CHAPTER 9

REVIEW OF AGENCY METHODOLOGY FOR VISUAL PROJECT ANALYSIS

Richard C. Smardon
INTRODUCTION

Before the reader becomes involved in the following chapters addressing landscape evaluation, let us review, in brief, the history of visual resource management (VRM) system development, and then review existing procedures utilized by the federal agencies for visual analysis and evaluation.

Recent History of VRM System Development

Simultaneous to the public emphasis on natural beauty and elimination of ugliness, a new spatial dimension of landscape policy emerged. This dimension was the scenic corridor concept which recognized that the aesthetic experience of moving through the landscape was a sequential spatial experience involving time and motion.

The concept of linear sequential experience of spaces, as pointed out by Litton, was probably first articulated for public use by Frank Waugh in 1918 in his pamphlet on landscape engineering in the National Forests (Waugh 1918). This approach later evolved in the scenic corridor concept used for roads and wild and scenic rivers. The Highway Beautification Act sought to provide the states with legal tools to preserve and enhance these linear scenic corridors.

The social need for outdoor recreation concept received public policy recognition when Congress authorized establishment of an Outdoor Recreational Resources Review Commission in 1958 (ORRRC 1962). One of ORRRC’s principal recommendations was the establishment of a uniform system for classifying outdoor recreation resources. This system comprised six categories and was adapted by the Forest Service, the Bureau of Land Management, and the National Park Service. Five of the six classes of land under the system pertain to areas where the retention of natural beauty is a major objective: high density recreation areas (Class I), general outdoor recreation areas (Class II), unique natural areas (Class IV), primitive areas (Class V), and historic and cultural sites (Class VI) (ORRRC 1962, 109). This classification was not always used consistently by federal agencies but did signify the beginning of the idea that landscapes could be classified for varying qualities and intensity of usage.

Landscape inventories conducted in the early 1960s for statewide recreation planning programs as a outgrowth of the Outdoor Recreation Resources Review Commission Report (ORRRC 1962) still tended to focus on the identification of specific sites. However, Lewis’s (1968) efforts in the State of Wisconsin marked a sharp departure from this site-oriented approach by encompassing continuous linear sections of the landscape which he called environmental corridors. This coincided with the move to assess the regional landscape, as proposed by Twiss and Burton, or what was later called the landscape “continuum” by Zube (1973, 126).

A number of water resources planning studies included specific efforts to assess the visual quality of the regional landscape continuum in 1969–70. Several similar studies were conducted in Great Britain, Germany, and the United States related to general regional planning programs from 1969 to 1971.

The proposed standards for water resource planning by the special task force of the Water Resources Council (1970) give further credence to the importance of the landscape continuum as well as to discrete sites when incorporating scenic values into resource planning programs. The report of the Public Land Law Review Commission (1970) and the hearings on the proposed National Land Use Act (Senate Committee) suggested the need for broad-scale regional land inventories including scenic values.

Landscape values can be applied to single sites, corridors, and landscape continuums (See Figure 9.1). We can expand the geographic context of value attribution one more step to include the whole atmospheric envelope as opposed to just the land surface. The atmospheric envelope was explained well by Udall (1979) in his retrospective discussion of the realization by the Johnson administration that certain land and water areas that they succeeded in preserving were susceptible to the insidious threats of air, water, and noise pollution from offsite sources. The Clean Air Act Amendments of 1977 is one such Act which attempts to meet the threat of air quality degradation to landscape already preserved as National Parks, Wilderness Areas, and so forth.

The landscape image as aesthetic is the primary theoretical basis that visual resource management systems have been postulated upon. There is also a strong naturalistic bias in the way in which these systems are used. There are also ongoing arguments about whether quantification of the visual
attributes of landscape is desirable or possible (Carlson 1977). This debate is strongest in academic circles, but resource management agencies are under pressure to incorporate visual resource values into land management and environmental review procedures.

VRM is generally used in analyses and decisions about utilization of the publicly owned land areas, decisions concerned with permitting activities to take place on the public landscape, and decisions about whether publicly financed activities should take place on private lands. VRM procedures generally facilitate the integration of scenic or visual values into the decision-making process, to be considered along with many other resource values. Visual or scenic resource values are rarely the major determining values in environmental decision making but are becoming increasingly significant in some cases (Smardon 1984). As one can surmise, most of the activity regarding visual resource management is concerned with federal agency activities and management of the federal lands. This emphasis is directly attributable to legal activity dealing with the adequacy of environmental resource decision making.

The need for development of VRM systems can be traced to certain publics’ concern with aesthetic and environmental issues related to specific land management activities, for example, wilderness designation, strip mining, timber harvesting practices, highway funding and construction, park maintenance, and so forth. This concern is exemplified by several major federal court cases in the last decade (Smardon 1982, 1984). It is also exemplified by several pieces of major environ-
mental legislation which call for explicit consideration of aesthetic or visual resources as part of the environmental decision-making process (See Chapters 1 and 2).

As can be seen from the historiographs (Tables 9.1, 9.2 and 9.3), development of visual resource management systems have occurred only recently for three federal agencies in the United States. In fact, most developmental work was done in the 1970s and 1980s. Generally, these systems were developed quite rapidly with little time for in-house research to meet multiple resource management decision needs. However, incorporation of aesthetics into agency decision-making processes was often enthusiastically supported by key agency administrators, as one can see from Tables 9.1, 9.2, and 9.3.

Visual resource management systems were developed by federal agencies to deal with three classes of problems: (1) visual inventory and analysis systems for large landscape areas needing landscape planning; (2) systems for scoping of TABLE 9.1. VRM Development within the Forest Service

<table>
<thead>
<tr>
<th>Period</th>
<th>Year</th>
<th>Specific Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recreational Design Era</td>
<td>1965</td>
<td>Burt Litton's Research at PSW is finally published.</td>
</tr>
<tr>
<td></td>
<td>1968</td>
<td></td>
</tr>
<tr>
<td>Strong Impetus</td>
<td>1968</td>
<td>F.S. Chief Ed Cliff visits England—discovers Sylvia Crowe’s work with</td>
</tr>
<tr>
<td>Development Stage for Region 6 VRM</td>
<td>1968</td>
<td>Director of Recreation Dick Costley caused meeting to be held in St. Louis,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>developed outlines for total VRM system.</td>
</tr>
<tr>
<td></td>
<td>1970</td>
<td>Bacon assimilates ideas from F.S. Regions 5, 8 and 6. Bacon moves to Region 6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>in Portland. Received directive from Jack Usher to develop ‘more objective</td>
</tr>
<tr>
<td></td>
<td></td>
<td>way’.</td>
</tr>
<tr>
<td></td>
<td>1971</td>
<td>Number of timber management plans for Region 6 were unapproved—strong</td>
</tr>
<tr>
<td></td>
<td></td>
<td>impetus for VRM. Forest Land Management Published in Region 1.</td>
</tr>
<tr>
<td>Implementation of VRM Development &amp;</td>
<td>1972</td>
<td>Washington Office decides to go with Region 6 System—it was developed and</td>
</tr>
<tr>
<td>Publishing Chapters.</td>
<td></td>
<td>some inventory was done in Region 5 and 6. Model study application done on</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the Gifford Pinchot National Forest.</td>
</tr>
<tr>
<td></td>
<td>1972</td>
<td>Regional Forester Rex Ressler liked the system—wanted it implemented. Burt</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Litton reviews proposed VRM system/methodological problems. Major split</td>
</tr>
<tr>
<td></td>
<td></td>
<td>between Bacon, Region 6 and Orr, Region 8. Orr’s ideas went to BLM via</td>
</tr>
<tr>
<td>Implementation of system in other</td>
<td>1975–76</td>
<td>Leopold.</td>
</tr>
<tr>
<td>regions</td>
<td></td>
<td>Majority of inventory done for Region 6 and Region 5—other regions slower to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>implement.</td>
</tr>
</tbody>
</table>

Key People:

Ed Cliff, Chief of F.S. (1968–69)
Dick Costley, Dir. of F.S. Recreation (1968–69)
Jack Usher, Asst. Dir. of Timber Management, Region 6 (1970)
Rex Ressler, Regional Forester, Region 6 (1972)
Craig Rupp, Regional Forester, Region 2 (1976)

Administration

Methodology Development

Ed Stone, Warren Bacon, Howard Orr, Wayne Iverson, Gerald Constant

Research

Burt Litton, Gary Elsner, PSW

Source: Smardon, 1982.
TABLE 9.2. VRM Development within the BLM

<table>
<thead>
<tr>
<th>Period</th>
<th>Year</th>
<th>Specific Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial implementation of scenic quality component of RIS</td>
<td>1965</td>
<td>Recreation Information System (RIS) included scenic quality component. (Lynn Fergus and Del Price).</td>
</tr>
<tr>
<td></td>
<td>1966</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1971</td>
<td>Review of existing visual analysis. Prepared position papers for Congress. Started integrating visual analysis into planning system (Fergus).</td>
</tr>
<tr>
<td></td>
<td>1972</td>
<td>Established National Advisory Task Force on visual resources (1 meeting each year). Few landscape architects hired.</td>
</tr>
<tr>
<td>Integration in Bureau Planning system &amp; development of support for comprehensive VRM system.</td>
<td>1974</td>
<td>Leopold was hired in Washington. With input from Orr, Regions 8 &amp; 5 awareness program developed. VRM program put into BLM Manual.</td>
</tr>
<tr>
<td></td>
<td>1977</td>
<td>Task Force met in Santa Fe. Research resulted in contrast rating commission.</td>
</tr>
<tr>
<td></td>
<td>1978</td>
<td>Passage of BLM’s Organic Act with specific visual resources language (possible result of earlier position papers).</td>
</tr>
<tr>
<td></td>
<td>1980</td>
<td>New BLM publications came out of GPO.</td>
</tr>
</tbody>
</table>

**Key People:** Assistant Director for Resources and BLM Director George Turcott  
**Methodology:** Lynn Fergus, Del Price, Bob Leopold, Bob Ross in that order for developing methodology.

Source: Smardon, 1982.

potential visual impact or determining thresholds, and (3) systems for detailed evaluation of visual impact.

**REVIEW OF VRM METHODS FOR LANDSCAPE PLANNING**

The following section describes the use of VRM systems within federal agencies. VRM systems are utilized within the Forest Service, and the Bureau of Land Management (BLM) as part of broad regional planning and assessment. In the Forest Service, these exercises are known as regional guides and are prepared as part of the Resource Planning Assessment Act of 1974. Regional assessments for BLM are either for special uses, for example, energy development for the state of North Dakota (U.S.D.I. BLM et al. 1978), or special areas such as the Desert Conservation Area Plan which covers the southwestern one-third of California.

Visual resource management is used forest-wide for preparation of 10-year timber management plans for the U.S. Forest Service. These plans are multiple resource plans which array the major resource groups against different goals of timber output from the forest. Timber management plans are supposed to (but do not always) interface with land use forest planning for specific geographic subareas of national forests. The VRM practitioners prepare their own visual inventory
evaluations, sensitivity analyses, and visual management objectives for these specific land areas. Decisions concerning development and maintenance of the visual management objectives are worked out by an interdisciplinary land use planning team which the VRM practitioner is a member of. The ultimate decision regarding visual management objectives, however, rests with the Forest Ranger or a Forest Supervisor depending on the scale of land area involved. Forest Service VRM practitioners also do visual corridor analyses for roads and visual absorption capability analyses for visual impacts from a range of activities.

BLM, like the Forest Service, is heavily involved with permit processing activity to determine whether private parties should be allowed to do many different kinds of activities on federal lands. These activities include timber harvesting, vegetation conversion, recreational activities, recreational development, water resource development, energy development and mining activity, and agricultural and range-related activities. For each permit action, both Forest Service and BLM need to check the existing visual quality or management objective of the site in question and do a visual impact analysis via an environmental assessment or full environmental impact assessment if the project may cause significant environmental impact or is controversial. Even after visual impact assessment is done, there may be a need to have visual mitigation work done to remedy the severity of visual impact. This is the range of situations in which the Forest Service and BLM would use VRM.

The Soil Conservation Service (SCS) would use its LMS system on a similar geographical range of project scales—from very large to very small—but the activity types would be much more restrictive. The landscape resource management systems would be used for water resource planning projects under the Small Watershed Development Projects Act of 1966 or local agricultural or soil conservation projects sponsored by a local conservation district. The LMS system would be used to identify visual resources of a land area which may be affected by planning alternatives or those areas that need to be considered in an environmental assessment or environmental impact statement. These identified high-priority areas would then be analyzed by a landscape architect.

The following paragraphs will examine the
specific methodologies, procedural steps and key terminology for each of these three VRM systems.

Two of the three systems to be treated are called visual resource management systems (U.S.D.A. For. Serv. 1974; U.S.D.I. B.L.M. 1980) (see Figures 9.2 and 9.3), and third is called a landscape management system by the Soil Conservation Service (1978). All three systems contain common elements, including: (1) subsystems for physically based landscape visual quality inventory and evaluation; (2) subsystems for assessing peoples' use, visibility of landscape, or attitude toward the landscape; and (3) geographic mapping of these factors to yield classified areas for certain management objectives, visual quality maintenance levels; or priorities for a professional landscape architect's attention.

Two of the agencies concerned, the U.S. Forest Service and the Bureau of Land Management, have actual federal lands within their jurisdiction with which they are charged with management responsibilities. The Soil Conservation Service does not own land and only advises groups and individuals about maintaining landscape quality as part of soil conservation or small watershed development services. This latter fact accounts for some of the differences between the systems. They are, however, on the whole, quite similar. The following paragraphs will identify further similarities and differences which can be attributed to these systems.

Both the Forest Service and Bureau of Land Management's VRM's physical landscape inventory and evaluation subsystems utilize the basic variables of form, line, color, and texture as modifying descriptors of landscape quality as it is found in physical attributes of the landscape such as landforms, rock form, vegetation, and so forth (see Figures 9.4 and 9.5).
<table>
<thead>
<tr>
<th>Class A</th>
<th>Class B</th>
<th>Class C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distinctive</td>
<td>Common</td>
<td>Minimal</td>
</tr>
<tr>
<td>Landform</td>
<td>Over 60 percent slopes which are dissected, uneven, sharp exposed ridges or large dominant features.</td>
<td>30-60 percent slopes which are moderately dissected or rolling.</td>
</tr>
<tr>
<td>Rock Form</td>
<td>Features stand out on landform. Unusual or outstanding, avalanche chutes, talus slopes, outcrops, etc., in size, shape, and location.</td>
<td>Features obvious but do not stand out. Common but not outstanding, avalanche chutes, talus slopes, boulders and rock outcrops.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>High degree of patterns in vegetation. Large old-growth timber. Unusual or outstanding diversity in plant species.</td>
<td>Continuous vegetative cover with interspersed patterns. Mature but not outstanding old-growth. Common diversity in plant species.</td>
</tr>
<tr>
<td>Water Forms, Lakes</td>
<td>50 acres or larger. Those smaller than 50 acres with one or more of the following: (1) Unusual or outstanding shoreline configuration, (2) reflects major features, (3) islands, (4) Class A shoreline vegetation or rock forms.</td>
<td>5 to 50 acres. Some shoreline irregularity. Mirror reflections only. Class B shoreline vegetation.</td>
</tr>
<tr>
<td>Water Forms, Streams</td>
<td>Drainage with numerous or unusual changing flow characteristics, falls, rapids, pools and meanders of large volume.</td>
<td>Drainage, with common meandering and flow characteristics.</td>
</tr>
</tbody>
</table>


As can be seen in Figures 9.4 and 9.5, the physical attributes are arrayed for both VRM Systems. Note that BLM’s A, B, C Scenery Classifications correspond to the Forest Service’s Class A-Distinctive, Class B-Common, and Class C-Minimal. Note that some of the physically based attributes are the same for both systems, for example, landform, vegetation, water (forms), and that some are quite different (Forest Service’s rock form) or are not included in the other system, for example, BLM’s color, adjacent scenery, scarcity, and cultural modifications.

Note within SCS’s visual quality table in Figure 9.6 that everything is described in terms of distinctive, average, or minimal visual resource quality, and the physical attributes are similar to those used by BLM and the Forest Service. It should be noted that the Forest Service’s and BLM’s physical landscape attributes as presented in Figures 9.7 and 9.8 are specific in application to certain general geographic locales. The Forest Service’s descriptors are specific to the heavily vegetated mountain landscapes in the Pacific Northwest and Rocky Mountains, while BLM’s descriptors are specific to the sparsely vegetated and semiarid Southwest, basin and range grasslands, and the Great Plains. SCS, on the other hand, has utilized a range of color photographs (U.S.D.A. S.C.S. 1978) taken from many different geographical localities to illustrate ranges of dis-
tinctive, average, and minimal visual resource quality.

Both the BLM’s and the Forest Service’s VRM’s have similar subsystems that are used to assess sensitivity level. Sensitivity level, as used by these agencies, is an indicator of the sensitivity of the landscape to the viewer as expressed by its visibility (can it be seen by many people?), its importance or intensity of use, or interpretations of how people actually feel about the landscape in question. Both the Forest Service and BLM utilize use volume criteria (see Figures 9.7, 9.8, and 9.9). Many different measures of frequency

<table>
<thead>
<tr>
<th>Scenic Quality Inventory/Evaluation</th>
<th>Rating Criteria and Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landform</td>
<td>Vegetation</td>
</tr>
<tr>
<td>High vertical relief such as prominent cliffs, spires, or high landform prominence or severe surface variation or highly scenic topography including high ridges or peaks of a mountain range, sharply defined landforms, or exceptionally striking and arresting landform features</td>
<td>A variety of vegetation types in interesting forms, textures, and patterns</td>
</tr>
<tr>
<td>Some variety of vegetation, but only one or two types</td>
<td>Some intensity of color or variety in color and shade of vegetation, or dense features present and interesting, but not dominant or exceptional</td>
</tr>
<tr>
<td>Low-rising hills, pointy or flat islands, bottoms interesting, general landform features few or irregular</td>
<td>Little or no variation in vegetation</td>
</tr>
</tbody>
</table>

**FIGURE 9.6.** SCS’s visual resource quality rating criteria. Source: USDA, SCS, 1978, p. 4.

of travel are used to assign a high, medium, or low rating in both cases. The Forest Service sensitivity subsystem adds consideration of intensity of usage of recreation areas and water bodies to this criteria (see Figures 9.11 and 9.12).

BLM, unlike the Forest Service, considers the specific user attitude towards the landscape area by familiarizing public groups with the area and asking them to respond to activities that will modify that landscape (see Figure 9.7). The concern they express about proposed changes in scenic quality is rated high, medium, or low. Final sensitivity levels are set using matrices, as can be seen in Figures 9.7 and 9.9 for both the Forest Service and BLM.

BLM and the Forest Service also delineate distance zones on maps. These zones show how far landscapes are from convenient viewpoints or frequently traveled viewing corridors. The Forest Service uses the distance zones of foreground, middle ground, and background, and BLM utilizes foreground/middle ground, background, and seldom seen.

SCS, unlike BLM and the Forest Service, separates landscape use from visibility of the landscape. Figure 9.10 depicts the type of factors considered by SCS in landscape use in terms of rating direct, indirect, or combinations of use. Figure 9.11 illustrates the types of concepts used in assigning high, average, or low visibility to a landscape area by utilizing the factors of number, frequency and duration of view, view expectations, location, and viewer's position.

All three subsystems are then combined by the agencies to yield mapped data and three-way matrices. These tools are utilized by the Forest Service to delineate geographic areas with certain visual management objectives (see Figure 9.12). Likewise, BLM delineates certain areas for visual management classes (see Figure 9.14). SCS utilizes this information to delineate areas for priority of landscape architecture treatment (see Figure 9.13). The latter delineation is used to flag areas where a certain level of expertise is needed for

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<table>
<thead>
<tr>
<th></th>
<th>Primary Importance</th>
<th>Secondary Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Travel Route</strong></td>
<td>National importance: High use volume, long use duration, Forest land access roads</td>
<td>Local importance: Low use volume, short use duration, Project roads</td>
</tr>
<tr>
<td><strong>Use Areas</strong></td>
<td>National importance: High use volume, long use duration, Large size</td>
<td>Local importance: Low use volume, short use duration, Small size</td>
</tr>
<tr>
<td><strong>Water Bodies</strong></td>
<td>National importance: High fishing use, High boating use, High swimming use</td>
<td>Local importance: Low fishing use, Low boating use, Low swimming use</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Use</th>
<th>Sensitivity Level</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Travel Route, Use Areas, and Water Bodies</td>
<td>At least 1/2 of users have MAJOR concern for scenic qualities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Less than 1/2 of users have MAJOR concern for scenic qualities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary Travel Route, Use Areas, and Water Bodies</td>
<td>At least 1/2 of users have MAJOR concern for scenic qualities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>At least 1/2 and not more than 1/2 of users have MAJOR concern for scenic qualities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Less than 1/2 of users have MAJOR concern for scenic qualities</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### Figure 9.10: SCS's landscape use criteria. Source: USDA, SCS, 1978, 10

**Landscape Use**

<table>
<thead>
<tr>
<th>Type of use</th>
<th>Most Important LU</th>
<th>Important LU</th>
<th>Minimum Importance LU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>Wind and Land</td>
<td>Overall availability</td>
<td>One if many available</td>
</tr>
<tr>
<td>Indirect</td>
<td>Highly visible environmental factors</td>
<td>Visibility in environmental context</td>
<td>Limited environmental context</td>
</tr>
<tr>
<td>Combinations</td>
<td>Highly visible scenic, educational value</td>
<td>Ordinary value</td>
<td>Limited scenic, educational value</td>
</tr>
</tbody>
</table>

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### Figure 9.11: SCS's visibility criteria. Source: USDA, SCS, 1978, 12

<table>
<thead>
<tr>
<th>Visibility</th>
<th>High Visibility V</th>
<th>Average Visibility V</th>
<th>Low Visibility V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number, Frequency and Duration</td>
<td>Long, frequent (daily)</td>
<td>Frequent (monthly)</td>
<td>Rare (annual)</td>
</tr>
<tr>
<td>Expectations</td>
<td>Excellent (very attractive)</td>
<td>Good (attractive)</td>
<td>Poor (unattractive)</td>
</tr>
<tr>
<td>Location and Viewer's Position</td>
<td>Excellent (in 2-300 feet)</td>
<td>Good (300-500 feet)</td>
<td>Poor (more than 500 feet)</td>
</tr>
<tr>
<td>Environment</td>
<td>General public</td>
<td>Natural</td>
<td>Unnatural</td>
</tr>
<tr>
<td>Grand Level</td>
<td>Excellent (predominantly white)</td>
<td>Good (predominantly green)</td>
<td>Poor (predominantly dark)</td>
</tr>
</tbody>
</table>

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### Figure 9.12: SCS's landscape use criteria. Source: USDA, SCS, 1978, 10
further evaluation. The Forest Service and BLM want to assign a certain level of visual quality at which a section of landscape is to be managed or maintained. Both BLM’s management classes and the Forest Service’s visual management objectives determine the different degrees of modification or change allowed for a specific landscape area.

**SCOPING THE VISUAL IMPACT ASSESSMENT**

This approach was intended to help agency personnel identify the visual effects, if any, that are likely to be significant on a particular project. This identification was intended to help determine the scope of visual impact assessments under NEPA as well as state mini-NEPAs and to suggest appropriate mitigation measures for study.

**CEQ Regulations and Scoping**

In November 1978, regulations were issued for the implementation of NEPA. These are designed to increase the usefulness of environmental analysis in project decision making, as well as to reduce the paperwork and delays sometimes associated with the preparation and review of environmental impact statements (EISs).

The regulations employ several means to achieve these purposes. One set of measures limits the preparation of a full EIS to projects which are likely to have significant environmental effects. If the significance of a project’s environmental effects is in doubt, agencies can perform a brief environmental assessment to determine whether a finding of no significant impact (FONSI) can be issued or if a full EIS is needed. The regulations also allow agencies to establish categorical exclusions for actions which do not require environmental review except under extraordinary circumstances.

Another set of measures governs EIS preparation. Every EIS is to be “concise, clear, and to the point.” To this end, “there shall be an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. This process shall be termed scoping” (CEQ, 1979, 763). A similar consideration applies to mini-NEPAs as well.
Scoping Visual Impacts

There are many different types of visual issues. For a few major projects, one may have to address all of them and the next section will present three approaches to do this. The three approaches include: (1) a visual checklist which is used for SEQRA, New York State’s Environmental Quality Review Act; (2) a questionnaire for federal highway projects; and (3) a series of visual thresholds used for screening federally funded housing projects.

New York’s State Environmental Quality Review Act: Visual Scoping Process

The SEQRA process calls for an environmental impact statement when an action may have a significant effect on the environment. The visual aspects of the environment, both man-made and natural, are an important environmental resource value. A commonly held viewpoint is that making a determination of significance based on aesthetic values is hopelessly subjective (“beauty is in the eye of the beholder”). This discourages one from addressing the visual resource when considering potential environmental effects.

This guideline offers a model process to preserve and enhance the visual resources of a community. It is a flexible process recognizing the inherent diversity in community values across the state. The following simplified process provides the practical tools for a lay person to evaluate potential visual impacts and make a defensible determination of significance under SEQRA. The process includes three basic stages:

Stage 1: Conduct an inventory of visual resources to establish or clarify community values, policies, and priorities related to existing visual resources before projects of controversy arise.

Stage 2: Establish practical visual criteria to guide decisions related to the undertaking, funding, or approval of future projects.

Stage 3: Use the visual-environmental assessment form addendum to supplement SEQR’s full Environmental Assessment Form (EAF) and focus on a project’s potential visual impacts. Such impacts may require preparation of a draft EIS. The form is an orderly method that can be used to support a determination of nonsignificance.

Stage 1: Suggested Visual Inventory Process

A. Identify Community Visual Resource Values
   1. Describe and define the general character of the existing area.
   2. Document visual resource and/or visually sensitive land including:
      a. State parks or state forest preserves, municipal parks;
      b. Wild, scenic, or recreational water bodies designated by a state governmental agency;
      c. Publicly or privately operated recreation areas;
      d. Publicly or privately operated areas (including areas used for recreation) primarily devoted to conservation or the preservation of natural environmental features;
      e. Hiking or ski-touring trails designated as such by a state or municipal government agency;
      f. Architectural structures and sites of traditional importance;
      g. Historic or archaeological sites designated as such by the National Register or State Register of Historic Places;
      h. Parkways, highways, or scenic overlooks and vistas designated as such by a federal, state, or municipal government agency;
      i. Important urban landscapes including visual corridors, monuments, sculpture, landscape plantings, and urban “green space”;
      j. Important architectural elements and structures representing community style and neighborhood character.

B. Public Participation
   1. Notify the public of the proposed inventory process and its purpose.
   2. Conduct a survey of local resident/viewer perceptions:
      a. Identify positive visual attractions;
      b. Identify visual detractions or “mis-
fits” (car dumps, gravel pits, waste disposal areas, and so forth).

Results of the survey should indicate a preliminary consensus of the public’s perceptions and values regarding its visual resources.

3. Conduct public meeting(s) to inform residents of the public’s perceptions and values regarding its visual resources.
4. Adopt the municipal visual resource inventory.
5. Formalize community visual standards through creation of sign ordinances, architectural boards’ of review adopted standards, or other appropriate techniques.

C. Establish “Critical Areas of Environmental Concern” in Accordance with SEQR
   Special visual resources that are considered highly valued by the community and are sensitive to change may be established as Critical Areas of Environmental Concern under SEQR (see 617.4(j)). Thereafter, any action that takes place within, partially within, or adjacent to the critical areas would be treated as a Type I action and receive a fully coordinated environmental review process.

Stage 2: Practical Visual Criteria

Agency decision makers can protect the visual character and quality of a project and its environmental setting by early consideration of the general siting and design criteria listed below. Municipalities and agencies may wish to use these suggested criteria as a base, adding their own criteria to reflect community values.

1. Locate new facilities where they are intrinsically suitable to their visual environment.
2. Insure that agency decisions prevent the exposure or creation of visual misfits (such as car dumps or waste disposal areas adjacent to scenic vistas) unless visual mitigation measures are adequate.
3. Whenever possible protect the visual privacy of residential sites.
4. Actively preserve future access to public viewing points.
5. Emphasize shared infrastructure space for public utilities.
6. In areas of high scenic quality, avoid commercial advertising, overhead utility service, and other man-made distractions.
7. Avoid development on steep slopes.
8. Take special care to enhance the visual quality of the physical entranceway to a community. The entranceway, usually a public roadway, sets the tone for the perceived visual expectation of the community.
9. Protect the integrity of visually important building facades by utilizing transfer of development rights techniques.
10. Promptly remove, refurbish, or replace abandoned facilities.
11. Be aware that visual spaces can be as important as physical objects. In this sense, air pollution can affect the visual quality of important spaces by obscuring or diminishing views.
12. Insure that transmission line corridors are not silhouetted against the skyline and traverse slopes on a diagonal rather than perpendicular basis.
13. As appropriate, either remove existing vegetation along travel corridors in order to create or enhance views or vistas, or retain existing vegetation along travel corridors to enhance the natural character.
14. Consider all possible mitigation measures. Use vegetation, landforms, or structural techniques to screen visually intrusive characteristics of a proposed development.
15. Enhance views to bodies of water.
16. Avoid adverse visual effects caused by the introduction of materials, colors, and/or forms incompatible with the surrounding landscape.

Stage 3: Visual EAF Addendum

The following Visual EAF Addendum is to be completed by the lead agency to provide infor-
mation for determining whether a proposed action may have significant impacts on the visual resources.

The EAF addendum focuses on four categories for measuring the visual significance of a project:

1. description of the existing visual/scenic environment;
2. identification of the degree to which the proposed action will be visible;
3. determination of who will see the project and in what context, for example, worker, tourist, local resident;
4. identification of the degree of visual compatibility or incompatibility of the project with the existing environment or the “projected” environment.

While this conceptual approach for determining visual significance relies heavily on objective measurements, there will always remain some degree of subjective discretion on the part of the agency decision maker.

**VISUAL EAF ADDENDUM**

This form is to be used in conjunction with the SEQR Full EAF. Once the potential visual impacts have been identified by the following questions, proceed to Step 2 of the EAF.

**Step 1**

1. Is the project within or adjacent to a Critical Area of Environmental Cancer established under the State Environment Quality Review Act (see 617.41)?

   Yes □ No □

**Description of Existing Visual Environment**

2. Area surrounding project site can be identified by one or more of the following terms:

<table>
<thead>
<tr>
<th>Essentially undeveloped</th>
<th><em>1/4 mile</em></th>
<th><em>1 mile</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Forested</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Agricultural</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Suburban residential</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Industrial</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Commercial</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Urban</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>River, Lake, Pond</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Cliffs, Overlooks</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Designated Open Space</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Flat</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Hilly</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Mountains</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Other</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

3. Are there visually similar projects within:

   *One Mile* Yes □ No □
   *Two Miles* Yes □ No □
   *Three Miles* Yes □ No □
   Adjacent Yes □ No □

   *Distances from project site are provided for assistance. Substitute other distances as appropriate.*

**Degree of Project Visibility**

4. Will the project be visible from outside the limits of the project site?

   Yes □ No □

5. The project may be visible from:

   - Site or Structure on the National Register or State Register of Historic Places □
   - Palisades □
   - State or County Park □
   - Parkway □
   - Interstate Route □
   - State Highway □
   - County Road □
   - Local Road □
   - Bridge □
   - Railroad □
   - Existing Residences □
   - Existing Public Facility □
   - Designated Scenic Viewpoints □
   - Adjacent Property Owner(s) □
   - Other □

6. Will the project eliminate, block, partially screen, or detract from views or vistas known to be important to the area?

   Yes □ No □

7. Is the visibility of the project seasonal? (For example, screened by summer foliage, etc. but visible Fall/Winter/Spring)

   Yes □ No □

   If yes, which season(s) is project visible:

   - Summer □
   - Winter □
   - Spring □
   - Fall □

8. How many linear feet of frontage along a public thoroughfare does the project occupy?

   __________ Feet

9. Will project open new access to or create new scenic views or vistas?

   Yes □ No □

10. Does proposed project or action plan to:

    a. maintain existing natural screening
        Yes □ No □
    b. introduce new screening to minimize project visibility
        Yes □ No □
If yes, is screening:
1.) vegetative □
2.) structural □

Viewing Context
11. Viewers will likely be in which of the following situations when the project is visible to them?

<table>
<thead>
<tr>
<th>Activity</th>
<th>Daily</th>
<th>Weekly</th>
<th>Weekends</th>
<th>Seasonally</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel to and from work</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Involved in recreational</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine travel by residents</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>At a residence</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>At worksite</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Other</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>

Frequency

<table>
<thead>
<tr>
<th>Holidays</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Holidays</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Visual Compatibility
12. Are the visual characteristics of the project obviously different from those of the surrounding area?
   Yes □ No □

If yes the visual difference is because of:

- Type of project □
- Design style □
- Size (including length, width, height, number of structures, etc.) □
- Coloration □
- Condition of surroundings □
- Construction material □
- Other □

13. Is there local opposition to the project entirely, or in part, because of visual aspects?
   Yes □ No □

14. Is there public support for the project because of its visual qualities?
   Yes □ No □

Step 2

By answering the questions in the Visual EAF Addendum, you have identified the visual relationship between the proposed action and its surrounding environment. With this information, return to the Full EAF, Part 2, Question 10, that addresses Visual Resources. Here you will identify the degree (size amount) of each significant visual impact. For example, the proposed action may only be visible after the leaves have fallen. This gives an indication of the time of exposure associated with a particular visual impact.

Once an impact's magnitude has been identified as potentially large, proceed to Part 3 on the SEQR Full EAF to determine the importance of the identified visual impacts. The community's established Visual Resource Inventory can be used as a practical measure of the importance of the potential impact. If the project will significantly affect a recognized visually sensitive area, facility, or site of visual importance, there should be sufficient information on the Visual Resource Inventory to warrant the preparation of a Draft Environmental Impact Statement.

If your agency or municipality has not developed a Visual Resource Inventory, there is a potential problem of having to conduct the inventory during a time of public controversy. This would make it even more difficult to establish a true consensus on community values. Conducting a visual resource inventory at an early stage would avoid this potential problem.

The Full EAF, Part 3, provides a series of questions to help determine the importance of each visual impact. These include:

1. What is the probability of the (visual) effect occurring?
2. What will the duration of the (visual) impact be?
3. Is the nature of the (visual) impact irreversible and will the (visual) character of the community be permanently altered?
4. Can the (visual) impact be controlled?
5. Is there a regional or statewide consequence to this (visual) impact?
6. Will the potential (visual) impact be detrimental to local goals and values?

The answers to these questions will indicate whether or not the potential impact is important. If one or more impact is found to be potentially large and important, sufficient reason exists to require the preparation of a Draft Environmental Impact Statement.

Federal Highway Administration Scoping Questionnaire

The major questions for the highway questionnaire are grouped under five main headings discussed in the following paragraphs.

Project Characteristics

The first set of questions calls attention to project characteristics that may have a significant effect on project appearance. Alternatives may involve changes in these characteristics. For instance, a viaduct structure may be an alternative to a massive fill section across a low-lying area.

Visual Environment or Project

The next set of questions helps to identify and differentiate the visual environment of the project within the meaning of the terms of affected environment and human environment defined in NEPA regulations. The questions are intended to clarify the need for detailed analysis such as viewshed mapping.

Significant Visual Resource Issues

We can often identify the nature and likelihood of significant visual resource effects before we perform a detailed visual impact assessment.
Sometimes visual resource effects are significant in themselves; for example, high visual quality is generally worth conserving wherever it exists. In most cases, however, the significance of these resource effects must be interpreted in combination with viewer response (the next set of questions).

For instance, the visual quality of an urban residential district may not be very high, but local residents may still value its visual character. On the other hand, highway projects are often related to urban improvement and redevelopment proposals. In these cases, community groups may be very concerned about improving the visual quality of urban travel routes by facility design and even the appropriate incorporation of art.

Significant Viewer Response Issues

Often, we can also identify the general nature of viewer response to a project before we undertake a detailed visual assessment although the values and goals of local viewer groups may not become fully apparent until later in the process. For example, we can safely predict that residential and recreational viewer groups will be concerned about the appearance of their visual environment. We also know that various federal laws and regulations impose what we may call the test of visual compatibility on projects located close to visual resources that are recognized for their cultural significance. Where this recognition is based on “scenic values,” effects on visual quality will be equally important.

Visual Impacts and Impact Management

The last group of questions is intended to summarize the major visual effects—adverse or beneficial—that are likely to be associated with project alternatives. It is also intended to help identify potential visual mitigation measures for study in the assessment process. Mitigation can include avoiding, minimizing, and reducing impacts, as well as rectifying them or compensating for them. A mitigation measure should be related to a specific impact, or it may not only be ineffective but also compound the problem. For example, a color chosen to enhance the appearance of a bridge may prove incompatible with the surroundings of the bridge.

Sample Scoping Questionnaire

To help, there is included a scoping questionnaire—an example for an urban freeway on new location for comparison.

Project Introduction

The project is a freeway spur that would provide access to the downtown core of a medium-sized western coastal city, as well as a bypass route for traffic bound to the north and east of the core. It includes a 1.3-mile link between a major interstate freeway to the south and a limited access parkway to the north, with two interchanges in the core itself. The north-south leg would be located along a waterway that is the eastern boundary of the urban core. The project also includes a 2.3-mile east-west connection across the waterway, leading to industrial port lands. Project alternatives include alignment options to reduce adverse effects on a redevelopment area along the waterway and on an historic rail station.

EXAMPLE 1: Highway Scoping Questionnaire

1. Project Characteristics
   A. What are the major project design standards (capacity, access, speed, geometry)? Alternatives?
      - Two travel lanes in each direction, with up to 50,000 total ADT
      - Fully controlled access
      - 50 miles per hour design speed on mainline, 35 on ramps
      - Minimum radius curves can be used

   B. What is the typical highway cross-section (roadway, roadside slopes and drainage, right-of-way)? What major structures and appurtenances will be required? Alternatives?
      - Mainline (2-lane) roadways = 42 feet
      - Ramp (1-lane) roadways = 28 feet
      - Right-of-way = 120 to 400 feet
      - Waterway and river crossings: 340 feet (45 feet clear) and 400 feet (55 feet clear)
      - All of N-S roadways, much of E-W roadways to be elevated on structure over railroad tracks (23 feet clear)
      - Balance of roadway elevated on fill, 1%1 side slopes
      - Lighting and sign bridges required

   C. Are any highway-related facilities (such as rest areas or maintenance yards) part of the project? What construction areas (borrow pits, spoil areas) will be needed? Alternatives.
D. What secondary effects (such as development at interchanges or conversion of land from rural to urban uses) may result from the project?

- Increased potential for redevelopment of downtown and adjacent waterway
- Possible urban deterioration immediately next to right-of-way

2. **Visual Environment of Project**

A. What landscape components (landform, water, vegetation, and manmade development) are characteristic of the regional landscape and the immediate project area?

- Landform: glacial terraces and small bluffs, estuarine deposits and landfill on valley floor
- Water: stream (partially culverted), river, waterway, sound
- Vegetation: weedy species on disturbed uplands, including blackberry and Scotch broom; lowland vegetation includes stands of red alder and black cottonwood
- Manmade development: highrise office core, brick warehouse and railroad district, port industry, recreational marinas, hillside residential neighborhoods

B. Where is the project likely to be seen from?

- Existing city streets, existing freeway and parkway, and new highway itself
- Downtown core, historic warehouse and rail station district
- Waterway, new parks, new marinas
- Residential areas
- Industrial areas

C. What visually distinct landscape units or urban districts can be identified within the immediate project area?

- Downtown core, warehouse and rail station district, waterway district, port industry area

D. Which major viewer groups are likely to see the project?

- Commuters, office workers and shoppers, recreational boaters, neighborhood residents, industrial workers

3. **Significant Visual Resource Issues**

A. What landscape components are now present within the visual environment of the project and how would project alternatives change these?

- Landform: heavily modified hillside terraces and estuarine lowlands, little additional modification
- Water: stream valley at south end of corridor may be further disturbed; waterway and river would be crossed by bridges
- Vegetation: stands of trees in stream valley and on lowland floor may be reduced in size
- Manmade development: highway would require clearing some industrial buildings; brick warehouses would not be removed

B. What is the present visual character of the project environment (e.g., form, line, color, texture and dominance, scale, diversity, continuity) and how compatible would project alternatives be with this character?

Prominent aspects of existing character include:

- **Form:** hillside terraces and bluffs; buildings generally rectilinear, except rail station dome
- **Line:** horizontal bluff edges, rail lines, waterway shore, roofs of warehouses
- **Texture:** very great, because of close juxtaposition of districts, and profusion of industrial structures and equipment
- **Continuity:** relatively low, due to demolition and high proportion of vacant land

Project alternatives may or may not visually interrupt rail station dome, bluff and shore edges; may further increase diversity and decrease continuity

C. What levels of visual quality now exist (evaluated by criteria such as vividness, intactness, and unity or by other indicators) and how much would project alternatives affect these?

Existing visual quality is low in foreground, moderated by good background views of sound and mountains

- **Vividness:** moderate due to rail station dome, waterway, towers in downtown core
- **Intactness:** low, due to demolition, vacant land, and lack of maintenance
- **Unity:** low, due to high diversity of development and lack of continuity

Project could adversely affect waterway and rail station; it could also improve intactness and unity, and thus improve overall visual quality significantly.

4. **Significant Viewer Response Issues**

A. What is the viewer exposure to project alternatives for different groups (numbers, distance, duration and speed of view, etc.) and how much would these alternatives block important existing views?

View from road: improved visibility of downtown for entering drivers (up to 50,000 daily); view duration approximately 30 seconds

View of road:

- Neighborhood residents—several thousand, middleground to background, permanent view
- Recreational boaters—several hundred (may increase significantly in future), foreground, intermittent view
- Office workers and shoppers—several tens of thousands, foreground, intermittent view
- Industrial workers—several thousand, middleground to background, intermittent view
Project may block views between rail station and waterway, downtown and waterway

B. How are viewer activity and awareness likely to affect the attention that different groups pay to the project and its visual environment?

View from the road: drivers will have clearer orientation, limited ability to focus on foreground
View of the road:
- Residents may have high concern about effect of road on views
- Recreational boaters and users of waterway, redevelopment area may also have high concern
- Office workers and shoppers probably will have moderate to low concern
- Industrial workers may be expected to have low concern

C. Are there any visual resources in the project environment that are particularly important to local viewers? Are there any districts, sites, or features that are regionally or nationally recognized for their cultural significance?

- Rail station is on National Register and is important to community
- Warehouse district around it is also important to community and may be eligible for Register
- Waterway views are valued, where available
- Tree stands in lowlands and in stream valley at south end of north-south leg are important to environmental groups

D. Is the project thought to threaten or support expectations for the future appearance of any areas it traverses? How might viewer response be affected by superior project design or the incorporation of art?

Community is divided:
- Businessmen and most city officials anticipate project improving visibility of downtown and contributing to revitalization; project design could enhance downtown
- Widespread community concern over possible adverse visual effects on historic rail station and warehouse district; compatible design could reduce concerns
- Additional concern over possible adverse visual effects on redevelopment of waterway for commercial and recreation use

5. Visual Impacts and Impact Management

A. In summary, what significant visual impacts, if any, appear likely? Include both adverse and beneficial impacts.

Beneficial effects (potential):
- Improved visibility of downtown core
- Improved visual quality of city entry

Adverse effects (potential):
- Lower visibility of rail station and waterway
- Visual incompatibility between elevated road, rail station area, and waterway redevelopment
- Decreased visual quality of expected views of rail station area and waterway redevelopment (present views are low in visual quality)

B. What alternatives might avoid, minimize, or reduce any adverse visual impacts and by how much?

- Minimum profile elevated road could considerably decrease obstruction of views from rail station and waterway areas
- Lower profile could enhance compatibility of elevated road by making it appear continuous with bluff edge of first terrace

C. What actions might rectify or compensate for adverse visual impacts and by how much?

- Structural concepts, landscape and development, and joint-use alternatives may enhance visual compatibility of elevated road somewhat and greatly improve general visual quality over present condition.

HUD Threshold Approach

The variety of factors that influence the individual's perception of the surrounding visual scene may be said to define visual quality. Good quality should provide the individual with a sense of place and should contribute to the individual's ability to orient himself or herself in space. Because of the highly perceptual and subjective nature of this component, it is perhaps one of the most difficult aspects of the environment to analyze and measure.

In terms of visual quality, the perceptions of the project residents, as well as those of the existing area residents, must be considered. This requires a determination of how the project relates to the existing visual quality and an analysis of resident satisfaction with the visual quality of the surrounding area (see Tables 9.4 and 9.5).

Subcomponents

Visual content
Area and structure coherence
Apparent access

Visual Content

Description

Visual content refers to the structures and spaces of an area which provide input information for the
## TABLE 9.4. Visual quality assessment summary table

<table>
<thead>
<tr>
<th>Subcomponent</th>
<th>Goals/Objectives</th>
<th>Impacts</th>
<th>Necessary Information</th>
<th>Methodology</th>
<th>Findings/Measurements</th>
<th>Standard/Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Content</td>
<td>Sense of time and place; social and civic attachment.</td>
<td>Will the content of the visual scene perceived by the residents of the surrounding area be adversely affected by the project?</td>
<td>Project plans; site observations; signage; building design characteristics; pictorial images, etc.</td>
<td>Photographic analysis of intrusion; semantic differential techniques; standard classification for landscape analysis; open ended questions.</td>
<td>Analyst defined scales of visual intrusion, design compatibility, urban character, etc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Will the visual content of the surrounding area have an adverse effect on project residents?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area and Structural Coherence</td>
<td>Clarity of area structure; sense of harmony; integration of activities.</td>
<td>Will the coherence of the surrounding area be reduced by the project action?</td>
<td>Plan, building and landscape descriptions; visual observations.</td>
<td>Descriptive evaluation; sketch mapping</td>
<td>Activity-image map, judgment of coherence</td>
<td></td>
</tr>
<tr>
<td>Apparent Access</td>
<td>Access to activities and areas</td>
<td>Will the project obscure or eliminate access information required for the use of activities and areas?</td>
<td>Visual observations; project plan.</td>
<td>Descriptive evaluation of observed diversity of activity; access to window displays, etc.; question users.</td>
<td>Judgment of access to activities and areas of interest and use.</td>
<td></td>
</tr>
</tbody>
</table>

Notes: (L. Min)—Legal Minimum Allowable (Rec)—Recommended, a Goal (L. Max)—Legal Maximum Allowable (Ave)—Average or “Rule-of-Thumb” Guide


individual to use in structuring his or her perceptions. This information contributes to the development of a sense of place and provides markers for use in orientation. In this way, visual content is closely related to area coherence and apparent access—the two other subcomponents of visual quality.

**Impact**

Will the content of the visual scene perceived by the residents of the surrounding area be adversely affected by the project?

Will the visual content of the surrounding area have an adverse effect on project residents?

**Scale of Impact**

A+ There will be an improvement or positive impact on the visual content of an area.

A There will be no effective change in the perceived visual content of the project or from the project.

B There will be changes in content but mitigative action can reduce or alleviate the problem.

C Overall visual content will definitely be reduced by the project action.

C- N.A. (Generally accepted standards have not been developed).
### TABLE 9.5. Visual quality: types of environmental information necessary for assessment

<table>
<thead>
<tr>
<th>Subcomponent</th>
<th>Initial Screening Test</th>
<th>Higher Level Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Visual Content</strong></td>
<td>Description of views before and after project; description of potential views from outside project looking in; description of potential views from inside project looking out.</td>
<td><strong>Informational Needs</strong></td>
</tr>
<tr>
<td></td>
<td>Site visit; 1&quot;-100' scale maps of existing site area; photos of site with project drawn in.</td>
<td><strong>Judgment of residents and users of area.</strong></td>
</tr>
<tr>
<td></td>
<td>Site visit; area residents.</td>
<td><strong>Results of semantic differential techniques.</strong></td>
</tr>
<tr>
<td></td>
<td>Site visit; area residents.</td>
<td><strong>Further description of content.</strong></td>
</tr>
<tr>
<td><strong>Area and Structure Coherence</strong></td>
<td>Extent to which project area has formal coherence as described by qualities of &quot;articulation, direction, landmarks, clarity, harmony, and rhythm&quot;.</td>
<td><strong>Opinion of residents and design professional; opinion of design professional.</strong></td>
</tr>
<tr>
<td></td>
<td>Project plan. Device.</td>
<td><strong>Opinion of design professional.</strong></td>
</tr>
<tr>
<td><strong>Apparent Access</strong></td>
<td>Major access and linkages of project to surrounding area.</td>
<td>Site visit; site plan; existing land use map.</td>
</tr>
<tr>
<td></td>
<td>Site visit; site plan.</td>
<td>Site visit; site plan.</td>
</tr>
<tr>
<td></td>
<td>Any qualities which improve apparent access such as:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Visible points of entry and exit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Lack of visible or apparent physical barriers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Lack of conflicting activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Inviting spaces.</td>
<td></td>
</tr>
</tbody>
</table>


**Initial Screening Test**

(Note: The nature of the analysis allows the concerns of project on environment and environment on project to be addressed jointly.)

1. Review appropriately scaled maps (preferably 1" = 100' scale) of the existing area surrounding the site and site plans for the project. Walk around the site and surrounding area, preferably with project plans in hand.

2. Describe the following:
   - Views before and after the project. Use photographs of the area or neutral drawings derived from them with the new project drawn in.
Views from outside the project looking in.
Views from inside the project looking out.

Descriptions of views from several points in and
around the project should be made. Observation
points should be indicated, visually or with photo-
graphs, on a map or plan with the direction of
the view indicated by arrows. Observations may
then be described verbally or through the use of
simple diagrams (see Figures 9.15 and 9.16).

3. The evaluation of environmental impact rela-
tive to visual content will be made in terms of
changes in the quality of these views. A
positive (beneficial) impact occurs if the project
screens objectionable objects from view, presents
informative or appealing vistas, or helps to improve
the definition of spaces or areas in the surrounding environment. A negative
(adverse) impact occurs if existing
pleasant vistas are blocked, unpleasant views
are created, or if views become less defined.
The lack of strict criteria or standards means
that judgment will be required in assessing
the results of the tests. If a rating of A+ or A
cannot be given based on the supporting
descriptions, higher-level-tests should be done.

4. If there are adverse effects which can be
ameliorated by changing the project design
or plan, the project should be rated B.

Higher-Level Tests

The judgment of the residents or users of an area
should be solicited. The pictorial data—photo-
graphs and drawings—developed during the ini-
tial screening tests can be used to help the resi-
 dents or users gain a sense of the proposed
change. A simple interview or semantic dif-
ferential techniques could be helpful in describing
the judgments and opinions of the residents or
users. An environmental psychologist should be
consulted for administration of the semantic dif-
fferential technique. Using that technique, indi-
viduals are asked to rate a situation on a scale of
distinct steps between terms describing extremes,
such as very pleasant ... very unpleasant. Cor-
relation analyses are then made to attempt to
identify what it is about the situation which leads
to the judgment.

FIGURE 9.15. Observing image content before and after
project implementation. Source: Planning Environmental

Area and Structure Coherence

Description

Coherence refers to the degree to which the in-
ternal organizing framework of an area or structure
can be perceived by the users so that they can
move freely within it. Coherence also refers to
the success with which buildings or spaces are
integrated. As examples, buildings or open spaces
which are out of scale and spaces which offer no
guidance as to location or movement through
them will generally be considered unsatisfactory
by the people using them.
**Impact**

Will the coherence of the surrounding area be reduced by the project action?

**Scale of Impact**

A+ The project itself is coherent and will improve the coherence of the surrounding area.

A There is no notable visual conflict between the project and its surroundings which might reduce coherence.

B There is likely to be some loss of coherence due to the project action; however, mitigative measures can be taken.

C There is likely to be a loss of coherence due to the project action. No mitigative measures are planned.

C – N.A. (Generally accepted standards have not been developed).
Initial Screening Test

1. Through site vistas and the examination of proposed project plans, describe the extent to which the surroundings of the project have coherence. Table 9.5 provides a framework for this description. Photographs, discussion with area residents, and construction of maps using methods described by Lynch (1960) may assist and support this description.

2. Note any aspects of the project plan which are likely to cause changes on the scales suggested in Table 9.5. Careful consideration should be given to projects which represent a definite change in land use type or intensity.

3. Judgment will be required to address the critical concern. If a rating of A+ or A cannot be given and supported by reasonable argument, higher-level tests should be done.

Higher-Level Tests

Higher-level tests will require securing the opinions of residents or users. The services of a professional such as an urban designer, architect, or landscape architect may also be of assistance.

Apparent Access

Description

The organization of spaces and buildings and the design of the building themselves influence the individual’s perception of his or her access to the associated activities and spaces. An environment which is interesting and enjoyable is one which invites the individual to explore. Apparent access refers to the extent to which an area or structure provides information to the individual on approaching and moving through it so that the structure or area can be used or experienced.

Impact

Will the project obscure or eliminate access information required for the use of activities and areas?

Scale of Impact

A+ There are measures taken to improve the apparent access to a variety of activities.

B There are conflicts of apparent access which may prevent a variety of activities, but modifications can be made which will enhance the accessibility.

C There is a definite conflict between apparent access as compared to actual physical access.

C− N.A. (Generally accepted standards have not been developed).

Initial Screening Test

1. Using a plan of the project and its surroundings, identify the major access and linkages which should exist. For example, pedestrians should be clearly invited to walk through commercial areas. Note should also be made of linkages and activities which are undesirable. For example, in a pedestrian mall it might not be desirable to include provision for direct access of automobiles.

2. Based upon site visits and examination of project plans, judge the apparent access which is actually afforded using the examples given in Table 9.6 for assessing the quality

<p>|</p>
<table>
<thead>
<tr>
<th>Qualities Improving Apparent Access</th>
<th>Illustrations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visible points of entrance/exit</td>
<td>Doors</td>
</tr>
<tr>
<td></td>
<td>Openings between buildings</td>
</tr>
<tr>
<td>Lack of visual or apparent physical barriers</td>
<td>Roads that are not heavily travelled</td>
</tr>
<tr>
<td></td>
<td>Low shrubbery or lawn areas</td>
</tr>
<tr>
<td></td>
<td>No fence and walls</td>
</tr>
<tr>
<td>Lack of conflicting activity</td>
<td>Sidewalks with room for window shopping</td>
</tr>
<tr>
<td></td>
<td>Buffered noisy activities</td>
</tr>
<tr>
<td>Inviting spaces</td>
<td>Well-lighted interior</td>
</tr>
<tr>
<td></td>
<td>Attractive features such as open space, fountains, park benches</td>
</tr>
</tbody>
</table>

Source: Planning Environment International.
and clarity of the access information that is given.

3. A listing of opportunities for apparent access should be made and an overall assessment made. If the project does not qualify for an A or A rating, higher-level tests should be done.

Higher-Level Tests

The judgment of a qualified design professional (urban designer, architect, or landscape architect) should be employed.

DETAILED VISUAL IMPACT ASSESSMENT

There is one additional component to visual resource management systems. This additional component is a means of assessing the severity of visual impact or the capability of specific landscape sites to absorb visual impact. BLM has used its contrast rating procedure for this purpose, and the Forest Service has developed a process entitled Visual Absorption Capability or VAC (Anderson et al. 1979), and the Federal Highway Administration has a visual impact guidance procedure. The philosophical precepts behind the development of these three subsystems are quite different. VAC is used to determine how much can be done to a landscape site before its visual absorption capability is exceeded. Contrast rating is used by BLM (1980), on the other hand, is used to determine whether a proposed change to the landscape would cause an acceptable or unacceptable level of contrast with that specific site according to professional judgment. The Federal Highway Administration system is different because it advocates public reactions to visual impact from simulations.

VAC combines physical factors of the existing landscape, highly changeable perceptual factors, existing visual quality factors (form, line, color, texture), and proposed activities factors (scale, configuration, duration, frequency, and so forth) to determine the VAC score for that particular landscape (see Figure 9.17). A low VAC score is very restrictive, and a high score means much more activity can be allowed. The VAC score range is then compared to the existing visual management objective(s) already determined for that area (see Figure 9.18).

The contrast rating procedure as used by BLM operates in the following manner:

1. The landscape character as expressed by land features or water bodies, vegetation, and structures is described in terms of form, line, color, and texture.

2. The proposed activity for that particular locale is described in terms of form, line, color, and texture introduced or modified.

3. A contrast rating is then made by multiplying preestablished numerical values of form, line, color, and texture for land/water bodies, vegetation, and structures by the estimated degree of contrast (strong-3, moderate-2, weak-1, none-0) to yield subtotals of contrast for land/water texture, vegetation, and structures (see Figure 9.19).

4. If the contrast ratings exceed “allowable” levels set according to the BLM Manual, then the project feature/element of greatest contrast is to be redesigned, the basic presumption being in most cases that too much contrast is “bad” or “not desirable.”

5. The process is then repeated after the redesign.

This process is useful in that it provides a record of the landscape as is and the landscape with the proposed project. It can be used to document which physical portion of the project needs to be reworked or redesigned, for example, landfill cuts reduced, less vegetation disturbed, structures reduced in size, and so forth. If mitigation measures are not implemented, it can provide the legal documentation for taking action to ensure the mitigating actions are implemented. Thus from an administrative procedural point of view, the process provides many advantages.

For Highway Projects

The approach suggested by U.S.D.O.T. (1981) here is flexible but is also strongly related to the elements of visual experience. There are five general steps in this approach:

Define the visual environment of the project.

Analyze existing visual resources and viewer response.
<table>
<thead>
<tr>
<th>Factors</th>
<th>Variables</th>
<th>Rating</th>
<th>Viewpoints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superior</td>
<td>+300' - +500'</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Observer</td>
<td>+100' - +300'</td>
<td>2</td>
<td>V1</td>
</tr>
<tr>
<td>Position</td>
<td>±100'</td>
<td>3</td>
<td>V2</td>
</tr>
<tr>
<td>Inferior</td>
<td>-100' - -300'</td>
<td>4</td>
<td>V3</td>
</tr>
<tr>
<td></td>
<td>-300' - -500'</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Foreground</td>
<td>0 - ¼ mi.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Observer</td>
<td>¼ - ½ mi.</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Distance</td>
<td>Middle-ground</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>½ - 1 mi.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 - 2 mi.</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Background</td>
<td>2+</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Long</td>
<td>30+ sec.</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>View Duration</td>
<td>Short</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 - 10 sec.</td>
<td>3</td>
<td>V1</td>
</tr>
<tr>
<td></td>
<td>3 - 5 sec.</td>
<td>3</td>
<td>V2</td>
</tr>
<tr>
<td>Glimpse</td>
<td>0 - 3 sec.</td>
<td>3</td>
<td>V3</td>
</tr>
<tr>
<td>Feature</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focal</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landscape Description</td>
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<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Feature</td>
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<tr>
<td>Focal</td>
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</tr>
<tr>
<td>Panoramic</td>
<td>3</td>
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<td></td>
</tr>
<tr>
<td>Other</td>
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<td></td>
</tr>
<tr>
<td>Steepness</td>
<td>Very Steep</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Steep</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Gentle</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very Gentle</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Lowest rating is the Key Viewpoint</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary**

**Visual Absorption Capability**

5–13 Low  
14–16 Intermediate  
17–23 High

**FIGURE 9.17**. Rating system devised for development of visual absorption capability.

Deict the visual appearance of project alternatives.
Assess the visual impacts of project alternatives.
Determine ways to mitigate adverse visual impacts.

In practice, the content of these steps will depend on the visual issues specific to a project. Special considerations are the linear dynamic experience of the driver and/or passenger, which complicates the VIA analysis. More detailed treatment of VIA procedures is presented in Chapters 12 and 13.

SUMMARY

In summary, visual resource management systems were designed by these agencies to:

FS, BLM, SCS
1. Inventory and simultaneously evaluate visual landscape quality based on primarily physical landscape factors with aesthetic modifiers (form, line, color, texture).

FS, BLM, SCS, FHWA
2. Inventory amount of use of the landscape, travel through the landscape, or attitudes towards the landscape, indicating degree of sensitivity.

FS, BLM, SCS, FHWA
3. Map degree of visibility or distance zones from which the landscape can be seen.

FS, BLM
4. Combine this information to establish appropriate levels of management of visual quality. Under these management levels, certain intensities and types of activities are allowed or not allowed.

In SCS’s case, priorities for appropriate level of professional involvement are established.

SCS

FHWA, HUD
5. Assess whether significant visual impact may occur.

FS, BLM, FHWA
6. Assess visual impact absorption limits or thresholds to severity of visual impact allowed for specific landscape sites and provide guidance for ameliorative redesign or change in location of the impacting activity.

FS, BLM, SCS, FHWA, HUD
7. Integrate all of the above into appropriate levels and times of environmental decision making.