Integrating Visual Resources and Visitor Use Management Planning: A Case Study of the Moses H. Cone National Historic District, Blue Ridge Parkway

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Abstract.—This paper presents a case study of a National Park Service (NPS) management planning project for the Moses H. Cone National Historic District (NHD), located along the Blue Ridge Parkway in North Carolina. The project combined NPS and US Forest Service landscape classification, visitor use and resource management planning processes; the case study also includes the author’s ideas about how these can be integrated and applied on the ground. An integral part of the management planning process was coming to an agreed upon understanding of the park/NHD’s resources and visitor experience opportunities and where they were located. An inventory and classification of the park/NHD landscape into a range of distinct resource landscape units (RLUs) was the first step. The RLUs were analyzed to compare and contrast the spatial distribution of important natural, cultural and visual resources and contemporary infrastructure throughout the park/NHD. The landscape inventory, classification and additional analysis provided the basis for developing resource protection and visitor use alternatives and management prescriptions for each RLU. Visual resources were addressed at the RLU scale as character defining features and more specifically in the proposed management concept, zones and prescriptions.
CASE STUDY LOCATION AND BACKGROUND

This case study presents a methodology that was applied in preparing a developed area management plan (DAMP) for the Moses H. Cone Memorial Park, a National Historic District (National Park Service 2015). The park/NHD is a 3,500 acre early 1900s ‘country era’ estate that is now in a developed area located along the Blue Ridge Parkway near milepost 294 in Blowing Rock, North Carolina.

Moses and Bertha Cone started developing the estate around 1900. Moses was a prosperous textile entrepreneur, conservationist and philanthropist of the Gilded Age. The estate’s centerpiece is Flat Top Manor, a white wood frame, 13,000 square foot mansion with 20 rooms built in 1901 in the grand Colonial Revival style. Moses Cone died in 1908 and following his wife Bertha’s death in 1947 the estate was transferred to federal ownership.

I was project manager of the DAMP being prepared for the Memorial Park between 2000 and 2011. This case study presents the DAMP process which carried forward some of my earlier work as the team landscape architect on the NPS Arches National Park visitor experience and resource protection process in the 1990s (National Park Service 1995, Clark and Stankey 1979).
The National Park Service’s General Management Planning (GMP) process that was used in this case study had 11 key steps as shown in the graphic above. Data developed in Steps 1-3 are now contained in a park foundation document (National Park Service 2015). That document provides a basic understanding of the park’s resources, values, and history. It contains a formal statement of the park’s core mission and provides guidance for all planning and management decisions.

GMP Steps 1-4 and 9-11 are not presented as part of this case study. Instead, this presentation describes the author’s overview of Steps 5-8 which focus on using Resource Land Units (RLUs), visitor use attributes, recreation opportunities (Clark and Stankey 1979) and visual resources for generating alternatives and applying management zoning (National Park Service 2015).
The NPS defines fundamental resources and values as “features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the park purpose and maintaining its significance” (National Park Service 2009). All national parks have fundamental natural, cultural and visual resources and contemporary infrastructure. It is necessary to come to an agreed upon understanding of what resources and visitor experiences are in the park and where they are located before park management strategies and management prescriptions are developed.

The 6 steps illustrated in the graphic above show the process flow that was used in the park/NHD DAMP to inventory and analyze resources.
INVENTORY AND MAP NATIONAL HISTORIC DISTRICT RESOURCES—STEP 5.1

The first step was inventorying and mapping resource locations such as hydrology (waterform), vegetation (generalized land cover), topography (landform), historic resources, and special environments like wetlands, critical habitats, and contemporary facilities and infrastructure. These layers were derived from historic site maps, cultural landscape reports, and historic resource reports (Firth 1993). Field research and the perceptions and experiences of park staff were also taken into account. This step provided the necessary data layers to conduct the landscape framework analysis that would facilitate defining RLUs.

This case study inventory consisted of eight hand drawn resource and infrastructure overlay maps as seen in the figure. A separate resource factor or theme was depicted on each drawing layer. Maps were hand drawn for ease of production because of the simple level of detail and lack of available digitized data.
CONDUCT LANDSCAPE FRAMEWORK ANALYSIS—STEP 5.2

Landscape analysis yields a generalized map of how a park can be divided into logical landscape spaces or rooms. The process shown above involved overlaying the data for prominent vegetative areas (green), ridgelines (black dashed lines), major drainages (blue lines), major land forms (hachured areas) and edges (dashed red lines). The goal was to delineate landscape spaces and locate the landform and vegetative boundaries that naturally define spaces in the landscape (Litton and Tetlow 1978).

The Landscape Framework Map above illustrates a coarse delineation of resource landscape units based on the analysis. To further refine and delineate other potential landscape spaces, cultural resource and infrastructure data layers needed to be added.
IDENTIFY RESOURCE LANDSCAPE UNITS—STEP 5.3

This figure shows the resource maps used to refine resource landscape unit (RLU) boundaries. Each study map is a compilation of the previous step’s overlay modeling with new resource data layers added.

The RLU classification process was not complex, precise or time-consuming but a broad-brush approach for general land management planning. Its primary purpose was to spatially define landscape units that shared certain features and were expected to correspond with a visitor’s experience of the landscape and sense of place. Units like the Flat Top Manor House RLU were defined by focal attractions (in this case, the manor house itself).

As each RLU was identified, boundary lines were drawn, names were assigned, and descriptions and interpretations were created. Cultural resources – including buildings, sites, pastures, meadows, pine forest, apple orchards, gardens, recreation areas, and the carriage trail road system – played a secondary but still important role in defining the RLUs (Firth 1993).
RESOURCES LANDSCAPE UNITS—STEP 5.3

The RLU landscape classification methodology was not meant to coincide exactly with the park’s plant communities, ecology, or other natural resources data sets. Rather, the objective was to define distinct areas that would guide resource management and visitor use in the park. It is important to note that RLUs were defined by existing conditions, not expected future conditions.

The opportunities for diverse visitor experiences in each RLU were largely determined by the unit’s available resources, visual attractiveness, and accessibility. The relationship of each RLU’s resources to the park’s purpose and interpretive themes was also taken into consideration. Understanding the experience opportunities available in each RLU helped staff define the range of appropriate visitor experiences.

Based on the analysis, 16 RLUs were identified for the park/NHD as shown in the figure. Photographs of some RLUs are included to show their visual character.
RESOURCE LANDSCAPE UNIT GROUPINGS—STEP 5.3

<table>
<thead>
<tr>
<th>Historic Building</th>
<th>Mountain &amp; Pasture</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Flat Top Manor House</td>
<td>• Flat Top Mountain</td>
</tr>
<tr>
<td></td>
<td>• Rich Mountain &amp; Deer Park</td>
</tr>
<tr>
<td>Constructed Water Features</td>
<td>Un-Named Forest</td>
</tr>
<tr>
<td>• Bass Lake</td>
<td>• Un-Named Forest #1</td>
</tr>
<tr>
<td>• Trout Lake</td>
<td>• Un-Named Forest #2</td>
</tr>
<tr>
<td>Orchard</td>
<td>Highway Road</td>
</tr>
<tr>
<td>• Sawmill Place Orchard</td>
<td>• Trout Lake Road</td>
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<tr>
<td>• Flat Top Orchard</td>
<td>• Blue Ridge Parkway</td>
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<tr>
<td>• China Orchard</td>
<td></td>
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<tr>
<td>Carriage Road System</td>
<td></td>
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<tr>
<td>• Duncan Road</td>
<td></td>
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<tr>
<td>• May View Road</td>
<td></td>
</tr>
<tr>
<td>• Maze/Stringfellow Road</td>
<td></td>
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<tr>
<td>• Wadkins Road</td>
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</tbody>
</table>

The 16 RLUs were grouped under headings that identify the human-built features or natural and visual resources that most define the RLU’s character and appropriate visitor uses. The headings were Historic Building, Constructed Water Features, Orchard, Carriage Road System, Mountain and Pasture, Un-Named Forest, and Highway Road. This helped summarize and organize park resources and visitor experiences for the staff and the public.
FINALIZE RESOURCE LANDSCAPE UNIT BOUNDARIES—STEP 5.3

Once the various resource and infrastructure data layers were digitized, the park’s geographic information system was used to confirm and refine the RLU boundaries. Google Earth oblique aerial views of the landforms were used to verify landform patterns, enclosure and edges. Computer monitor screenshots of the Flat Top Mountain and Duncan Road RLUs are shown on the left above. On the right, the final RLU map is shown over an aerial photograph base image.
The figure above presents example RLU descriptions for Flat Top Mountain and Duncan Road that locate each RLU in the park, provide a physical description, list current visitor uses, and describe views within and/or outside the park.

**Flat Top Mountain**—This RLU is defined by recreational use of the carriage road, Flat Top Mountain, and associated topography, vegetation, and views. The RLU encompasses Flat Top Mountain, the carriage trail leading to the top, and the Cone Cemetery and open meadow surrounding it. The Cone Cemetery is located about half way up Flat Top Mountain. It sits in an open meadow, surrounded by an iron fence and a planting of Fraser fir to “frame” the space. Flat Top carriage trail is unique in that it maintains the low slope gradient by using a series of 15 switchbacks on the upper section. Views from Flat Top carriage trail include filtered views across Flat Top pasture at the lower end, and views to Rich Mountain, Grandfather Mountain, and Trout Lake while crossing the Cone Cemetery meadow. The tower on top of Flat Top no longer provides a continuous 360 degree view of the estate and surrounding Blue Ridge Mountains as the views are now obscured but should be restored. Views from Flat Top Mountain also now include intrusions of development in nearby Blowing Rock.

**Duncan Road**—This RLU encompasses the most heavily used carriage trail, connecting the Manor House and Bass Lake. It is defined primarily by recreational use of the carriage trail and associated views. Views from Duncan Road include the Manor House across Flat Top Orchard, the approach to the Manor House, and pastoral and forest scenery. The unit is bordered to the west by US 221, to the southeast by the park/NHD boundary, to the east by Bass Lake RLU, and to the north by Flat Top Orchard RLU.
RESOURCES LANDSCAPE UNIT ATTRIBUTES FOR VISITOR USE—STEP 5.4

For each of the resource landscape units, six resource attributes were evaluated. This provides the means for comparing the various units to determine which ones would support and/or sustain visitor use, relative availability of resources, and relative importance of units to purpose, significance, and interpretive themes. As illustrated by the Flat Top Mountain RLU in the figure, the first four attributes include:

Relative Availability of RLU—This criterion examines how abundant particular resources/area are both inside and outside of the park. A score of 1 means the resource does not exist elsewhere; 5 means it is a common resource.

Ability of RLU to Conceal Use—This criterion examines the ability of the resources/area to obscure the evidence of visitor use or development. A score of 1 means the resource cannot easily conceal additional visitor use/facilities; 5 means it can conceal additional use/facilities perhaps because of vegetation, location, etc.

Ability of RLU to Withstand Use—This criterion examines the ability of the resources/area to support or sustain visitor use or development. A score of 1 means the resource can not easily withstand visitor use; 5 means it can more easily withstand visitor use perhaps because it is hardened or has infrastructure.

Potential Interest of RLU to Visitor—This criterion examines the interest of particular resources/area to visitors. A score of 1 means the resource does not interest visitors; 5 means it there is a high interest in using or visiting this resource.
RESOURCES LANDSCAPE UNIT ATTRIBUTES FOR VISITOR USE—STEP 5.4

Attributes five and six include:

**Relative Importance of RLU Related to Park Purpose, Significance & Interpretive Themes**—This criterion examines how important the particular resource/areas are to the purpose and significance of the park and primary interpretive themes—do they contribute? Are they important but not related? A score of 1 means the resource does not relate or is not important to the purpose, significance, and themes; 5 means it is an important part and closely related to the purpose, significance, and themes.

**Appropriateness & Current Location of Existing Facilities & Infrastructure in the RLU**—This criterion examines how important particular sites or features within the resources/area are to the purpose and significance of the park and primary interpretive themes—do they contribute? Are they important but not related? A score of 1 means the existing facilities, sites, and infrastructure do not relate or are not important to the purpose, significance, and themes; 5 means they are an important part and closely related to the purpose, significance, and themes.
The table above shows the six resource attributes for each RLU and their comparative ratings. For example, from the ratings for ‘Relative Importance of RLU Related to Park Purpose, Significance & Interpretive Themes’ (2nd to last column) we see that:

- Twelve of the RLUs have very high relative importance because of the original carriage trails and the remaining estate buildings.
- The two Un-Named Forest Units also have very high relative importance because they were a part of the original estate and were left undeveloped.
- The two Road Units are very low in importance. This is especially true for the Parkway RLU that bisects the park NHD and compromises its integrity.
The range of resource experience opportunities (REOs) a park has to offer are identified in order to:

- Understand the potential educational and/or recreational values within each RLU.
- Find potential matches and conflicts between proposed resource-based visitor recreation use and the NPS mandate to preserve sensitive natural and cultural resources.
- Define appropriate management zones and determine appropriate management activities within each RLU.

Symbols were used on each RLU map to illustrate which general visitor experiences were available. The maps provide an at-a-glance way to compare RLUs and see opportunities, where they located, and what the rare opportunities may be.
RESOURCE EXPERIENCE OPPORTUNITIES—STEP 5.5

Carriage Trails Pasture Conifer Plantation Enclosed Views
Six RLUs including Duncan Road, May View Road, Maze/Stringfellow
Road, Sawmill Place Orchard, Flat Top Orchard and Un-Named Forest 2
provide very similar experiences because of their geographic proximity
to one another, being interconnected by a system of carriage trails and
vegetation land cover includes a mix of the conifer plantations,
deciduous forest over story and some remnants of the apple orchards.
While there are some openings in the over story vegetation offering
pastoral views the primary visitor experience is one of hiking, running,
or horseback riding on miles of carriage trails through the forest.

RESOURCE EXPERIENCE OPPORTUNITIES—STEP 5.5

An example of how REOs can be used to contrast and compare RLUs is shown above.
VIEW SELECTION—STEP 5.6

It was essential to incorporate visual resources into the DAMP in order to ensure that views and visual quality within park/NHD boundary – and views beyond the boundary – would be protected over time.

Much of the visitor experience is connected with what people see as they walk or ride horses on 24 miles of carriage trails. Carriage trails were designed to have both enclosed views of the trail corridor and framed and panoramic views of distant landscapes. Views of lake water features are an integral part of the visitor’s visual experience as are views of the Flat Top Manor House and other remaining historic structures. Visitors can see most of the estate’s forested or open pastures and mountain meadows from carriage trails.

As shown in the figure above, the park/NHD’s most important views and viewpoints were identified and mapped. The viewpoint identification worksheet on the left above lists the thirty views selected for management. Some views that had been lost because of vegetation growth were identified for restoration. The sightlines of those views are marked with red lines on the map.
In the National Park system, different areas of each park are managed separately to achieve desired resource and social conditions. These management zones are the building blocks for resource protection and visitor use management. Different actions are prescribed for each zone based on the facilities and use levels.

Management zones are defined by carefully analyzing resource constraints/sensitivities, experience opportunity areas, resource attributes for visitor use, and desired future conditions for the park. The prescriptions for each management zone focus on results—desired conditions—rather than on the work (activities and projects) needed to achieve results.

For effective and efficient management, it is vital to clearly establish the desired long-term conditions so that everyone knows what they are working toward and can evaluate progress. Identifying specific desired resource and visitor use conditions for the park provides the foundation for all subsequent decision making.
Eight management zones and prescriptions were identified and described for the park/NHD as shown in the figure above. These included:

- **Special Natural Resources**
- **Natural**
- **Scenic Character**
- **Recreation**
- **Visitor Services**
- **Historic Parkway**
- **Special Cultural Resources**
- **Park Support**
PRESCRIPTION CATEGORIES AND SOME EXAMPLES—STEP 6.1

Twelve prescription categories were identified and completed for each of the eight management zones. They were:

- Overview
- Natural Resource Condition
- Tolerance for Natural Resource Impacts
- Appropriate Natural Resource Management Activities
- Cultural Resource Condition
- Tolerance for Cultural Resource Impacts
- Appropriate Cultural Resource Management Activities
- Overall Visitor Experience
- Visitor Use Levels
- Appropriate Recreational Activities
- Visitor Services
- Level of Development

Some example prescriptions are included on the figure above for two management zones.

<table>
<thead>
<tr>
<th>Special Natural Resources</th>
<th>Special Cultural Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate Natural Resource Management Activities</td>
<td>Rare habitats would be actively restored and rare species would be recovered or re-introduced. Management activities would emphasize research, inventory, monitoring, prescribed burns, pest management, exotic species eradication, and other types of resource stewardship. There would be very little evidence of onsite management except when necessary to address threats to resources or prevent human caused impacts.</td>
</tr>
<tr>
<td>Cultural Resource Condition</td>
<td>Natural resources would be actively managed as a component of the cultural landscape. Management would be adapted as needed to protect endangered species and rare habitats.</td>
</tr>
<tr>
<td>Tolerance for Cultural Resource Impacts</td>
<td>Cultural resources contributing to national historic landmark designation and national register-eligible properties would be preserved using methods that do not impact sensitive natural resource conditions. All other cultural resources would be evaluated to determine if they should be preserved, stabilized, restored, or left unmaintained.</td>
</tr>
<tr>
<td></td>
<td>Maintain the integrity of these primarily local and regionally significant structures and landscapes. A variety of resource treatments may be appropriate, depending on the condition and location of the resource.</td>
</tr>
</tbody>
</table>

Describe the Range of Management Zones and Prescriptions
All of the vegetative patterns today are reminiscent of the landscape during the Moses and Bertha Cone era. These patterns contribute to the historic significance and setting of the park/NHD (Firth 1993). Deciding the approach for managing and interpreting the historic estate’s landscape was central to developing management alternatives and applying management zoning on the ground.
APPLYING MANAGEMENT ZONING ON THE GROUND—STEPS 7 & 8

Differences between current (year 2013) landscape vegetation conditions and conditions in 1940 directly influenced the development of two action alternatives. Alternative One, enhancing current conditions, accepts that more than 83 percent of the land is wooded today and only 175 acres of the original 514 acres of pasture remain. However, the changed landscape is still representative of how the historic land covers were spatially organized. Therefore, landscape and vegetation conditions mapped in 2013 are the basis for applying management zones on the ground for Alternative One.

Alternative Two, cultural landscape rehabilitation, seeks to restore some of the farm, garden and recreation landscapes around the manor house, partially restore one orchard, manage carriage road vegetation and vistas, and more actively manage the conifer plantations. While the end goal of this alternative is not to restore the full landscape to its 1940 condition, the 1940 mapped spatial organization guides activities.
The areas marked with dashed lines identify where Natural, Scenic Character, Visitor Services and Special Cultural management zones vary by alternative. Management zoning within the two alternatives may vary by zone size or by the absence of zones.
Based on all of the inventory, mapping and analysis that went to the DAMP, this graphic illustrates the approved on-the-ground plan for the Manor House RLU. This RLU is zoned for Special Cultural, Visitor Services and Scenic Character management zones and prescriptions. Approved visitor use and interpretation focuses on the Manor House landscape including garden and recreation areas, farm and orchard, and lawn areas, all labeled in white. Existing historic structures and trails are labeled in black.
CONCLUSION

As illustrated by this Moses H. Cone National Historic District (NHD) case study, NPS units are typically a complex compilation of natural, cultural and visual resources and visitor uses and experiences. The resource landscape unit and recreation opportunities methodologies allowed planners and managers to better understand where in the park these resources and uses were located. The sixteen resource landscape units eventually defined for the park provide a convenient framework for:

- Organizing the park in one’s mind by differentiating one park area from another;
- Separating proposed resource and visitor use management actions by RLU in the DAMP;
- Describing the park’s character based on its natural, cultural and visual resources and where they were located;
- Establishing management zoning on the ground.

ACKNOWLEDGMENTS

J. David Anderson, Resident Landscape Architect and Geographic Information Specialist for the Blue Ridge Parkway, provided GIS mapping services for finalizing resource landscape unit boundaries, mapping 1940 and 2013 land cover, and applying management zoning on the ground for the alternatives.

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LITERATURE CITED


