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Comments: As a retired civil/environmental engineer, and lifelong user of public outdoor recreational facilities, my inclination is to support the proposed Alternative 2, but with an important qualification as to its purported "economic benefits" that I will discuss in more detail later.

Alternative 2 advances two of the general principles that I consider to be highly valuable, regardless of the reality that some relatively minor "negative environmental impacts" are associated with any expansion of recreational opportunities by government agencies such as - in this case - the U.S. Forest Service, the Colorado Division of Wildlife, and several other government agencies with some level of involvement in the project.

The first principle is that the improvements proposed under Alternative 2 represent a modest expansion of existing recreational facilities that apparently are having little negative "environmental" impact other than on the scenery of the site, but are dilapidated to the extent that the proposed improvements would provide enhanced recreational opportunities to more people, with a preponderance of modest but credible "environmental" improvements over increased "environmental" risks that are both speculative and trivial.

Alternative 2 will contribute to a public policy of expanding affordable opportunities for outdoor recreation on public lands, as population growth places increasing stress on people's ability to enjoy desirable natural attractions free of crowding or restrictions on access. Examples of heavily used natural attractions in the vicinity include the Upper Colorado River Recreation Area, Sylvan Lake State Park, and the Hunter-Fryingpan and Maroon Bells Wilderness Areas. The extent to which Alternative 2 would relieve pressure on these other recreational assets in the vicinity is a benefit of the project, even though it is not realistic to quantify it.

The second principle that I support is that this project should be and will be designed, constructed, and operated according to established standards of the U.S. Forest Service regarding public enjoyment, safety, and protection and improvement of environmental quality. I have found that campgrounds provided by the Forest Service are generally of very high quality, being both "environmentally friendly" and "people friendly."

COSTS VS. BENEFITS

An additional principle of any proposed public works project is that it should be justified by a "life cycle" economic analysis in which the estimated costs are compared to the estimated benefits over an extended period of time, such as 20 years. There is an established standard for making such an analysis that is used by the Army Corps of Engineers and Bureau of Reclamation in producing an analysis that is consistent with sound economic principles. When performed professionally, without bias for or against a proposed project, this type of analysis is as objective as reasonably possible considering the uncertainty inherent in estimates of future recreational usage. It is also as transparent as reasonably possible to allow "ordinary people" (as well as the ultimate political "decision makers") to understand the rationale for a "recommended alternative."

Not only is a life-cycle benefit/cost analysis absent from this EIS, but the principle of cost-effectiveness is overridden by a blizzard of economic "estimates" that are not only highly subjective and irrelevant, but deceptively presented as "beneficial" impacts when by standard economic analysis, they are costs. This is the sort of convoluted economic "logic" that on the national level has contributed to the national public debt of some \$33 trillion, which is approximately \$100,000 for every American citizen.

The data that I am referring to are presented in Table 2-2 under "Socioeconomics," such as the estimate that the short-term "beneficial" impact of Alternative 2 will be \$6.2 million in "annual construction output." This is, presumably, the estimated cost of the construction, perhaps including some speculative "indirect" spending

spurred by the money spent locally by the people working on the project. Yes, the expenditures on the project from the federal Treasury will provide work for construction contractors and their employees, and some of it will be spent locally. But that is a cost to the taxpayers of the United States, whose interests projects such as this should be representing.

An equally confusing set of economic statistics of questionable accuracy and relevance are presented in Table 3-31, claiming to be the "Estimated Annual Visitor Expenditures." Apparently the values that are presented are intended to be the expenditures by ALL visitors during a year, in which case the appropriate units should presumably be thousands of dollars, not dollars and cents. But the more important point is that these expenditures or others would be made anyway by people in the absence of the project, at retail establishments that are unknowable. As such, that should have no bearing on the selection of a "preferred" alternative.

Attempting to predict the impact of a project on the economy of an area makes sense in the case of a major project like a mine or data center being proposed in a sparsely populated area, especially if it is an area with high unemployment. But this site is within the vicinity of the highly developed Interstate 70 corridor from Avon to Glenwood Springs, which has a robust economy. As such, this project's impact on the local economy will be unpredictable and trivial.

Consistent with standard cost/benefit analysis for public works projects of this type, benefits should be measured primarily as the value derived by people visiting the site. This is calculated by multiplying the estimated number of visitor-days per year in various activities by the average value per visitor-day in particular activities. The estimates of annual visitor usage in the EIS are so general and unclear (as to visitor-days in various activities such as day use, camping, and cabin occupancy) that it is not possible to make an objective assessment of annual project benefits from the data given. Nor is it possible to know either initial construction costs or annual operation and maintenance costs.

I would regard "reasonable" estimates of the benefit per visitor-day would be \$20 for day use, \$30 for overnight camping, \$35 for a small cabin without plumbing, and \$50 for a furnished cabin with plumbing.

ENHANCING THE NATURAL SETTING

Thanks to its natural setting -- and Sweetwater Lake in particular -- the site is well suited to its use for seasonal camping, resort cottages, non-motorized water sports, fishing (although for non-native "sport fish" that cannot reproduce there and so must be artificially "stocked") and access to the surrounding National Forest for cattle grazing, backpack hiking, and "big game" hunting, primarily for elk and mule deer.

The existing resort area is appropriately situated on gently sloping ground overlooking the lake, with impressive views of the bluffs on the opposite side to the south and the valley to the west. (I know this from having visited the site, although the EIS should be improved by showing elevation contours on at least some of its figures.) Under mostly private ownership, the site has largely fallen into a state of disrepair and has little to distinguish it from hundreds of other such seasonal resort communities throughout North America.

It would be appropriate to renovate some of the existing buildings for temporary occupancy by visitors (as recommended in Alternative 2) provided that it can be done at significantly less cost than replacing them with new buildings.

It is very likely that the Ute Indians and their prehistoric ancestors had summer camps near the lake (or the stream that was there before a landslide caused the lake to be formed). That is true of all bodies of fresh water throughout western Colorado. Unfortunately, erecting informational signs or kiosks to explain that fact does not compensate the descendants of the Utes for being forcibly "relocated" onto lands practically devoid of such water resources.

The vast majority of the people who will be visiting this site will be doing so to enjoy outdoor recreation and not to learn about its history. I basically agree with the intent of federal regulations to preserve and commemorate things of historical interest, but I suggest that not too much emphasis be placed on commemorating things of little historical uniqueness at this particular site, and thus of little interest to the people who will most likely be visiting it.

ENHANCING WILDLIFE HABITAT

The existing Forest Service campground at the east end of the lake is small and unattractive because it is situated in dense, mosquito-infested riparian vegetation at the eastern end of the lake. It has practically no view of the lake and very primitive access to a small part of the shoreline which the EIS categorizes as "palustrine," but in terms that are commonly understood means shallow and marshy.

Rather than turn this into a "day use area" under Alternative 2, involving additional trimming of the vegetation there, I would abandon the existing improvements other than to retain trailhead parking with perhaps a few picnic tables and a vault toilet. That would expand woodland habitat for species of wild animals that people commonly enjoy viewing, such as deer, raccoons, foxes, turkeys, and grouse, as distinguished from "endangered" species that have not actually been observed at the site and would not likely be appreciated by "ordinary people" if they were there.

It appears from Figure 2 that additional day use sites could be provided along the north shore of the lake to compensate for those not provided at the east end. There appears to be about 2,000 feet of shoreline along the north shore that could accommodate more than the seven individual day use sites shown, at a spacing of 100 feet or so. If the day use sites provided there proved to be insufficient, then additional ones could be provided at the north end of the lake as presently proposed.

An additional recommendation as to ecological enhancement of the lake and its watershed that should be included is to re-introduce beavers to it. The criteria for doing this are well established by conservation agencies and should not require an extensive revision to this EIS to implement it. The Colorado Division of Wildlife would be the logical agency to do the re-introduction.

Prohibiting rock climbing on the cliffs south of the lake is appropriate to protect raptor habitat. However, I have often seen ospreys and bald eagles perch and nest near human activity when suitable large trees or structures are available, and peregrine falcons are known to nest on high-rise buildings. In such settings, most people observe these birds respectfully and will protect them from illegal harassment. Installing buoys to close part of the lake to small watercraft in order to protect nesting raptors would therefore be regulatory overreach that would only serve to alienate the public from reasonable conservation goals.

WATER QUALITY AND QUANTITY

Considering that the lake is the central attraction of the site, it is curious that it is not discussed in more detail. It covers some 70 acres, and based on the surrounding topography may initially have had a depth near its outlet of about 70 feet, but has doubtless accumulated substantial sediment over the course of centuries. For lack of specific data, assume that the average depth is now 10 feet. That would equate to a volume of about 700 acre-feet.

While I could not find data on the average annual water yield from this specific watershed, considering its elevation it is reasonable to estimate that it is at least 4 inches per year, which equates to about 28,000 acre-feet. Assuming that the volume of Sweetwater Lake is 700 acre-feet, its volume would be displaced an average of 40 times per year by the flow through it.

The EIS indicates that the water quality of the lake meets Colorado's "Level 1 High Quality Standards" that are suitable for the established uses of water contact recreation, fishing, and drinking by wildlife and livestock.

Although the EIS does not indicate specific values for key water quality parameters, it is worth noting that the lake has not been given the higher "Level 2" designation, which is appropriately reserved for waters, such as Maroon Lake and Hanging Lake, which are crystal clear and would thus be subject to degradation by even minor disturbances to their watersheds.

In technical terms, Sweetwater Lake is in a mesotrophic condition. This is consistent with some 38,000 acres of its watershed being in an essentially "natural" condition, but having some erodible soils that contribute fine suspended sediment and nutrients that enable moderate growth of suspended algae. The contribution to that from the present or proposed "disturbed area" would be on the order of 20 acre-feet per year, which is about 0.07 percent of the average flow through it. If this were coming from an area used for industrial purposes, or into a lake of extremely high water quality, then pollution in the runoff or seepage through the soil would be of concern. But with normal standards of site design to prevent erosion from runoff, maintain onsite wastewater disposal systems, and control animal waste and litter, the proposed improvements will have no detectable effect on the quality of the lake.

FLOOD PROTECTION

The EIS presents data on the peak flow rate and volume of water that is estimated to be discharged into the lake during 2-year and 25-year rainfall events. That would be a consideration in the design of the drainage system of the site. But without relating that to the flow and quality of water that could be entering the lake from the entire upstream watershed under such extreme rainfall events, it does not indicate the potential impact on the lake. The worst to be reasonably expected would be a temporary increase in turbidity, attributable mostly to the increase in flow from the upstream watershed.

A hydrologic parameter of more concern should be the flow into and out of the lake from a "100 year" or greater storm event over the entire watershed. Depending on the geometric characteristics of the lake's outlet, it may cause the level to rise sufficiently to affect docks and the structural integrity of the outlet, although probably not any of the proposed picnic tables or other structures. More importantly, it might wash out portions of the county road that provides the only access to the site. Therefore, this should be addressed by an engineering evaluation of places where an extreme flow in the stream could damage the road.

CONCLUSION

I conditionally support Alternative 2, with the qualification that its cost-effectiveness be validated by a standard life-cycle benefit/cost analysis comparing it to the other alternatives.