FINAL

ADDENDUM 1 – 2020 UPDATE

Preliminary Lake Use Evaluation for the Chain of Lakes

Prepared by

Zone 7 Water Agency
100 North Canyons Parkway
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ZONE 7 WATER AGENCY

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ZONE 7
ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
BOARD OF DIRECTORS

RESOLUTION NO. 20-50

INTRODUCED BY DIRECTOR PALMER
SECONDED BY DIRECTOR RAMIREZ HOLMES

Preliminary Lake Use Evaluation for the Chain of Lakes, Addendum 1 – 2020 Update

WHEREAS, the future Chain of Lakes will directly support Zone 7's mission to deliver safe, reliable, efficient, and sustainable water and flood protection services by providing local and off-stream storage; and

WHEREAS, the Preliminary Lake Use Evaluation for the Chain of Lakes (2014 Use Evaluation) was undertaken to inform planning efforts for the Chain of Lakes and it was anticipated that periodic reviews would be undertaken to "reflect any changes in regulations, water management needs and other factors;" and

WHEREAS, changed conditions and potential projects, such as Chain of Lakes related pipelines and the planned re-initiation of the East Pleasanton Specific Plan, warranted an update of the 2014 Use Evaluation; and

WHEREAS, proposed updates, preliminary results, and near-term recommendations have previously been presented to the Zone 7 Water Resources Committee;

NOW, THEREFORE, BE IT RESOLVED, that the Board of Directors of Zone 7 of Alameda County Flood Control & Water Conservation District hereby accepts the Addendum 1 – 2020 Update and adopts the proposed near-term recommendations for Lakes H, I, and Cope Lake.

ADOPTED BY THE FOLLOWING VOTE:

AYES: DIRECTORS GAMBS, GREEN, PALMER, RAMIREZ HOLMES, SANWONG, SMITH MCDONALD

NOES: DIRECTOR FIGUERS

ABSENT: NONE

ABSTAIN: NONE

I certify that the foregoing is a correct copy of a Resolution adopted by the Board of Directors of Zone 7 of the Alameda County Flood Control and Water Conservation District on August 19, 2020.

DocuSigned by:
By: Olivia Sanwong
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President, Board of Directors

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APPENDICES (Updated 2020)

ACRONYMS

AF	Acre-feet
cfs	Cubic feet per second
COLs	Chain of Lakes
DSRSD	Dublin San Ramon Services District
EIR	Environmental Impact Report
EPSP	East Pleasanton Specific Plan
LAVQAR	Livermore-Amador Valley Quarry Area Reclamation
MOU	Memorandum of Understanding
RHNA	Regional Housing Need Allocation
SMMP	Stream Management Master Plan
SMP	Surface Mining Permit
SWP	State Water Project
WRC	Water Resources Committee

1 Introduction

The future Chain of Lakes (COLs) will provide an area of water management activities that meets Zone 7's goals of supplying a reliable source of drinking water (Figure 1-1). These activities also include providing groundwater recharge and flood protection, all while being sensitive to the environment. To facilitate previous planning efforts, Zone 7 prepared the Preliminary Lake Use Evaluation for the Chain of Lakes (2014 Use Evaluation), which was adopted by the Zone 7 Board on February 19, 2014[1].

The 2014 Use Evaluation states that *"Given the long period of transfers, uses of the lakes will be reconsidered over time to reflect any changes in regulations, water management needs and other factors."* Changed conditions and potential projects, such as the Chain of Lakes (COLs) related pipeline, and the anticipated re-initiation of the East Pleasanton Specific Plan (EPSP)[2], warrant an update of the 2014 Use Evaluation.

This document is an addendum to the 2014 Use Evaluation. The following sections provide context for the updates to the Preliminary Lake Use Evaluation for the Chain of Lakes (2020 Use Evaluation), including new information and thinking about the Chain of Lakes since the 2014 Use Evaluation. The report then presents the updated scoring criteria, results of the 2020 Use Evaluation, and near-term recommendations.

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[1] Zone 7 Water Agency. 2014. Preliminary Lake Use Evaluation for the Chain of Lakes. Available online at: https://www.zone7water.com/images/pdf_docs/integrated-planning/3-14_col-lake-use-evltn.pdf

[2] The East Pleasanton Specific Plan Area includes Lakes H, I, and Cope and a surrounding area of approximately 390 acres. When mining and reclamation are complete and the area is annexed by the City of Pleasanton, the EPSP will provide detailed planning guidance for landuse and development.

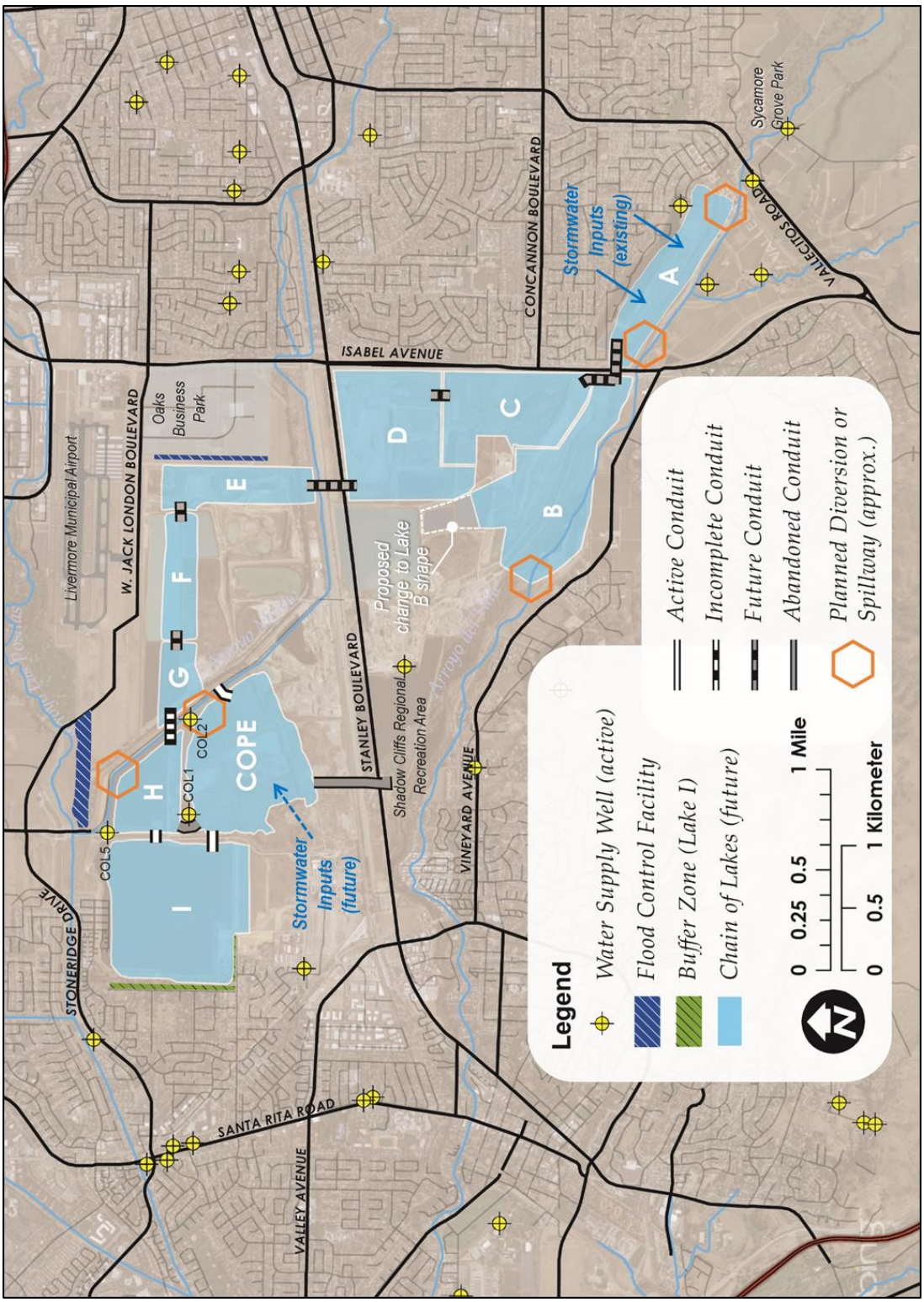


Figure 1-1. Future Chain of Lakes configuration showing existing and planned facilities, 2020.

2 2020 Update of the Lake Use Evaluation

The specific goals of the 2020 Use Evaluation are as follows:

- Revisit thinking about potential uses for the lakes
- Incorporate new information and changed conditions
- Confirm scoring criteria accurately reflect each use; and
- Ensure that uses are updated and valid in light of near-term planning efforts, such as the COLs pipeline.

As with the original 2014 Use Evaluation, this update generally does not preclude any given lake from distinct uses (unless specified), but instead provides a tool for examining the benefits or impacts associated with a proposed use.

2.1 NEW DEVELOPMENTS SINCE 2014

Zone 7 reviewed and updated the 2014 Use Evaluation to facilitate the upcoming EPSP planning efforts and incorporate any changed conditions. These conditions are summarized below in order to adjust the scoring criteria and scores for the potential uses of the lakes. In some cases, the changed conditions did not affect the use evaluation, but rather inform other planning efforts.

2.1.1 Changes in Mining Operations

Since 2014, there have been several changes to mining and reclamation that may affect the final configuration of the Chain of Lakes.

MINING PERMIT AMENDMENTS AND REVISED RECLAMATION PLANS

A proposed amendment to the mining and reclamation plan that governs future Lakes A and B was submitted in 2019. The amendment proposes no additional mining in Lake A, and changes the shape and depth of Lake B. This will result in smaller lake capacities than those evaluated in 2014. Also, due to a variation from the original mining plan, the downgradient slope and bottom of Lake E will

be composed of low-permeability material that will limit groundwater recharge. It was anticipated in 2014 that Lake H would have been transferred to Zone 7 ownership before 2020, but final reclamation of Lake H has not been completed by the mining company. Changes in plans, particularly ultimate lake configurations, have affected the evaluation of lake uses (e.g., groundwater recharge).

NEW GEOTECHNICAL INFORMATION

As part of the reclamation process, the quarry operators conduct slope stability analyses, with one anticipated at Lake H in 2020. Zone 7 has also conducted geotechnical studies and stabilization work at the northwestern corner of Cope Lake, associated with settling issues at the Chain of Lakes No. 1 well. Multiple geotechnical studies were conducted at Lake A to evaluate if any additional mining would compromise slope stability. The new geotechnical information did not affect any of the scores or uses.

CHANGES IN TIMING OF LAKE TURNOVERS TO ZONE 7

The original timing for completion of the COLs was 2030. The Surface Mining Permit-23 (SMP-23) proposed amendment that is currently being considered by Alameda County Community Development Agency (ACCDA) includes Lakes A and B. The amendment proposes to extend the timeline to mine, in addition to mining deeper. The amendment proposes mining in Lake B until 2056. The amendment also proposes completion of reclamation of Lake A in 2023.

In 2004, SMP-16 was amended to allow deeper mining in future Lakes C and D south of Stanley Boulevard. There is no indication of extending the timeline for mining in the permit but, based on the quantity of material still remaining to be excavated, it is likely to extend past 2030.

2.1.2 New Well

The Chain of Lakes No. 5 well was completed in December 2014, north of Lake H. The presence and proximity of such water supply facilities were taken into account when evaluating potential uses.

2.1.3 Chain of Lakes Pipeline (in planning)

This is a multi-use pipeline that will connect the northern COLs area with Lake A and the South Bay Aqueduct/Del Valle Water Treatment Plant. The concept of the pipeline is to convey excess imported surface water supply—including

imported water and local water from the Arroyo Valle—to the COLs for storage and groundwater recharge. The pipeline will also supply raw water from the COLs to the Del Valle Water Treatment Plant for use under emergency and drought situations. A pipeline alignment study is underway and scheduled for completion in early 2021. Design of this pipeline will consider future facilities and potential uses of the lakes.

2.1.4 Potential Use of Lakes for Potable Reuse

In the Joint Tri-Valley Potable Reuse Technical Feasibility Study[3], a number of potable reuse alternatives were conceived. These included storage of purified recycled water (i.e., wastewater that has undergone advanced treatment for potable use) in the COLs for storage and/or groundwater recharge. This essentially expands what defines 'surface water storage and conveyance' and 'groundwater recharge' to include potable reuse as another potential source of supply. Although the potential exists to use portions of the COLs for a future potable reuse project, specific analyses for this use have not been undertaken; therefore, this evaluation does not score the lakes for a future potable reuse project. Rather, the scoring of recycled water continues to be evaluated as tertiary treated, which is more restrictive and provides the most conservative surrogate for the evaluation of future potable reuse options. Potable Reuse will be evaluated more specifically when, and if, a project is identified that relates to the COLs.

2.1.5 Updated Floodplain Hydraulic Model

The newly developed Valley-wide floodplain hydraulic model informed the evaluation of the lakes for stormwater management. While the original analysis simply looked at adjacency to the arroyos, the update considered position in the floodplain and ability to intercept storm water flows.

2.1.6 Stormwater Observations

In early 2017, flooding was experienced in areas of the COLs due to higher than normal rainfall in the region and associated flood releases from Lake Del Valle. This provided additional information on stormwater flow patterns within the

[3] Carollo Engineers. 2018. Joint Tri-Valley Potable Reuse Technical Feasibility Study. Prepared for the Tri-Valley Water Agencies. Available online at: https://www.dropbox.com/s/pxcyajryga5j61s/potable_reuse_feasibility_study_May-2018.pdf?dl=0

active mining area, which change through time as mining continues, including locations where the arroyos may overtop banks and spill into the lakes. In particular, the Arroyo Mocho was observed overtopping into an area near Cope Lake and also onto Stanley Boulevard. The Arroyo Valle overtopped into Lake B. It was also noted that there is an existing stormdrain system which drains stormwater into Lake A from the neighborhood to the north.

2.1.7 Steelhead Listing and Identification of Potential Habitat

A project is currently underway by Alameda County Water District and Alameda County to provide fish passage over the "BART weir" in the Alameda Creek Flood Control Channel. With this project, the entire Alameda Creek watershed is now considered critical habitat for steelhead and new regulations will apply. The presence of critical habitat did not affect any of the scores or uses but will need to be considered in future planning and construction activities.

2.1.8 Re-initiation of the East Pleasanton Specific Plan

The City of Pleasanton (City) notified Zone 7 that they identified the completion of the EPSP, which was placed on hold in 2015, as a priority in the City's 2019-2020 Work Plan. The EPSP planning area includes Lakes H, I, and Cope and a surrounding area of approximately 400 acres. The timing of this re-initiation is currently unknown.

2.2 ADJUSTMENTS TO SCORING CRITERIA

Scoring of the lakes is used as an indication of their relative suitability for a particular use. In the 2020 Use Evaluation, criteria and scoring were revisited. In some cases, criteria were changed, consolidated or eliminated based on a re-examination of the underlying intent, and ability of the criteria to effectively differentiate the relative suitability of each lake. New criteria were added where needed to address gaps.

This update maintains the assumption that lakes that scored equal to or greater than 50% are identified as suitable candidates for a particular use.

3 Potential Uses for the Chain of Lakes

Two categories of "potential use" were examined: primary uses that directly support Zone 7's mission and secondary uses that have been requested by external entities and may be potentially compatible with Zone 7's primary uses. Secondary uses would require funding and implementation by external agencies. "Surface Water Storage and Conveyance" is a primary use assumed for all lakes. The potential uses and use compatibility are summarized below and presented in full in Section 4 of the 2014 Use Evaluation.

3.1 PRIMARY AND SECONDARY USES

Seven uses were ultimately considered in the 2014 Use Evaluation (Table 3-1). The uses were divided into Primary Uses and Secondary Uses:

- **Primary Uses** directly support Zone 7's mission of providing a reliable, high-quality water supply and effective regional flood protection.

- **Secondary Uses** are uses that have been requested by external entities (e.g., retailers, members of the public, recreation agencies) and are potentially compatible with Zone 7's Primary Uses of the lakes, but do not directly support Zone 7's mission.

Other uses may be considered in the future. For example, Potable Reuse will be evaluated more specifically if, and when, a project is identified that relates to the COLs.

Table 3-1. Potential lake uses considered for the Preliminary Lake Use Evaluation.

POTENTIAL USE			DESCRIPTION
PRIMARY USES	Surface water storage and conveyance		Storage and conveyance of surface water for recharge or later treatment and direct delivery.
	Stormwater management		Capture of stormwater and/or flood water (e.g., from a 100-year flood event) for flood protection.
	Groundwater recharge		Recharge of the Main Basin with surface water from Arroyo Del Valle diversions, SWP water, or other sources.
SECONDARY USES	Recycled water storage		Seasonal storage of recycled water for non-potable use during the dry season.
	Active recreation		Recreational activities that involve potential body-contact with the lake or its slopes (e.g., swimming, non-motorized boating, fishing).
	Education/ Passive recreation		Recreational activities that do not involve body contact with the lake (e.g., bird-watching, trails, kiosks, a visitor center).
	Habitat/ Conservation		Protected or enhanced wildlife habitat/habitat corridor.

3.1.1 Use Compatibility

Table 3-2 lists the various uses and indicates which uses are *generally* incompatible, potentially compatible, or incompatible and is intended to serve as a framework for considering multiple uses for a specific lake at this high-level planning phase.

- "**Incompatible**" indicates a conflict based on regulations, public health concerns, agreements, etc.
- "**Potentially compatible**" indicates that there will need to be special considerations in the design (e.g., placement of facilities) and operation (e.g., timing) to accommodate the multiple uses proposed.
- "**Compatible**" uses pose no identified conflicts and in fact may be complementary.

Actual compatibility will need to be determined when there is more specific information on site-specific conditions (e.g., hydrogeologic data) and on the design and operation associated with the uses being considered. For the purposes of this evaluation, the quality of the recycled water proposed for storage was assumed to be the level appropriate for landscape irrigation, as currently practiced in the Valley.

Table 3-2. Lake use compatibility matrix.

		STRM-STOR	GWR-RCHG	SURF-STOR	RW-STOR	HAB-CORR	REC-ACT	EDUC/ REC-PAS
PRIMARY USES	STRM-STOR		○	○	×	✓	○	✓
	GWR-RCHG	○		✓	×	✓	○	✓
	SURF-STOR	○	✓		×	✓	○	✓
SECONDARY USES	RW-STOR	×	×	×		✓	×	✓
	HAB-CORR	✓	✓	✓	✓		○	○
	REC-ACT	○	○	○	×	○		✓
	EDUC/ REC-PAS	✓	✓	✓	✓	○	✓	

STRM-STOR = stormwater management, GWR-RCHG – groundwater recharge, SURF-STOR = surface water storage and conveyance, RW-STOR = recycled water storage, HAB-CORR = habitat corridor, REC-ACT = active recreation, EDUC/REC-PAS = education/passive recreation.

× *= incompatible,* ○ *= potentially compatible,* ✓ *= compatible*

4 Lake Use Evaluation

4.1 OVERVIEW

Best described in the 1981 Specific Plan for Livermore Amador Valley Quarry Area Reclamation (LAVQAR), the COLs was envisioned as a large facility to be used for water management and related purposes by Zone 7 Water Agency (Zone 7).

The 2014 Use Evaluation considered a variety of factors to evaluate the suitability of each lake use including existing conditions, relative cost and impacts of converting to that use, and constraints (such as MOUs, adopted Master Plans, existing contracts, etc.). Specific criteria were developed to evaluate the suitability of each lake use.

The 2020 Use Evaluation uses the same approach to assess the relative suitability of each lake for a particular use. The assumptions are summarized below and presented in full in Section 5 of the 2014 Use Evaluation.

- The final scores reflect the ***relative suitability*** of each lake for a particular use; however, this evaluation is ***not intended to preclude any uses at this time***.
- Lakes were evaluated individually; future evaluations will consider the benefits of combining lakes for certain uses.
- Lake use designations identified in Governing Documents and Agreements (Section 4, 2014 Use Evaluation) were adhered to. If a use was deemed incompatible with an already designated use in a particular lake, it was precluded from further evaluation at this time.
- Primary Uses receive priority over Secondary Uses. Furthermore, Secondary Uses do not directly support Zone 7's mission and will therefore be considered only if compatible with Zone 7's Primary Use(s) of a given lake. Secondary Uses would also require an external agency to fund and implement.

- Lakes that have already been turned over to Zone 7 were considered in their existing condition (or with minor modifications). All other lakes were evaluated based on their expected condition at the time of transfer.
- Per LAVQAR, Zone 7 will own and be responsible for the water areas of the COLs and the immediate perimeter. Consequently, the ***uses considered are primarily associated with the water areas and their perimeters***; adjacent land uses will be considered separately.

The following sections describe the 2020 evaluation of the Primary and Secondary Uses, updated criteria and scoring, and the 2020 results for each use. Section 4.4 provides an overall summary of the 2020 results.

4.2 UPDATED SCORING – PRIMARY USES (2020)

4.2.1 Surface Water Storage and Conveyance

In accordance with Livermore-Amador Valley Quarry Area Reclamation (LAVQAR), all of the lakes have been planned for surface water storage and conveyance. Additional details about this use are provided in Section 5.2.1 of the 2014 Use Evaluation.

RESULTS (2020)

No change in this category. All lakes are considered equally suitable for this use and no scoring process was undertaken.

4.2.2 Stormwater Management

One of the primary water management uses identified for the COLs is flood protection through temporary stormwater detention. The 2006 Stream Management Master Plan (SMMP)[4] estimated that approximately 5,000 acre-feet (AF) of temporary stormwater detention would help reduce peak downstream flows during a 100-year event by about 30 percent. Additional details about this use are provided in Section 5.2.2 of the 2014 Use Evaluation.

[4] RMC. 2006. Stream Management Master Plan. Prepared for Zone 7 Water Agency. Available online at: https://www.zone7water.com/reports-a-planning-documents/36-public/content/35-final-smmp

CRITERIA

The criteria for this use were modified for the 2020 Use Evaluation to reflect the new understanding of conditions. In general, the changes adhere to the same pros and cons detailed in the 2014 Use Evaluation. Rationale for the updated criteria are summarized below:

- Lakes within the 100-year floodplain, as currently shown in the Zone 7 Valley-wide hydraulic model, will be in a better position to intercept stormwater.
- Consideration was given to adjacent stormwater infrastructure (e.g., Oaks Business Park Channel, and the Southern Conveyance Channel) to create an interconnected network of detention facilities.
- Lakes are expected to connect with conduits and the burden of detaining stormwater could be shared among adjacent lakes. Lakes immediately adjacent to an arroyo, as well as a connected and downstream lake, were given points for the ability to receive or release stormwater.
- Consideration was given to any operational challenges to utilizing a lake for stormwater management, such as existing operations and infrastructure that may be incompatible with stormwater management needs.

RESULTS (2020)

Table 4-1 below presents the list of criteria, the highest possible score assigned to each criterion, and the scoring assigned to each lake for stormwater management.

The same number of lakes (Lakes E, A, H, and Cope) remains candidates for this use; however, Lake A is now included and Lake G is no longer considered suitable (Figure 4-1). The previous analysis did not include stormwater from Arroyo Valle or stormwater received from the neighboring community. Lake A is already receiving stormwater from the neighborhood to the north. In addition, Lake A's reclamation plan includes its own diversion and overflow structure, facilitating capture of Arroyo Valle storm flows. Lake G's reduced storage capacity lessened its suitability for stormwater management. The volume of water from mining discharge at Cope Lake was considered an operational challenge and was a new factor that reduced its suitability. Use of Cope Lake for stormwater management as described in the 2006 SMMP would require clearing out the volume of water from the mining discharge prior to the wet season.

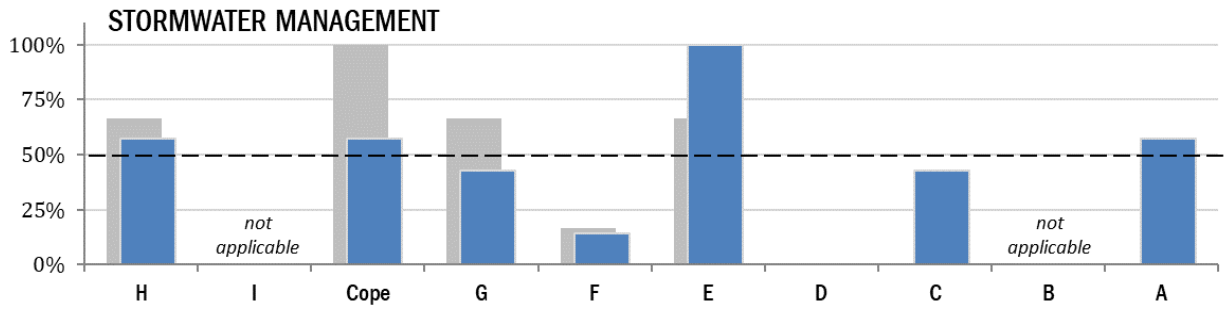


Figure 4-1. Stormwater management scores by lake (≥50% is considered more suitable) compared with 2014 scores (grey).

Table 4-1. Evaluation criteria and scoring for stormwater management (≥50% is considered more suitable).

Stormwater Management Criteria	Highest Possible Score	H	I	Cope	G	F	E	D	C	B	A
PROS											
Proximity to an arroyo (to receive or release stormwater)	2	2		2	2	1	2		1		2
Adjacent to planned or existing stormwater infrastructure	2	2		2	2	1	2		1		2
In the floodplain of the 100-yr storm (as modeled by Zone 7)	1	1		1			1	1	1		
Average available storage capacity [b]	2						2	2	2		
CONS											
Impediments between arroyo and lake[d] *(roadways, railroad tracks, berms, other lake/s)*	0				-1	-1		-1	-1		n/a
Operational challenges with existing uses	0			-1							
Degradation of recharge capacity [e]	0	-1		0	0	0	0	-2	-1		0
TOTAL SCORES (points)	**7**	**4**	**N/A**	**4**	**3**	**1**	**7**	**0**	**3**	**N/A**	**4**
TOTAL SCORES (%)		57%	N/A	57%	43%	14%	100%	0%	43%	N/A	57%
PREVIOUS SCORES (%)		67%	N/A	100%	67%	17%	67%	0%	0%	0%	0%

NOTES:

a. Proximity to an arroyo:
- 2 = immediately adjacent
- 1 = one lake over and downstream (by planned or existing conduit) from an arroyo

b. Adjacent to planned or existing stormwater infrastructure:
- 2 = Infrastructure is adjacent or included
- 1 = one lake over and downstream (by planned or existing conduit) from infrastructure

c. 5,000 AF is the estimated maximum capacity that would be required during a 100-year flood event.
- 2 = >50% of 5,000 AF (2,500 AF)

d. Impediments between the lake and the Arroyo Mocho include roadways, railroad tracks, berms, other lake/s.
- -1 = yes

e. Degradation of recharge capacity
- -1 = 20-50% score on groundwater recharge
- -2 = >50% score on groundwater recharge

N/A = Lake I is an already designated recharge lake and is not considered for stormwater management; Lake B has no excess capacity and is not considered for stormwater management.

4.2.3 Groundwater Recharge

Another of the primary water management uses identified for the COLs is groundwater recharge. In order for groundwater recharge in a lake to take place, two things are required: 1) a connection to the groundwater basin must be present and 2) enough water needs to be added to create a vertical pressure, called "head," to push the water into the aquifer by gravity. Additional details about this use are provided in Section 5.2.3 of the 2014 Use Evaluation.

CRITERIA

Criteria for this use were not modified; however, lakes were rescored based on changes in mining operations, and new understanding of conditions.

RESULTS (2020)

Table 4-2 presents the list of criteria, the highest possible score assigned to each criterion, and the score assigned to each lake for groundwater recharge.

Lake I is designated for this use and Lake D remains a strong candidate for this as well; however, the rest of the lakes are relatively unsuitable (Figure 4-2). Lakes E's and B's expected use for groundwater recharge has been diminished to "not applicable." Lakes are generally in this category because they are either fully lined or have very limited connection to the groundwater basin. The new understanding is that after reclamation Lake E will be mostly silt lined, reducing its hydraulic connection to the groundwater basin. Lake B's reduced storage capacity and modified configuration significantly impacted its recharge capacity. Lakes F, G, and Cope are all considered not applicable for use for groundwater recharge due to the fact that they will be mostly silt or clay lined with minimal hydraulic connection to the groundwater basin.

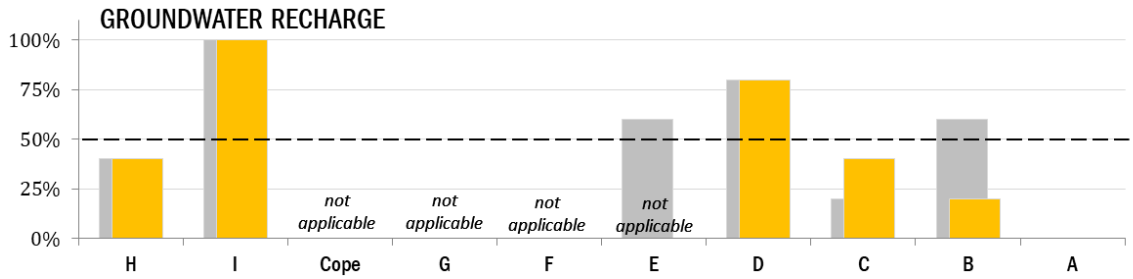


Figure 4-2. Groundwater recharge scores by lake (≥50% is considered more suitable) compared with 2014 scores (grey).

Table 4-2. Evaluation criteria and scoring for groundwater recharge compared with 2014 scores (≥50% is considered more suitable).

Groundwater Recharge Criteria	Highest Possible Score	H	I	Cope	G	F	E	D	C	B	A
PROS											
Groundwater recharge potential[a]	4	1	4	n/a	n/a	n/a	n/a	3	1	1	0
Active storage volume[b]	1	1	1	n/a	n/a	n/a	n/a	1	1	0	0
CONS											
TOTAL SCORES (points)	**5**	**2**	**5**	**0**	**0**	**0**	**0**	**4**	**2**	**1**	**0**
TOTAL SCORES (%)		40%	100%	0%	0%	0%	0%	80%	40%	20%	0%
PREVIOUS SCORES (%)		40%	100%	0%	0%	0%	60%	80%	20%	60%	0%

NOTES:

a. Groundwater recharge potential:
- 0 = <25% of Lake I recharge potential
- 1 = 25-50% of Lake I recharge potential
- 2 = 50-75% of Lake I recharge potential
- 3 = 75-99% of Lake I recharge potential
- 4 = ≥ Lake I recharge potential

b. Active storage volume:
- 0 = 0-1000 acre-ft
- 1 = >1000 acre-ft

N/A = Lake is lined or partially lined.

4.3 UPDATED SCORING - SECONDARY USES (2020)

4.3.1 Recycled Water Storage (tertiary)

As mention earlier, the use of recycled water for Potable Reuse will be scored when more information is available on if the COLs would be a part of any future project. Zone 7 and Dublin San Ramon Services District (DSRSD) entered into a Memorandum of Understanding (MOU)[5] in 2004 regarding the evaluation of potential recycled water storage in the COLs area (Section 4.1, 2014 Use Evaluation). It was assumed that the recycled water diverted for storage would be of landscape-irrigation quality (disinfected tertiary-treated)[6], as currently practiced in the Valley. Additional details about this use are provided in Section 5.3.1 of the 2014 Use Evaluation.

CRITERIA

The criteria for this use were modified for the 2020 Use Evaluation to reflect new understanding of conditions. In general, the changes adhere to the same pros and cons detailed in the 2014 Use Evaluation. Rationale for the updated criteria and points are summarized below:

- Total storage capacity was no longer effective at differentiating the relative suitability of each lake and was eliminated as a criterion.
- Distance from urban interface was clarified based on the percent of zoned commercial or residential land use within a 1,000 ft buffer around each lake.

RESULTS (2020)

Table 4-3 presents the list of criteria, the highest possible score assigned to each criterion, and the scoring assigned to each lake for tertiary-treated recycled water storage.

Lake I was eliminated from consideration due to its function as a recharge lake. Lake G has been identified as a more suitable candidate for this use, in addition to Lake F. All the other lakes were considered unsuitable (Figure 4-3). Cope Lake

[5] Memorandum of Understanding between Dublin San Ramon Services District and Zone 7 for Cooperative Effort Regarding Groundwater Demineralization and Storage within the Livermore-Amador Valley. April 20, 2004.

[6] Title 22, Division 4, Chapter 3, Article 3, Section 60304 (Use of Recycled Water for Irrigation).

was eliminated from consideration due to its proximity to water supply facilities (Chain of Lakes Wells No. 1 and 2). Lakes A and H were eliminated from consideration to avoid co-mingling of raw water supply and recycled water. Note that this use may conflict with primary uses and should be considered as more specific plans are developed.

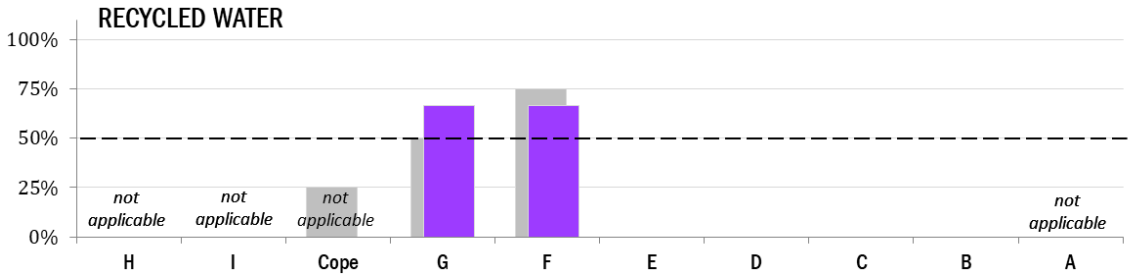


Figure 4-3. Recycled water storage scores by lake (≥50% is considered more suitable) compared with 2014 scores (grey).

Table 4-3. Evaluation criteria and scoring for recycled water storage compared with 2014 scores (≥50% is considered more suitable).

Recycled Water Storage											
Criteria	Highest Possible Score	H	I	Cope	G	F	E	D	C	B	A
PROS											
Lake lining [a]	2	0		2	2	2	1	0	0	0	0
Distant from urban interface [b]	1	1		0	1	1	0	0	0	0	0
CONS											
Proximity to a water supply facility [c]	0	-2		-2	0	0	0	0	0	0	-2
Groundwater recharge potential [d]	0	-1		0	0	0	0	-2	-1	0	0
Not easily isolated from other lakes [e]	0	-1		0	-1	-1	-1	-1	-1	0	-1
TOTAL SCORES (points)	**3**	**-3**	**N/A**	**0**	**2**	**2**	**0**	**-3**	**-2**	**0**	**-3**
TOTAL SCORES (%)		**N/A**	**N/A**	0%	67%	67%	0%	0%	0%	0%	**N/A**

PREVIOUS SCORES (%)	0%	N/A	25%	50%	75%	0%	0%	0%	0%	0%

NOTES:

a. Lake lining
- 0 = lake is unlined
- 1 = lake is partially lined
- 2 = lake is fully lined

b. Distant from commercial or residential land use
- 1 = 0% of surrounding land use (1000 ft buffer) is zoned for commercial or residential

c. Proximity to a water supply facility [State of California prohibits recycled water storage adjacent to a well facility]
- 0 = greater than 300 ft from any water supply facility
- -2 = within 300 ft of a water supply facility

d. Groundwater recharge potential
- 0 = 0-20% score on groundwater
- -1 = 20-50% score on groundwater
- -2 = >50% score on groundwater

N/A = designated recharge lake/s are not considered for recycled water storage (Lake I)
N/A = lakes planned for storage of State Water Project and Arroyo Valle water are not considered for recycled water storage (Lakes A and H).

4.3.2 Active Recreation

As defined here, active recreation includes any activity that involves or could result in body-contact with the lake, including activities on the slopes such as: non-motorized boating, fishing, swimming, etc. This use is considered secondary because the use of the lakes for active recreation is not a water management use, nor would it directly support Zone 7's mission. Additional details about this use are provided in Section 5.3.2 of the 2014 Use Evaluation.

This analysis does not propose or approve active recreation, rather it documents lake conditions that could potentially accommodate active recreation while allowing Zone 7 full ability to access, maintain, and manage the lake in accordance with Zone 7's primary uses.

CRITERIA

The criteria for this use were modified for the 2020 Use Evaluation to reflect the new understanding of conditions. In addition, criteria were modified to reflect the lake suitability from Zone 7's operational and maintenance standpoint. Rationale for the updated criteria are summarized below:

- Proximity to urban interface was eliminated as a scoring criterion. On closer examination, the underlying intent of this criteria was determined to be addressed by other criteria.
- Existing vehicular access (is there an access road) or adjacent area to accommodate potential parking was deleted because it would be the responsibility of the recreation agency to determine and propose to Zone 7.
- Proximity to existing or planned educational facility/park was deleted because trail connectivity would be the responsibility of the recreation agency to determine and propose to Zone 7.
- Existing safe access ramp to the water was no longer effective at differentiating the relative suitability of each lake and was eliminated as a criterion.
- Slope hazards and in-lake hazards were consolidated into a single criterion.
- Operational challenges for this use at a given lake were clarified.
- Potential for adverse water quality impacts was clarified.

- New criterion was added to reflect the percent of top of bank perimeter that would be physically able to accommodate recreational use separate from a maintenance road.
- New criterion was added to reflect safety concerns along the top of bank.

RESULTS (2020)

Table 4-4 below presents the list of criteria, the highest possible score assigned to each criterion, and the scoring assigned to each lake for active recreation.

As previously noted, no lakes were identified as obvious candidates for this use; however, Lake A is the only lake with potential for this secondary use (i.e., scoring above 0%) (Figure 4-4). Cope Lake was removed from consideration due to safety conflicts (top of bank and slopes, and submerged hazards), as well as operational challenges from the mining discharges and planned diversions for stormwater management.

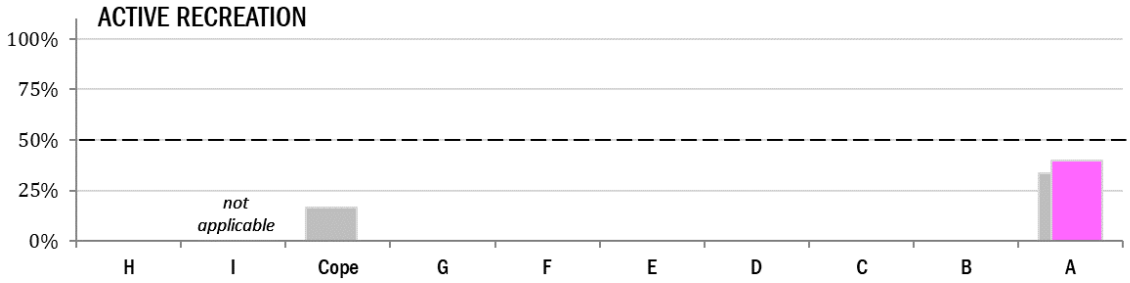


Figure 4-4. Active recreation scores by lake (≥50% is considered more suitable) compared with 2014 scores (grey).

Recreation entities may propose active recreation amenities as warranted. Such proposals will be based on their own analyses of suitability. However, Zone 7 will balance all proposals with the need to safely operate and maintain the lake for water management. At a minimum, all proposals would have to consider access, funding, and actions that minimize dumping, trespass, and vandalism to facilities. All formal proposals would be brought to the Board of Directors for consideration.

Table 4-4. Evaluation criteria and scoring for active recreation compared with 2014 scores (≥50% is considered more suitable).

Active Recreation Criteria	Highest Possible Score	H	I	Cope	G	F	E	D	C	B	A
PROS											
Slope easy to traverse (less than 2:1 gradient) [a]	2	0		2	0	0	0	0	0	0	1
Percent of perimeter (top of bank) able to accommodate trail separate for maintenance road [b]	3	0		2	0	0	0	0	2	1	3
CONS											
Known environmental or safety concerns along the perimeter [c]	0	-1		-1	0	0	0	0	0	0	0
Slope hazards (e.g., riprap, debris) or in-lake hazards	0	-1		-1	-1	0	0	0	0	0	0
Operational challenges [d]	0	-1		-1	0	0	0	0	0	0	-1
Potential for adverse water quality impacts [e]	0	-2		-1	-1	0	-2	-2	-2	-2	-1
TOTAL SCORES (points)	**5**	**-5**	**N/A**	**0**	**-2**	**0**	**-2**	**-2**	**0**	**-1**	**2**
TOTAL SCORES (%)		0%	N/A	0%	0%	0%	0%	0%	0%	0%	40%
PREVIOUS (2014) SCORES (%)		0%	N/A	17%	0%	0%	0%	0%	0%	0%	33%

NOTES:

a. Slopes less than 2:1 are scored as follows:
- 0 = <1,000 linear feet
- 1 = 1,000 to 2,000 linear feet
- 2 = >2,000 linear feet

b. Percent of top of bank perimeter scored as follows:
- 3 pts = 50% or greater can accommodate a trail separate from maintenance road
- 2 pt = 25-50% can accommodate
- 1 pt = greater than 0% but less than 25%

c. Examples:
- High traffic maintenance roads (Lake H and Cope Lake)
- Existing conflict between maintenance vehicles and trail access (Lake I)
- Mountain of Rodmill (Cope Lake)
- Stockpile yard (Cope Lake)

d. Operational challenges for each lake are:
- Diversion into Lake H means fluctuating water levels
- Mining discharges into Cope Lake and stormwater detention mean fluctuating water levels
- 500 cfs pipeline discharging into Lake A from the arroyo

e. Potential for adverse water quality impacts: (score for whichever is more severe)
- 0 = no potential impact [stormwater]
- -1 = potential for surface water impact; potential to affect water supply (near planned/existing intakes); or potential for discharge of stormwater to an arroyo (scores "2" on "proximity to arroyo" [stormwater])
- -2 = potential for groundwater impact (groundwater score is >20%)

N/A = designated recharge lake/s are not considered for active recreation

4.3.3 Education/Passive Recreation

The COLs facility provides a unique opportunity for community education and passive recreation. For this evaluation, education and passive recreation include kiosks, vista points, bird watching, and trails. While some of the lakes could accommodate trails, there are areas where trails would not be recommended due to conflicts with existing or planned water management facilities, public safety or habitat concerns.

This analysis does not propose or approve trail alignments, rather it documents lake conditions at the top of bank that could potentially accommodate passive recreation while allowing Zone 7 full ability to access, maintain, and manage the lake in accordance with Zone 7's primary uses.

CRITERIA

The criteria for this use were modified for the 2020 Use Evaluation to reflect the new understanding of conditions. In addition, criteria were modified to reflect the lake suitability from Zone 7's operational and maintenance standpoint. Rationale for the updated criteria and points are summarized below:

- Proximity to urban interface was eliminated as a scoring criterion. On closer examination, the underlying intent of this criteria was determined to be addressed by other criteria.
- Existing vehicular access (is there an access road) or adjacent area to accommodate potential parking was deleted because it would be the responsibility of the recreation agency to determine and propose to Zone 7.
- Proximity to existing or planned educational facility/park was deleted because connection to recreational amenities would be the responsibility of the recreation agency to determine and propose to Zone 7.
- Proximity to existing trail (to connect to) was deleted because trail connectivity would be the responsibility of the recreation agency to determine and propose to Zone 7.
- Potential conflict with environmental or safety concern was clarified.
- Potential conflict with existing or planned facilities was clarified.
- New criterion was added to reflect the percent of top of bank perimeter that would be physically able to accommodate recreational use separate from a maintenance road.

RESULTS (2020)

Table 4-5 below presents the list of criteria, the highest possible score assigned to each criterion, and the scoring assigned to each lake for education/passive recreation.

A review of the criteria identified Lakes A, C, and I as equal candidates for this use (Figure 4-5). However, Lakes B, D, and E fell below the 50% threshold for suitability based on the refined criteria and would, therefore, not be considered suitable for this use.

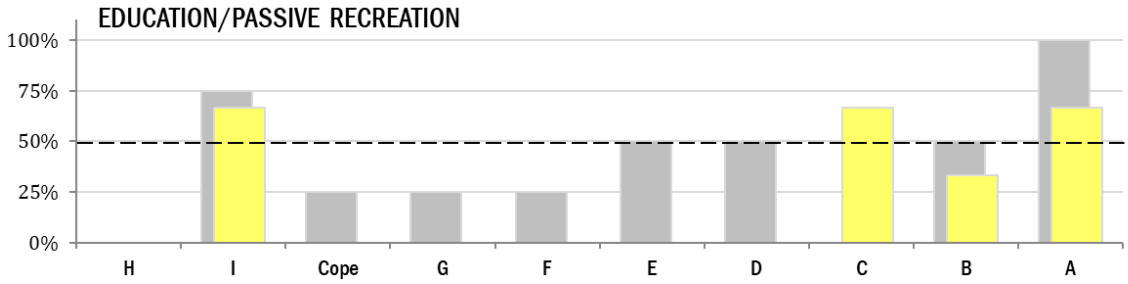


Figure 4-5. Education/passive recreation scores by lake (≥50% is considered more suitable) compared with 2014 scores (grey).

Recreation entities may propose trails and other education/passive recreation opportunities as warranted. Such proposals will be based on their own analyses of suitability. However, Zone 7 will balance all proposals with the need to safely operate and maintain the lake for water management. At a minimum, all proposals would have to consider access, funding, and actions that minimize dumping, trespass, and vandalism to facilities. Dead-end trails would be discouraged. All formal proposals would be brought to the Board of Directors for consideration.

Table 4-5. Evaluation criteria and scoring for education/passive recreation compared with 2014 scores (≥50% is considered more suitable).

Education/Passive Recreation											
Criteria	**Highest Possible Score**	**H**	**I**	**Cope**	**G**	**F**	**E**	**D**	**C**	**B**	**A**
PROS											
Percent of perimeter (top of bank) able to accommodate trail separate for maintenance road. [a]	3	0	3	2	0	0	0	0	2	1	3
CONS											
Known environmental or safety concerns along the perimeter [b]	0	-1	-1	-1							
Potential conflict with existing or planned facilities [c]	0	-1		-1							-1
TOTAL SCORES (points)	3	-2	2	0	0	0	0	0	2	1	2
TOTAL SCORES (%)		0%	67%	0%	0%	0%	0%	0%	67%	33%	67%
PREVIOUS (2014) SCORES (%)		0%	75%	25%	25%	25%	50%	50%	0%	50%	100%

NOTES:
Education would include kiosks along trails or possible vista points.

a. Percent of top of bank perimeter scored as follows:
- 3 pts = 50% or greater can accommodate a trail separate from maintenance road
- 2 pt = 25-50% can accommodate
- 1 pt = greater than 0% but less than 25%

b. Examples:
- High traffic maintenance roads (Lake H and Cope Lake)
- Existing conflict between maintenance and trail access (Lake I)
- Mountain of Rodmill (Cope Lake)
- Stockpile yard (Cope Lake)

c. Examples: Wells, flood control storage facility, diversion structures

4.3.4 Habitat /Conservation

The COLs area has a diverse suite of habitats that accommodates multiple wildlife species, as well as a green-space buffer between the cities of Livermore and Pleasanton. Beyond preserving patches of desired habitat, movement is essential to wildlife survival, and unbroken corridors that facilitate the movement of animals between habitats are important to the health of wildlife populations and overall ecosystem function.

RESULTS (2020)

Table 4-6 presents the criteria, highest possible score and ranking of the lakes for habitat corridor/conservation use.

There was no change in the criteria or scoring. Cope Lake and Lakes A, B, and H remain the strongest candidates for habitat conservation or potential for a habitat corridor (Figure 4-6).

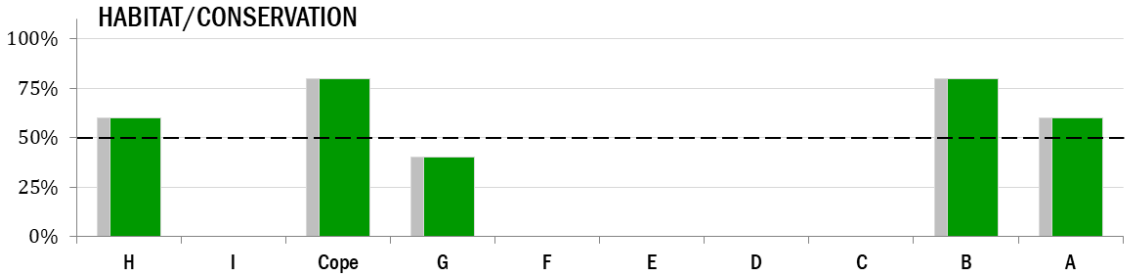


Figure 4-6. Habitat/conservation scores by lake (≥50% is considered more suitable) compared with 2014 scores (grey).

Table 4-6. Evaluation criteria and scoring for habitat/conservation compared with 2014 scores (≥50% is considered more suitable).

Habitat - Conservation

Criteria	Highest Possible Score	H	I	Cope	G	F	E	D	C	B	A
PROS											
Adjacent to riparian habitat[a]	4	3	0	4	2	0	1	0	0	4	4
Slope easy to traverse (less than 2:1 gradient)[b]	1	0	1	1	0	0	0	0	0	0	0
CONS											
Proximity to urban interface[c]	0	0	-2	-1	0	0	-1	-1	-1	0	-1
TOTAL SCORES (points)	**5**	**3**	**-1**	**4**	**2**	**0**	**0**	**-1**	**-1**	**4**	**3**
TOTAL SCORES (%)		60%	0%	80%	40%	0%	0%	0%	0%	80%	60%
PREVIOUS SCORES (%)		60%	0%	80%	40%	0%	0%	0%	0%	80%	60%

NOTES:

a. Existing habitat was calculated by measuring linear feet at top of slope directly adjacent (without any major impediments) to riparian habitat (riparian woodland, riparian scrub, or riverine habitat):

Points were assigned as follows:

0 - no adjacent riparian habitat
1 - 0 to 1,500 linear feet
2 - 1,500 to 3,000 linear feet
3 - 3,000 to 4,500 linear feet
4 - >4,500 linear feet

b. Slopes less than 2:1 are scored as follows:

0 = 0-1,000 linear feet
1 = >1, 000 linear feet

c. Proximity to urban interface was calculated by measuring the linear feet at top of slope that is adjacent to urban development or a major road. Proposed EPSP development is also included.

Points were assigned as follows:

0 = <25% of perimeter
-1 = 25-50% of perimeter
-2 = >50% of perimeter

4.4 SUMMARY OF RESULTS

Figure 4-7 summarizes the results of the 2020 evaluation. Note that surface water storage and conveyance is an assumed Primary Use for all lakes, and other uses would have to be considered with this in mind.

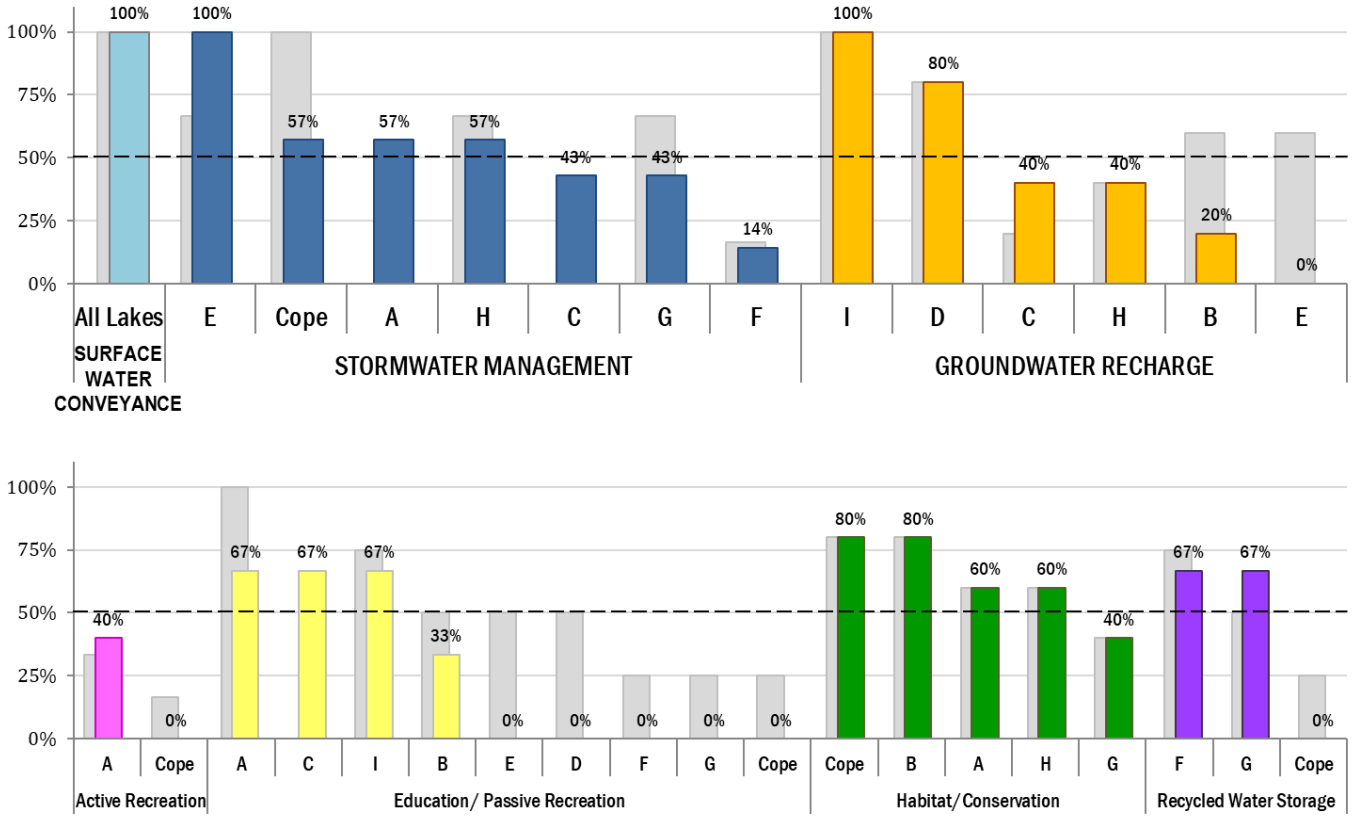


Figure 4-7. Summary of scores by Primary Use (top) and Secondary Use (bottom) compared with 2014 scores (grey).

4.4.1 Results for Each Lake

The following figures (Figure 4-8 through Figure 4-17) present the results for each lake, highlighting the potential for multiple uses that could be considered as the lake ownership is turned over to Zone 7.

Figure 4-18 and Figure 4-19 show a summary of the lakes found suitable for Primary Uses and Secondary Uses, respectively.

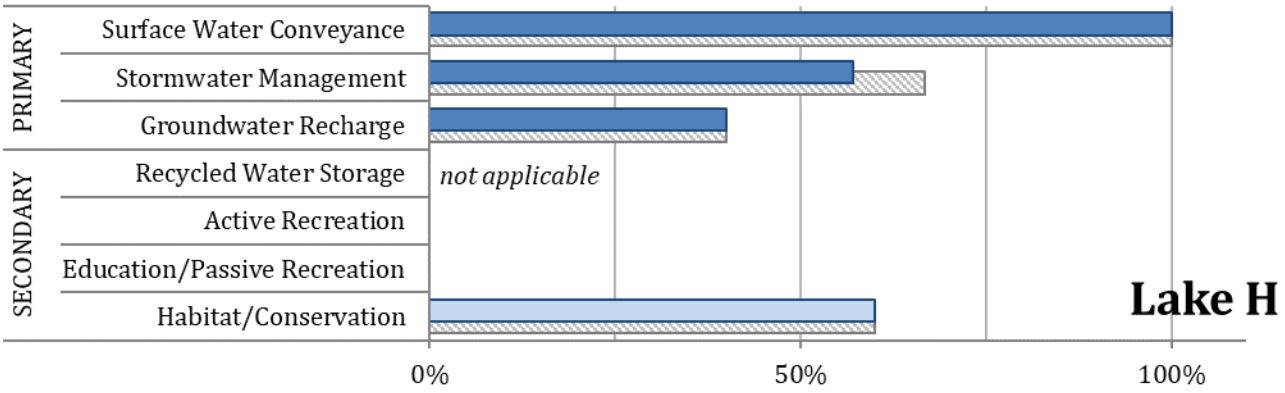


Figure 4-8. Scoring results for Lake H compared with 2014 scores (grey).

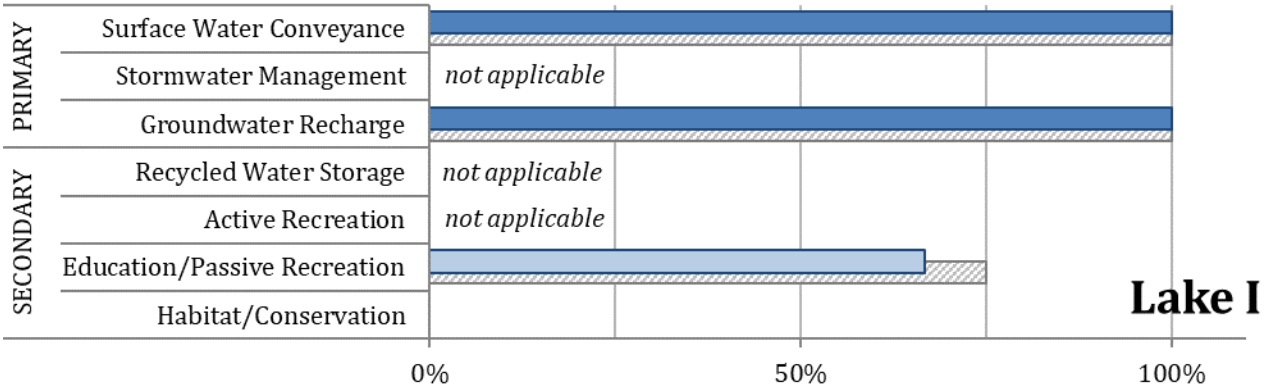


Figure 4-9. Scoring results for Lake I compared with 2014 scores (grey).

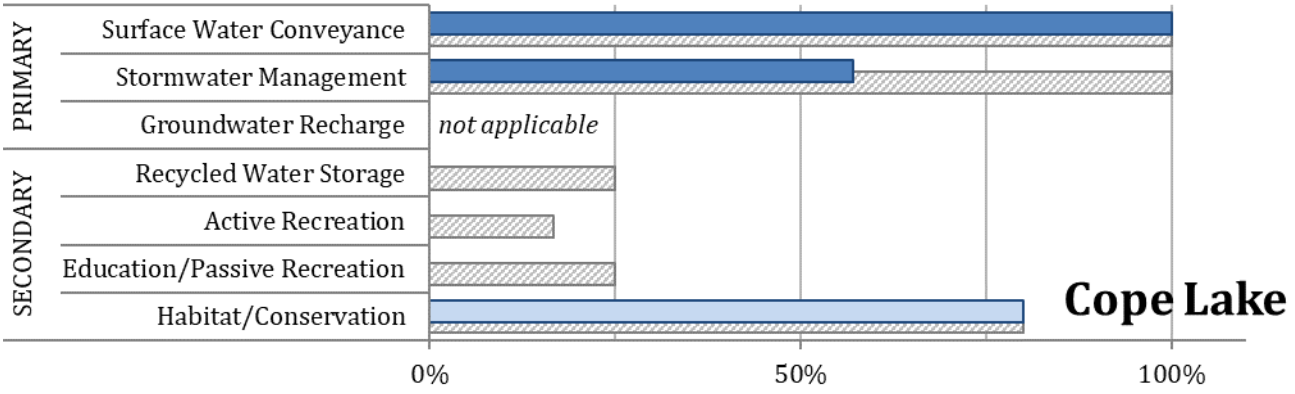


Figure 4-10. Scoring results for Cope Lake compared with 2014 scores (grey).

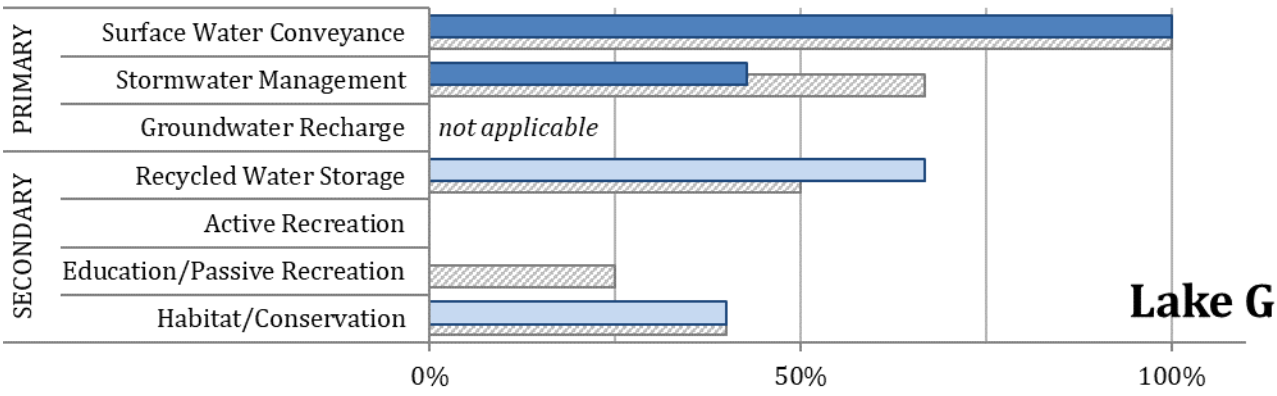


Figure 4-11. Scoring results for Lake G compared with 2014 scores (grey).

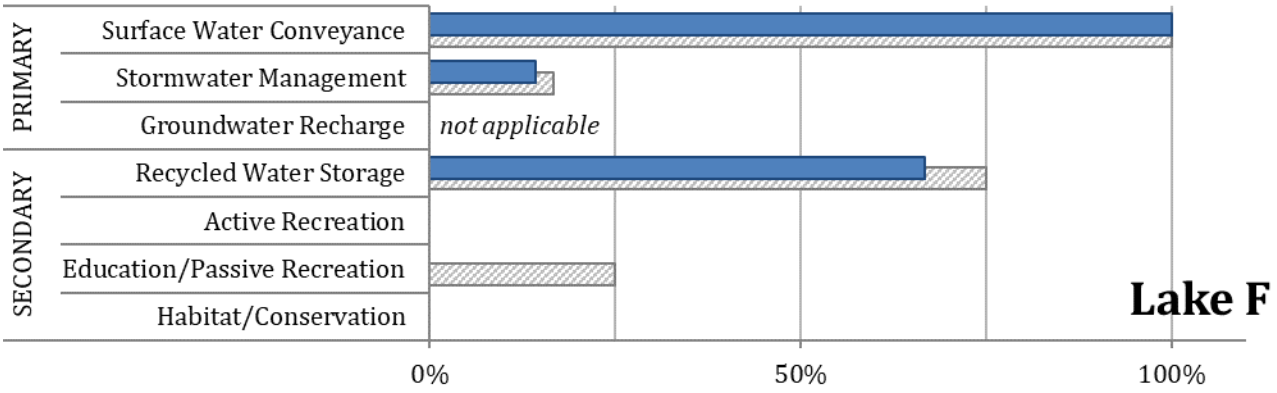


Figure 4-12. Scoring results for Lake F compared with 2014 scores (grey).

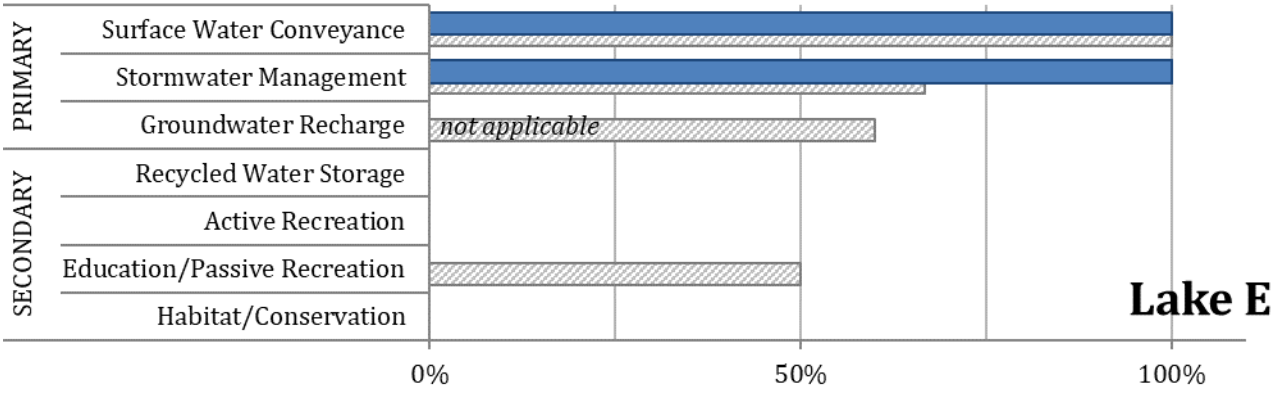


Figure 4-13. Scoring results for Lake E compared with 2014 scores (grey).

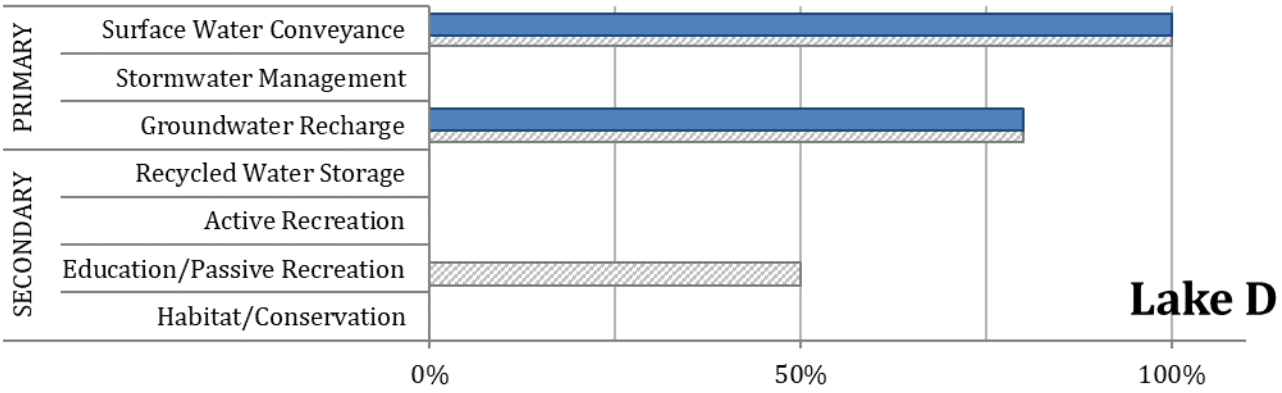


Figure 4-14. Scoring results for Lake D compared with 2014 scores (grey).

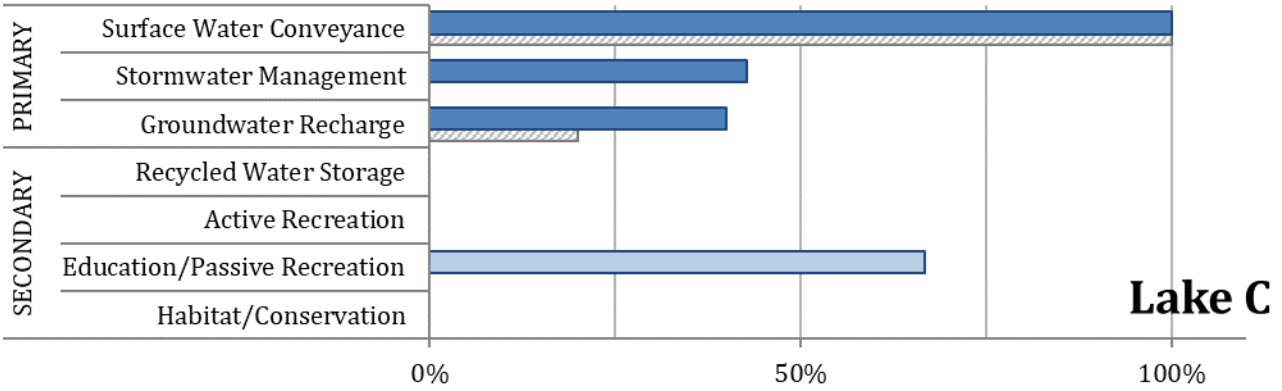


Figure 4-15. Scoring results for Lake C compared with 2014 scores (grey).

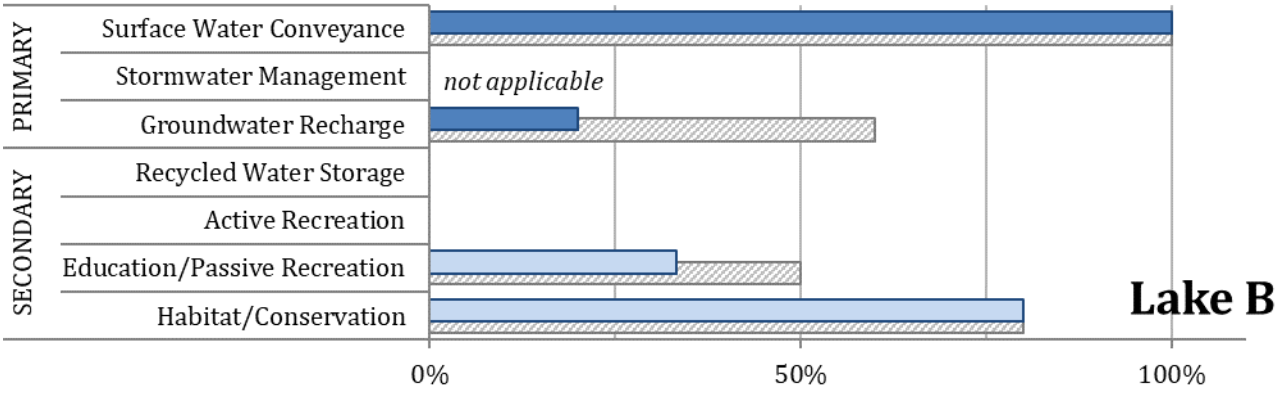


Figure 4-16. Scoring results for Lake B compared with 2014 scores (grey).

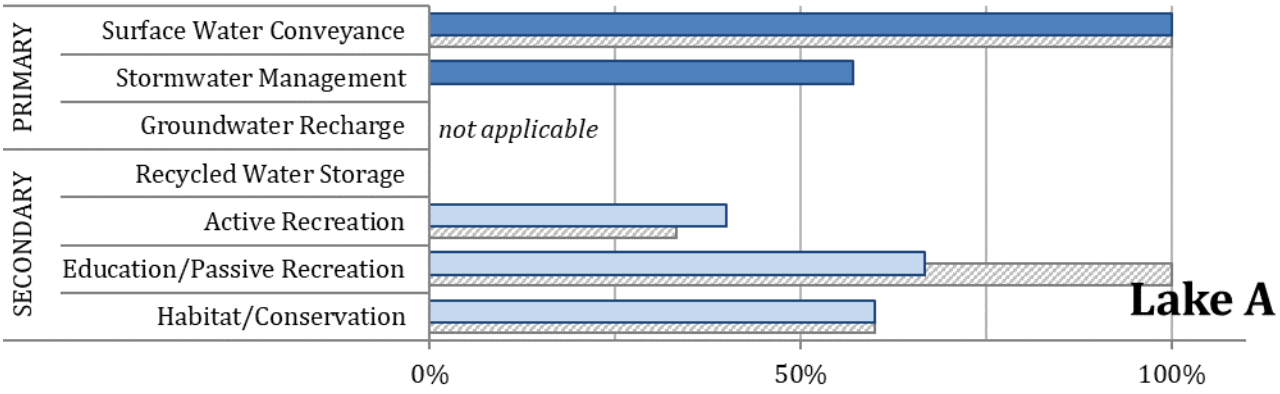


Figure 4-17. Scoring results for Lake A compared with 2014 scores (grey).

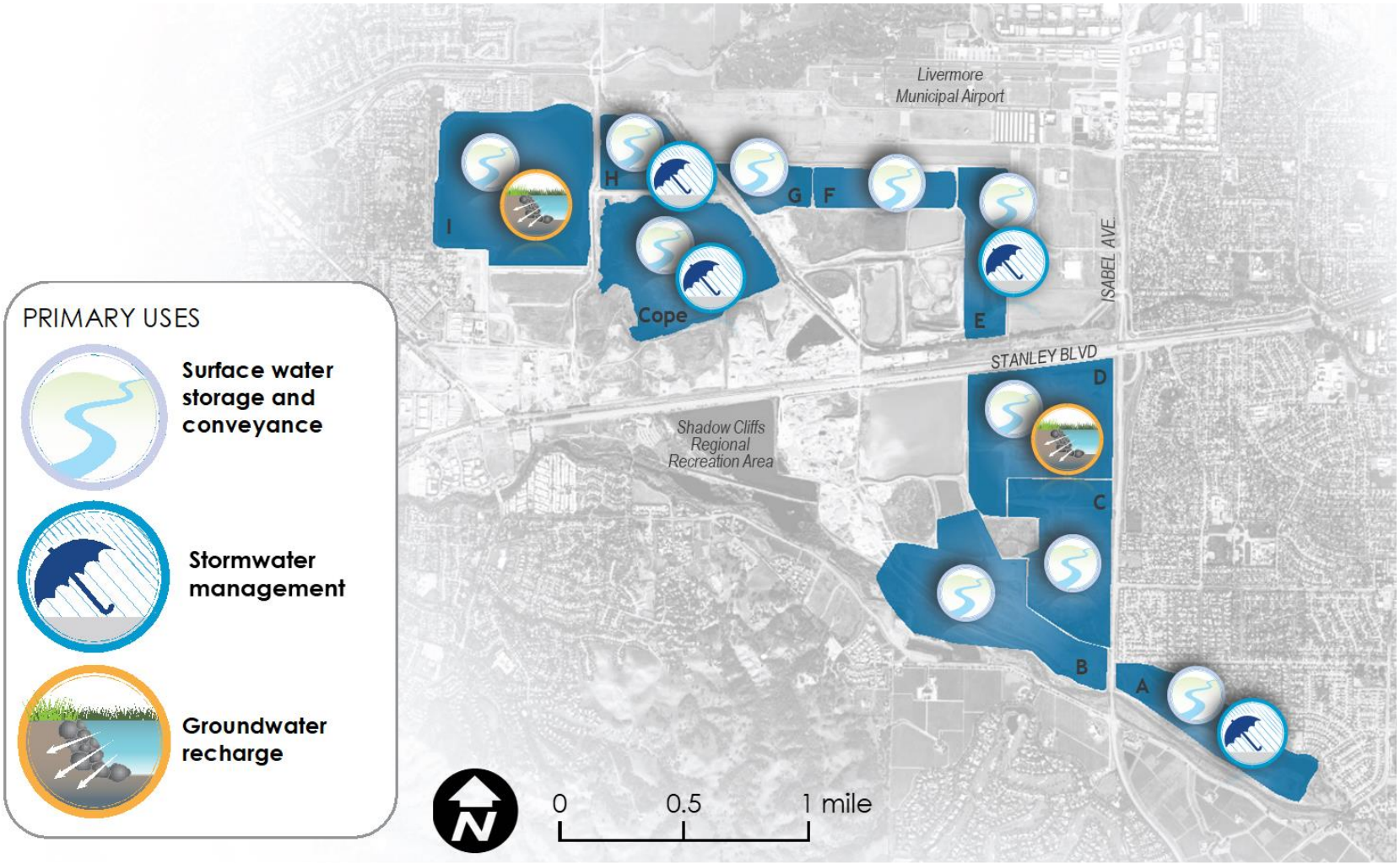


Figure 4-18. Summary map of potential Primary Uses by lake, 2020.

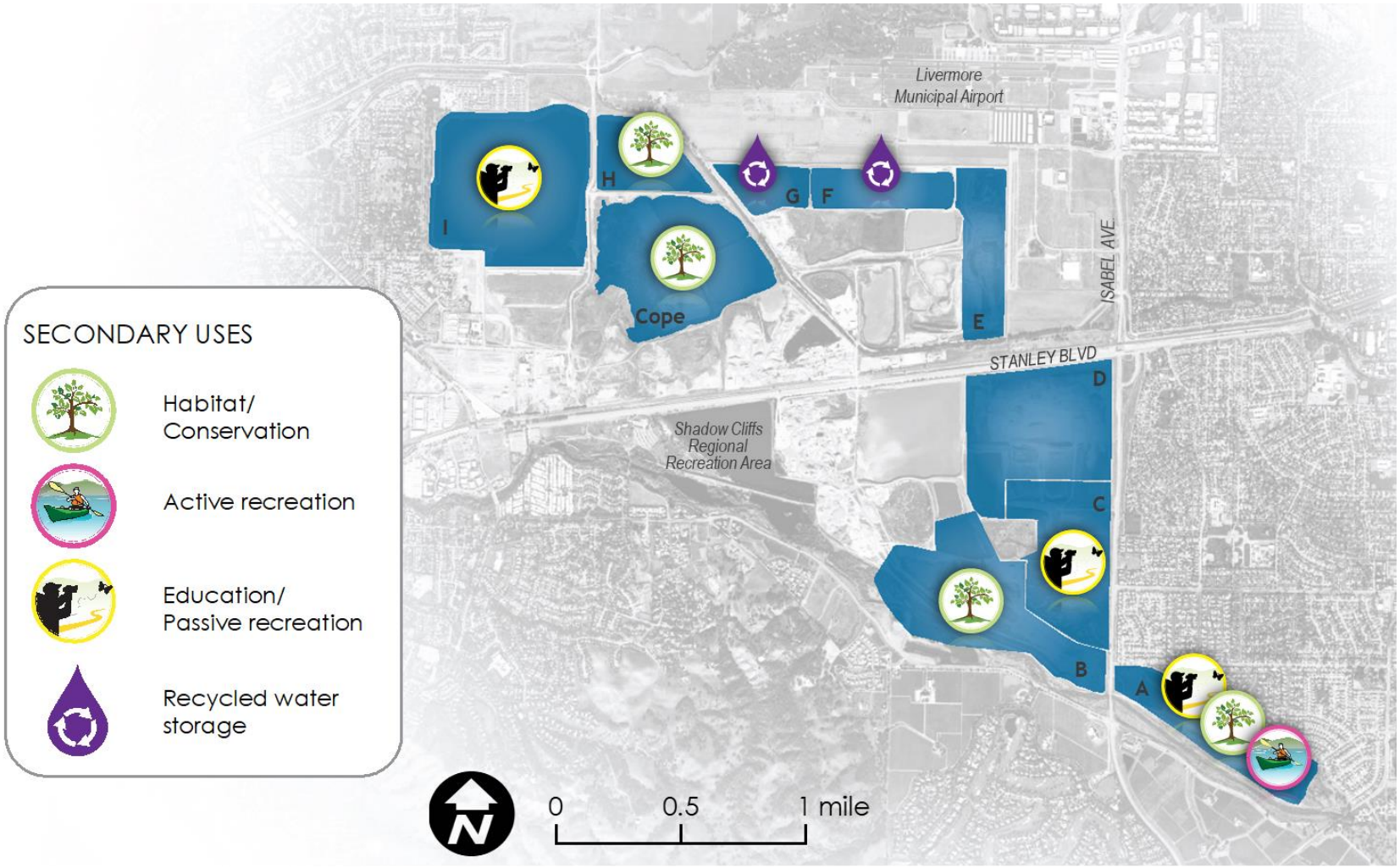


Figure 4-19. Summary map of potential Secondary Uses by lake, 2020.
(NOTE: This analysis does not propose or approve these uses; all formal proposals would be brought to the Board of Directors for specific consideration.)

5 Conclusion

This 2020 Use Evaluation summarizes new information and changed conditions since the 2014 Use Evaluation and considers adjustments to criteria and scoring for each of the potential uses. It presents updated uses that consider near-term planning efforts (including EPSP and COLs pipeline). Figure 5-1 shows the three lakes in the EPSP area, Lakes H, I, and Cope Lake, and near-term recommendations for their use. Overall, there were no changes to the planned and potential uses for Lakes H, I, and Cope (Table 5-1).

Zone 7 has begun evaluating the potential to construct a Chain of Lakes Pipeline. The construction of the Chain of Lakes Pipeline would need to be considered in EPSP planning efforts and/or coordinated with any construction in the area depending on the alignment selected. In addition, the construction of Zone 7's planned El Charro Pipeline, which would connect the Chain of Lakes wells to the Vineyard Pipeline, and provide transmission system looping, may need to be adjusted depending on construction activities in the area. Coordinating construction activities could minimize costs and public disruption.

Zone 7 will continue to coordinate with the City of Pleasanton on their EPSP planning activities so that Chain of Lakes operations and Zone 7 planned projects and construction activities can be considered during the development of the EPSP, where appropriate.

Zone 7 will also continue to track changes to mining operations and identify new data relevant to the planning and management of the Chain of Lakes. The Primary and Secondary uses of the lakes will be reconsidered over time to reflect any changes in regulations, water management needs, and other factors. All formal proposals for Secondary Uses by external entities would go to the Zone 7 Board for consideration.

Table 5-1. Summary of findings for Lakes H, I, and Cope.

LAKE	FINDINGS
COPE LAKE - Cope Lake is bordered on the east by Arroyo Mocho, the west by a private road, on the north by Lake H, and on the south by Vulcan's mining operations and undeveloped land. Lake currently owned by Zone 7.	• Planned for surface water storage and conveyance • Strong candidate for stormwater management • East side could be considered for preservation as a habitat corridor
LAKE H - Lake H is bordered by Arroyo Mocho on its northern and eastern sides, by a private road on its western side and by Cope Lake on its southern side. Two Zone 7 wells are located between Lakes H and Cope, and a third well is located north of Lake H. Lake H has not yet been turned over to Zone 7 ownership.	• Planned for surface water storage and conveyance • Potential candidate for stormwater management • East side could be considered for preservation as a habitat corridor
LAKE I - Lake I is bordered by a private road on its eastern side, by residential development on the west half of the areas to the north and south, and by a "buffer zone" to the west. The "buffer zone" is owned and used by Zone 7 for groundwater monitoring and maintained by the City of Pleasanton as a public park/trail under a license agreement. Lake currently owned by Zone 7.	• Planned for surface water storage and conveyance and groundwater recharge • Candidate for public education because of its location and use • Potential for extension of trails around portions of the lake by Pleasanton has been discussed previously but would require an amendment to the recreational license agreement.

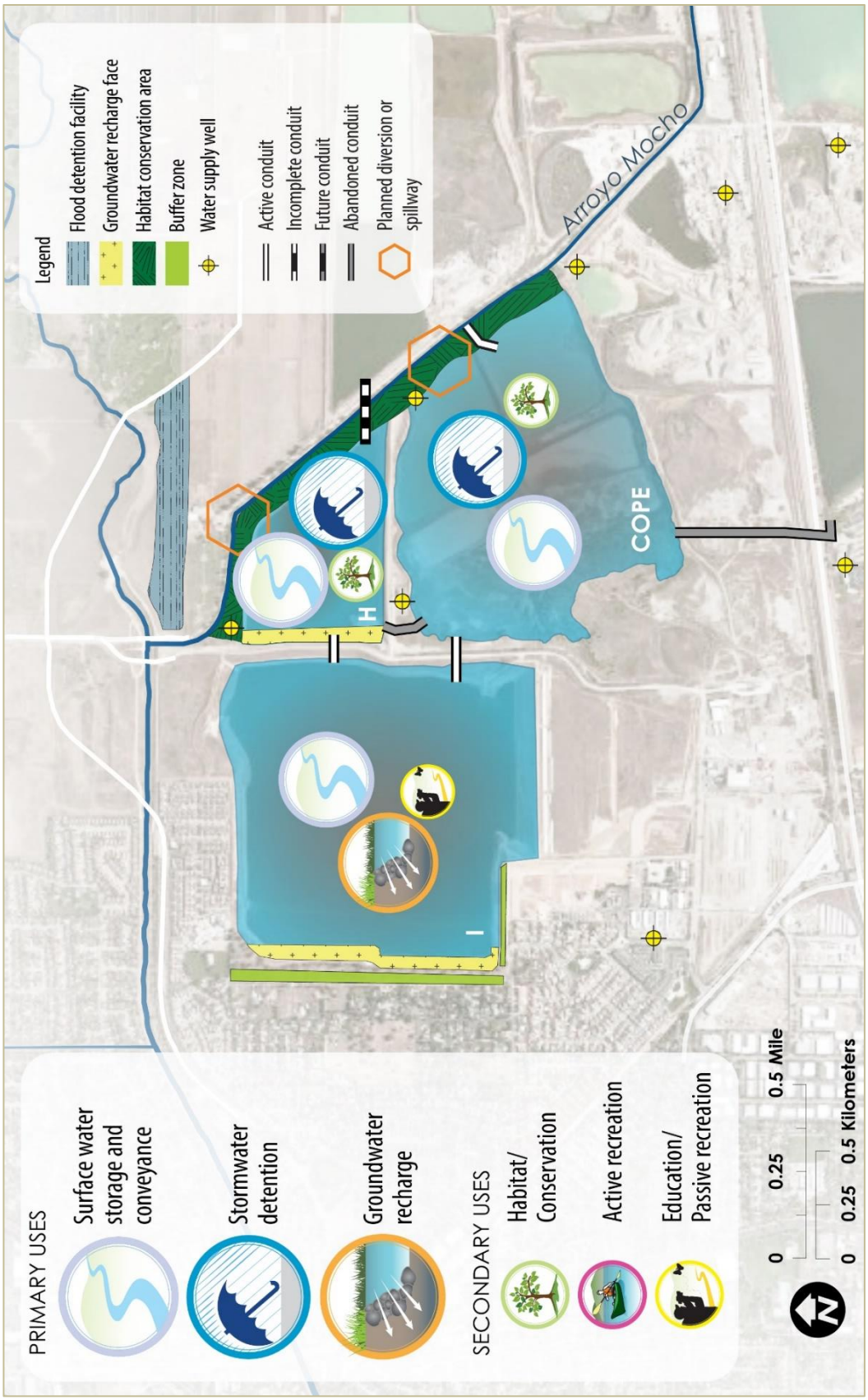


Figure 5-1. Map of near-term recommendations for Lakes H, I, and Cope, 2020.

Appendices

The following appendices were updated as part of the 2020 Use Evaluation:

Appendix B Preliminary Lake Use Evaluation Planning Timeline

Appendix D Estimated Reclaimed Lake Conditions

Appendix E East Pleasanton Specific Plan Development

APPENDIX B (Updated 2020)

Preliminary Lake Use Evaluation Planning Timeline

- A list of potential uses and a proposed lake use evaluation methodology were presented to the Zone 7 Water Resources Committee (WRC) in February, March, and September 2013 and the Zone 7 Board in April and June 2013.
- Zone 7 also met with retailer staff in April 2013 and the Liaison Committee in May 2013 to provide an overview of the COLs planning process and solicit feedback.
- In response to comments received at the various meetings, staff refined the list of potential uses and the criteria of evaluation.
- In September and October 2013, preliminary findings were presented to the Water Resources Committee and the Zone 7 Board, respectively. The evaluation was further refined based on comments from the WRC and the Zone 7 Board, retailers, and various sections at Zone 7.
- The draft final report was presented to the WRC in January 2014. The WRC recommended that this item be presented to the full Board at the February 2014 Board Meeting for (1) acceptance of the draft final report, and (2) to adopt near-term recommendations for Lakes I, H, and Cope.
- The draft final report was presented to the full Board at the February 2014 Board Meeting where (1) the draft final report was accepted, and (2) near-term recommendations for Lakes I, H, and Cope were adopted (Resolution No. 14-4347).
- Re-evaluation of the COLs lake uses was initiated in Fall 2019.
- In January 2020, preliminary findings were presented to the WRC, who recommended that an addendum be prepared and presented to the full Board at the June 2020 Board Meeting.
- At the June Board Meeting, Directors requested that criteria be further refined to prioritize Zone 7's goals.
- The edited addendum was prepared and presented to the full Board at the August 2020 Board Meeting. Directors voted 6-1 to accept the addendum and recommendations with minor edits.

APPENDIX D (Updated 2020)

Future Chain of Lakes Estimated Areas and Volumes

Table D-1. Future Chain of Lakes Estimated Areas and Volumes

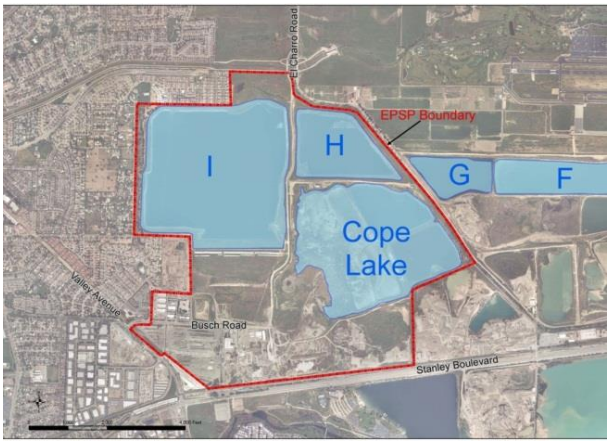
	UNITS	LAKE									
		A	B	C	D	E	F	G	H	I	Cope
Top of Slope Elevation	ft msl	420	370	400	400	390	365	365	360	360	360
Total Depth Elevation	ft msl	350	150	150	150	310	285	280	240	220	290
Maximum Water Surface Elevation	ft msl	420	369	390	390	380	355	355	340	340	340
Maximum Surface Area	ac	107	228	165	218	89	62	40	80	285	204
Average Groundwater Elevation	ft msl	415	370	370	350	330	330	315	310	305	NA
Average Groundwater Volume	ac-ft	3,700	30,500	21,000	27,700	1,300	2,300	930	3,600	17,000	NA
Historical Low Groundwater Elevation	ft msl	395	255	230	220	310	310	280	270	250	NA
Historical Low Groundwater Volume	ac-ft	2,200	9,400	5,000	7,400	-	1,200	-	1,100	4,500	NA
Dead Volume	ac-ft	1,800	26,000	15,500	24,000	1,300	800	500	1,800	NA	2,500
Total Volume	ac-ft	4,400	30,500	25,900	36,000	5,300	3,800	2,350	5,900	26,500	4,350
Average Active Volume	ac-ft	700	-	4,900	8,300	4,000	1,500	1,420	2,300	9,500	1,850
Historical Low Total Storage	ac-ft	2,200	21,100	20,900	28,600	5,300	2,600	2,350	4,800	22,000	4,500
Historical Low Active Volume	ac-ft	2,600	4,500	10,400	12,000	4,000	3,000	1,850	4,100	26,500	1,850
Inflow Conduit Elevation	ft msl	390	355	350	330	330	330	300	279	275.9	NA
Exiting Conduit Diameter	inches	84	30	30	42	30	30	30	30	NA	36
Upstream Connecting Lake		NA	A	A/B	C	D	E	F	G	H	NA
Outflow Conduit Elevation	ft msl	390	350	330	330	330	300	300	280	NA	330
Downstream Connecting Lake		C	C	D	E	F	G	H	I	NA	I
Mining Permit		SMP-23	SMP-23	SMP-16	SMP-16	SMP-16	SMP-16	SMP-16	SMP-31/36	SMP-31	SMP-31

Assumptions:

- All depths stated in each SMP will be attained.
- All lakes will be operated with a minimum of 10 feet of freeboard.
- The SMP-23 Rec Plan Amendment revised depths will be approved.
- The water pipeline running beneath the Hanson Haul Road restricts max water elevations in Lakes H, I, and Cope to elevation 340 ft msl.
- The water pipeline running beneath the Hanson Haul Road is the only existing or future facility that will restrict lake level operations.
- Active volume is storage above conduit outlets or average groundwater level (whichever is higher) and below the maximum water surface elevation.
- Average Groundwater Elevation is estimated using historic water elevation data from nearby wells and average groundwater gradient map generated estimating post-mining conditions.
- Dead Volume is calculated below outflow conduits.
- Maximum water surface elevation is the water elevation that allows a minimum of 10 feet of freeboard (greater if there are additional restrictions that need to be considered).
- The conduit between Lake A and Lakes B and C will be designed to allow water to be transmitted from A directly into either B or C.
- Maximum water surface in Lakes A and B do not include freeboard due to engineered overflow spillways that allow water to flow into the Arroyo Valle.
- Average groundwater elevation in the area of Lake B is predicted to be above the elevation of the overflow spillway. So, the average groundwater volume is the same as the total volume.

APPENDIX E (Updated 2020)

East Pleasanton Specific Plan Development



The City of Pleasanton adopted their General Plan in 2009. Lakes H, I, and Cope and a surrounding area of approximately 390 acres were not included in that plan. Planning for this area of Pleasanton is being covered under the East Pleasanton Specific Plan (EPSP). The City of Pleasanton formed a Task Force in 2012 to assist in this planning effort. The Task Force consisted of property owners, City Commissioners, neighborhood representatives, and At-Large-Representatives, and operated under the guidance of the City of Pleasanton Planning staff and their consultants.

The EPSP Task Force began monthly meetings in August 2012. Preliminary Studies of the EPSP area had been conducted and results were presented to the Task Force by the City of Pleasanton's consultants to provide general background information. In addition, studies had been conducted to evaluate opportunities and constraints, traffic, environmental conditions, and market assessment to determine economic feasibility of certain types of development. A community workshop was held in September 2012 to solicit input from the public on the character they would like to see for the area and any particular land uses they would or would not like to see in the area.

In March 2013, to further the discussion of land use for the EPSP area, the City of Pleasanton's consultant developed three alternatives for development of the EPSP area based on input received from the Task Force and the public. In each of the alternatives, most of the development was shown in the southern portion of the EPSP area. In all three of the proposed alternatives, Zone 7 property was shown as either water or "open space", a park was shown encroaching into Zone 7's property at the southwestern portion of Cope Lake, and the property owned by Lionstone adjacent to Zone 7's supply well COL No. 1 (between Lakes H and Cope) was shown as a "Destination Use". The term "Destination Use" was defined as "commercial or public facilities that are specifically suited for the

lakefront site on which the designation is shown, for example a restaurant, retreat, conference facility, interpretive center, etc."

Zone 7 took the opportunity at the March 2013 EPSP Task Force meeting to remind the Task Force members of Zone 7's existing and planned water resource management facilities and operations at Lakes H, I, and Cope. Zone 7 also reiterated that any public access to Zone 7 property would require an agreement approved by Zone 7's Board of Directors with a partnering agency (such as the City of Pleasanton or the East Bay Regional Parks District), in which the agency would take on the cost of operation, maintenance, and liability associated with such public access. This information was also conveyed to the City of Pleasanton Planning Commission and City Council during public meetings where the EPSP was discussed.

Over the remainder of 2013, the EPSP Task Force continued to meet monthly working towards meeting the City of Pleasanton's goal of producing the Draft EPSP and Draft Environmental Impact Report (EIR) by the first quarter of 2014. The alternatives were further refined and while some proposed trails and recreational facilities were shown on Zone 7 property it was noted that it was subject to Zone 7 review and approval of the Zone 7 Board. As noted in the 'Introduction', one of the objectives of completing this Preliminary Lake Use Evaluation is to have a basis for providing input into external planning activities such as the EPSP and ensure that Zone 7 water resource management requirements are protected. To this end, Zone 7—with the Board's direction—will continue to engage with the City of Pleasanton and other stakeholders on the EPSP development process.

A Draft EIR for the EPSP was published in April 2015. In June 2015, the Pleasanton City Council decided to stop the EPSP planning and environmental review process due to concerns about the ongoing drought, impacts to traffic and school capacity, and because the EPSP development was not needed to meet the City of Pleasanton's Regional Housing Need Allocation (RHNA).

Recently, the completion of the EPSP was identified by Pleasanton City Council as a priority in the 2019-2020 work plan. City of Pleasanton staff brought the planning effort to City Council in November 2019 and February 2020 seeking input and guidance for the new EPSP planning effort. Some changes were proposed such as a new developer taking the lead and a different planning process other than a task force. The planning effort was expected to start in early 2020 and take 18-24 months to complete; however, the planning effort was temporarily delayed due to the COVID-19 pandemic.