

**National Park Service
U.S. Department of the Interior**



***Cost-Benefit and Regulatory Flexibility Threshold Analyses:
Proposed Special Regulations to Designate New and Existing
Trails for Bicycle Use at Whiskeytown National Recreation Area***

National Park Service
Environmental Quality Division

1201 Oakridge Drive
Fort Collins, CO 80525

June 2024

This page intentionally left blank

Introduction

This report presents the cost-benefit analysis and regulatory flexibility threshold analysis of the proposed rule to designate 79.8 miles of new and existing trails within Whiskeytown National Recreation Area for bicycle use. The National Park Service (NPS) believes that these analyses provide an adequate assessment of all relevant costs and benefits associated with the regulatory action.

The results of the cost-benefit analysis indicate that the costs of the proposed regulatory action are justified by the associated benefits. Additionally, this proposed regulatory action will not have an annual economic effect of \$200 million, and will not adversely affect an economic sector, productivity, jobs, the environment, or other units of government. This proposed regulatory action will improve the visitor experience while better protecting the cultural and natural resources within the recreation area.

The results of the regulatory flexibility threshold analysis indicate no adverse impacts for any sector of the economy or unit of government, including small entities. Given those findings, the proposed regulatory action will not impose a significant economic impact on a substantial number of small entities.

Cost-Benefit Analysis

Background

Whiskeytown National Recreation Area, originally established in 1965, is one of 18 units within the National Park System currently designated as a “National Recreation Area.” The recreation area comprises more than 42,000 acres in northern California, with the 3,200-acre Whiskeytown Lake and 36 miles of associated shoreline being a dominant feature of the site. Due to its forested, mountain setting and consistent water level, the lake provides high-quality recreational opportunities throughout the primary recreation season, including swimming, beach activities, lakeside camping, boating, sport fishing, and picnicking. In addition to the lake, the recreation area contains rugged canyons, forests, streams, waterfalls, and an extensive trail system, providing a wide variety of non-water-based recreational activities, including birdwatching, camping, wildlife viewing, hiking, horseback riding, and bicycling. More than 800,000 visitors come to the recreation area each year to participate in the variety of activities offered.

Bicycling is a popular recreation activity at Whiskeytown National Recreation Area and has occurred there for several decades. Bicycle use is currently allowed on roads that are open to public motor vehicle use, on an additional 42.2 miles of administrative roads that are closed to motor vehicle use by the public (but open to motor vehicle use by the NPS for administrative purposes), and on the majority of trails in the existing trail system. Public roads, administrative roads, and trails that are open to traditional bicycles are also open to Class 1 electric bicycles. Class 2 and 3 electric bicycles are not allowed on trails or administrative roads within the recreation area; however, they are permitted on roads that are open to public motor vehicle use.

The facilities and infrastructure within Whiskeytown National Recreation Area were primarily constructed in the 1960s and were not designed to accommodate current levels of visitation. To address emerging management challenges and better accommodate current levels of visitation, the NPS initiated a comprehensive trail management project to help guide, plan, and manage trail use and maintenance within the recreation area. In 2017, the NPS sought public input to inform a trails management plan and environmental assessment, and used this input to develop preliminary alternatives. In 2018, however, the Carr Fire burned approximately 39,000 of the recreation area's 42,000 acres. The trails management plan process was paused and NPS resources were focused on rebuilding lost infrastructure and reopening portions of the recreation area. Some trails remain closed as a result of the fire, and the NPS continues to work on reopening trails where possible.

In 2020, the NPS reinitiated the trails management plan, with updated alternatives that reflected the changed landscape and addressed the need for long term solutions to poorly designed and/or unsustainable trails. In June 2021, the NPS published a Trails Management Plan and Environmental Assessment and accepted public comments for 30 days. In February 2022, the NPS issued a revised Trails Management Plan and Environmental Assessment (EA) to reflect updated trail mileages and additional best management practices (NPS, 2022). The EA describes one action alternative and a no-action alternative, and analyzes the potential environmental impacts of both alternatives. The action alternative, which is the NPS's preferred alternative, would involve trail construction, including building new trails, rerouting some existing trails, and restoring other existing trails to natural conditions.

In March 2022, the Regional Director for DOI Unified Regions 8, 9, 10, and 12 signed a Finding of No Significant Impact (FONSI) that identified the preferred alternative in the EA as the selected alternative. The NPS believes the selected alternative will improve the sustainability of the trail system, better protect the resources of the recreation area, and enhance the visitor experience by generating opportunities for new and diverse visitor experiences in different locations throughout the recreation area.

The management of bicycle use within a unit of the National Park System must comply with NPS regulations for bicycles codified in 36 CFR 4.30 (the Bicycle Rule). The Bicycle Rule allows by default the use of bicycles on park roads that are open for motor vehicle use by the general public. For administrative roads that are closed to motor vehicle use by the public but open to motor vehicle use by the NPS for administrative purposes, the Bicycle Rule states that bicycle use may be authorized upon a written determination that such bicycle use is consistent with protection of the park area's natural, scenic and aesthetic values, safety considerations and management objectives, and will not disturb wildlife or park resources. For bicycle use on trails, the Bicycle Rule requires a thorough review and approval process, including a planning process that evaluates bicycle use on each specific trail, an environmental assessment or environmental impact statement that concludes that bicycle use in the park and on each specific trail will have no significant impacts on the environment, and the same written determination required for administrative roads. The Bicycle Rule requires a special regulation to allow bicycles on new trails outside of developed areas and for existing trails that require construction or significant modification to accommodate bicycle use. The proposed rule analyzed here would authorize the Superintendent to allow bicycles, by designation in the Superintendent's Compendium, on all of

the trails where bicycles would be allowed under the selected alternative summarized in the Whiskeytown National Recreation Area Trails Management Plan and EA (2022). This includes existing trails that are not being rerouted, existing trails that are being rerouted, and new trails that will be constructed.

Statement of Need for the Proposed Plan

Executive Order 12866 (58 FR 51735) directs Federal agencies to demonstrate the need for the regulations they promulgate. Regulations are often intended to correct a market failure, which can occur when the free market does not allocate resources efficiently due to externalities, imperfect or asymmetric information, public goods, or common property resources. National parks are sometimes classified as a public good, in that they are available to everyone (non-excludable) and can be enjoyed by everyone without diminishing the benefits to others (non-rival). However, at certain levels of use, national parks can be considered common property resources (i.e., they are rival and non-excludable). Because private markets will supply an inefficient quantity of such resources, they are often supplied by the government through the management of public lands. However, government provision does not guarantee that resources are allocated in a manner that maximizes social welfare. In the case of common property resources such as many national parks, their use by one group can diminish their availability or quality for others. For example, motorized vehicle users within a park can impose costs on bicyclists in the form of congestion and safety risks if bicyclists are required to use the same roads. On multi-use trails within Whiskeytown National Recreation Area, one of the biggest visitor use management challenges is user conflicts on shared trails (i.e., hikers and bicyclists). The result may be an inefficient allocation of park resources. Determining the socially optimal allocation of such resources is an important need addressed by this regulatory action.

The purpose of the proposed action and selected alternative outlined in the Whiskeytown National Recreation Area Trails Management Plan and Environmental Assessment (NPS, 2022) is to improve and expand the existing trail system within the recreation area. The current trail system is primarily based upon old logging and mining infrastructure, ranging from asphalt walkways to engineered dirt trails, including a historic ditch system throughout the recreation area. Very few trails connect to other areas outside the recreation area, and action is needed to lay out a plan for the trail system into the future. The changed landscape from the Carr Fire resulted in an even greater and more immediate need for long term trail management solutions, such as properly designed and/or rerouted trails (NPS, 2022). Under the proposed action and preferred alternative, the NPS would construct new trails and remove and/or reroute underutilized and unsustainable trails. The new trail system would improve the visitor experience by helping to disperse use, decrease crowding and congestion on more popular trails, and provide opportunities for more diverse trail experiences. The additional trail miles would be particularly beneficial for visitors seeking solitude. The rerouted trails would improve visitor safety and experience due to the fact that all of the trails that currently have safety concerns and/or potential user group conflicts would be rerouted.

The associated proposed rule would authorize the Superintendent to allow bicycles on all of the trails where bicycles would be allowed under the selected alternative. This includes 79.8 miles of

trails, which includes new trails outside of developed areas, existing trails that require construction or significant modification to accommodate bicycle use, as well as existing trails that do not require any construction or significant modification. Although this last category does not require special regulations, the NPS believes that designating all trails for bicycle use in one place will increase compliance by making it easier for visitors to understand where bicycles are allowed and how they can be used.

Alternatives Considered in the Current Analysis

NPS Proposed Action and Preferred Alternative

Under the action alternative, which is the NPS's preferred alternative, the existing trail system within Whiskeytown National Recreation Area will be improved and expanded. Trail work will occur on approximately 32.8 miles of trails and will include minor improvements to existing trails, the construction of new multiuse trails, the rerouting of some existing trails, and trail closures and restoration to natural conditions.

The longest new trail, the proposed Whiskeytown Lake Trail, will be approximately 8 miles in length. It will be a multiuse asphalt trail intended for bicycle and pedestrian use. This trail will improve access to the lake and will connect to existing trail networks outside of the recreation area's boundary. It will be the first trail in the recreation area to facilitate road bicycling, likely bringing a new recreational user group to the recreation area. The trail will include safety signs, waysides, and rest points. Under the action alternative, the NPS will also establish a new 7-mile trail along the Shasta Divide, providing visitors with scenic mountain views. The trail will connect with an adjacent BLM trail network where mountain biking occurs. In addition, the NPS will formalize three social trails by merging them into one mile of new trail. All of the new trails will connect to existing trails to create more trail loops. The new trails will create opportunities for new and diverse visitor experiences in different locations throughout the recreation area.

Under the action alternative, seven multiuse trails will be rerouted due to unsustainable conditions from erosion, soil compaction, steep alignment, and undesirable visitor experiences. The new routes will have a more sustainable alignment and capacity for use. In addition, a total of 5.1 miles of trail will be closed without a reroute and returned to natural conditions. In total, the selected alternative will expand the trail network and result in approximately 79.8 miles of trails open to bicycle use within the recreation area.

Other Alternatives Considered

A no-action alternative is required by the National Environmental Policy Act for the purposes of providing comparison to alternatives considered. Under the no-action alternative, the NPS would maintain the current conditions at the recreation area and continue to follow the management direction established in the recreation area's 1999 General Management Plan. No new trails would be constructed, and current management activities on and relating to the existing trail system would continue. Complete descriptions of the action and no-action alternatives are

provided in the Whiskeytown National Recreation Area Trails Management Plan and Environmental Assessment (NPS, 2022).

Baseline Conditions

The costs and benefits of a regulatory action are measured with respect to its baseline conditions. Guidance from the Office of Management and Budget (OMB) for a regulatory analysis suggests that the baseline should represent the agency's best assessment of the way the world would look absent the proposed action (OMB, 2003). Therefore, all costs and benefits included in this analysis are incremental to the baseline conditions. That is, any future impacts that would occur without the proposed action, as well as any past impacts that have already occurred, are not analyzed.

For this regulatory action, the baseline conditions are described in the no-action alternative in the Whiskeytown National Recreation Area Trails Management Plan and Environmental Assessment (NPS, 2022). Under the no action alternative, the management direction established in the recreation area's 1999 General Management Plan would continue. Current management activities associated with the existing trail system would continue and no new trails would be constructed. As a result of the Carr Fire, temporary trail closures and minor trail improvements would continue in order to provide safe trail experiences.

Costs and Benefits

Costs of the Proposed Regulatory Action

The costs of implementing the proposed regulatory action are determined by summing the estimated construction costs and annual maintenance costs for the new trail system. There are four classes of trails that will be affected by the proposed action (II, III, IV, and V), which vary in terms of their desired conditions (e.g., visitor experiences and opportunities, facilities, and services). For the proposed action, construction costs for the 32.8 miles of trail work are estimated to be a one-time cost of \$9,936,863 compared to baseline conditions (NPS, 2022; updated to 2023 dollars).¹ This trail work includes the construction of new multiuse trails, the rerouting of some existing trails, minor improvements to existing trails, and trail closures and restoration to natural conditions. Operations and maintenance costs are estimated to be \$502,818 annually. These undiscounted costs are shown by trail class in Table 1.

¹ All cost and benefit estimates in this analysis have been updated to 2023 dollars using the Bureau of Labor Statistics Consumer Price Index.

Table 1. Undiscounted Construction and Maintenance Costs of the Proposed Regulatory Action, by Trail Class

	Construction Costs	Annual Operations and Maintenance Costs
Class II	\$12,494	\$4,332
Class III	\$924,553	\$17,896
Class IV	\$45,811	\$11,857
Class V	\$8,954,005	\$468,734
Total	\$9,936,863	\$502,818

The estimated costs and benefits of a proposed regulatory action often occur across different times periods. As noted by OMB (2023), a discount factor is used to adjust these effects for differences in timing. Based on new guidance, OMB (2023) recommends the use of a 2% discount rate to account for the rate at which society is willing to trade off current consumption for future consumption (i.e., the social rate of time preference). This 2% rate is measured by the 30-year average real (inflation-adjusted) rate of return on long-term government debt, which provides a fair approximation of the social rate of time preference.

Timing of the proposed action is uncertain but could take up to ten years for full implementation. A phased approach is expected, where reopening of existing trails would occur first, followed by the development and phasing in of new trails, dependent on funding availability. Due to the relatively high construction cost of the Class V Whiskeytown Lake Trail, construction of this trail is expected to take the longest amount of time. For purposes of this analysis, it is assumed that construction costs for Class II, III, and IV trails will be incurred over an eight-year period beginning in 2024, and construction costs for Class V trails will be incurred in years nine and ten. Annual operations and maintenance costs are assumed to begin after completion of the trail construction for the various trail classes. At a 2% discount rate, the costs of the proposed action have a total present value of \$15,422,466 over a 30-year time horizon, and an annualized cost of \$706,015. These results are presented in Table 1.

Table 1. Construction and Maintenance Costs of the Proposed Regulatory Action

Undiscounted Costs		Discounted Costs Based on a 30-year Time Horizon and 2% Discount Rate	
Construction Costs	Annual Operations and Maintenance Costs	Present Value	Annualized Costs
\$9,936,863	\$502,818	\$15,422,466	\$706,015

The proposed regulatory action does not involve fees or other measures that would increase costs to visitors, businesses, or communities. This action would reroute nearly all trails in the recreation area that have safety concerns and/or potential user group conflicts, thus reducing costs associated with safety issues and visitor conflicts. While some trail restoration activities may result in short-term, temporary trail closures, these impacts would be mitigated through accurate and timely communication about the closures, and construction would be scheduled in a way that would minimize impacts on visitors. No trail experiences would be lost through the implementation of the action alternative (NPS, 2022). Therefore, this action is not expected to impose any costs on visitors.

Benefits of the Proposed Regulatory Action

Compared to baseline conditions, this action is anticipated to generate long-term beneficial impacts to visitor use and experience, as recreational opportunities within the recreation area are added to, improved, and diversified. By improving and expanding the existing trail network, visitors will be provided with more diverse recreation opportunities, more sustainable and safer trails, connections to existing trail networks outside the recreation area, and reduced crowding and congestion on the more popular trails within the recreation area. The proposed action is expected to cause an increase in the number of recreation visits to the recreation area, and to improve the recreational experience for current visitors.

Whiskeytown National Recreation Area currently receives more than 800,000 visitors each year. According to the most recent assessment of trail use, conducted in 2017/2018, the recreation area receives approximately 93,000 trail visits per year. Hiking is the most popular activity, comprising 85% of those trail use visits, followed by biking with 8% of trail use visits, running with 4% of visits, equestrian use with 1% of visits, and hunting, fishing, and other uses each accounting for about 1% of visits (NPS, 2022).

Compared to baseline conditions, construction of the approximately 8-mile long Whiskeytown Lake Trail under the action alternative is expected to result in approximately 30,000 additional recreation visits each year (ranging from 20,000 to 40,000). This paved multi-use trail would be designed with the primary use of road bicyclists in mind, as there are currently no trails for road bicycling in the recreation area. However, the trail would also be used by pedestrians. The trail would connect to existing trail networks outside the recreation area and would include safety signs to facilitate safe shared use between cyclists and pedestrians. Waysides and rest points would be installed throughout the trail, providing unique points of interest in the recreation area. In addition to the Whiskeytown Lake Trail, construction of additional new trails and improvements to the existing trail system is expected to improve the visitor experience by increasing overall trail mileage, reducing user group conflicts, and increasing safety for visitors. Trail by trail impacts to visitor use and experience for each trail affected by the proposed action are discussed in the Trails Management Plan and Environmental Assessment (NPS, 2022).

To monetize the benefits of the proposed regulatory action, the number of affected visitors is multiplied by a relevant economic value per visitor-day. The appropriate measure of value to capture changes in the quality or quantity of recreational opportunities in national parks is

consumer surplus, which is calculated as the difference between what a consumer pays for the recreational experience and the maximum amount they would be willing to pay (OMB, 2023). In the absence of a primary study, consumer surplus can be measured through the benefit transfer method, which uses existing consumer surplus estimates from previously conducted site-specific studies to obtain a measure of value specific to the context being evaluated. Based on an in-depth search of the existing economics literature, the most relevant study identified is Neher et al. (2018). Using the travel cost method and conservative modeling assumptions such as exclusion of the opportunity cost of the visitor's travel time, the authors estimate per-trip consumer surplus values for numerous NPS units, including recreation areas. The most accurate estimate for national recreation areas is \$91.41 per trip (in 2023 dollars). Adjusting this per-trip value based on the average length of stay at Whiskeytown National Recreation Area reported in Hoffman and Meehan (1999) results in a value of \$69.78 per visitor-day.

Multiplying the expected increase of 30,000 annual recreation visits expected from the proposed action by this consumer surplus value per visitor-day results in an annual benefit of \$2,093,400 attributable to the proposed action. Because these new recreation visits will result primarily from the addition of the proposed Class V Whiskeytown Lake Trail, for purposes of this analysis, it is assumed that these benefits will not be realized until 2034, the year following expected completion of construction of the Lake Trail. These benefits are analyzed over a 30-year timeframe, through the year 2053, which is the same timeframe used for the annual operations and maintenance costs. The present value of these benefits using a 2% discount rate, as well as an annualized value, is shown in Table 3.

In addition to new recreation visits, current recreation area visitors will likely experience an increase in consumer surplus due to the improved and expanded trail network. In the absence of primary data collection, the exact increase in value that will be experienced by these visitors is uncertain. However, these benefits would be above and beyond those shown in table 3. As a result, the estimate shown in table 3 can be viewed as a lower bound of the expected benefits from the proposed regulatory action.

Table 3: Benefits of the Proposed Regulatory Action

Undiscounted Benefits	Discounted Benefits Based on a 30-year Time Horizon and 2% Discount Rate	
Annual Increase in Consumer Surplus	Present Value	Annualized Benefits
\$2,093,400	\$28,642,209	\$1,311,193

Net Benefits of the Proposed Regulatory Action

This proposed regulatory action is expected to result in construction and maintenance costs to the government, and benefits to Whiskeytown National Recreation Area visitors in the form of improved access, public safety, and enhanced visitor experience. The net benefits of this

proposed regulatory action are calculated as the difference between the monetized benefits to visitors, and the construction, operations and maintenance costs realized in each year. At a 2% discount rate, the present value of these net benefits over a 30-year time horizon are estimated to be \$13,219,742. These results are shown in Table 4.

Table 4: Net Benefits of the Proposed Regulatory Action

Discounted Net Benefits Based on a 30-year Time Horizon and 2% Discount Rate	
Present Value	Annualized Net Benefits
\$13,219,742	\$605,178

This action does not involve additional measures that would increase costs to visitors, businesses, or local communities. Therefore, the net benefits of the proposed regulatory action are expected to be positive.

Uncertainty

The exact number of additional visitors and the marginal increase in value experienced by current visitors resulting from the proposed regulatory action are not known with certainty. The total benefits generated by this action were estimated with the best available data. Results indicate that positive net benefits will be generated, as illustrated in the cost-benefit analysis above. Any uncertainty involved in this analysis is associated only with the magnitude of those benefits. NPS is not aware of any other sources of uncertainty.

Conclusion

The results of this cost-benefit analysis indicate that positive net benefits, with a present value of \$13,219,742 at a 2% discount rate, will likely be generated by implementing the proposed regulatory action. Given that, NPS concludes that the benefits associated with the proposed regulatory action justify the associated costs. Further, this proposed regulatory action is not expected to have an annual economic effect of \$200 million, or to adversely affect an economic sector, productivity, jobs, the environment, or other units of government. This proposed regulatory action will improve economic efficiency.

Regulatory Flexibility Threshold Analysis

The Regulatory Flexibility Act, as amended, requires agencies to analyze impacts of regulatory actions on small entities (businesses, nonprofit organizations, and governments), and to consider alternatives that minimize such impacts while achieving regulatory objectives (Small Business Administration, 2012). Agencies must first conduct a threshold analysis to determine whether

regulatory actions are expected to have a significant economic impact on a substantial number of small entities. If the threshold analysis indicates a significant economic impact on a substantial number of small entities, an initial regulatory flexibility analysis must be produced and made available for public review and comment along with the proposed regulatory action. A final regulatory flexibility analysis that considers public comments must then be produced and made publicly available with the final regulatory action. Agencies must publish a certification of no significant impact on a substantial number of small entities if the threshold analysis does not indicate such impacts.

This threshold analysis relies on the cost-benefit analysis, which concludes that this proposed regulatory action will generate positive benefits and no costs to visitors, businesses, or local communities. In addition, this action will not impose restrictions on local businesses in the form of fees, training, record keeping, or other measures that would increase costs. Rather, this action could reasonably increase park visitation and thereby generate benefits for businesses, including small entities, through increased visitor spending. Given those findings, this proposed regulatory action will not impose a significant economic impact on a substantial number of small entities.

References

- Hoffman, C. and M. Meehan. 1999. Whiskeytown National Recreation Area Visitor Study. Summer 1998. Visitor Services Project, Report 107.
- Neher, C., D. Patterson, J. Duffield, and K. Neher. 2018. Convergent validity of alternative dependent variable specifications for individual travel cost models. *Environmental Economics and Policy Studies*. 21: 307-324.
- NPS (National Park Service). 2022. Whiskeytown National Recreation Area. Trails Management Plan and Environmental Assessment. February 2022.
- OMB (Office of Management and Budget). 2023. Circular A-4: Regulatory Analysis. November 9, 2023.
- Small Business Administration. 2012. "A Guide for Government Agencies: How to Comply with the Regulatory Flexibility Act." May 2012.