BOARD OF DIRECTORS
EAST BAY MUNICIPAL UTILITY DISTRICT

375 - 11th Street, Oakland, CA 94607 Office of the Secretary: (510) 287-0440

Notice of Time and Location Change

PLANNING COMMITTEE MEETING
Tuesday, April 12, 2022
9:00 a.m.
Boardroom
375 11th Street
Oakland, CA 94607

Notice is hereby given that the Tuesday, April 12, 2022 Planning Committee Meeting of the Board of Directors has been rescheduled from 9:15 a.m. to 9:00 a.m. and will be held in the Administration Building Boardroom, 375 - 11th Street, Oakland, California.

Dated: April 7, 2022

Rischa S. Cole

Rischa S. Cole Secretary of the District

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BOARD OF DIRECTORS
EAST BAY MUNICIPAL UTILITY DISTRICT

375 - 11th Street, Oakland, CA 94607 Office of the Secretary: (510) 287-0440

AGENDA
Planning Committee
Tuesday, April 12, 2022
9:00 a.m.
Boardroom
375 11th Street
Oakland, CA 94607

Committee Members: Marguerite Young {Chair}, Lesa R. McIntosh and Frank Mellon

***** Please see appendix for public participation instructions*****

ROLL CALL:

PUBLIC COMMENT: The Board of Directors is limited by State law to providing a brief response, asking questions for clarification, or referring a matter to staff when responding to items that are not listed on the agenda.

DETERMINATION AND DISCUSSION:

1. Water Quality Program Annual Update – 2021 (Briggs)
2. Paving and Other Related Services (Ambrose)
3. 2021 Mokelumne Fishery Update (Tognolini)
4. Annual Recreation Report – 2021 (Tognolini)

ADJOURNMENT:

Disability Notice

If you require a disability-related modification or accommodation to participate in an EBMUD public meeting please call the Office of the Secretary (510) 287-0404. We will make reasonable arrangements to ensure accessibility. Some special equipment arrangements may require 48 hours advance notice.

Document Availability

Materials related to an item on this agenda that have been submitted to the EBMUD Board of Directors within 72 hours prior to this meeting are available for public inspection in EBMUD's Office of the Secretary at 375 11th Street, Oakland, California, during normal business hours, and can be viewed on our website at www.ebmud.com.

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APPENDIX

Planning Committee Meeting
Tuesday, April 12, 2022
9:00 a.m.

EBMUD public Board meetings will be conducted in person in the Boardroom and via Zoom. These meetings are recorded, live-streamed, and posted on the District's website.

In Person

- In accordance with county health guidance and Cal/OSHA requirements, a completed COVID-19 symptoms checklist will be required before entering the building.
- In accordance with District safety protocols, masks are required while in the building and Boardroom regardless of vaccination status.

*Online**
https://ebmud.zoom.us/j/94576194030?pwd=dWZlc3hNU3JNUVBQYmNKWjJSNVZQdz09
Webinar ID: 945 7619 4030
Passcode: 925293

By Phone
Telephone: 1 669 900 6833
Webinar ID: 945 7619 4030
Passcode: 925293
International numbers available: https://ebmud.zoom.us/u/kdmpbwwlg2

*To familiarize yourself with Zoom, please visit https://support.zoom.us/hc/en-us/articles/201362193-Joining-a-Meeting

Providing public comment - *The EBMUD Board of Directors is limited by State law to providing a brief response, asking questions for clarification, or referring a matter to staff when responding to items that are not listed on the agenda.*

- Each speaker is allotted 3 minutes to speak; the Board President has the discretion to amend this time based on the number of speakers
- The Secretary will track time and inform each speaker when the allotted time has concluded
- Comments on **non-agenda items** will be heard at the beginning of the meeting
- Comments on **agenda items** will be heard when the item is up for consideration
- The Secretary will call each speaker in the order received

In person

- Fill out and submit a blue speaker card which is available in the foyer of the Boardroom

Via Zoom

- Use the raise hand feature in Zoom to indicate you wish to make a public comment https://support.zoom.us/hc/en-us/articles/205566129-Raising-your-hand-in-a-webinar
  - If you participate by phone, press *9 to raise your hand
- When prompted by the Secretary, please state your name, affiliation if applicable, and topic

Submitting written comments or materials

- Email written comments or other materials for the Board of Directors to SecOffice@ebmud.com
- Please indicate the meeting date and agenda item number or non-agenda item in the subject of the email. Contact information is optional.
- **Please email by 4 p.m. the day prior to the scheduled regular meeting**; written comments and other materials submitted to the Board of Directors will be filed in the record.

To *observe* the Planning Committee Meeting,
please visit: https://www.ebmud.com/about-us/board-directors/board-meetings/

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: April 7, 2022

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager CCC

FROM: David A. Briggs, Director of Operations and Maintenance DAB

SUBJECT: Water Quality Program Annual Update – 2021

SUMMARY

The attached report provides an update on the District's initiatives to ensure the delivery of high-quality water to customers. Water quality data for calendar year 2021 is summarized in the attached report. A presentation on the Water Quality Program will be made at the April 12, 2022 Planning Committee meeting.

DISCUSSION

From January 1, 2021 through December 31, 2021, the District met all federal and state drinking water standards and 94 percent of the District's internal goals (120 of 127 goals were met). As in previous updates, levels of three types of disinfection byproducts were higher than District goals but continue to be stable. Additional District goals related to treatment plant and distribution system operations were not met. This is explained further in Attachment 1.

The District continues to monitor developing federal and state regulations related to lead and other contaminants of concern in drinking water.

CCC:DAB:sd

Attachments: 1. Water Quality Annual Report 2021
2. EBMUD Water Quality Goals – January 1 through December 31, 2021

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ATTACHMENT 1

WATER QUALITY ANNUAL REPORT – 2021

This report provides the status of District efforts to ensure delivery of high-quality water to its customers for calendar year 2021.

District Water Quality Goals

The District's internal water quality goals are substantially more stringent than federal and state water quality standards. The goals are adjusted when appropriate, depending on the latest technical information and regulatory changes.

Chlorinated disinfectant byproducts (DBPs): In 2021, the District exceeded two internal water quality goals related to chlorinated DBPs. Total trihalomethanes (TTHMs) and five haloacetic acids (HAA5) are regulated DBPs that form when chlorine reacts with natural organic matter in raw water. The District's current goals of 40 parts per billion (ppb) for TTHMs and 30 ppb for HAA5 are half of regulatory standards. The District's goal was exceeded in 9 out of 64 individual TTHM samples and 8 out of 64 HAA5 samples in 2021. Achieving lower levels of these DBPs with current treatment technologies employed at the water treatment plants (WTPs) could compromise the appropriate disinfection of the water. Upcoming capital projects at the WTPs will enable better control of DBPs; however, the levels are unlikely to be consistently below the District's internal goals.

Chloraminated DBPs: N-nitroso-dimethylamine (NDMA) is one of several nitrosamines that can form when chloramine reacts with organic precursor materials in water. NDMA is very slow forming and is generally detected in parts of the distribution system with very long residence times. In 2021, the District's water quality goal was exceeded in 6 of 20 NDMA samples. The District's goal is set at the Public Health Goal (PHG) because there is currently no regulatory standard for NDMA. The regulatory future of NDMA remains uncertain. The U.S. Environmental Protection Agency (USEPA) does not plan to regulate nitrosamines in the near future, but the State Water Resources Control Board (State Board) has indicated an interest in NDMA regulation.

Chlorine Residuals: Maintaining a high disinfectant residual in the distribution system controls the growth of microorganisms and maintains the safety of drinking water. The District analyzes hundreds of chlorine residual samples each month throughout the service area, both from water mains and distribution storage reservoirs. The District's goal is to maintain at least 0.5 mg/L chlorine residual in 95 percent of samples each month. This goal is consistent with the Partnership for Safe Water to which the District subscribes. No state or federal regulatory goal exists. In 2021, this goal was met every month for samples taken from water mains but only in 7 of 12 months for samples taken from distribution reservoirs.

Calendar year 2021 was particularly challenging for distribution reservoir water quality due to higher water age, warmer weather, and increased use of local watershed water. There were numerous "red flag" warnings called by the National Weather Service, as well as reduced water usage by customers due to drought, both of which resulted in high retention time (age) and subsequent loss of chlorine residual. Furthermore, water treated at the Upper San Leandro (USL)

and Sobrante WTPs using local watershed supplies tends to lose chlorine residual more quickly compared to water from Pardee Reservoir.

Corrosion Control: The water chemistry at each treatment plant is adjusted to minimize corrosion of pipelines and components in the distribution system and in customer plumbing. The District goal is to achieve a Langelier Saturation Index (LSI) between -0.5 and +0.5 in 95 percent of all samples taken each week at each WTP. For 2021, the LSI goal was not met in the plant effluent of both the Orinda and USL WTPs. The 95th percentile LSI value for USL WTP was 0.65 and Orinda WTP was 0.63, both slightly higher than the District's goal level. Elevated LSI values are associated with deposition of calcium carbonate, which causes water spots on glassware and, in severe cases, deposition of calcium scale in water heaters.

Turbidity: The District goal at each WTP is for the turbidity in each individual filter to be less than 0.1 Nephelometric Turbidity Units (NTU) more than 99.5 percent of the time. This goal was not met in one filter at the Orinda WTP in 2021. Filter #10 maintained turbidity 99.4 percent of the time after a 181-minute exceedance. The exceedance was attributed to elevated raw water turbidity associated with the use of the Walnut Creek raw water pumping plant. The sudden increase in flow scoured sediments from the bottom of the aqueducts, causing high turbidity in the water entering the plant. Operators made several adjustments to deal with the elevated turbidity. Raw water turbidity spikes frequently occur when there are significant flow changes in the aqueducts. Based on the magnitude and duration of the exceedance, no significant impact on public health occurred.

Total Dissolved Solids (TDS): The District's goal for TDS is 250 mg/L which is half of the secondary (or aesthetic) standard of 500 mg/L. There are no adverse health effects associated with TDS – only potential changes to taste and odor. The principal constituents of TDS are usually minerals such as calcium, magnesium, sodium, and potassium cations and carbonate, chloride, sulfate, and nitrate anions. The internal goal was exceeded in 2021 because the USL WTP, which has naturally higher TDS compared to other water sources, was in operation all year. TDS values ranged from 180 mg/L to 270 mg/L.

Lead Regulations and Control

The District continues to minimize customer exposure to lead in drinking water. Based on data from regulatory monitoring, the customer sampling voucher program, school sampling, and periodic studies, the corrosion control program effectively minimizes the release of lead from any remaining leaded components (customer side or District components).

In 2020, the District completed an inventory of the public-side service lines (from the water main to the meter). The effort confirmed that 94 percent of service lines are copper, which is the District's standard material. Several dozen lead service lines were found during the review and immediately replaced with copper. The review identified approximately 1,600 galvanized steel lines which are conservatively assumed to include short connectors made of lead (also known as goosenecks). The District developed a plan in 2020, which was approved by the State Board, to remove at least 125 galvanized steel service lines each year along with their lead goosenecks.

This replacement target has been met or exceeded each year. Complete replacement for all such lines should take 10 to 20 years.

The customer sampling program continues to be successful. Many positive comments have been received from customers concerned about lead. Since its inception in 2017, over 2,300 customers took advantage of the free residential lead testing program. Results continue to be good, with 90 percent of samples less than one ppb. The program is transitioning from a pilot contract-lab effort to a permanent in-house program. The transition will be completed in 2022.

The federal regulation for lead was changed in late 2021, and new requirements will apply to the District. The service line inventory will need to be expanded to include the private-side material (between the meter and the home), and it must be made available to the public. District staff has never encountered lead components on the customer side of the meters. The District will perform a statistically significant number of field investigations to confirm customer-side pipeline material and then request a waiver from the State Board from the customer-side lateral inventory requirement.

The District is required to sample for lead from customer taps every three years, and 2021 was a compliance sampling year with 50 customer taps sampled. The 90th percentile value was 3.3 ppb, well below the Action Level of 15 ppb. The revised lead regulations will necessitate changes in how compliance samples are collected, and may potentially impact the results. In addition, changes will be needed in how the District tracks materials and provides notification to customers.

Other Regulatory Updates

The State Board and USEPA continue efforts to regulate perfluoroalkyl substances and polyfluoroalkyl substances (collectively known as PFAS). California now has drinking water Notification Levels and Response Levels for three PFAS, Perfluorooctanoic acid (PFOA), Perfluorooctanesulfonic acid (PFOS), and perfluorobutane sulfonic acid (PFBS), and is working on additional drinking water regulations. USEPA has stated its intent to develop enforceable limits for PFOS and PFOA. Recent regulatory focus has been on regulation of sources such as banning the use of PFAS in paper food packing and other consumer products in California and banning the uncontrolled release of PFAS-containing firefighting foams from Department of Defense facilities.

Although not required, the District monitored for PFAS in the influent and effluent of each in-service WTPs during 2020-2021. Most results were “non-detects”; however, there were some low-level detections of some compounds. All results were below the Notification Levels. A longer list of 29 PFAS compounds will be monitored under the federal Unregulated Contaminant Monitoring Rule 5 from 2023 through 2025.

The State Board continues to develop regulations for microplastics in drinking water as required by Senate Bill 1422. Development of the analytical method and sampling protocols is behind schedule; the State Board anticipates issuing a Policy Handbook in spring 2022 with recommended analytical approaches. Drinking water utilities, beginning with surface water

sources, will eventually be required to conduct four consecutive years of microplastics monitoring and share results in their Consumer Confidence Reports.

EBMUD Water Quality Goals - January 1 through December 31, 2021

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis	Goal	Status*
USEPA/State Water Quality Regulations										
Primary (Health Standards)										
Inorganic Chemicals										
Aluminum	ug/L	1000	600	50	200			½SMCL	100	Met
Antimony	ug/L	6	1	6				PHG	1	Met
Arsenic	ug/L	10	0.004	2				PHG	0.004	Met
Asbestos	MFL	7	7	0.2				½MCL	3.5	Met
Barium	ug/L	1000	2000	100				½MCL	500	Met
Beryllium	ug/L	4	1	1				PHG	1	Met
Cadmium	ug/L	5	0.04	1				PHG	0.04	Met
Chromium (total)	ug/L	50		10				½MCL	25	Met
Cyanide	mg/L	0.15	0.15	0.1				½MCL	0.075	Met
Fluoride (source water)	mg/L	2	1	0.1				PHG	1	Met
Hexavalent chromium	ug/L		0.02					PHG	0.02	Met
Mercury	ug/L	2	1.2	1				½MCL	1	Met
Nickel	ug/L	100	12	10				PHG	12	Met
Nitrate + Nitrite Total (as N)	mg/L	10	10					½MCL	5	Met
Nitrate as N [x4.5 for NO3]	mg/L	10	10	0.4				½MCL	5	Met
Nitrite (as N)	mg/L	1	1	0.4				½MCL	0.5	Met
Perchlorate	ug/L	6	1	2				PHG	1	Met
Selenium	ug/L	50	30	5				½MCL	25	Met
Thallium	ug/L	2	0.1	1				PHG	0.1	Met
Organic Chemicals										
Volatile Organic Compounds (VOCs)										
1,1,1-Trichloroethane (1,1,1-TCA)	ug/L	200	1000	0.5				½MCL	100	Met
1,1,2,2-Tetrachloroethane	ug/L	1	0.1	0.5				PHG	0.1	Met
1,1,2-Trichloroethane (1,1,2-TCA)	ug/L	5	0.3	0.5				PHG	0.3	Met
1,1-Dichloroethane (1,1-DCA)	ug/L	5	3	0.5				½MCL	2.5	Met
1,1-Dichloroethylene (1,1-DCE)	ug/L	6	10	0.5				½MCL	3	Met
1,2,4-Trichlorobenzene	ug/L	5	5	0.5				½MCL	2.5	Met
1,2-Dichlorobenzene (o-DCB)	ug/L	600	600	0.5				½MCL	300	Met
1,2-Dichloroethane (1,2-DCA)	ug/L	0.5	0.4	0.5				½MCL	0.25	Met
1,2-Dichloropropane	ug/L	5	0.5	0.5				PHG	0.5	Met
1,3-Dichloropropene (Total)	ug/L	0.5	0.2	0.5				PHG	0.2	Met

Note: District to meet all applicable regulatory requirements at all times.

Compounds highlighted in blue appear more than once in this table.

**Status is either "Met or "Not Met". If goal was not met, number shown is the percent of samples not meeting the goal.*

EBMUD Water Quality Goals - January 1 through December 31, 2021

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis	Goal	Status*
1,4-Dichlorobenzene (p-DCB)	ug/L	5	6	0.5				½MCL	2.5	Met
Benzene	ug/L	1	0.15	0.5				PHG	0.15	Met
Carbon Tetrachloride	ug/L	0.5	0.1	0.5				PHG	0.1	Met
Dichloromethane (Methylene Chloride)	ug/L	5	4	0.5				½MCL	2.5	Met
Ethylbenzene	ug/L	300	300	0.5				½MCL	150	Met
Freon 113 (1,1,2 trichloro 1,2,2 trifluoroethane)	ug/L	1200	4000	10				½MCL	600	Met
Methyl-tert-butyl ether (MTBE)	ug/L	13	13	3	5			½SMCL	2.5	Met
Monochlorobenzene (Chlorobenzene)	ug/L	70	70	0.5				½MCL	35	Met
Styrene	ug/L	100	0.5	0.5				PHG	0.5	Met
Tetrachloroethylene	ug/L	5	0.06	0.5				PHG	0.06	Met
Toluene	ug/L	150	150	0.5				½MCL	75	Met
Trichloroethylene (TCE)	ug/L	5	1.7	0.5				PHG	1.7	Met
Trichlorofluoromethane (Freon 11)	ug/L	150	1300	5				½MCL	75	Met
Vinyl Chloride (VC)	ug/L	0.5	0.05	0.5				PHG	0.05	Met
Xylenes (Total)	ug/L	1750	1800	0.5				½MCL	875	Met
cis-1,2-Dichlorethylene (c-1,2-DCE)	ug/L	6	13	0.5				½MCL	3	Met
trans-1,2-Dichloroethylene (t-1,2-DCE)	ug/L	10	50	0.5				½MCL	5	Met
Synthetic Organic Compounds (SOCs)										
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	0.0017	0.01				PHG	0.0017	Met
2,3,7,8-TCDD (Dioxin)	pg/L	30	0.05	5				PHG	0.05	Met
2,4,5-TP (Silvex)	ug/L	50	3	1				PHG	3	Met
2,4-D	ug/L	70	20	10				PHG	20	Met
Alachlor (Alanex)	ug/L	2	4	1				½MCL	1	Met
Atrazine (Aatrex)	ug/L	1	0.15	0.5				PHG	0.15	Met
Bentazon (Basagran)	ug/L	18	200	2				½MCL	9	Met
Benzo(a)pyrene	ug/L	0.2	0.007	0.1				PHG	0.007	Met
Bis(2-ethylhexyl)phthalate (DEHP)	ug/L	4	12	3				½MCL	2	Met
Carbofuran	ug/L	18	0.7	5				PHG	0.7	Met
Chlordane	ug/L	0.1	0.03	0.1				PHG	0.03	Met
Dalapon	ug/L	200	790	10				½MCL	100	Met
Di(2-ethylhexyl)adipate	ug/L	400	200	5				½MCL	200	Met
Dinoseb (DNBP)	ug/L	7	14	2				½MCL	3.5	Met
Diquat	ug/L	20	6	4				PHG	6	Met
Endothall	ug/L	100	94	45				½MCL	50	Met

Note: District to meet all applicable regulatory requirements at all times.

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EBMUD Water Quality Goals - January 1 through December 31, 2021

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis	Goal	Status*
Endrin	ug/L	2	0.3	0.1				PHG	0.3	Met
Ethylene dibromide (EDB)	ug/L	0.05	0.01	0.02				PHG	0.01	Met
Glyphosate	ug/L	700	900	25				½MCL	350	Met
Heptachlor	ug/L	0.01	0.008	0.01				½MCL	0.005	Met
Heptachlor Epoxide	ug/L	0.01	0.006	0.01				½MCL	0.005	Met
Hexachlorobenzene	ug/L	1	0.03	0.5				PHG	0.03	Met
Hexachlorocyclopentadiene	ug/L	50	2	1				PHG	2	Met
Lindane (Gamma BHC)	ug/L	0.2	0.032	0.2				PHG	0.032	Met
Methoxychlor	ug/L	30	0.09	10				PHG	0.09	Met
Molinate	ug/L	20	1	2				PHG	1	Met
Oxamyl (Vydate)	ug/L	50	26	20				½MCL	25	Met
PCB's	ug/L	0.5	0.09	0.5				PHG	0.09	Met
Pentachlorophenol (PCP)	ug/L	1	0.3	0.2				PHG	0.3	Met
Picloram	ug/L	500	166	1				PHG	166	Met
Simazine	ug/L	4	4	1				½MCL	2	Met
Thiobencarb	ug/L	70	42	1	1			½SMCL	0.5	Met
Toxaphene	ug/L	3	0.03	1				PHG	0.03	Met
1,2,3-Trichloropropane	ug/L	0.005	0.0007	0.005				PHG	0.0007	Met
Disinfection By-Products (DBPs)										
Bromate	ug/L	10	0.1	1				½MCL	5	Met
Chlorite	ug/L	1000	50	20				PHG	50	Met
Haloacetic Acids (HAA5)	ug/L	60						½MCL	30	Not Met
Total Trihalomethanes (TTHM)	ug/L	80						½MCL	40	Not Met
Radionuclides										
Alpha	pCi/L	15		3				½MCL	7.5	Met
Beta	pCi/L			4			50	Other [1]	25	Met
Radium 226 + 228	pCi/L	5						½MCL	2.5	Met
Strontium-90	pCi/L	8	0.35	2				PHG	0.35	Met
Tritium	pCi/L	20000	400	1000				PHG	400	Met
Uranium	pCi/L	20	0.43	1				PHG	0.43	Met
Microbiological										
%Total Coliforms Positive/Mo.	Organisms/100 ml	5%						Other [2]	0.5%	Met
TCR Tap Total Chlorine Residual	mg-Cl_2/L							Meets Partnership for Safe Water	≥ 0.5 mg-Cl_2/L in ≥95% of routine samples per month	Met
Reservoir Total Chlorine Resdiual	mg-Cl_2/L							Exceeds Partnership for Safe Water [3]	≥ 0.5 mg-Cl_2/L in ≥95% of reservoirs per month	Not Met

Note: District to meet all applicable regulatory requirements at all times.

Compounds highlighted in blue appear more than once in this table.

**Status is either "Met or "Not Met". If goal was not met, number shown is the percent of samples not meeting the goal.*

EBMUD Water Quality Goals - January 1 through December 31, 2021

Parameter	Units	MCL	PHG	DLR	SMCL	NL	other	Basis	Goal	Status*
Treatment Techniques										
Individual Filter Effluent (IFE) Turbidity	NTU							Exceeds Partnership for Safe Water [4]	<0.10 NTU more than 99.5% of time per filter	Not Met
Combined Filter Effluent (CFE) Turbidity	NTU							Exceeds Partnership for Safe Water [4]	< 0.10 NTU more than 99.9% of the time.	Met
Distribution System Fluoride	mg/L							Other [5]	0.6-1.2	Met
CT Ratio							1	Other [6]	>1.0	Met
Lead 90th percentile	ug/L		0.2	5			15	½ AL[7]	7.5	Met
Copper 90th percentile	ug/L		300	50			1300	½ AL[8]	650	Met
Langelier Saturation Index (LSI)								Corrosion Control	-0.5 to 0.5 in 95% WTP effluent samples (annually)	Not Met
Acrylamide							0.05% mono-mer by wt. dose not to exceed 1 mg/L	Other [9]	0.05% monomer by wt. dose not to exceed 1 mg/L	Met
Secondary (Aesthetic) Standards										
Aluminum	ug/L	1000	600	50	200			½SMCL	100	Met
Chloride	mg/L				250			½SMCL	125	Met
Color	color unit				15			½SMCL	7.5	Met
Copper	ug/L		300	50	1000			PHG	300	Met
Foaming agents (MBAS)	ug/L				500			½SMCL	250	Met
Iron	ug/L				300		100	Other [10]	100	Met
Manganese	ug/L				50	500	15	Other [10]	15	Met
Methyl tertiary butyl ether (MTBE)	ug/L	13	13	3	5			½SMCL	2.5	Met
Odor threshold	TON				3			SMCL	3	Met
Silver	ug/L				100			½SMCL	50	Met
Specific Conductance	uS/cm				900			½SMCL	450	Met
Sulfate	mg/L				250			½SMCL	125	Met
Thiobencarb	ug/L	70	42	1	1			½SMCL	0.5	Met
Total Dissolved Solids	mg/L				500			½SMCL	250	Not Met
Turbidity (distribution)	NTU				5			½SMCL	2.5	Met
Zinc	ug/L				5000			½SMCL	2500	Met
Customer Expectations										

Note: District to meet all applicable regulatory requirements at all times.

Compounds highlighted in blue appear more than once in this table.

**Status is either "Met or "Not Met". If goal was not met, number shown is the percent of samples not meeting the goal.*

District-caused complaints	Com-plaints/ month						30	Other [11]	30	Met
Emerging Contaminants										
Inorganic Chemicals										
Boron	ug/L			100		1000		½NL	500	Met
Chlorate	ug/L					800		½NL	400	Met
Organic Chemicals										
1,2,4-Trimethylbenzene	ug/L					330		½NL	165	Met
1,3,5-Trimethylbenzene	ug/L					330		½NL	165	Met
Cylindrospermopsin	ug/L						0.7	HA [12]	0.7	Met
Microcyctins	ug/L						0.3	HA [12]	0.3	Met
N-Nitrosodi-methylamine [NDMA]	ng/L		3			10		PHG	3	Not Met
N-Nitrosodiethylamine [NDEA]	ng/L					10		½NL	5	Met
Naphthalene	ug/L					17		½NL	8.5	Met

[1] ½ screening level
[2] 1/10th 5% MCL
[3] ≥ 0.5 mg-Cl2/L in ≥95% of routine monthly samples
[4] <0.10 NTU 95% of the time
[5] Optimal Fluoride Dose (0.7 mg/L) per 2015 US Public Health Service recommendation
[6] CT ratio of 1 is the minimum for compliance; goal is be greater than or equal to 1 at all times.
[7] ½ Action Level
[8] ½ Action Level; compliance based on in-home samples.
[9] USEPA Treatment Technique
[10] Based on operational experience
[11] Based on historical data
[12] USEPA Health Advisory Level

Note: District to meet all applicable regulatory requirements at all times.
Compounds highlighted in blue appear more than once in this table.
**Status is either "Met or "Not Met". If goal was not met, number shown is the percent of samples not meeting the goal.*

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: April 7, 2022

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager CCC

FROM: Michael R. Ambrose, Manager of Maintenance and Construction MRA

SUBJECT: Paving and Other Related Services

SUMMARY

In repairing and replacing water distribution pipelines and appurtenances, the District performs approximately 3,500 street excavations annually. To restore the paving, the District spends approximately $21 million per year to satisfy city and county permit requirements. Agreements with vendors for paving services are required to meet workload peaks, manage the District's paving backlog, and reimburse cities and counties for joint paving agreements in the service area. The plan and funds necessary to supplement District paving resources for the next year will be presented at the April 12, 2022 Planning Committee meeting.

DISCUSSION

Installing, repairing, and replacing water distribution infrastructure in the public right-of-way impacts city and county streets. Restoration of paving ranges in size from small patches to replacement of curb-to-curb paving for miles. In the winter months when weather does not allow for paving a seasonal backlog is created. The District's goal is to complete 90 percent of the final paving within 30 days of completion of work to minimize safety risks, maintain customer service, and preserve relationships with cities and counties. In 2021, the District completed 72 percent of paving orders within 30 days.

The District employs eight paving crews (64 employees) to pave all the patches and perform some full lane paving following pipeline replacement. To support District forces, contractors are used for paving services (e.g., asphalt replacement or sealing). In addition, the District executes joint paving agreements with other cities/counties where the District contributes funds for street restoration as part of larger paving projects. The District has used contractors and joint paving agreements since the early 1990s to provide timely road restoration in the community. Recently, staff has worked with Oakland to contract separately with the same company used by the city to pave both lanes of an entire street.

Numerous factors have contributed to the current paving backlog. These factors include pipeline replacement rates and more extensive paving requirements by city/county agencies. The pandemic also impacted paving work in Fiscal Years 2020 through 2022 due to periodic

quarantining of crews. As a result, District forces completed only about 62 percent of the paving volume in those years with the remaining work completed by contractors. In previous years, District forces completed nearly all paving work.

In May 2021, the Board authorized a one year $3,500,000 agreement for paving and other related services. This year the Board will be asked to consider a one year, $5,000,000 agreement for paving and other related services. The increase is partly due to inflation and to the increased amount of contract road restoration. The impacts on staff availability due to the pandemic are not expected to continue which will allow District forces to focus on reducing the backlog of patch paving. Staff will continue to coordinate all pavement work by contract or District forces with cities and counties in the service area to meet community needs.

NEXT STEPS

At its May 10, 2022 meeting, the Board will be asked to consider a one year, $5,000,000 agreement for paving and other related services.

CCC:MRA:sd

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EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: April 7, 2022

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager CCC

FROM: Michael T. Tognolini, Director of Water and Natural Resources MTT

SUBJECT: 2021 Mokelumne Fishery Update

SUMMARY

In 2021, for the second year in a row, the Mokelumne salmon return was below the long-term average of 5,429, with 5,043 salmon returning. Mokelumne origin salmon were strongly represented in both the commercial (19%) and recreational (42%) ocean fisheries. In addition, steelhead returns increased compared to last year's totals. Habitat restoration and protection actions were implemented on the lower Mokelumne River in 2021. The first year of the Proposition 68 grant funded habitat restoration work was completed by building new floodplain habitat and spawning habitat. Three riparian diversions on the lower Mokelumne River were screened to reduce juvenile entrainment into the pumps. Both of these actions benefit juvenile fish migration and survival. A review of the 2021 return and the key factors affecting salmon and steelhead returns to the Mokelumne River will be presented at the April 12, 2022 Planning Committee meeting.

DISCUSSION

In 2021, the Mokelumne River Chinook salmon return was considerably lower than the most recent decadal trend, but up from the 4,044 salmon returning in 2020. Of returning fish, 826 fish spawned in the river and 4,217 were collected at the hatchery for egg production. For the second year in a row, the return was significantly below the post-1999 average of 9,598 and is 92 percent of the long-term average (1940–2021) of 5,429. This is the first time since 2009 that the salmon return was below the long-term average in consecutive years. Because of year-to-year variability, one indicator the District uses to assess the health of the Mokelumne fishery is the running nine-year average return, which represents three complete three-year salmon life cycles. The nine-year average annual return is 11,724 or 216 percent of the long-term average. The steelhead trout return to the hatchery rebounded from 186 adult fish in 2020 to 251 in 2021. The District continues to provide a suite of management actions to support the salmon population; however, the species is subject to multiple stressors in both the freshwater and marine environment. Lower returns this year were also observed for the tributaries from the American River south through the San Joaquin River tributaries. Figure 1 (attached) shows salmon returns to the Mokelumne River since recordkeeping began in 1940.

The 2021 salmon return began strong. The District implemented three pulses using 6,300 acre-feet accumulated through gainshare water, spring adaptive management water, and water designated in our Camanche permit for fish passage. The Delta Cross Channel gates were closed six times through the migration season. However, in late October, an atmospheric river moved through the California Coast and the Central Valley resulting in the unregulated Cosumnes River discharge peaking at 14,000 cubic feet per second (cfs) compared to the regulated Mokelumne River flow of less than 500 cfs. It is speculated that the high flows caused a number of salmon destined to return to the Mokelumne to take another path. Coded wire tag data from in-river recoveries also showed a high proportion of Mokelumne River hatchery fish migrated to the American River. Of all coded wire tag returns to the Central Valley of Mokelumne Origin fish, 48 percent were recovered on the American River and only 35 percent were recovered on the Mokelumne River.

The Mokelumne salmon population continues to make up a significant portion of the commercial and recreational catch off the coast of California. Numbers released by the California Department of Fish and Wildlife (CDFW) show that Mokelumne Hatchery Origin salmon made up approximately 19 percent of the commercial and 42 percent of the recreational catch respectively in 2021 compared to 13 percent of the commercial and 16 percent of the recreational catch in 2020. Considering the size of the watershed and modest (< 3%) Delta outflow contribution, the Mokelumne's contribution to the ocean food web, salmon industry, and dependent businesses remains significant.

Steelhead trout returns for the Mokelumne River (primarily measured at the hatchery) have never been substantial since recordkeeping began in 1963. The District and various resource agency partners who comprise the Mokelumne River Hatchery Coordination Team have, over the last 15 years, implemented numerous measures to improve returns such as changing release locations and timing, eliminating egg imports, and improving rearing techniques. In 2021, 251 adult steelhead, 65 more than returned in 2020, entered the hatchery, yielding an egg take of approximately 285,000; the goal for the hatchery is to produce 250,000 yearling steelhead smolts from the eggs collected. Because some natural mortality from the egg to yearling stage is expected, the District projects that it will fall just short of its goals for the year; however, this number represents an improvement over last year.

In summer 2021, the Mokelumne River Fish Hatchery provided cold water refuge for the American River yearling steelhead program. The Mokelumne River Fish Hatchery was also able to culture approximately 500,000 fish that would have succumbed to poor temperatures in the American River, thus adding to the regional reliability of salmonid populations within the Central Valley.

The District received funding from the U.S. Fish and Wildlife Service to screen priority diversions in the lower Mokelumne River to protect migrating juvenile salmon. In August 2021, all permits were acquired, and three riparian diversions were successfully screened to protect juvenile salmon from entrainment into the diversion pumps. Additionally, the first year of a

spawning and rearing improvement project funded by the District and Proposition 68 was completed in August and September. The District was recently awarded $450,000 in grant funds from the Healthy Rivers Initiative under Proposition 68 and in 2021 implemented the first year of this restoration work, expending approximately $300,000 of those funds along with $34,000 in-kind contributions from the District. The project added 1.2 acres of floodplain that will begin to inundate at 700 cfs to the Mokelumne River Day Use Area. The 2021 project also added 1,000 cubic yards of salmonid gravel for reach maintenance and placed fine sediments in low areas of 2019 and 2021 floodplain project sites to support vegetation growth and stockpiled approximately 767 cubic yards of gravel for future uses as spawning gravel. More work will be completed in 2022 using the remaining $150,000 in Proposition 68 grant funds with continued in-kind District support.

NEXT STEPS

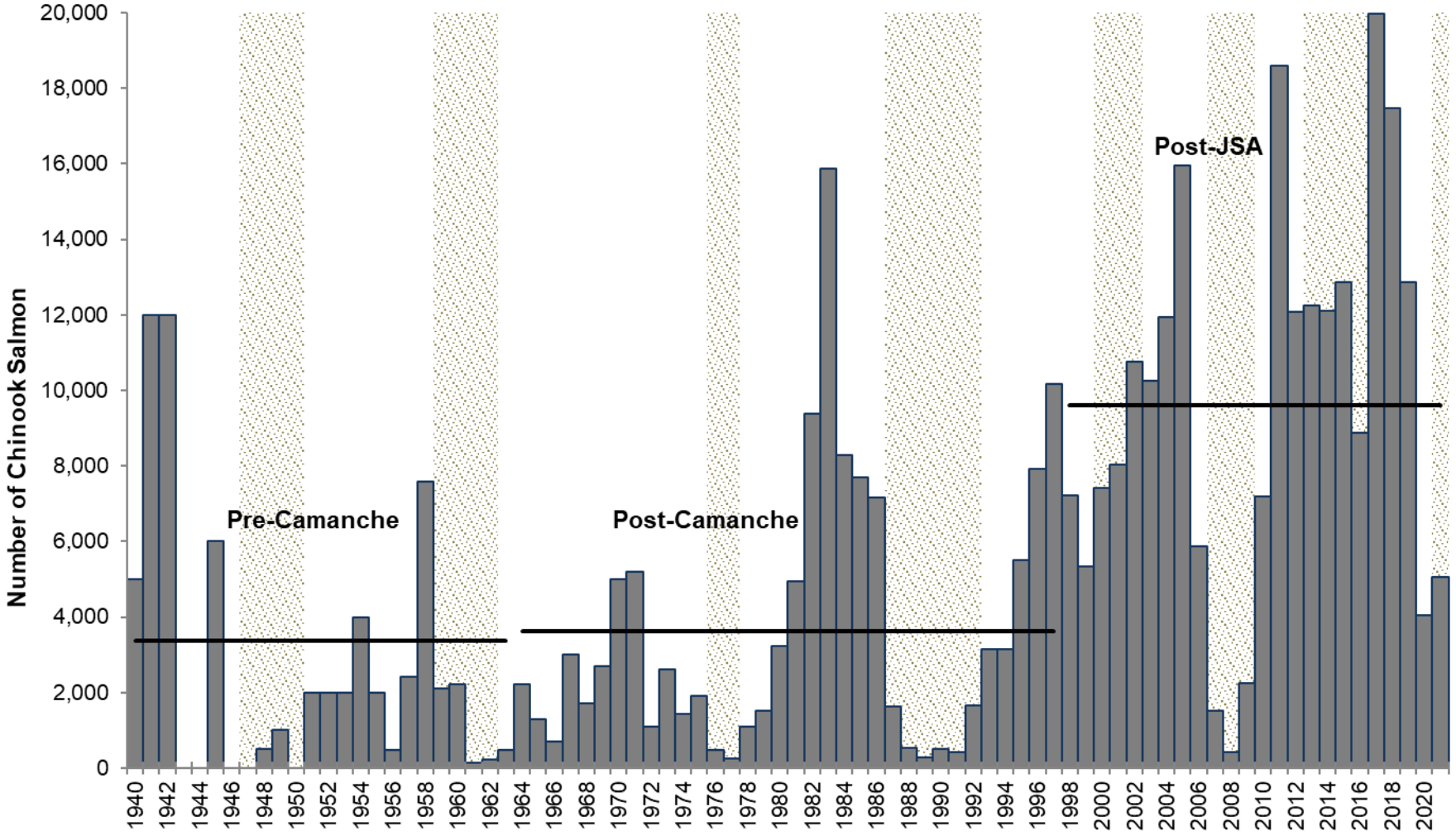
Weather and Delta conditions continue to challenge juvenile salmon migrating from the Mokelumne River. Overcoming these effects will be at the forefront of fisheries management activities going forward. The District, working with resource agencies, will continue to implement measures to improve the survival of juvenile salmon as they migrate through the Central Delta. Habitat restoration work under the Proposition 68 grant will be completed.

In addition, the District will continue studies to evaluate the results of barging juvenile salmon and spring pulse flows. The District will work with resource agency staff, advocacy groups, and others in key forums, such as the Central Valley Project Improvement Act Science Integration Team, Hatchery Scientific Review Group Statewide Policy Team, and Central Valley Hatchery Coordination Team, to incorporate the latest science and help build on the successes of the last two decades.

CCC:MTT:dec

Attachment: Annual Chinook Salmon Escapement to the Lower Mokelumne River Graph

Figure 1: Annual Chinook Salmon Escapement to the Lower Mokelumne River since 1940 with Drought Periods Delineated by Shaded Bars.



Horizontal lines indicate pre-Camanche, post-Camanche, and post-JSA periods, respectively.

1. "Pre-Camanche" escapement (3,374) is the average estimate at Woodbridge Dam for the period from 1940 through 1963 (excluding years when no data were recorded: 1943, 1944, 1946, 1947, and 1950).
2. "Post-Camanche" escapement (3,636) is the average estimate at Woodbridge Dam for the period 1964 through 1997.
3. "Post-JSA" escapement (9,598) is the average estimate at Woodbridge Dam since implementation of the JSA in 1998.
4. Dithered shaded areas are periods of drought in California. Historical drought data are based on California Department of Water Resources, *California's most Significant Droughts: Comparing Historical and Recent Conditions*, January 2022. More recent drought designations follow guidelines presented at https://water.ca.gov/Water-Basics/Drought.

EAST BAY MUNICIPAL UTILITY DISTRICT

DATE: April 7, 2022

MEMO TO: Board of Directors

THROUGH: Clifford C. Chan, General Manager CCC

FROM: Michael T. Tognolini, Director of Water and Natural Resources MTT

SUBJECT: Annual Recreation Report – 2021

SUMMARY

This memo summarizes recreation activities in the District's watersheds during 2021 and reports on key performance indicators (KPIs) established for recreation in the Mokelumne and East Bay Watersheds. A presentation will be made at the April 12, 2022 Planning Committee meeting.

DISCUSSION

The District's watershed and recreation facilities continue to be popular with the public, receiving approximately two million visitors per year. Visitation is predominantly at the developed recreation areas, with approximately one million visitors to Lafayette Recreation Area and more than 480,000 visits to Camanche Recreation areas. In the East Bay, visitation increased 24 percent year over year, to a total of 1,418,612 visitors in 2021.Visitation in the Mokelumne returned to pre-pandemic levels in 2021.

NEXT STEPS

For the Mokelumne area, staff will focus on upgrades to the Camanche South Riverview Campground, installing new Park Model rental cabins at Camanche North Shore, and continuing to address the challenges related to increased visitation to Mokelumne watershed trails and the Mokelumne River Day Use Area. In the East Bay, the interpretative signs upgrade project at Lafayette Reservoir will continue in 2022, as will sewer force main projects at San Pablo and Lafayette recreation areas. On the East Bay trails, the permit-less access pilot will continue on the De Laveaga trail and staff will continue to take action to deter rogue trail construction and mountain biking near Canyon.

CCC:MTT:dec

Attachment: 2021 Recreation Summary Report

2021 RECREATION SUMMARY REPORT

Recreation programs and projects strengthen the District's relationships with local communities, help to ensure a safe and enjoyable experience for our recreational guests, and support the District's Strategic Plan goals of Long-Term Water Supply, Water Quality and Environmental Protection, Long-Term Infrastructure Investment, and Customer and Community Services.

Significant recreation activities in 2021 include:

- Complimentary Trail Use Permits were mailed out to all Customer Assistance Program customers.
- Mountain bikers constructed six miles of illegal trail in the Redwood forest above San Leandro Creek near Canyon.

In an effort to reduce COVID-19 transmission, distribution and collection of the Recreation User Surveys were suspended in early March 2020. As a result, no reliable visitor satisfaction data was collected in 2021. Staff is reevaluating how survey data is collected to provide more useful data. Customer surveying will restart later in 2022.

Mokelumne Watershed and Recreation

Recreational facilities on the Mokelumne watershed continue to attract large numbers of visitors seeking opportunities to swim, camp, hike, fish, hunt, and boat. Trail permit sales for the Mokelumne decreased slightly from 2020 but remain much higher than pre-pandemic trail use. Despite State restrictions imposed on camping that were in place for the first half of 2021, visitation at developed recreation areas returned to pre-pandemic levels. Low reservoir elevations on both Pardee and Camanche led to decreased visitation towards the end of 2021.

New limits on day use vehicle capacities were established at the Mokelumne River Day Use Area and both shores of Camanche Reservoir, based on those put in place during the COVID-19 pandemic. The limits resulted in lower peak day visitation that led to improved sanitary conditions in the recreation areas, decreased visitor incidents related to parking and overcrowding, improved public safety, and significantly improved the overall visitor experience at these facilities.

Visitor incidents declined significantly in 2021 reaching a ten-year low. New day use vehicle capacity limitations contributed to this decline, as did increased ranger patrol staffing on weekends during the summer recreation season. Increased patrol staffing allowed more opportunity for rangers to address public and personal safety or violations of the Watershed Rules and Regulations before they became more significant issues.

New campfire rings and campfire safety signs were installed in the Riverview campground at Camanche South Shore Recreation Area. The new campfire rings are designed to limit the amount of firewood that the ring can hold and will help keep campfires smaller and safer. These measures were implemented to improve fire safety for residences in the adjacent Mobile Home Park.

The Mokelumne Watershed Master Plan and subsequent management plans establish several key performance indicators (KPIs) for evaluating recreational services based on financial performance, public safety, and customer satisfaction levels. The Tables 1 through 3 show annual visitation for the Mokelumne area recreation venues and performance results based on the established KPIs.

Table 1 – Annual Visitation at Mokelumne Recreation Venues (Visitor Days)

Location	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
Camanche North Shore	242,036	236,674	233,340	213,896	210,870
Camanche South Shore	254,378	259,714	267,291	184,349	272,027
Pardee Recreation Area	89,926	56,630	64,234	74,573	65,147
Mokelumne River Day Use	55,233	48,313	38,115	48,438	62,598
Camanche Hills Hunting Preserve	12,610	13,368	12,176	12,253	12,366
Watershed Trails*	9,519	11,199	11,191	20,249	18,973
Total	**663,702**	**625,898**	**626,347**	**553,758**	**641,981**

** Includes Middle Bar usage starting in CY18.*

Table 2 – KPI Performance Results: Percent Cost Recovery for Mokelumne Venues

Location	Goal	FY17	FY18	FY19	FY20	FY21
Camanche North Shore Recreation Management Area	45%	64%	71%	70%	61%	58%
Camanche South Shore Recreation Management Area	45%	54%	68%	66%	59%	69%
Camanche Hills Hunting Preserve	95%	100%	97%	92%	105%	N/A*
Pardee Recreation Area	40%	46%	38%	46%	43%	65%

** Camanche Hills Concessionaire was unable to provide all annual data required for FY21.*

Table 3 – KPI Performance Results: Public Safety in the Mokelumne Watershed

KPI	Goal	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
Boating Accidents (# of accidents per boating day)	0.01%	0.011% 4 accidents 36,918 vessels	0.009% 3 accidents 34,537 vessels	0.006% 2 accidents 34,140 vessels	0.02% 6 accidents 28,442 vessels	0.016% 5 accidents 32,079 vessels
Visitor Incidents (# of visitor incidents per visitor day)	0.2%	0.04% 243 incidents 663,702 visitors	0.04% 249 incidents 625,898 visitors	0.04% 248 incidents 626,347 visitors	0.03% 176 incidents 553,668 visitors	0.029% 184 incidents 641,945 visitors

East Bay Watershed Recreation

Opportunities to explore and enjoy nature continue to attract visitors to the East Bay reservoirs and watershed trails. In 2021, visitation at the Lafayette Recreation Area increased 25 percent and visitation at the San Pablo Recreation Area increased by 22 percent, while the watershed trail system showed a 17 percent increase. Cost recovery declined to 36 percent at Lafayette and 50 percent at San Pablo, primarily as a result of reduced revenue at each location due to closures and limited services available during the COVID-19 pandemic.

Recreation safety in the East Bay continues to be very good. There were no major accidents or reported public safety related events in 2021. East Bay Regional Park District (EBRPD) Police continue to make many more pedestrian stops than vehicle stops, focusing on leash law and trail permit violations. EBRPD officers made 27 traffic stops in 2021 and 340 pedestrian stops.

KPIs are used in the East Bay Watersheds for evaluating recreational services based on financial performance, public safety, and customer satisfaction levels. Tables 4 through 6 show annual visitation for the East Bay Recreation Area venues and performance results based on the KPIs.

Table 4 – Recreation Visitation at East Bay Recreation Venues (Visitor Days)

Location	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
Lafayette Recreation Area	1,003,287	1,071,623	921,188*	840,829	1,056,289
San Pablo Recreation Area	137,513	147,154	133,714	98,605	120,393
East Bay Trails	86,500	126,072	124,957	206,265	241,930
Total	**1,227,300**	**1,344,849**	**1,179,859**	**1,145,699**	**1,418,612**

** Count impacted by transition to new vehicle entrance procedure.*

Table 5 – KPI Performance Results: Percent Cost Recovery for the East Bay Venues

Location	Goal	FY17	FY18	FY19	FY20	FY21
Lafayette Recreation Area	65%	79%	59%	57%	36%	44%
San Pablo Recreation Area	40%	55%	55%	61%	50%	39%

Table 6 – KPI Performance Results: Public Safety in the East Bay Watersheds

KPI	Goal	CY 2017	CY 2018	CY 2019	CY 2020	CY 2021
Visitor Incidents (number of documented visitor incidents per visitor day)	0.2%	0.04% 447 incidents 1,227,300 visitors	0.02% 335 incidents 1,344,849 visitors	1.13% 1,483* contacts 1,179,859 visitors	1.14% 1,550* contacts 1,145,699 visitors	1.2% 1,746* contacts 1,418,612 visitors

** Reflects a change in how EBRPD reports incidents. All contacts by EBRPD officers are now recorded as incidents.*