department or group in your utility that led or is leading the effort. Does your utility have a dedicated innovation program (this could include research or pilot tests)? If so, how much is your utility investing in innovation? If your utility doesn't have a dedicated innovation program, you may still be investing in innovation. Maybe your utility has tried a new instrument or pipe material or has invested staff time to streamline a process.

These innovations do not need to be innovative for the drinking water or clean water sector, but rather the adoption of a process, policy, product, etc. that is new to your utility and that increases productivity or value to customers.

ASSESS AND SUMMARIZE INFORMATION

After the interviews are done the Innovation Team should meet to assess the information collected and use it to help **complete Section 4 (Type of Innovator and Existing Innovation Efforts) and Section 5 (Top Ten Issues Facing Your Organization) of the Innovation Program Document.**

Also share the findings with staff (especially those who provided feedback) and explain how their feedback was considered and is being used.

STEP 2: DECIDE WHERE YOU WANT TO GO

“Capturing, realizing, and moving new ideas through the water sector is essential to providing safe, reliable, and affordable services. Water is essential, we are an essential service, and we must attract the smartest and brightest minds to ensure the advancement of society, protection of public health, and symbiosis with the environment for generations to come.”

Ryan Locicero, PhD. P.E. – Business Practice Leader – Strategy, Performance & Innovation, Clean Water Services

IDENTIFY CHALLENGES AND THREATS

IDENTIFY
CHALLENGES AND
THREATS

IDENTIFY
BARRIERS TO
INNOVATION

PERFORM GAP
ANALYSIS

IDENTIFY
INNOVATION NEEDS

CHALLENGES AND THREATS

In this step, you will identify the current and future threats that you feel your utility will need to address. Have your team use the information collected to date to identify the most significant challenges and threats facing your utility now and during the next ten years. Rank each challenge as low, medium, or high in terms of overall likelihood and consequence. Consider threats to water quality, water supply, finances, safety, infrastructure, and employees. Also, consider upcoming regulations that may affect your utility. See Appendix B for some example of challenges and threats.

Complete the Challenges and Threats Section of the Innovation Program Document (Section 6).



IDENTIFY BARRIERS TO INNOVATION



INTERNAL AND EXTERNAL BARRIERS

Aversion to risk can be one of the greatest barriers to innovation. And water utilities are traditionally risk averse because their services are fundamental to their community and essential to human health and well-being. Yet many other risk adverse industries, such as airlines, hospitals, and pharmaceuticals, have innovation programs to improve processes, reduce costs, improve efficiency, or improve customer service.

The first step to overcoming barriers is to identify what they are. With your team, evaluate the internal and external barriers to innovation at your utility. Examples of internal and external barriers include the following:

Internal

- Risk averse
- Resources (e.g., staff time and funding)
- Resistance to change
- Silos

External

- Technology not ready (hype vs. reality)
- Salespeople vs. technical staff
- Understanding of the integration effort
- Do not understand the water industry
- Viability of the business
- Regulations

Identify the top five internal and top five external barriers to innovation at your utility and **complete Section 7 (Barriers to Innovation) of the Innovation Program Document.**

“Innovation in water has never been in better health...but we still have so much work to do on how we engage, purchase, and deploy proven innovations to solve problems, save money, and serve customers better. Business as usual is increasingly irresponsible - it’s time for all of us to get unusual”

Tom Ferguson – Managing Partner, Burnt Island Ventures

PERFORM GAP ANALYSIS



GAP ANALYSIS

Using the information from Steps 1 and 2, perform an abbreviated gap analysis by listing the challenges and threats you ranked the highest as your main drivers; assigning each a rating of “good”, “fair” or “poor” for their current and desired future states; and estimating the gap (i.e., small, medium, or large) between the two states (see example for two drivers).

When conducting this abbreviated gap analysis be sure to consider your utility’s strategic plan goals, budget priorities, performance metrics, challenges, and threats. This will help you focus innovation efforts on the areas with the greatest gap and hence the greatest opportunity for positive impact.

Note that in Step 3 section on Prioritize Needs, you will build on this abbreviated gap analysis by describing what your utility is currently doing to address each need; your desired state for each need; and what you hope to achieve (i.e., what does success look like?).

DRIVER (E.G., STRATEGIC PLAN GOAL, BUDGET PRIORITY, PERFORMANCE METRIC, CHALLENGE/ THREAT)	CURRENT STATE			DESIRED STATE			GAP		
	GOOD	FAIR	POOR	GOOD	FAIR	POOR	SMALL	MEDIUM	LARGE
CB1 – Pipeline replacement			X	X					X
PMI2 – Water loss		X		X				X	

Complete the Gap Analysis Section in the Innovation Guidance Workbook (Section 8).

IDENTIFY INNOVATION NEEDS



INNOVATION NEEDS

As a team, review your gap analysis and current and future challenges and threats. Align your innovation priorities with your strategic plan goals, budget priorities, performance metrics, and information from staff. While these priorities should be the primary focus of your innovation efforts, you should remain flexible and consider efforts that may, for example, support the innovation culture or provide a quick return on investment. Consider the level of effort and level of coordination needed to implement specific innovations. There may be certain needs that have a high level of impact and low level of effort that could be prioritized. Limit the innovation needs addressed at any one time to a number that can be implemented successfully. Addressing too many innovation efforts at once can hamper progress and frustrate staff. Appendix C provides some examples of innovation needs.

Complete Section 9 – Innovation Needs in the Innovation Guidance Workbook.

“While the availability of technologies, innovation friendly regulations and government funding programs can encourage the application of new approaches, ultimately, it is the utility leaders that will advocate for and procure these technologies... As we continue this innovation journey, the need for partnerships and cooperation across many groups remains critical to provide safe water to all”

Sally Gutierrez – Senior Advisor, US EPA Center for Environmental Solutions and Emergency Response



STEP 3: DETERMINE HOW TO GET THERE

“The problems facing the water industry should be the stimulants of creativity and solution-oriented vision. The industry is multi-faceted and requires solutions using a broad range of knowledge and experience. Innovation...can best be achieved through collaboration across disciplines and silos of specialization.”

Chi Ho Sham – Vice President and Chief Scientist, Eastern Research Group, Inc. and President-Elect, AWWA

CREATE INNOVATION STRUCTURE



The overarching goal of this innovation guide is to encourage and accelerate the uptake of innovative solutions at utilities. The guidance document provides a structured process that is meant to be scalable and can be used by utilities of any size. Step 3 provides a framework to formalize your innovation program. However, utilities can begin innovating before they develop a structured innovation program. Use this section to formalize your program as you transition and grow your program.

CREATE A PURPOSE STATEMENT

A purpose statement describes the specific goal(s), advantage, and scope of your innovation program. It tells your organization what to expect from the Innovation Program and what the specific focus will be. This statement describes how the Innovation Program will increase value to your utility and its customers. Consider your utility’s current level of capability and set a goal that is achievable in the short-term (i.e., the next 12 months).

Start by discussing the program’s goal(s), advantage, and scope. The following offers guidelines to help you through the process.

Goal	What is your Innovation Program’s goal?	This should be derived from your organization’s strategic goals (Step 1). The objective can be numerical, like reducing operating expenses by 5% annually.
Advantage	What is your utility’s greatest area of expertise?	The advantage should be something your organization specializes in that sets you apart from other utilities. For example, your utility may have transformational partnerships with the technology industry and universities.
Scope	What you will not do?	You cannot do everything and if you try, you will fail. This should be derived from your organizations mission and vision keywords (Step 1) and challenges and threats (Step 2).

The following are examples of Purpose Statements.

- **Small Utility:** The Innovation Program will reduce operator turnover by 50% annually by providing a system's view on all process improvements and executive decision making that affect plant operators to ensure the protection of the environment for future generations.
- **Medium Utility:** The Innovation Program will partner with one large local utility annually to assist in developing and piloting technologies for assessing and replacing aging infrastructure to ensure high quality and cost-effective water and wastewater services.
- **Large Utility:** The Innovation Program will reduce operating expenses by 5% annually by partnering with industry leaders and universities to mitigate the impacts of climate change and sustain vibrant communities.

Complete the Innovation Program Purpose Statement Section in the Innovation Guidance Workbook (Section 10).

FORMALIZE THE INNOVATION PROGRAM TEAM

When you started the roadmap process, you identified your Innovation Program Team. As you formalize your Innovation Program, identify the various members of your team and their roles and responsibilities. The following is an example of an innovation program team.

TEAM MEMBER	NAME	ROLES AND RESPONSIBILITIES
Program Manager	Mary Lee	<ul style="list-style-type: none"> • Leads Innovation Program. • Coordinates team members and leads meetings. • Presents to Senior Management and the Governing Body.
Executive Sponsor	Jane Miller	<ul style="list-style-type: none"> • On the Senior Management team. • Provides guidance to the Innovation team. • Promotes and supports innovation efforts.
Innovation Team	Jim Smith Ethan Jones Barbara Wang Harry James	<ul style="list-style-type: none"> • Meets with Program Manager. • Solicits ideas from staff. • Evaluates ideas and presents them to Innovation Team. • Serves as a Change Champion and promotes innovation culture.
General Staff		<ul style="list-style-type: none"> • Submits ideas to the Innovation Team.

Complete the Innovation Program Team Section in the Innovation Guidance Workbook (Section 11).

PRIORITIZE NEEDS



PRIORITIZE NEEDS

A needs assessment is a streamlined list of what you would like to improve or focus on to carry out the purpose of the Innovation Program. The needs assessment should identify a Utility Perspective, Present State, and Desired Future State for the Innovation Program. In Step 2, you identified your utility's top innovation needs using an abbreviated gap analysis.

The Innovation Program Team should build on the abbreviated gap analysis by assessing the Present State for each need and describing what the utility is currently doing that needs to change. Keep it simple and be direct. With this level of understanding, the Team should then identify the Desired Future State (i.e., what the Innovation Program will aim to achieve in the future).

For example:

NEED	PRESENT STATE	DESIRED FUTURE STATE
List Need from Step 2, Identify Innovation Needs	Describe what your utility is currently doing to address this need and your performance.	Describe your utility's desired state for this need and what you hope to achieve. What does success look like?

The Desired Future State should be written as a strategic objective and describe how you are going to change from the present to the future state. **Complete the Prioritized Needs Section in the Innovation Guidance Workbook (Section 12).**



DEVELOP ACTION PLAN



DEVELOP ACTION PLAN

The next step is to develop a brief action plan (see the following components) for each of your top needs. The action plans should tie to a strategic plan goal from Step 1 and provide a framework for how to get from your current state to the desired state for each need. Use SMART (Specific, Measurable, Achievable, Realistic, and Timely) objectives when creating your plan. The following is an example of a non-SMART and a SMART objective.

- **Non-SMART Objective:** Reduce water loss.
- **SMART Objective:** Reduce real water losses to less than 40 gallons/ connection/day by the end of 2023. **One Initiative to help achieve the objective:** Install ten leak detection loggers in the pressure zone with the highest leak rate by the end of the third quarter.

The following are the components of the action plan.

- **Need:** List the need from your prioritized Needs Assessment.
- **Strategic Plan Goal:** List the goal this need addresses.
- **Purpose Statement:** Describe the specific objective, advantage, and scope of your innovation program problem being solved.
- **Present State:** Describe the present state from Step 3 Section Prioritize Needs.
- **Desired Future State:** Describe the desired future state from Step 3 Section Prioritize Needs.
- **Objectives/Initiatives:** Describe the objectives and Initiatives that will be taken to address this need. Include a description of the scope of work, milestones, and timeline. Make sure the objectives are SMART.
- **Measures:** Name each measure and describe what the measure should reveal.
- **Targets:** Set quarterly and annual targets to objectively determine if you are on track.
- **Project Lead:** Identify the person who will take the lead to address the need.
- **Resources:** Identify other stakeholders or groups that will support this effort.
- **Budget:** Identify the budget to address this need.

“Innovation sounds easy, but we have to appreciate just how difficult it can be. We will never make innovation ‘easy’. To innovate means to disrupt existing workflows, reorganize people and technologies, and run the risk that all the extra work may not result in a positive outcome. But innovation can and should be ‘fun’. There is nothing more exhilarating than taking a good idea and turning it into a useful and productive innovation that saves time, money, or (most importantly) lives. If you want to go to work each day and do the same damn thing: don’t go into the water industry!”

Dr. Peter Fiske – Executive Director, National Alliance for Water Innovation

Complete the Action Plan Section in the Innovation Guidance Workbook (Section 13).

FINALIZE INNOVATION PROGRAM



FINALIZE INNOVATION PROGRAM

Several best practices can help you implement your Innovation Program and increase its chance of success, including:

- **Permission:** Have people been authorized to find problems and solve them? Are the structures in place to make sure they follow through?
- **People:** Have you identified the people (champions) who are going to lead this? Are there incentives to recognize their efforts?
- **Time:** Do people have the time and bandwidth to dedicate to the program?
- **A Problem to Solve:** Have you identified the priority problems to solve?
- **Potential Solutions:** Have you identified the innovations your organization thinks has the best chance of solving the problem? Have you investigated existing solutions within and outside your organization to address this problem? Have you done a benefit-cost analysis for the solution to show that has value to the utility and its customers?
- **Finance:** Does your organization have the budget to invest in the solution to realize the benefits?
- **Legal Clarity:** Does your organization know what it can and cannot do around the identified problems?
- **Measure of Success:** How will the organization know if they have achieved success?
- **Communication – Spread the Word:** Does your organization have a communication plan for the innovation program? Is there a feedback loop to share successes both within and outside the organization?
- **Change Management:** Innovation means change and the change may benefit one group but create problems for another. Change management is needed to resolve differences and resistance to change.

As you worked your way through the innovation roadmap, you should have identified and/or completed many of these best practices. **Complete the checklist in the Innovation Program Practices Section (Section 14) of the workbook** to identify, engage, and track the components of your innovation program so that you can achieve your goals.

“While innovation may traditionally be about the exploration and adoption of novel technologies, it’s also about innovating the methodology in which new ideas, processes, and technologies are considered... There is an untapped economies-of-scale potential that can be achieved through collaborative models between utility peers that manage risk through robust due diligence and the ability to capitalize on shared experiences and strengths. Collaboration can accelerate innovation in the water sector...”

Christina Ahmadpour –
President, Isle Inc, (Americas)

PERMISSION

- Leader with accountability and board-level responsibility for the Innovation Program
- Awareness of strengths and weaknesses of the organization with respect to innovation
 - Time to approve suggestions
 - Ability for staff to take time to work on innovation
 - Match between user and decision-maker
 - Available budget
- Clear communication from management committing to the program
 - Commitment statement clarifying the goal of the Innovation Program
 - Visible (internal/external), regular reports to board meetings or senior management, celebrate accomplishments
- Clear timelines (quarterly reports, tangible results within the year)

PEOPLE

- Dedicated team with responsibility for the program
 - Assigned Innovation Lead
 - Assigned Innovation Team
 - Confirm areas of accountability and internal/meeting structure and frequency
 - Identify Change Champions
 - Create a mechanism for staff to contribute ideas
- Leader with accountability to follow through
 - Management level responsibility or recognition for the Innovation Program
 - Ability to hire staff dedicated to the Innovation Program
- Identify and remove barriers to innovation

TIME

- Reasonable timeframes to make decisions and execute opportunities
- Program timing aligns with strategic plan, capital improvement projects, master plans, and short-term goals

A PROBLEM TO SOLVE

- Needs Assessment completed and prioritized based on
 - Urgency
 - Return on investment
 - Benefit-Cost Analysis
 - Regulatory needs
 - Operational needs
 - Other regulations and requirements
- Confirm and communicate chosen projects/problems to solve for the organization
 - Define success for individual projects (identify three or four metrics)
 - Make very visible
- Gap analysis for each target problem

A SOLUTION TO DEPLOY

- Identify available solutions
 - Research online
 - Professional network
 - Peer utilities
 - Industry associations (e.g., AWWA, NWRI, WEF, WRF)
 - Organizations in the market (e.g., Isle, Imagine H2O, LIFT)
- Prioritize the highest potential solutions (identify three or four solutions)
- Benchmark solutions to aide in the selection process and support pilot/procurement
- Develop a test or pilot plan
- Invite qualified companies to present to the team
- Consider the risks if the solution does not work

FINANCE

- User of the technology has budgetary authority
- Assign budget (e.g., 10% of the capital budget goes to innovation solutions)
- Identify alternative sources of funds
- Application for alternative sources of funds (time consuming and length – beware)

LEGAL CLARITY

- Engage legal/procurement departments early
- Standard contract for innovators to pilot
- Identify legal issues around the top priorities (e.g., warranty, liability, violation of charter)

MEASURE SUCCESS

- Identify two or three metrics for success for each project with milestones
- Track milestones during the project
- Monitor relevant key “business case metrics” over time (i.e., reality vs. what was promised)

COMMUNICATION – SPREAD THE WORD

- Discuss at staff meetings
- Discuss at board meetings
- Setup an Innovation Committee
- Celebrate ideas at annual awards or staff meetings
- Leverage social media for information sharing
- Recognize innovations in internal newsletters
- Make time for staff
- Talk to staff and develop program statements
- Talk to staff about their work problems and share with others to identify solutions

Your completed Workbook represents your utility’s Innovation Program. As you implement your program and it matures, periodically go through this process to refresh your program.

**You are on your way to becoming
a successful innovator!**

APPENDIX A: CAPITAL ASSET TYPES, OPERATING BUDGET CATEGORIES, AND PERFORMANCE METRICS AND INDICATORS

The following are lists of some typical capital budget asset types and operating budget categories.

CAPITAL BUDGET ASSET TYPES	
Corrosion Control	Water Distribution Tanks
Facilities	Water Distribution Pipelines
Hydrants	Water Distribution Pump Stations
Land Acquisition	Wastewater Pump Stations
Planning	Wastewater Collection Pipes
Wells/Surface Water Intakes	Water and Wastewater Service Laterals
Raw Water Aqueducts	Water and Wastewater Treatment Plants
Raw Water Reservoirs	

OPERATING BUDGET CATEGORIES	
Chemicals	Rentals and Leases
Communications	Tools and Equipment
Energy	Solids/Waste Disposal
Fuel	Vehicles/Transportation
Labor	Water Meters
Laboratory Services	Sewer Line Cleaning
Paving and Concrete	Training
Pipes and Materials	Professional Services

The following list provides examples of performance metrics and indicators, some of which are from AWWA's Utility Benchmarking Program (<https://www.awwa.org/Resources-Tools/Programs/Benchmarking>). The Benchmarking Program describes how to calculate the indicators and allows utilities to track their own performance over time and compare results with peers to help identify areas that could be strengthened.

PERFORMANCE METRICS AND INDICATORS

- Operating ratio
- Debt service coverage ratio
- Recordable incidents of injuries and illnesses
- Employee turnover
- Number of customer service complaints
- Water main leaks and breaks
- Water loss – Infrastructure Leakage Index (ILI)
- Water loss – Real loss per connection per day
- Drinking water quality regulation compliance rate
- Wastewater treatment operations compliance rate
- Wastewater collection system operations compliance rate
- Wastewater collection system integrity
- Water and wastewater planned and corrective maintenance
- Mile of pipe inspected per year
- Miles of pipe replaced per year
- Unplanned water service interruptions < four hours
- Greenhouse gas reduction

APPENDIX B: CHALLENGES AND THREATS

The following is a list of example challenges and threats.

CHALLENGES AND THREATS

- Aging infrastructure
- Chemical costs
- Climate change (e.g., droughts, increasing temperature, extreme weather, sea level rise)
- Cybersecurity
- Economy
- Energy costs
- Financing for capital improvements
- Global pandemic
- Housing markets
- Labor costs
- Natural disasters (e.g., earthquake, flood, hurricane)
- Political instability
- Public perception/expectations
- Regulations
- Safety
- Social instability
- Talent attraction and retention
- Terrorism
- Unemployment
- Water quality
- Water scarcity
- Watershed/source water protection

APPENDIX C: EXAMPLE INNOVATION NEEDS

The following is a list of example innovation needs.

INNOVATION NEEDS BY CATEGORY	
Customer Service	
N1	Customer service, CRM
N2	Emergency preparedness
Financial	
N3	Cost reduction
Information Technology	
N4	Cybersecurity
N5	Data management
N6	Field computing
N7	GIS
N8	GPS/GNSS
N9	IoT
Infrastructure	
N10	Engineering design
N11	Pipeline inspection
N12	Pipeline replacement
N13	Leak detection
N14	Pressure management and measurement
N15	Resilient infrastructure
Operations and Maintenance	
N16	Asset management
N17	Maintenance
N18	Operational efficiency
N19	Predictive maintenance
N20	Water treatment
N21	Distribution system water quality management
N22	Fleet maintenance and management
N23	Security
Water Quality and the Environment	
N24	Air quality
N25	Energy efficiency/optimization/generation
N26	Environmental protection/management
N27	Disinfection byproducts
N28	Regulatory
N29	Sustainability
N30	Invasive species
N31	Water quality
Water Supply	
N32	Water supply availability
N33	Water conservation/efficiency
Workforce	
N34	Knowledge retention
N35	Training

Innovation Guidance Workbook

INTRODUCTION

This Innovation Workbook is divided into two parts. The first part outlines the information gathering process including suggested meetings and data gathering sheets. The second part is the Innovation Program Document, which represents the Innovation Roadmap. You will use the information gathered in part one to complete your document. While we recommend you follow the collaborative process outlined in the Guidance Document and Workbook, you can complete your roadmap without going through the entire process and begin implementing your innovation program.

FORMING THE INNOVATION TEAM

Successfully developing the roadmap and implementing your Innovation Program requires a strong team, sustained senior management support, discipline, and a process to manage change. Ideally, your core team has a program manager, an executive sponsor, and internal team members (e.g., Finance, IT, O&M, Engineering, Administration).

CHANGE MANAGEMENT

Successfully introducing new innovations to your utility will require the willingness of staff to make changes. Developing a change management program can be resource intensive. If your utility has an existing change management program, consider using it as part of your innovation program. However, if you do not have a change management program, consider the following best practices to help you navigate the normal resistance to change.

Good communication is critical to the success of your innovation program. Before introducing your innovation program, keep the following concepts in mind.

- Listen to and trust staff.
- Develop a clear message. Your core message should be simple.
- Communicate as soon as possible and often.
- Communicate to all levels within your utility.
- Request assistance from others (e.g., change champions) within your organization to communicate the message and work to ensure the message is consistent across your utility.

There is a natural resistance to change. The resistance could be real or perceived. Consider the following contributors to success.

- Active and visible executive sponsorship
- Dedicated change management resources
- Structured change management approach
- Employee engagement and participation
- Frequent and open communication
- Integration and engagement with project management
- Engagement with middle managers

MEETINGS AND SCHEDULE

The number and type of meetings will depend on your organization. However, at a minimum, you should plan on the following meetings to develop your innovation roadmap.

- Kickoff meeting: Discuss the purpose of the innovation program and roadmap, development of the roadmap, establish team members, and assign tasks.
- Individual interviews: Interview various staff across the organization using the included worksheet. The information collected will be used to develop the roadmap.
- Innovation Team meeting: Review interview results, budget priorities, performance metrics.
- Innovation Team meeting: Identify challenges and threats, barriers to innovation, perform gap analysis, and identify innovation needs.
- Innovation Team meeting: Develop purpose statement, prioritize needs, identify resources, and develop an action plan.
- Innovation Team meeting: Finalize the innovation program.
- Senior Management meeting: Share the results of your innovation program with your senior management team. Discuss ideas on how to launch the program. Listen and address feedback.
- Innovation Team meeting: Update the innovation program based on feedback from the senior management team.

This process of developing your innovation program will take at least two months. The length will depend on how much time you can dedicate to the process and if additional meetings are necessary.

LAUNCHING THE PROGRAM

You have completed your innovation program document. Now it's time to launch the program. A successful program will require senior management support, participation of staff at all levels, and good communication. And remember, your innovation program is not a static document but will change over time to meet your utility's changing needs and priorities.

STEP 1: IDENTIFY WHERE YOU ARE

Gather Background Documents and Reports

Gather and review existing documents and information. Examples of useful documents include:

- Mission and Vision statement
- Strategic Plan Goals, Objectives, and Initiatives
- Capital and Operating budget reports
- Annual reports
- Key performance indicator reports, measures, and targets
- Master plans
- Customer newsletters and surveys
- Relevant board or city council reports

Interview Staff

Interview staff across your utility. Include staff up and down your utility from field staff to management. Assign the interviews to the various members of your Innovation Team. The following pages are the interview form your team will use to collect the information from your interviews. Complete one interview form for each interview.

Summarize Information

Meet with your Innovation Team and complete Sections 1 through 4 of your Innovation Program using information from the background documents and reports and staff interviews.

STAFF FEEDBACK INTERVIEW FORM

Name: _____

Job Title or Classification: _____

Department: _____

CURRENT ORGANIZATIONAL LEVEL OF INNOVATION

Innovation is defined as the adoption of sustainable methods, ideas, and products that increase value to utility customers and/or increase utility productivity. There four types of innovators.

- **Beginning:** No support for strategic innovation where innovation is ad-hoc.
- **Aspiring:** Some innovation exists and the focus is on incremental improvement.
- **Inspired:** Working on many innovations and the focus is on incremental innovations.
- **Strategic:** Identify and develop disruptive innovations and innovation is part of the culture.

How do you categorize your utility and why? _____

What category do you want your utility to become? _____

Comments: _____

ASSESS STAFF NEEDS

What are your top five priorities?

1. _____

2. _____

3. _____

4. _____

5. _____

What do you think are your utility's top five priorities?

1. _____

2. _____

3. _____

4. _____

5. _____

Which of those priorities do you have difficulty meeting? _____

What are your pain points and what keeps you up at night
(i.e., what area of your operation are you most concerned about)? _____

What do you view as the most significant vulnerabilities? _____

What processes or procedures do you feel are inefficient? _____

In what areas are you currently struggling? _____

What would make your job easier (e.g., technology,
equipment, process improvement)? _____

If you could improve one thing, what would it be and why? _____

EXISTING INNOVATION EFFORTS

List five types of innovations your utility has developed, adopted, or is currently working on. Also list the department or group in your utility that led or is leading the effort. Innovations do not have to be novel to the water sector but rather something new to your utility that increases productivity or value to customers.

INNOVATION	LEAD DEPARTMENT OR GROUP

ORGANIZATIONAL READINESS

What do you feel are the top three barriers to innovation? _____

How would you assess your organization's readiness to change? _____

Any additional comments? _____

STEP 2: DECIDE WHERE YOU WANT TO GO

Challenges and Threats

With your team, review the information from the staff interviews and identify the challenges and threats to your utility. Identify the most significant challenges and threats facing your utility today and in the next ten years. Rank those threats as low, medium, or high. Consider threats to water quality, water supply, finances, safety, infrastructure, and employees. Also, consider upcoming regulations that may affect your utility. See Appendix B in the Innovation Roadmap Guidance Manual for examples of challenges and threats.

Internal and External Barriers

With your team, evaluate the internal and external challenges to innovation at your utility.

Gap Analysis

Using the previous information, perform a gap analysis. Information to consider includes your utility's strategic plan goals, budget priorities, performance metrics and indicators, and challenges and threats. The purpose of the gap analysis is to help focus your utility's innovation efforts on the areas that balance the understood gap with level of effort.

Innovation Needs

As a team, review your gap analysis, current and future challenges, and threats. Align your innovation priorities with your strategic plan goals, budget priorities, performance metrics and indicators, and information from staff. Consider the level of effort and level of coordination needed to implement specific innovations. There may be certain needs that have a high level of impact and low level of effort that could be prioritized. Limit the number of innovation needs to ten or less depending on the expected level of effort for each and your available resources.

Summarize Information

Using the information previously developed and the staff interviews, meet with your Innovation Team and complete Sections 5 through 9 of your Innovation Program.

STEP 3: DETERMINE HOW TO GET THERE

Creating a Purpose Statement

A purpose statement describes the specific goal(s), advantage, and scope of your innovation program. It tells your organization what to expect from the Innovation Program and what the specific focus will be. Meet with your Innovation Team to discuss the program's goal(s), advantage, and scope. As a team, create your purpose statement.

Prioritize Needs

Determine where you would like your utility to improve or focus on to carry out the purpose of the Innovation Program. Identify your utility's Top 10 needs. The Innovation Team should assess the Present State and the Desired Future State. The Desired Future State should be written as a strategic objective and describe how you plan to change from the present to the future state.

Develop Action Plan

Develop an action plan for each of the ten prioritized needs. The action plan should use SMART objectives (Specific, Measurable, Achievable, Realistic, and Timely).

Finalize Innovation Program

Various best practices characterize an organization that is good at realizing the benefits of innovation. Go through the checklist to identify the components you want to include in your innovation program.

Summarize Information

Using the information previously developed, meet with your Innovation Team and complete Sections 10 through 14 of your Innovation Program.

INNOVATION PROGRAM DOCUMENT

SECTION 1 - UTILITY BACKGROUND

Utility Name	
Type	<input type="checkbox"/> Water <input type="checkbox"/> Wastewater <input type="checkbox"/> Water and Wastewater

WATER

Number of Customers	
Number of Services	
Number of Employees	
Size of Service Area (sq. mi.)	
Number of Pressure Zones	
Number of WTPs	
Number of Potable Tanks	
Number of Pump Stations	
Number of Pressure Regulators	
Miles of Distribution Pipe	
Average Annual Water Production (MGD)	
Annual Operating Budget	
5-year Capital Improvement Budget	

WASTEWATER

Number of Customers	
Number of Employees	
Size of Service Area (sq mi)	
Number of Wastewater Plants	
Average Wastewater Treatment Flow (MGD)	
Annual Operating Budget	
5-year Capital Improvement Budget	

SECTION 2 - VISION, MISSION, AND STRATEGIC PLAN GOALS

VISION STATEMENT

Keywords: _____

MISSION STATEMENT

Keywords: _____

STRATEGIC PLAN GOALS, OBJECTIVES, AND/OR INITIATIVES

ID#	GOAL/DESCRIPTION
G1	
G2	
G3	
G4	
G5	
G6	
G7	
G8	

SECTION 3 - BUDGET PRIORITIES AND PERFORMANCE

CAPITAL BUDGET

ID#	CAPITAL BUDGET ASSET CLASS	5-YEAR CASH FLOW
CB1		\$
CB2		\$
CB3		\$
CB4		\$
CB5		\$
CB6		\$
CB7		\$
CB8		\$
CB9		\$
CB10		\$

OPERATING BUDGET

ID#	OPERATING BUDGET ASSET CLASS	EXPENDITURES
OB1		\$
OB2		\$
OB3		\$
OB4		\$
OB5		\$
OB6		\$
OB7		\$
OB8		\$
OB9		\$
OB10		\$

PERFORMANCE METRICS AND INDICATORS

ID#	PERFORMANCE METRIC	GOAL	GOAL MET?
PMI1			
PMI2			
PMI3			
PMI4			
PMI5			
PMI6			
PMI7			
PMI8			
PMI9			
PMI10			

SECTION 4 - TYPE OF INNOVATOR AND EXISTING INNOVATION EFFORTS

Current type of Innovator	<input type="checkbox"/> Starting	<input type="checkbox"/> Aspiring	<input type="checkbox"/> Inspired	<input type="checkbox"/> Strategic
Future type of Innovator	<input type="checkbox"/> Starting	<input type="checkbox"/> Aspiring	<input type="checkbox"/> Inspired	<input type="checkbox"/> Strategic

EXISTING INNOVATION EFFORTS

List five types of innovations your utility has developed, adopted, or is currently working on. Also list the department or group in your utility that led or is leading the effort.

INNOVATION	LEAD DEPARTMENT OR GROUP

SECTION 5 - TOP TEN ISSUES FACING YOUR ORGANIZATION

	ISSUE/DESCRIPTION
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

SECTION 6 - CHALLENGES AND THREATS

CHALLENGES AND THREATS	TODAY			IN 10 YEARS		
	H	M	L	H	M	L

SECTION 7 - BARRIERS TO INNOVATION

INTERNAL BARRIERS

BARRIER	DESCRIPTION
1	
2	
3	
4	
5	

EXTERNAL BARRIERS

BARRIER	DESCRIPTION
1	
2	
3	
4	
5	

SECTION 8 – ABBREVIATED GAP ANALYSIS

DRIVER (E.G., STRATEGIC PLAN GOAL, BUDGET PRIORITY, PERFORMANCE METRIC, CHALLENGE/ THREAT)	CURRENT STATE			DESIRED STATE			GAP		
	Good	Fair	Poor	Good	Fair	Poor	Small	Medium	Large

SECTION 9 - INNOVATION NEEDS

INNOVATION NEED	DESCRIPTION
N1	
N2	
N3	
N4	
N5	
N6	
N7	
N8	
N9	
N10	

SECTION 10 - INNOVATION PROGRAM PURPOSE STATEMENT

Purpose Statement: _____

SECTION 11 - INNOVATION PROGRAM TEAM

TEAM MEMBER	NAME
Program Manager	
Executive Sponsor	
Innovation Team	
General Staff	

SECTION 12 - PRIORITIZED NEEDS

NEED	PRESENT STATE	DESIRED FUTURE STATE

SECTION 13 - ACTION PLAN

For each of your top needs, develop a brief action plan.

PRIORITIZED NEED #1

Need	
Strategic Plan Goal	
Purpose Statement	
Present State	
Desired Future State	
Objectives/Initiatives	
Measures	
Targets	
Project Lead	
Resources	
Budget	

PRIORITIZED NEED #2

Need	
Strategic Plan Goal	
Purpose Statement	
Present State	
Desired Future State	
Objectives/Initiatives	
Measures	
Targets	
Project Lead	
Resources	
Budget	

PRIORITIZED NEED #3

Need	
Strategic Plan Goal	
Purpose Statement	
Present State	
Desired Future State	
Objectives/Initiatives	
Measures	
Targets	
Project Lead	
Resources	
Budget	

PRIORITIZED NEED #4

Need	
Strategic Plan Goal	
Purpose Statement	
Present State	
Desired Future State	
Objectives/Initiatives	
Measures	
Targets	
Project Lead	
Resources	
Budget	

PRIORITIZED NEED #5

Need	
Strategic Plan Goal	
Purpose Statement	
Present State	
Desired Future State	
Objectives/Initiatives	
Measures	
Targets	
Project Lead	
Resources	
Budget	

PRIORITIZED NEED #6

Need	
Strategic Plan Goal	
Purpose Statement	
Present State	
Desired Future State	
Objectives/Initiatives	
Measures	
Targets	
Project Lead	
Resources	
Budget	

PRIORITIZED NEED #7

Need	
Strategic Plan Goal	
Purpose Statement	
Present State	
Desired Future State	
Objectives/Initiatives	
Measures	
Targets	
Project Lead	
Resources	
Budget	

PRIORITIZED NEED #8

Need	
Strategic Plan Goal	
Purpose Statement	
Present State	
Desired Future State	
Objectives/Initiatives	
Measures	
Targets	
Project Lead	
Resources	
Budget	

PRIORITIZED NEED #9

Need	
Strategic Plan Goal	
Purpose Statement	
Present State	
Desired Future State	
Objectives/Initiatives	
Measures	
Targets	
Project Lead	
Resources	
Budget	

PRIORITIZED NEED #10

Need	
Strategic Plan Goal	
Purpose Statement	
Present State	
Desired Future State	
Objectives/Initiatives	
Measures	
Targets	
Project Lead	
Resources	
Budget	

SECTION 14 - INNOVATION PROGRAM PRACTICES

Go through and check the practices you will implement for your innovation program. At the end of each section, summarize the specific details you will implement, current gaps, and opportunities for the next fiscal year.

PERMISSION

- Leader with accountability and board-level responsibility for the Innovation Program
- Awareness of strengths and weaknesses of the organization with respect to innovation
 - Time to approve suggestions
 - Ability for staff to take time to work on innovation
 - Match between users and decision-makers
- Clear communication from management committing to the program
 - Commitment statement clarifying the goal of the Innovation Program
 - Visible (internal/external), regular reports to board meetings or senior management, celebrate accomplishments
- Clear timelines (quarterly reports, tangible results within the year)

Comments: _____

PEOPLE

- Dedicated team with responsibility for the program
 - Assigned Innovation Lead
 - Assigned Innovation Team
 - Confirm areas of accountability and internal/ meeting structure and frequency
 - Identify Change Champions
- Leader with accountability to follow through
 - Management level responsibility or recognition for the Innovation Program
 - Ability to hire staff dedicated to the Innovation Program
- Identify and remove barriers to innovation

Comments: _____

TIME

- Reasonable timeframes to make decisions and execute opportunities
- Program timing aligns with strategic plan, capital improvement projects, master plans, and short-term goals

Comments: _____

A PROBLEM TO SOLVE

- Needs Assessment completed and prioritized based on
 - Urgency
 - Return on investment
 - Benefit-Cost Analysis
 - Regulatory needs
 - Operational needs
 - Other regulations and requirements
- Confirm and communicate chosen projects and problems to solve for the organization
 - Define success for individual projects (identify three or four metrics)
 - Make very visible
- Gap analysis for each target problem

Comments: _____

A SOLUTION TO DEPLOY

- Identify available solutions
 - Research online
 - Professional network
 - Peer utilities
 - Industry associations (e.g., AWWA, NWRI, WEF, WRF)
 - Organizations in the market (e.g., Isle, Imagine H2O, LIFT)
- Prioritize the best potential solutions (identify three or four solutions)
- Benchmark solutions to aide in the selection process and support pilot/procurement
- Develop a test or pilot plan
- Invite qualified companies to present to the team
- Consider the risks if the solution does not work

Comments: _____

FINANCE

- User of the technology has budgetary authority
- Assign budget (e.g., 10% of the capital budget goes to “innovation solutions”)
- Identify alternative sources of funds
- Application for alternative sources of funds (time consuming and length – beware)

Comments: _____

LEGAL CLARITY

- Engage legal and procurement departments as soon as possible
- Standard contract for innovators to pilot
- Identify legal issues around the top priorities (e.g., warranty, liability, violation of charter)

Comments: _____

MEASURE SUCCESS

- Identify two or three metrics for success for each project with milestones
- Track milestones during the project
- Monitor relevant key business case metrics over time (i.e., reality vs what was promised)

Comments: _____

COMMUNICATION – SPREAD THE WORD

- Discuss at staff meetings
- Discuss at board meetings
- Set up an Innovation Committee
- Celebrate ideas at annual awards or staff meetings
- Leverage social media for information sharing
- Recognize innovations in internal newsletters
- Make time for staff
- Talk to staff and develop program statements
- Talk to staff about their work problems and share with others to identify solutions

Comments: _____

