

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



***Cost-Benefit and Regulatory Flexibility Analyses:
Proposed Regulations to Designate Bicycle Routes in
Cuyahoga Valley National Park***

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September 26, 2013

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Introduction

This report presents the cost-benefit and regulatory flexibility analyses of the proposed regulatory action to designate certain areas for bicycle routes pursuant to the Final Cuyahoga Valley National Park Trail Management Plan and Environmental Impact Statement (NPS 2012). Quantitative analyses were not conducted due to lack of available data, and because the additional cost of conducting quantitative analyses was not considered to be reasonably related to the expected increase in the quantity and/or quality of relevant information. Nevertheless, 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 \$100 million, and will not adversely affect an economic sector, productivity, jobs, the environment, or other units of government.

The results of the regulatory flexibility 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

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. In general, regulations should be promulgated only when a “market failure” exists that cannot be resolved effectively through other means. A market failure exists when private markets fail to allocate resources in an economically efficient manner. A significant cause of market failure is an “externality,” which occurs when the actions of one individual impose uncompensated impacts on others. For example, motorized vehicle users within the park can impose costs on bicyclists in the form of congestion and health and safety risks if bicyclists are required to use the same roads. Because these costs are not compensated through private markets, users have little incentive to change their behavior accordingly. The result is an inefficient allocation of park resources.

Alternatives Considered in the Current Analysis

NPS Preferred Alternative

Alternative 5 (Preferred Alternative) combines trail elements from all of the Alternatives and proposed trail facilities that will best fit the park. The “hybrid” approach for Alternative 5, will include all elements common to all action alternatives, an increase of 37 miles of trails from existing conditions if fully implemented, including a new 10-mile off- road single track bicycle trail, trail facilities including expanded and new parking areas, introduction of launch sites for water trail access, and expansion of hike-in and paddle-in campsites.

Other Alternatives Considered

The National Park Service has developed eight alternatives for use, stewardship and management of the Trail system within Cuyahoga Valley National Park. The No-Action Alternative would continue current conditions. Alternatives 2, 3 and 4 focus on a specific aspect of the park's significance to develop the future Trail system. Alternatives 2A and 2B would focus on the protection of park resources and improvements to Towpath Trail circulation. Alternatives 3A and 3B would focus on expanding recreational opportunities and significant trail entry points and Alternatives 4A and 4B would focus on providing destination routes to park features and the primitive trail experience.

Off-road bicycle use utilizing single-track design is the only new use identified that is not currently permitted in the park. As such, each alternative is evaluated with and without this new use. Trails identified as off-road bicycling will be shared with hikers and in some limited areas, cross-country skiers. The alternatives are paired into a version "A" that has no off-road bicycling and "B" that includes off-road bicycling.

Baseline Conditions

The costs and benefits of a regulatory action are measured with respect to its baseline conditions. Baseline describes conditions that would exist without the regulatory action. 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 included in this analysis. For this regulatory action, the baseline conditions are described as Alternative 1 in the Final Trail Management Plan and Environmental Impact Statement (NPS 2012).

Complete descriptions of the alternatives are in the Final Trail Management Plan and Environmental Impact Statement (NPS 2012).

Costs and Benefits

Benefits Transfer Meta Analysis

The purpose of this proposed regulatory action is to designate certain areas for bicycle use within Cuyahoga Valley National Park. This action does not involve fees, or other measures that would increase costs to visitors, businesses, communities, or the park. Therefore, this action will not impose any costs to visitors.

This action will generate benefits in the form of enhanced visitor experience and safety for bicyclists. Economists term such benefits as *consumer surplus*¹, which can be measured through *benefits transfer meta analysis*. A benefits transfer meta analysis combines information from existing valuation studies in economics literature and statistically estimates the relationships between the consumer surplus estimated in those studies and important

¹ Consumer surplus equals the maximum willingness to pay for an activity minus the costs involved to participate in that activity.

characteristics of the studies such as type of activity, type of resource, and type of valuation methodology used (Rosenberger and Loomis 2001). These estimated relationships then allow the analyst to calculate a consumer surplus value that is specific to the activity and resource under consideration. The results of the meta analysis for bicycling are presented in Table 1.

Table 1		
Benefits Transfer Meta Analysis of Consumer Surplus per Visitor-Day for Bicyclists		
Activity	---Consumer Surplus per Visitor-Day---	
	(1996 dollars)^a	(August 2013 dollars)^b
Bicycling	\$48.53	\$72.34
^a Source: Rosenberger and Loomis (2001) ^b Indexed using the Consumer Price Index for all urban consumers (BLS 2013)		

This meta analysis indicates that one visitor-day of bicycling will generate \$72.34 in consumer surplus for bicycling in each of the action alternatives. That value applies to new visitors that are drawn to the park by the proposed regulatory action. Current visitors, on the other hand, would experience a marginal increase in the consumer surplus they derive from their specific type of use. For example, current bicyclists might experience an increase in consumer surplus equal to half the visitor-day value calculated above (\$36.17). To estimate the total consumer surplus generated by the proposed regulatory action, the resulting number of new visitors and the marginal increase in value experience by current visitors would have to be estimated. However, the information required to estimate those factors is not available and NPS was not able to estimate the total consumer surplus generated by this action. Nevertheless, positive benefits would be generated.

Cost Effectiveness Analysis

To determine whether the preferred alternative would reasonably generate positive *net benefits*² a cost effectiveness analysis was conducted. This analysis determined the number of new visitors needed to generate sufficient benefits each year to offset construction and operations and maintenance (O&M) costs associated with the action alternatives. The cost to NPS of implementing an action alternative is determined by adding the estimated construction costs and the present value of the estimated yearly operation and maintenance costs. For the preferred alternative, construction is estimated to be a one-time cost of \$1,677,500. The present value of operation and maintenance is \$1,918,997, which was determined using a 3 percent discount rate over a ten year period. Adding construction and the present value of operation and maintenance costs yields \$3,596,497. The Office of Management and Budget Circular A-4 recommends a 3 percent discount rate when analyzing the impacts to private consumption. The total cost amortized over a ten-year period at a 3 percent discount rate yields \$421,619, which is the level of annual benefits required to make this investment cost-effective over the 10 year period. Dividing the amortized value by the 2013 consumer surplus value for bicyclists in Table 1

² Net benefits equal the total benefits received from the action, minus any associated costs.

(\$72.34) determined the park will need to attract at least 5,828 new visitors annually in order to generate positive net benefits. The results for the other action alternatives are presented in Table 2.

Table 2
Number of Visitors Needed to Offset Construction and Operation & Maintenance Costs of Action Alternatives

Alternative	Construction Costs	Present Value O&M	Construction + Present Value O&M	Amortization	# Visitors to Offset Costs
2A	\$950,000	\$318,373	\$1,268,373	\$148,692	2,055
2B	\$1,100,000	\$743,859	\$1,843,859	\$216,157	2,988
3A	\$1,175,000	\$360,828	\$1,535,828	\$180,046	2,489
3B	\$1,700,000	\$1,704,335	\$3,404,335	\$399,092	5,517
4A	\$887,500	\$299,180	\$1,186,680	\$139,115	1,923
4B	\$1,507,900	\$1,886,821	\$3,394,721	\$397,965	5,501
5 (Preferred)	\$1,677,500	\$1,918,997	\$3,596,497	\$421,619	5,828

Note: Construction and O&M costs could decrease with the use of volunteers.

NPS believes it is reasonable to expect an annual increase of 5,828 visitors since the Park's trail system is a significant recreation feature in the Park and is the predominant purpose of park visits. The Park has also been ranked as one of the top ten most visited National Parks in the country the past five years. Implementation of the preferred alternative is expected to improve visitor safety by reducing trail user conflicts between bicyclists, equestrians, and hikers in the park (NPS 2012). In addition, this action does not involve additional measures that would increase costs to visitors, businesses, or local communities. Therefore, it is reasonable to believe that local economies will experience increases in economic activity from the preferred alternative, and that the net benefits of the preferred alternative will be positive.

Uncertainty

The number of new visitors and the marginal increase in value experienced by current visitors resulting from the proposed regulatory action is unknown. Therefore, the total benefits generated by this action cannot be estimated. Nevertheless, positive benefits will be generated as illustrated in the cost-effectiveness 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 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 \$100 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 Analysis

The Regulatory Flexibility Act of 1980, as amended in 1996 requires agencies to analyze impacts of regulatory actions on small entities (businesses, non-profit organizations, and governments), and to consider alternatives that minimize such impacts while achieving regulatory objectives. Agencies must first conduct a threshold analysis to determine whether regulatory actions are expected to have 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

Bureau of Labor Statistics (BLS). Website <http://www.bls.gov/> accessed September 26, 2013.

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