

**National Park Service
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***Cost-Benefit and Regulatory Flexibility Analyses:
Proposed Regulations to Designate New Routes for Bicycle Use
in Bryce Canyon National Park***

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Introduction

This report presents the cost-benefit and regulatory flexibility analyses of the proposed regulatory action to designate new routes for bicycle use pursuant to the Draft Bryce Canyon National Park Multi-Use Visitor Path Environmental Assessment (NPS 2014a). 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

Under Alternative A (Preferred Alternative) the multi-use visitor path would be designed to fit into the natural topography to the greatest extent possible and would generally parallel State Route 63 and the main park road while providing separation between non-motorized user groups and vehicles. The path would also provide maximum direct access to key visitor destinations in the park such as the General Store; the Lodge; and Sunrise, Sunset, Inspiration, and Bryce points.

The path would begin at the shuttle staging area in Bryce Canyon City and continue for approximately 7.3 miles through Dixie National Forest and in Bryce Canyon National Park.

Other Alternatives Considered

Under Alternative B the multi-use visitor path would also be designed as a separated path, distinct from park roads; however it would remain as close to existing roads as possible. It would begin at the shuttle staging area and continue for roughly 7.2 miles through Dixie National Forest and in Bryce Canyon National Park. This alignment for the proposed path would not connect directly to visitor destinations such as the Lodge and Sunrise, Sunset, Inspiration, and Bryce points. Instead, it would largely rely on visitors making connections via low-speed, existing park roads to provide access to these destinations.

A No-Action Alternative is required by the National Environmental Policy Act for the purposes of providing comparison to alternatives considered.

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 in the No-Action Alternative in the Draft Bryce Canyon National Park Multi-Use Visitor Path Environmental Assessment (NPS 2014a).

Complete descriptions of the alternatives are in the Draft Bryce Canyon National Park Multi-Use Visitor Path Environmental Assessment (NPS 2014a).

Costs and Benefits

Benefits Transfer Meta Analysis

The purpose of this proposed regulatory action is to designate new routes for bicycle use within Bryce Canyon 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 characteristics of the studies such as type of activity, type of resource, and type of valuation

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

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.

Activity	---Consumer Surplus per Visitor-Day---	
	(1996 dollars)^a	(August 2014 dollars)^b
Bicycling	\$31.74	\$48.12

^a Source: Rosenberger and Loomis (2001)
^b Indexed using the Consumer Price Index for all urban consumers (BLS 2014)

This meta analysis indicates that one visitor-day of bicycling will generate \$48.12 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 (\$24.06). 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 maintenance 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 estimated yearly maintenance costs. For the preferred alternative, construction costs are estimated to be a one-time cost of \$3,505,000. The life cycle maintenance costs (over 30 years) would be \$457,000. Adding construction and life cycle maintenance costs yields \$3,962,000. 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 30 years at a 3 percent discount rate yields \$202,138, which is the level of annual benefits required to make this investment cost-effective over the 30 year period. Dividing the amortized value by the 2014 consumer surplus value for bicyclists in Table 1 (\$48.12) determined the park will need to attract at least 4,201 new visitors annually in order to generate positive net benefits. The results for the other action alternative are presented in Table 2.

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

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

Alternative	Construction Costs	Maintenance Costs (over 30 years)	Construction + Maintenance	Amortization (30 yrs @ 3%)	# Visitors to Offset Costs
A (Preferred)	\$3,505,000	\$457,000	\$3,962,000	\$202,138	4,201
B	\$6,299,000	\$478,100	\$6,777,100	\$345,763	7,185

Note: Construction costs are analyzed on NPS land Segments III a-c.

NPS believes it is reasonable to expect an annual increase of 4,201 visitors since there was a 30% increase in visitation between 2008 and 2012. In 2008, the park had 1,043,321 visitors. In 2012, the parks visitation increased to 1,385,352, which is an average increase of 68,406 visitors per year (NPS 2014b). Increases in visitation of the park are leading to transportation system capacity issues and traffic congestion. Implementation of the preferred alternative is expected to improve visitor safety for travel in the park and provide a better visitor experience and promote non-motorized travel between nearby communities and the park as well as between key destinations in the park. The path would enhance the park’s transportation system by connecting the park’s gateway communities with high visitor use areas along the canyon rim in the Bryce Amphitheater and other key features of the park. The proposed path project would also connect to the existing transportation system, including visitor shuttle buses, hiking trails and walking paths, parking lots, and roads. This would link major visitor attractions and facilities with both non-motorized and motorized transportation modes. Visitor safety would be improved by separating motor vehicles from bicyclists, pedestrians, and other non-motorized user groups where possible (NPS 2014a).

In addition, this action does not involve additional measures that would increase costs to visitors, businesses, or local communities. Therefore, the results of this cost-benefit analysis show that 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-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 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

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