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Fall 10-27-2019

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Recommended Citation

Meyer, Mark E.; Sullivan, Robert; Palmer, James F.; Peters, Melanie V.; and Taylor, Ksienya A., "A Visual Impact Assessment Methodology for the National Park Service" (2019). *Visual Resource Stewardship Conference*. 9.

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A VISUAL IMPACT ASSESSMENT METHODOLOGY FOR THE NATIONAL PARK SERVICE

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ABSTRACT

As the National Park Service (NPS) set out to create a visual resource management program, the first major component was the development of a robust visual resource inventory (VRI) process to identify, locate, and assess high value views, both within and near NPS units, based on both scenic quality and the importance of the view to the visitor experience. The next component in the program has been the development of a visual impact assessment (VIA) process to understand how changes in the landscape—whether inside the park or beyond its boundaries—could impact the scenic quality of valued views and visitor experience of those views. This presentation will discuss the NPS VIA process and highlight results of field-testing.

Units of the National Park System encompass a wide variety of landscape types and visual settings. Particular views are enjoyed not only for scenic qualities but also appreciated for their historic and cultural values. NPS incorporates visible elements of views into their interpretive and educational activities. As a result, the NPS VRI was designed to identify not only the visual qualities of views but also the other values that make views important to NPS and park visitors.

The NPS VRI was also built to support VIAs, both for NPS projects and actions within NPS unit boundaries, and projects and activities beyond NPS unit boundaries, where NPS is a stakeholder rather than a permitting agency. The detailed information from the VRI provides a sound basis for articulating the full effects of a proposed project or activity, which may go far beyond measuring visual contrast and other more purely scenic aspects of visual impact.

Building on the inventory process the NPS visual impact assessment (VIA) methodology identifies the expected level of visual change from a proposed project or activity, and assesses the likely effects of the change on scenic quality as determined in the VRI. The NPS VIA approach provides parks with information to pursue better planning and design for park projects and credible support for understanding and communicating the potential impacts of changes beyond park boundaries.

INTRODUCTION

The NPS manages the 419 units of the National Park System, and helps administer dozens of affiliated sites, as well as the National Register of Historic Places, National Heritage Areas, National Wild and Scenic Rivers, National Historic Landmarks, and National Trails. These include not only scenic landscapes, but also historic and cultural sites of great importance.

NPS has recognized the need to develop a comprehensive approach to assessing scenic values of landscapes in and near areas for which the NPS responsible, and to develop strategies to protect their scenic quality for future generations. The Visual Resource Program (VRP) developed by the Air Resources Division in the Natural Resource Stewardship and Science directorate provides service-wide

support to parks for managing this important resource within the context of the NPS mission (Meyer and Sullivan 2016).

The visual resource inventory (VRI) is the primary tool in the VRP that helps NPS units understand their visual resources and communicate their value to partners and stakeholders in a consistent and credible way. The inventory process is a systematic description of the visual elements, scenic quality, and importance to NPS visitor experience and interpretive goals for views inside and outside NPS areas.

Building on the inventory process the NPS visual impact assessment (VIA) methodology identifies the expected level of visual change from a proposed project or activity, and assesses the likely effects of the change on each of nine scenic quality components measured in the VRI. The combined effects are then applied to the existing scenic inventory value for the view derived from the VRI, which is a combined measure of scenic quality and view importance. The detailed VRI information supports articulating the exact nature of the effects of the proposed project on the view and its associated values, which is particularly important when the NPS is providing stakeholder input concerning projects beyond NPS unit boundaries. The NPS VIA approach provides parks with information to pursue better planning and design for park projects and credible support for understanding and communicating the potential impacts of changes beyond park boundaries.

BACKGROUND AND LITERATURE REVIEW

To successfully assess potential impacts of changes to any resource it is important to have a thorough understanding of the existing qualities and values of that resource. The fundamentals of visual resource inventory for land management have been developed by multiple agencies, primarily with the purpose of supporting the specific mission of the agency. To meet their multiple use missions, the Bureau of Land Management (BLM) and United States Forest Service (USFS) developed inventory methods based on an assessment of scenic quality or variety classes of the entire landscape under management as well as some measure of the sensitivity of viewers to changes in the landscape (USDI BLM, 1986b, USFS 1974). The system developed by Jones & Jones for the Federal Highways Administration (FHWA) assesses existing visual quality for transportation projects and considers what a viewer sees both, from a roadway as well as looking at a roadway or other transportation project (FHWA, 1981). It considers the landscape compositionally in terms of intactness, vividness and unity.

The NPS VRI adapted features of existing systems and was developed specifically to meet requirements dictated by the visitor centric mission of the NPS. To capture the scenic and importance values from the visitor perspective the unit of inventory is a view, rather than management areas based on physiographic, biological, or other properties. It is designed to work for many types of National Park System areas, and in multiple types of landscapes and visual settings. The VRI considers the context of a NPS unit's visual setting and provides a framework for understanding and protecting the scenic values within that context.

In the NPS VRI, scenic values are based on not only the aesthetic qualities of the scenery, but also its value to the visitor experience and the NPS mission. The inventory includes two primary processes: the landscape description and scenic quality assessment and the view importance assessment. The landscape description and scenic quality assessment process identify and describe visible elements of the viewed landscape and assess the scenic quality of the view using the following rubric.

- Landscape Character Integrity
 - Landscape Character Elements
 - Inconsistent Elements

- Quality and Condition of Elements
- Vividness
 - Focal Points
 - Forms and Lines
 - Color Vividness
- Visual Harmony
 - Spatial Relationships
 - Scale Relationships
 - Color Harmony

The view importance assessment identifies and describes key attributes of the viewpoints, viewed landscape, and the viewers that determine the importance of the view to NPS and to the visitor experience. View importance is evaluated using the following rubric.

- Viewpoint Importance
 - Publicity
 - Facilities and Management
 - Interpretive Services
- Viewed Landscape Importance
 - Publicity
 - Specially Designated Areas
 - Interpretive Themes
- Viewer Concern
 - Daily Visitation
 - View Duration
 - Viewer Sensitivity

In addition to assessing scenic quality and view importance VRI includes detailed information about existing landscape character, landforms, land cover, land uses, and visible structures, dominant forms, lines, colors and textures, as well noting particular visible landscape elements that have scenic, historic, cultural or scientific value. This detailed information provides a sound basis for articulating the full visual effects of a proposed project or activity, which may beyond measuring visual contrast and other more purely scenic aspects of visual impact.

GOALS AND OBJECTIVES

Develop a simple, reliable visual impact assessment method to determine the effects of proposed projects to NPS views and the visitor experience. Some of the key elements in reaching this goal include:

- Use the VRI information as the basis to evaluate visual change as seen from a viewpoint.
- Use well-defined and defensible thresholds to support decisions about the significance of visual impacts.
- Support development of NEPA documents required for NPS projects or external projects as seen from NPS viewpoints. This should include a way to summarize the results to facilitate the comparison of alternatives and overall effects.

RESULTS

Development of the NPS VIA method is based on the idea that a visual resource inventory has been completed from the KOPs to be evaluated for potential impacts. The VIA is being developed in two parts. The first part addresses the scenic quality component of the inventory and the draft process is described below. The second part will address the evaluation of the potential impacts the view importance component of the inventory and is not included in this paper.

The draft VIA methodology extends the scenic quality inventory to include an assessment of project visibility along with a rating system to evaluate the changes in the visual landscape from the KOPs. The initial assessment of a level of visibility can serve to set the basis for understanding potential changes in the scenic quality factors. Consistent with the NPS inventory the VIA process is to be completed by multiple evaluators as results by a single evaluator are considered to be less reliable (Churchward et al., 2013). The results of the rating process and impact assessment are designed to support the development of a comprehensive VIA document as outlined in NPS guidance (Sullivan, 2014). The NPS VIA is planned to ultimately serve as the process for determining the impacts of projects as seen from viewpoints within NPS units whether the project is proposed by NPS or an outside entity beyond park boundaries.

The draft NPS VIA includes a direct assessment of the nine scenic quality factors for which ratings are collected during the inventory. The assessment of visibility uses a seven level scale developed for evaluating the visual prominence of built projects including transmission lines, and solar and wind energy projects (Sullivan et al, 2014). The scenic quality impact evaluation is done in the field and is to be completed with high quality simulations of the project that show potential changes in the visual landscape. A detailed project description is also required and discussed a group prior to the evaluation to assure all team members understand the project components and their visual characteristics. As in the NPS inventory process individual raters complete an impact assessment form and through a discussion the team reaches a consensus rating for each factor. The rating scale for each factor is a bipolar scale that ranges from strongly negative to strongly positive with a neutral rating of neither as the middle. See Attachment 1 for a draft individual rating form.

During the week the June 25-27 ARD coordinated a meeting and field study to evaluate the visual effects of the Dominion Power Surrey-Skiffes Creek-Wheaton (SSCW) transmission line on views from Colonial National Historical Park and Colonial Parkway and the Captain John Smith Chesapeake National Historic Trail. The SSCW project crosses approximately 4 miles of the James River within view of the NPS units and was completed in the spring of 2019. The study presented an opportunity to pilot the draft NPS VIA process and also included conducting scenic quality inventory, an assessment of the accuracy of the simulations prepared for the environmental assessment for the project permit and the observation of the visual characteristics of the project at night. The viewpoints selected for the field study were mostly the same ones identified in the project EA and for which simulations had been prepared. The NPS staff at the park also identified additional locations to representative of the visitor experience. A total of eight viewpoints were evaluated during the field study and the field team consisted of nine evaluators for four of the viewpoints and seven for the remaining four. The results of the field study and detailed statistical analysis is provided in Sullivan et al. presented at this conference.

DISCUSSION AND CONCLUSION

The five level rating scale ultimately ended up as essentially a three level scale as nearly all ratings fell in the Strongly Negative, Somewhat Negative, or Neither categories with only one rating from all raters and viewpoints in the Somewhat Positive category. There seemed to be a relatively good correlation among the raters and among the consensus and individual ratings. This would indicate that the multiple rater approach to achieve a measure of reliability is likely a good approach to incorporate into future methods. However, the correlations among the main components of Integrity, Vividness and Visual Harmony and among the three factors within each one indicate that the framework of trying to directly relate to the inventory may not be a valid approach for assessing visual impacts.

The pilot of the VIA also resulted in a lack of interval quality and that it would be reasonable to expect that, when raters are actually considering a potential project that most ratings would be either “Strongly” or “Somewhat” negative or “Neither.” and instead of a five level scale it becomes a three level scale. This would seem to indicate the need to develop an alternative scale that would result in maintaining ratings along a 5-10 level interval scale that can be considered more credible.

After completing the pilot study it is also not clear how the draft VIA methodology could lead to an objective, unbiased determination of an observed, or in most cases a predicted change was “significant” in the sense used for a NEPA analysis. The process generally supports the development of a narrative description of the impacts by guiding the analysis toward the changes in the scenic quality factors in the inventory but it could be difficult to create distinctions among alternatives with what ultimately was a limited rating scale and a simple method to summarize the results with those distinctions is not readily apparent.

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