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of Engineers

## ENVIRONMENTAL IMPACT RESEARCH PROGRAM

INSTRUCTION REPORT EL-88-1

# VISUAL RESOURCES ASSESSMENT PROCEDURE FOR US ARMY CORPS OF ENGINEERS

by

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| <p>This report documents the Visual Resources Assessment Procedure (VRAP) for the US Army Corps of Engineers. The VRAP is a systematic method to (1) evaluate and classify existing aesthetic or visual quality; (2) assess and measure visual impacts caused by Corps water resource projects; (3) evaluate the beneficial or adverse nature of the visual impacts; and (4) make recommendations for changes in plans, designs, and operations of water resource projects. The VRAP was developed to provide planners with a systematic, tractable method for incorporating aesthetic considerations in Corps planning studies. As such, the VRAP is consistent with existing Federal and Corps water resources planning and environmental policies and regulations.</p> <p>The VRAP uses changes in visual resources to measure and evaluate the visual impacts caused by a Corps project. The visual resources considered are water resources, landform, vegetation, land use, and user activities. The VRAP is composed of two parts, the Management Classification System (MCS) and the Visual Impact Assessment (VIA) Procedures. The MCS establishes an Assessment Framework for a project area and sets the visual resource criteria that are used throughout the visual assessment. The existing visual quality of an area is determined by</p> <p style="text-align: right;">(Continued)</p> |       |  |   |   |  |
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| Aesthetic impacts        | Scenic quality           |
| Aesthetic quality        | Visual impacts           |
| Environmental impacts    | Visual quality           |
| Environmental management | Water resources planning |
| Environmental planning   |                          |

## 19. ABSTRACT (Continued).

inventorying the visual resources and comparing the inventory with the Assessment Framework. Using proposed alternatives, the VRAP measures the change in the visual resources and determines the compatibility or acceptability of the changes in the visual resources, i.e., the visual impact. Visual simulations of the with- and without-project conditions are used to determine changes in visual resources. The MCS criteria are used to determine the acceptability or compatibility of the visual impacts.



## PREFACE

This report was prepared under contract with the State University of New York, Syracuse (SUNY), Syracuse, N. Y., under the direction of Drs. Richard C. Smardon and James F. Palmer, assisted by Mr. Alfred Knopf and Ms. Kate Grinde, for the US Army Engineer Waterways Experiment Station (WES), Vicksburg, Miss. The work was sponsored by the Office, Chief of Engineers (OCE), US Army, as part of the Environmental Impact Research Program (EIRP), Work Unit No. 32264. Technical Monitors were Dr. John Bushman and Mr. David P. Buelow, OCE, and Mr. Dave Mathis, Water Resources Support Center, Fort Belvoir, Va. The contract with SUNY was monitored by and the work reviewed and coordinated with Mr. Jim E. Henderson and Ms. Linda Peyman-Dove, Resource Analysis Group (RAG), Environmental Resources Division (ERD), Environmental Laboratory (EL), WES.

This work was performed under the direct supervision of Mr. William J. Hansen, former Chief, RAG, and Mr. H. Roger Hamilton, Chief, RAG, and under the general supervision of Dr. C. J. Kirby, Chief, ERD. The Program Manager for EIRP was Dr. Roger T. Saucier. Dr. John Harrison was Chief, EL. The report was written by Dr. Smardon, Dr. Palmer, Mr. Knopf, Ms. Grinde, Mr. Henderson, and Ms. Peyman-Dove. It was edited by Ms. Lee T. Byrne, Information Products Division, Information Technology Laboratory, WES.

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# **PART I: INTRODUCTION**



The Visual Resources Assessment Procedure (VRAP) of the US Army Corps of Engineers is made up of two parts, the Management Classification System (MCS) and the Visual Impact Assessment (VIA) Procedures. The VRAP Procedure has been developed for Corps water resource projects and is consistent with Corps planning and environmental policies. The emphasis of the Procedure is necessarily visual, though other aesthetic qualities are addressed. Both parts of the Procedure should be used to ensure a complete and thorough assessment of the visual resource. The flowchart below illustrates the steps of this Procedure.

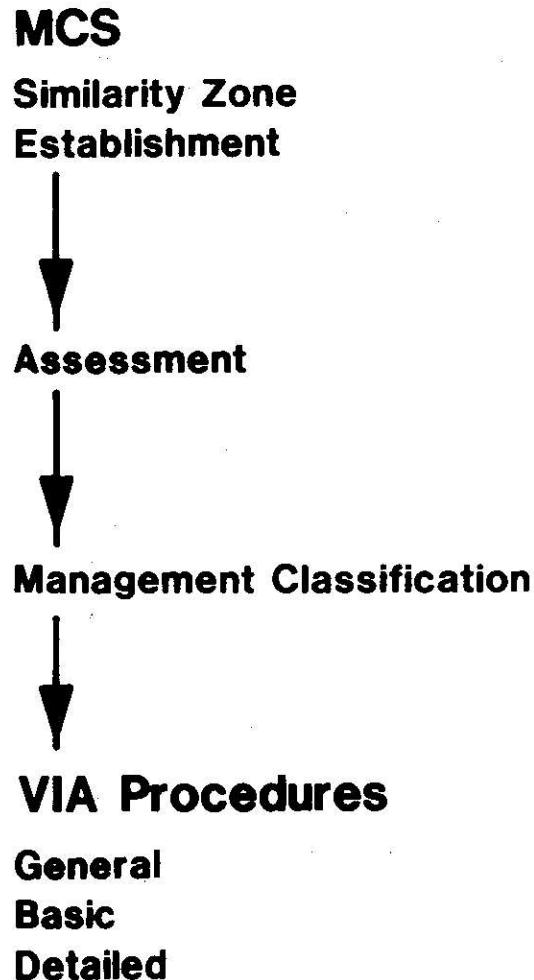


Figure 1. Corps VRAP Procedure

The VRAP Procedure is to be implemented as part of the ongoing planning process, rather than after planning is complete. Data collection can be accomplished in the same data-collection effort as other environmental studies. Table 1 shows the relationship between the *Principles and Guidelines* (P&G) planning process (US Water Resources Council 1983a) and the VRAP Procedures, including the forms to be used. In practice, P&G planning has a range of flexibility and leeway. Table 1 shows how the Procedure follows along, corresponds to, or is integrated with Corps planning activities and is intended as a general process or guide rather than a rigid prescription for planning or visual resource studies. Ideally, the Management Classification System should be accomplished as part of the "Specify Problems and Opportunities" step of planning, and the Visual Impact Assessment should begin with the "Inventory and Forecast" phase. However, funding, scheduling, and other considerations often result in the VRAP Procedure being initiated after Formulation of Alternatives or Evaluation; so the Procedure should be viewed with some flexibility.

**Table 1**  
**Planning Process and the VRAP Procedure**

| <i>Planning Process</i>             | <i>VRAP Procedures</i>   | <i>Forms</i>                                |
|-------------------------------------|--|---|
| Specify problems and opportunities. | Define study area.   | VISUAL RESOURCE SUMMARY/DESCRIPTION         |
|                                     | Identify Regional Landscape.   | ASSESSMENT FRAMEWORK                        |
|                                     | Determine MCS class.   |   |
| Inventory and forecast.             | Establish what method to use for the study (General, Basic, or Detailed).  |   |
|                                     | Inventory existing visual resources.   | VISUAL RESOURCE INVENTORY/FORECAST          |
|                                     | Forecast without-plan conditions to assess any changes from existing visual resource conditions.   | VISUAL RESOURCE INVENTORY/FORECAST          |
|                                     | Forecast with-plan conditions.   | VISUAL RESOURCE INVENTORY/FORECAST          |
| Formulate alternative plans.        | Use simulations to show designs of alternatives.   |   |
| Evaluate alternative plans.         | Assess visual impacts by calculating the difference between future with- and without-plan conditions for each landscape component, for each viewpoint. | VISUAL IMPACT ASSESSMENT-VIEWPOINT          |
|                                     | Combine viewpoint assessments from each evaluator to calculate VIA Values for the landscape components and landscape modifiers.                        | VISUAL IMPACT ASSESSMENT-VIEWPOINT SUMMARY  |
|                                     | Combine the evaluators VIA to calculate a VIA Value.   | VISUAL IMPACT ASSESSMENT-ASSESSMENT SUMMARY |
| (If public input is available.)     | (Combine public and professional VIA Values to calculate a Total VIA Value.)   | (COMPOSITE PROJECT ASSESSMENT)              |
| Compare alternative plans.          | Compare VIA Values with MCS criteria.  |   |

### How To Use This Manual

The procedures in this manual provide a method to evaluate visual resources affected by Corps water resources projects. They are intended to be implemented by Corps landscape architects and other environmental resources personnel with background or training in visual assessment, such as the Corps Aesthetic Resources Training Course. As such, these steps are to be implemented with a degree of professional judgment in implementing deviations from the VRAP Procedure and adjustments due to project or site-specific conditions. As with the explanation in any new manual, the VRAP Procedure is presented in a step-by-step fashion, succinctly without going into detail on variations or situations likely to be encountered. That is, the inherent flexibility of the process that is obtained through user adjustments may not be apparent if a literal interpretation is taken of the Procedure.

The VRAP Procedure was developed to be used in the planning process as input to plan formulation, design, and operations. The method and analysis used are intended to be responsive to the planning and environmental policies set out in P&G and the Planning Guidance Notebook (Office, Chief of Engineers (OCE) 1982). As such, the Procedure is quantitative, systematic, and tractable. It may appear somewhat rigorous at points, but this is often in response to the guidance of the planning policies.

When reviewing this manual, one should bear in mind the way planning is necessarily accomplished in a District. The VRAP Procedure is organized as a process, as if the Corps had a data base on the existing visual quality of the District resources and could draw on this to assess the impacts to aesthetics caused by various projects. As this is not the case, use of the Procedure to get a Visual Impact Assessment Value (i.e., the Visual Impact Assessment Procedure) requires developing the information on the existing visual quality conditions (i.e., the MCS).

The type of public input for aesthetics, as well as environmental issues in general, varies with the project. Public input is required in the planning process, and, if at all possible, the public should be involved in visual resource evaluations for development of the MCS assessment framework and for project impact studies. Accordingly, information on public input is included in the Procedure. It is recognized, however, that given time, funding, and other constraints, judgment must be exercised in determining the extent to which direct public input, such as interviews, questionnaires, and workshops, should be obtained and incorporated in a visual resources study. In instances where direct public input is not feasible or appropriate, indirect sources of public opinion, such as published landscape preference research, locally known scenic areas, and public response to similar projects, are available and should be given consideration in professional assessments.

### **The Forms**

The different Forms used in the Corps VRAP Procedure are described here and are included in Appendix A. For clarity in the text, references to specific FORMS are capitalized. The set of Forms was developed for use in all Corps Districts. It may be desirable to revise the details of the Forms, adding, deleting, or expanding items so as to be more sensitive to the type and diversity of visual resources in a region.

#### **FORM 1**

FORM 1--VISUAL RESOURCE SUMMARY/DESCRIPTION FORM is used in the MCS and all VIA Procedures to describe the visual resources and aesthetic characteristics of the study area in a holistic manner. The total visual impression and unified perceptions of the landscape are recorded. Visual resource components (e.g., landform, vegetation, water resources, or structures) that are prominent in the landscape are identified. MCS Similarity Zones and designated study areas are inventoried with General VIA Procedures, and future study area conditions are forecasted on this Form. Basic and Detailed VIA Procedures inventory the existing study area conditions from each viewpoint. FORM 1 is used to record forecasting information for each viewpoint for the with- and without-plan conditions. Space is available for a written description and photographs.

#### **FORM 2**

FORM 2--VISUAL RESOURCE INVENTORY/FORECAST is used in the MCS and all VIA Procedures. This Form is a list or summary of the various characteristics and types of resources used to assess the visual quality of the study

area. Whereas the VISUAL RESOURCE SUMMARY/DESCRIPTION FORM examines the landscape from an overall holistic standpoint, the VISUAL RESOURCE INVENTORY/FORECAST FORM focuses on specific visual resource components. In the MCS, the resources of the Similarity Zones are inventoried. The study area in the General Procedure and each viewpoint chosen in the Basic or Detailed Procedures are inventoried for existing conditions and assessed for future with- and without-plan conditions.

### **FORM 3**

FORM 3--ASSESSMENT FRAMEWORK is used in the MCS to record the determinations of Distinct, Average, and Minimal resource characteristics for each Regional Landscape. (Definitions of Distinct, Average, and Minimal are explained in Part II: Management Classification System.) The characteristics are determined for water resources, landform, vegetation, land use, and user activities. The framework determinations provide consistent criteria for the assessment of existing and forecasted visual quality in Similarity Zones, study areas, and viewpoints. The Assessment Framework is initially developed by environmental resource professionals. This evaluation may be combined with public information to form a composite framework.

### **FORM 4**

FORM 4--ASSESSMENT SUMMARY uses information from FORM 1--VISUAL RESOURCE SUMMARY/DESCRIPTION, FORM 2--VISUAL RESOURCE INVENTORY/FORECAST, and FORM 3--ASSESSMENT FRAMEWORK to produce a numerical Total Assessment Value for each Similarity Zone or study area. Each resource included on FORM 2 (water resources, landform, vegetation, land use, user activity, special considerations) is rated: Distinct = 3, Average = 2, or Minimal = 1. Total Assessment Values range from 0 to 17. FORM 4 is used in the MCS to assess existing visual quality in each Similarity Zone. In the General VIA Procedure, this Form can be used to assess existing and forecasted visual quality in the study area.

### **FORM 5**

FORM 5--MANAGEMENT CLASSIFICATION SUMMARY is used in the MCS or General VIA Procedures to record the classification of existing visual resources of each Similarity Zone in a Regional Landscape or study area. Each zone is classified depending on its numerical Assessment Value as determined in FORM 4--ASSESSMENT SUMMARY. Management classes and Total Assessment Values include Preservation (17 or greater), Retention (14 to 16), Partial Retention (11 to 13), Modification (8 to 10), and Rehabilitation (less than 8).

### **FORM 6**

FORM 6--VIEWPOINT ASSESSMENT is used in the Basic and Detailed VIA Procedures. Each evaluator uses this Form to assess the forecasted conditions of representative viewpoints for each alternative plan. For each viewpoint, the water resources, landform, vegetation, land use, user activities, and special considerations are rated from the ASSESSMENT FRAMEWORK FORM as Distinct = 3, Average = 2, or Minimal = 1, and assessed for with- and without-plan conditions. The Viewpoint Value, a numerical difference between the with- and without-plan conditions, is calculated for each resource. The level of compatibility, scale contrast, and spatial dominance of the project to the study area is also assessed on this Form. The landscape composition of the with- and without-plan conditions are rated as inconspicuous, significant, or prominent.



**FORM 7**

FORM 7--SUMMARY VIEWPOINT ASSESSMENT is used in the Basic and Detailed VIA Procedures to combine the assessments of the different viewpoints into a Summary Assessment Value. A separate assessment is completed for each evaluator, each forecast period, and each alternative. The information from each viewpoint is transferred to this Form and averaged to get a Summary Viewpoint Value for each of the visual resource components, e.g., water resources or vegetation. For the modifier ratings, a majority rating is determined for compatibility, scale contrast, spatial dominance, and landscape composition.

**FORM 8**

FORM 8--VISUAL IMPACT ASSESSMENT SUMMARY is used to compute a VIA Value for each forecast period and alternative plan considered in the Basic or Detailed VIA Procedure. The VIA Value is determined by combining the Composite Viewpoint Values of all the evaluators. The VIA Value is the measure of visual impact caused by the project, comparing with- and without-plan conditions, and is used for comparison with the project's MCS classification of the study area. The modifier ratings of all the evaluators are averaged to give a majority rating. The landscape composition ratings are also averaged.

**FORM 9**

FORM 9--DESIGN ELEMENT INVENTORY/FORECAST-DETAILED is used in the Detailed VIA Procedure. The Form is used to inventory and forecast the viewpoints in terms of the design elements of line, form, color, texture, and scale. This inventory is completed along with FORM 6--VIEWPOINT ASSESSMENT during the Detailed VIA Procedure. The design elements are described for existing and forecasted conditions. The information from this Form is used to identify elements that can be changed to minimize or modify the visual impacts or to reformulate alternative plans.

**FORM 10**

FORM 10--DESIGN ELEMENT ASSESSMENT-DETAILED is used in the detailed VIA Procedure. This Form is used to document, in narrative, the changes in the design elements for the representative viewpoints of each forecast period and alternative plan. The assessment of differences in with- and without-plan conditions is described in reference to water, landform, vegetation, and structures.

**PART II:  
MANAGEMENT  
CLASSIFICATION  
SYSTEM**

## Introduction

The MCS provides an evaluation framework that defines general criteria for judging visual quality. Separate frameworks are developed for different Regional Landscapes to accommodate the unique characteristics of each type. The MCS information enables the planner to inventory and evaluate resources and visual impacts in a consistent manner within each region and to make sound decisions in assessing the visual effects of proposed projects. Being generalized in nature, the evaluation framework is applicable for assessing projects throughout the Regional Landscape for which it was prepared.

The MCS consists of several steps, which are depicted in Figure 2. First the Regional Landscape is identified, Similarity Zones within that landscape are established, and the visual resources of each zone are described in a generalized manner. Professional aesthetic judgments and public preference information are then used to assess the visual quality of the resources and to categorize those assessments in an overall Assessment Framework for the Regional Landscape. Using this framework, the visual resources of each Similarity Zone are assessed, and a numerical Assessment Value for each zone is established. Based on the Assessment Value, each zone is assigned to a particular MCS class, which describes the degree and nature of visual change acceptable for that zone.

### MANAGEMENT CLASSIFICATION SYSTEM

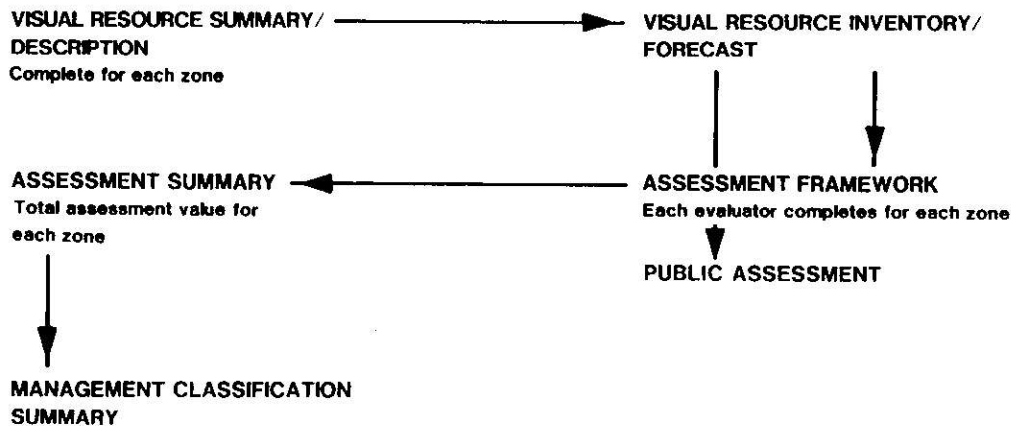


Figure 2. Management Classification System

The Assessment Framework and the MCS classes are used in Part III, the VIA Procedures, to assess and appraise the visual effects of proposed projects. The MCS is, therefore, completed prior to the VIA Procedures so that decisions made in Part III have a solid basis. Table 2 shows the relation of the MCS to the planning process. The timing of MCS implementation, the level of detail at which visual resource information is collected and analyzed, and the nature of the MCS end products can be varied considerably in response to District planning needs. Ideally, a comprehensive application of the MCS could be used to establish a District-wide visual resource data base independent of any proposed project. Consistently developed evaluation frameworks for each Regional Landscape within the District would then be available for immediate use in planning studies or Corps land-management decisions. Alternatively, the MCS can be abbreviated to evaluate only the Regional Landscapes and Similarity Zones that occur in the study area. With an abbreviated version, the zones should be applicable to the Regional Landscape as a whole. The visual quality judgments should also be considered within the regional context. Depending on study needs, the information gathered and products generated in the MCS can vary in level of detail from broadly defined Similarity Zones (e.g., developed area) simply described in a few words to specific zones (e.g., urban historical district) mapped precisely on a study area map.

**Table 2**  
**Planning Process and the Management Classification System**

| <i>Planning Process</i>             | <i>Visual Resources<br/>Assessment Procedure</i>                          | <i>Forms</i>                        |
|-------------------------------------|---|-------------------------------------|
| Specify problems and opportunities. | Define study area.  | VISUAL RESOURCE SUMMARY/DESCRIPTION |
|                                     | Determine Regional Landscape.   | ASSESSMENT FRAMEWORK                |
|                                     | Determine MCS class.  |                                     |
|                                     | Establish what method to use for the study (General, Basic, or Detailed). |                                     |

While one person may be responsible for establishing MCS classification for a landscape, it is important that at least one other Corps representative with assessment experience reviews the work to ensure sound results.

### **Regional Landscape Identification**

Identification of Regional Landscapes provides a frame of reference for the inventory and evaluation of visual resources. The Regional Landscape covers a broad physiographic area in which landforms, water resources, vegetation, and climate tend to exhibit common characteristics. While the specific nature of these components and area land uses can vary considerably over short distances, the same characteristics are repeated throughout the region, giving the landscape an overall visual character that is different from other regions. By establishing an individual Assessment Framework for each Regional Landscape, the value and importance of the region's visual characteristics are judged relative to the landscape context in which they occur, not in comparison with completely dissimilar landscapes.

The identification of Regional Landscapes is based on physiographic and ecosystem areas such as those described by Fenneman (1931), Hammond (1964), or Bailey (1978). The size of Regional Landscapes varies with the complexity of the physiographic units by which they are defined. Corps Districts can be expected to have at least two to three Regional Landscapes, but some can have many more. Physiographic/ecosystem areas that have similar visual



characteristics should be combined in a single Regional Landscape, with any major differences handled as Similarity Zones.

### **Method**

The delineation of Regional Landscapes within the District and brief descriptions of their visual characteristics are used to guide the further analysis of visual resources.

- a. Consult the maps and descriptions of physiographic and ecosystem areas from sources such as Fenneman (1931), Hammond (1964), or Bailey (1978). Literature searches may also provide valuable input from Federal, State, regional planning agencies, and universities that have landscape architecture or regional planning curriculums. Based on impressions obtained in the field by the evaluator or other personnel familiar with the District, determine the physiographic areas or combinations of area that most closely define broad regional landscapes with distinctly different visual characteristics.
- b. Transfer the appropriate physiographic and ecosystem unit boundaries onto a map to create a Regional Landscape map. Since physiographic/ecosystem boundaries are often approximated transition zones, the Regional Landscape map should be used as a general guide, with the appropriate Regional Landscape of the specific study areas being verified in the field.
- c. For each Regional Landscape, use FORM 1--VISUAL RESOURCE SUMMARY/DESCRIPTION and, possibly, FORM 2--VISUAL RESOURCE INVENTORY/FORECAST to briefly describe the primary and unifying visual characteristics of the landscape. These descriptions should be based on viewer impressions and the appropriate physiographic/ecosystem descriptions. General visual characteristics that make the landscape different from others should be noted. Overall descriptions of the following can be included as appropriate: landform, water resources, vegetation/ecosystem, climate, land uses, typical views, spatial enclosure, typical viewing distances, and typical viewer position. These descriptions are meant to be used as a general guide that documents the visual characteristics of each Regional Landscape.
- d. Since the Regional Landscapes are primarily defined from secondary sources, the appropriateness of the designations and descriptions should be verified in the field when Similarity Zone or project-specific investigations are conducted.

### **Landscape Similarity Zone Establishment**

Within each Regional Landscape, Similarity Zones are established to provide a more specific framework with which to define and evaluate the visual resources of a study area. The Similarity Zone represents a physiographic area of land that has common characteristics of landform, water resources, vegetation/ecosystems, land use, and land use intensity. As opposed to the diversity that can exist within the Regional Landscape, a Similarity Zone has a fairly homogeneous, unified landscape or visual character. A river basin may have one or numerous zones depending on the diversity of land use, vegetation, and other resources. Areas that are highly developed (e.g., urban areas) will have more zones because the land use and use intensity vary more than in relatively undeveloped areas. It should be apparent that the size of the zones and the level of detail with which they are defined can vary over a wide range.

The Similarity Zones consist of unified geographic areas that are within the

broad Regional Landscape and have similar landscape characteristics. When establishing zones, one must be aware of boundaries of the resource. Does it continue for the entire length of the river basin or shoreline? Is it divided into neatly segmented mile-long areas? The answer is important. A system using the entire river basin would ignore the diversity that would be found in the area, whereas a system that divides the resource into equal mile-long segments would be excessively complex and redundant. A system that uses information inherent in the resource should reflect the diversity and the relative scale of the segments without being complex.

The Similarity Zone concept is used because the character of the visual resources in a zone should be used as a basis for evaluating the visual impacts of projects in that zone. Prior to considering a project, judgments are made on the existing visual quality of the zone using the inventory and assessment of the zone's visual resources.

### **Method**

The Similarity Zones are delineated by overlaying the visual resource components of:

- a. Landform.
- b. Water resources.
- c. Land use and/or use intensity.
- d. Vegetation/ecosystem distribution.

The establishment of Similarity Zones can be recorded with two methods: listing the factor combinations that define the zone and mapping the zone by overlaying maps of these factors. The factor-combinations list names the zone in a few words. Mapping Similarity Zones for representative sample areas is useful for checking the logic of zone definitions and for field verification of factor combinations. However, Similarity Zone maps are not necessary for zone establishment and can be completed on an as-needed basis for specific study areas.

### **Resource combinations**

The combinations of visual resources used to define each Similarity Zone should reflect impressions of visual character obtained in the field. The level of detail to which the zones are defined can vary considerably depending on planning needs. Generalized zones developed for a basin study can later be subdivided into more detailed zones for analysis of a specific site. The following categories of visual resources are used in zone establishment: landform, vegetation/ecosystem distribution, land use and use intensity, and water resources. Each zone is defined by listing the visual resource components that give the zone an identifiable visual character. It is not necessary to specify resources from every category as long as the zone can be identified.

Information on visual resource components may be available from an established computer-based geographic information system. It may be possible to produce computer models to establish the zones or generate overlays.

**Landform.** The type of landform present in an area contributes to the general landscape composition by enclosing space, defining viewing distances, and creating opportunities for different viewer positions. Descriptions of physiographic and ecosystem areas provide maps and general information on the character and relative relief of landforms at a suitable level of detail for use in zone establishment. Topographic maps from the US Geological Survey also provide landform information at a range of scales.

**Vegetation/ecosystem distribution.** An ecosystem's combination of vegetation,

topography, habitat types, and climate contributes to defining the landscape character of a study area, but ecosystems tend to be so extensive that use in a visual impact analysis is difficult. The vegetation existing in the study area can determine the visual boundaries of a view, provide canopy cover, or screen particular project components. Delineation of vegetation and ecosystem information may be available from vegetative and habitat studies. Topographic, land use, and other maps can provide vegetation data. Often regional or state maps are available from State fish and wildlife agencies or the US Fish and Wildlife Service and can provide data. Data from sources such as *Bailey (1978)* are at such a broad or aggregated level that there is not enough differentiation between zones. Similarly, sources can be so detailed that the vegetation information is more detailed than is necessary. A reasonable approach is to determine what sources the fish and wildlife personnel normally use for habitat studies in the study area. If these data are not usable, then other sources can be sought.

**Land use and use intensity.** The land uses and use intensities that are normally encountered are:

| <u>Land Use</u> | <u>Use Intensity</u> |
|-----------------|----------------------|
| Industrial      | Urban                |
| Commercial      | Suburban             |
| Residential     | Rural                |
| Agricultural    | Undeveloped          |
| Recreational    |                      |
| Forest          |                      |
| Grass land      |                      |
| Barren land     |                      |

The land uses in Similarity Zone establishment should reflect the types and variability of land uses in the study area. Because of the developed/undeveloped and urban/agricultural variability, it may be desirable to combine or further disaggregate the land uses or intensities listed above to suit the detail level required for the study. Information on suggested land use classification levels and mapped information is available from the US Geological Survey. Land use information may also be available from remote sensing data and the project study team.

**Water resources.** The water resources in a study area include streams likely affected by Corps projects, tributaries, reservoirs, lakes, and other resources. Delineation of water resources can be accomplished by examining Corps hydraulic and hydrologic data and data from the US Geological Survey. Field surveys of the study area can be used to validate the data. During field work, one should be cognizant and document visual differences caused by variability of stream flows. That is, stream flows vary with the seasons, and small tributary streams may be dry during portions of the year.

#### **Similarity Zone maps**

Having defined a set of visual resource combinations that describe a fairly homogeneous Similarity Zone, a study map can be developed for use in the VIA Procedures. The scale of the map should be suitable for mapping of the landform, water resources, vegetation, and land use information at the level of detail necessary for the study. A Similarity Zone map is developed as follows:

- a. Transfer the appropriate landform and vegetation/ecosystem information onto a base map (Figure 3a).
- b. Review the study area in terms of existing land use and use intensity. Determine the appropriate land use and/or land use intensity classifications for the study area. The land use types can be mapped separately or overlaid on the landform/vegetation map. Be sure to label these land uses clearly so that they can be easily recognized by anyone using the system (Figure 3b).
- c. Identify the types of water resources that exist in the area (Figure 3c). Label the general areas as stream/rivers, lakes, wetlands, or marine. Depending on the water resources of the study area, the stream/rivers classification may require disaggregation into such classes as large, small, or various sizes; free-flowing or modified; or ephemeral. Again, the classification system adopted should reflect the diversity of the zone.
- d. The maps of landform, vegetation, land use, use intensity and water resources are overlaid. Zones of relatively homogeneous landscape units should be apparent. The identified landscape Similarity Zones should be outlined on the overlay map (Figure 3d).

If data have been collected in the field, zone classification can be readily checked; however, if most of the work has been done from secondary sources, data must be substantiated through field verification.

Draft a study map that reflects the zones, each zone being numbered or named and easily recognized. This map is referred to as the Similarity Zone map.

### **Visual Resource Inventory**

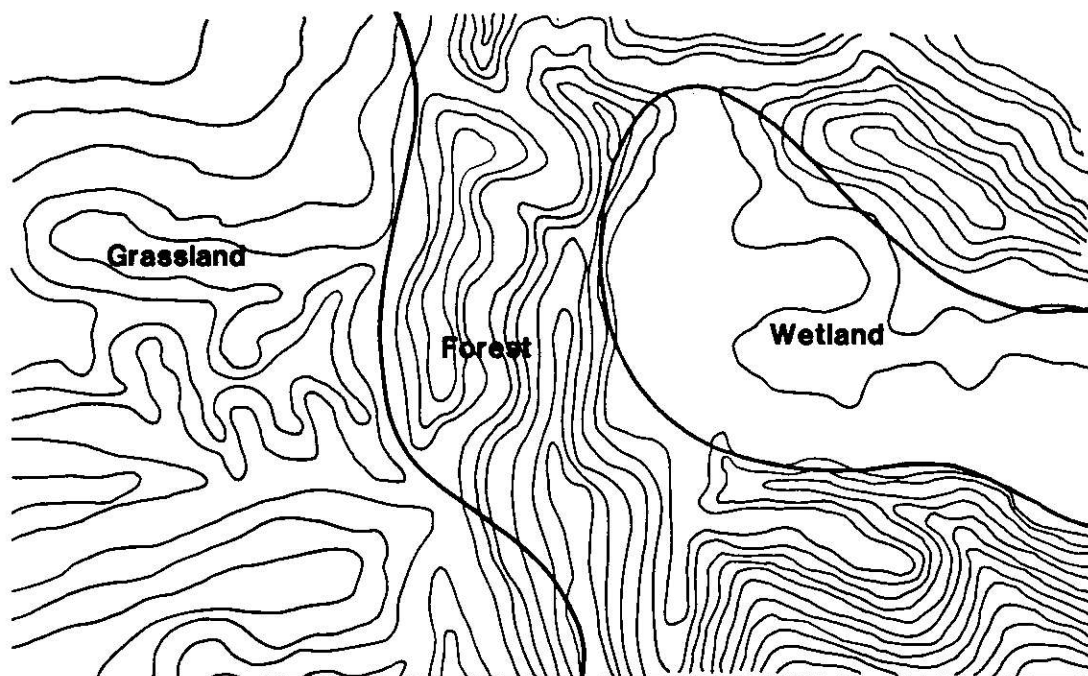
There are many similarities between establishing landscape Similarity Zones and inventorying these zones, the main difference being the amount of detail. The inventory identifies those specific elements of the landscape that determine the landscape quality and thus the visual quality objectives of the zone. The descriptions of visual characteristics should be general in nature and apply throughout the Similarity Zone.

FORM 1--VISUAL RESOURCE SUMMARY/DESCRIPTION and FORM 2--VISUAL RESOURCE INVENTORY/FORECAST are used to complete an inventory of each zone. While doing so, photos that can be used for public and professional evaluations should be taken of the zone or study area. It is important that these photos accurately reflect the diversity of the resources as they exist. This means that the photographer should be aware of the entire resource and not take photos that just "look nice." An accurate representation of the zone and the entire study area should be the result. Figures 4 and 5 are examples of the SUMMARY/DESCRIPTION and INVENTORY/FORECAST FORMS.

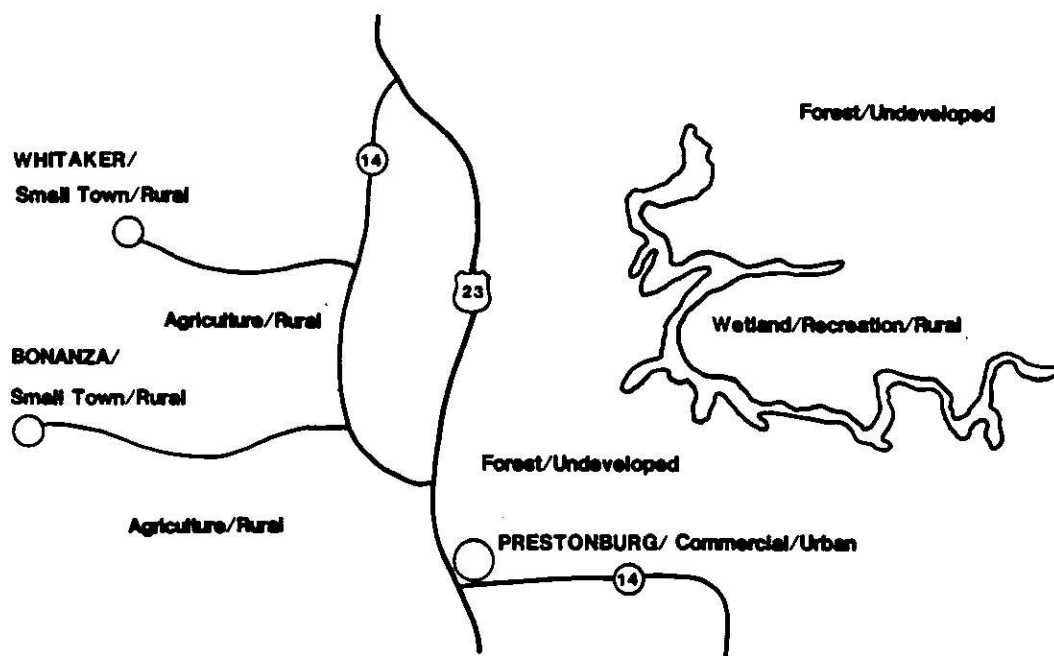
### **Forecasting**

It is important to consider what the visual landscape resource will look like in the future in the absence of any new projects. This enables the establishment of a baseline with which to compare the impact of various alternatives. Forecasting may not be necessary if no changes are anticipated in the visual resource components. Physical and ecological changes (e.g., land use or vegetative succession) that may occur within a zone should be determined by environmental resources personnel. Recreation and land use trends should also be reviewed during the forecasting process. The extent of effort involved in data collection for forecasting will be determined by the availability of forecasts for specific resources and time and funding available for forecasting efforts.



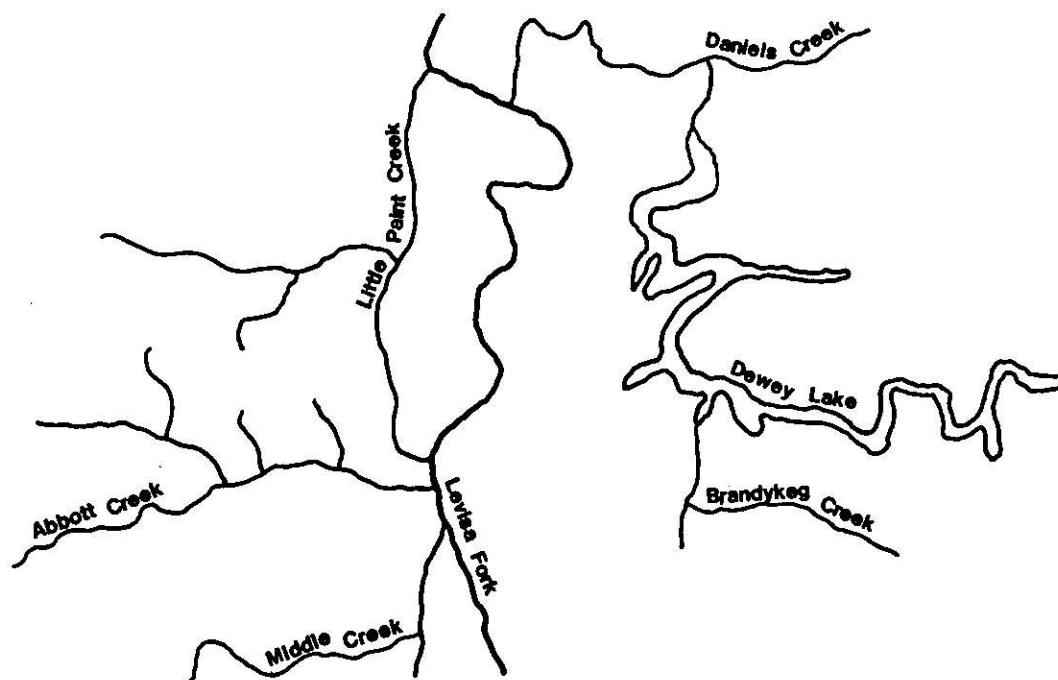


**a. Vegetation map.** (Topography, vegetation cover, soils, and habitat are factors considered in distinguishing ecoregions within a basin or study area. Earlier basin studies, previous planning studies and reports, and existing study area information can be used to establish ecoregions within the basin.)

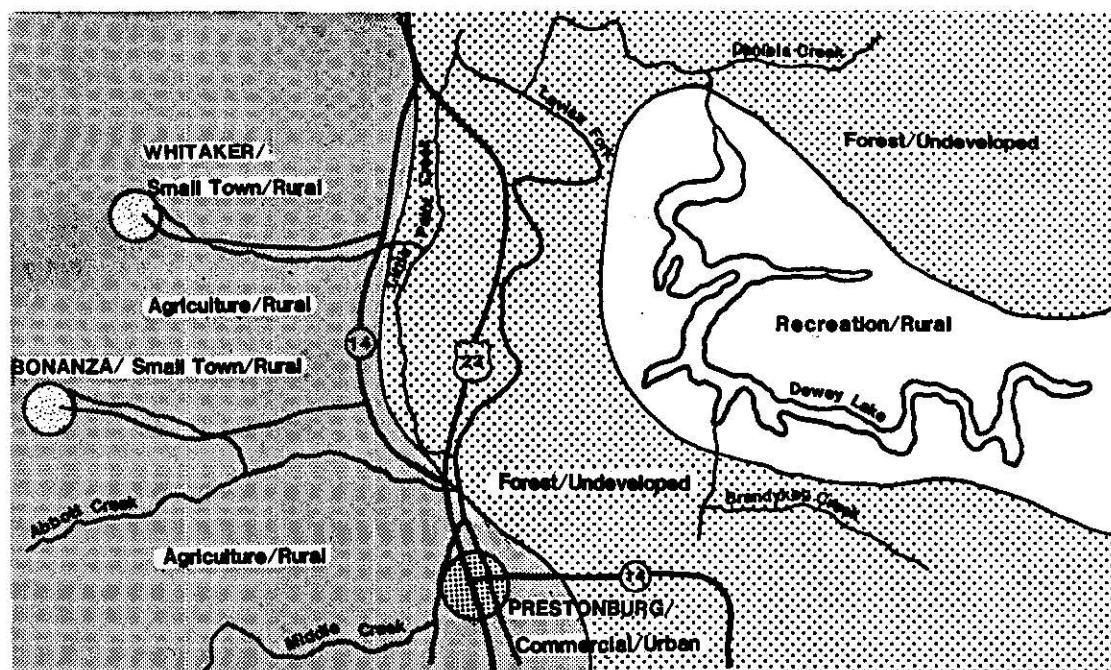


**b. Land use map.** (Review the study area and distinguish land use as industrial, commercial, residential, agricultural, or recreational, and use intensities as urban, suburban, rural, or undeveloped.)

**Figure 3. Similarity Zone maps (Continued)**



**c. Water resources map.** (Water resources that exist in the study area or basin should be mapped, distinguishing streams/rivers, lakes, wetlands, and marine areas.)



**d. Similarity Zone map.** (The vegetation or ecoregion map, water resources characteristics map, and land use and use intensity map are overlaid to determine zones based on similarities of the above factors within a zone.)

**Figure 3. (Concluded)**

# VISUAL RESOURCE SUMMARY/DESCRIPTION

FORM 1

MCS  
VIA

SIMILARITY ZONE (✓)

INVENTORY (✓)

BASIC ( )

FORECASTING ( )

DETAILED ( )

PROJECT NAME Levisa and Russell Forks Basin DATE 12/17/85

LOCATION In rural areas of basin

TIME 11:00 AM

VIEWPOINT( ) ZONE( )

WEATHER cold and cloudy

WITH PLAN ( ) WITHOUT PLAN ( )

PERSONNEL M. Benner

PROJECT DETAILS AND COMMENTS

TIME PERIOD YEARS

In your own words, describe the visual resource of the zone. In doing so, try to describe the elements that unify the area so that it can be considered a zone. Make note of other aesthetic characteristics that are present.

Primarily natural features and scenery - narrow river valley, gorge, rocky cliffs, steep hills, mountain, deciduous forest, rhododendron thicket, river & stream with rocky channel - often white water, rapids, some water falls.

Access to river & interior of project lands often limited because of terrain.

Project lands cover several thousand acres.

## Land uses

- Undeveloped - most lands are undeveloped forests, managed for wildlife with some trails.
- Recreation - scattered areas near access roads developed with recreation facilities - campground, picnic area, visitor center, overlook, lodge, cabins, swimming.
- Some abandoned quarries, surface mines, etc.
- Utility line crossings.

Maintenance-Varies - old & new facilities, some trash & vandalism - some well maintained.

Visibility - ranges from a few feet in woods to approximately 1000 feet in valleys to several miles from overlooks on mountains and canyon rims.

Recreation activities - hike, hunt, camp, picnic, fish.

Figure 4. Inventory using VISUAL RESOURCE SUMMARY/DESCRIPTION FORM

# VISUAL RESOURCE INVENTORY/FORECAST

FORM 2 (MCS) VIA

SIMILARITY ZONE (✓)  
 BASIC ( )  
 DETAILED ( )  
 PROJECT NAME  
 LOCATION In Rural Areas of Basin  
 VIEWPOINT ( ) ZONE (6) - Recreation/River  
 WITH PLAN ( ) WITHOUT PLAN ( )  
 PROJECT DETAILS AND COMMENTS

INVENTORY (✓)  
 FORECASTING ( )  
 DATE 12/17/85  
 TIME 12:00  
 WEATHER Cold & Cloudy  
 PERSONNEL M. Benner  
 of  
 TIME PERIOD YEARS

## WATER

RESOURCE MOVEMENT SCALE  
 STREAM NONE SMALL  
 RIVER MEANDER  
 LAKE/RES. SWIFT MEDIUM  
 WETLANDS RAPID  
 MARINE FALLS LARGE

## LANDFORM

TYPE COASTAL PLAINS ROLLING HILLS HILLS MOUNTAINS

## VEGETATION

COVER 0 0-25% 25-50% 50-75% 75-100%  
 DIVERSITY NONE LITTLE PRESENT SUBSTAN. EXTENSIVE  
 SEAS CHANGE NONE PRESENT SUBSTANTIAL

## LAND/WATER USE

INTENSITY TYPE WILDERNESS RECREAT. UNDEVEL. AGRIC. RURAL RESIDENT SUBURBAN COMMER. URBAN INDUST.

## ACCESS

TYPE TRAIL WALKWAY SECOND. RD. PRIMARY RD. HIGHWAY

## USER ACTIVITY

DEGREE LOW MEDIUM HIGH  
 FREQUENCY LOW MEDIUM HIGH

## LITTER/POLLUTION

AMOUNT NONE PRESENT EXTENSIVE

## ADJACENT SCENERY

SIMILARITY NOT SOMEWHAT VERY

## SOUNDS

PRESENCE TYPE ABSENT DISCORDANT PRESENT INCONSPICUOUS DOMINANT HARMONIOUS

## SMELLS

PRESENCE TYPE ABSENT DISCORDANT PRESENT INCONSPICUOUS DOMINANT HARMONIOUS

## VISIBILITY

AMOUNT POSITION SCREENED INFERIOR PARTIALLY SCREENED NORMAL PANORAMA SUPERIOR

Does this area contain any other significant attributes? Yes No  
 If Yes, explain in Comments above.  
 Is this area known for its wildlife observation? Yes No  
 Does this area contain any cultural or historical landmarks? Yes No

Figure 5. Inventory using VISUAL RESOURCE INVENTORY/FORECAST FORM

Using VISUAL RESOURCE INVENTORY/FORECAST FORMS, review the landscape, either in the field or using the photographs/slides. Instead of inventorying the existing landscape, fill out the MCS forms for a 5-year projection and for a 15-year projection. Use the comment section if needed. Figure 6 shows a forecast using the VISUAL RESOURCE SUMMARY/DESCRIPTION FORM. This is especially important if the MCS classification is established for use over a long period of time. If the MCS is being prepared as part of a VIA, then forecasting may not be necessary.

### **Assessment Framework Development**

Assessment of visual quality can be difficult because of differences in professional and personal perceptions. Professional (technical and institutional) evaluations and public evaluations should both be used to assess the existing resource. Preliminary professional Assessment Frameworks are developed as a basis for the assessment that determines the existing visual quality and classifies the study area into a management class.

#### **Professional evaluation**

The professional input is important, as it reflects the technical and institutional information required to make an adequate and encompassing assessment of the visual resources. Some of the input will be the same or similar to the public input, whereas aspects of it will reflect the professional's experience (Smardon, Palmer, and Felleman 1986)

#### **Method**

Use professional judgment to evaluate the contribution made to visual quality by each kind of visual resource found in the Regional Landscape. Professional judgments should be guided by impressions obtained in the field and should consider and reflect public opinion from such indirect sources as acknowledged scenic areas, applicable legislation, and landscape preference research. Use the Similarity Zone descriptions completed on FORM 1--VISUAL RESOURCES SUMMARY/DESCRIPTION and FORM 2--VISUAL RESOURCES INVENTORY/FORECAST to identify visual resource components that occur within the Regional Landscape, and list those general resource types on FORM 3--ASSESSMENT FRAMEWORK under the appropriate resource/visual quality category. Two Corps personnel should be involved throughout the process. If this is not possible, the developed framework should be reviewed and discussed with other study participants. It would be best if a group of District personnel reviewed the results.

Care should be taken to judge the visual quality of each resource relative to others found in the same Regional Landscape. This is especially important when conducting an abbreviated version of the MCS that considers only isolated Similarity Zones. If future land uses not already present in the Regional Landscape are expected to be important in VIA project analyses, they should also be included in the Assessment Framework.

#### **Levels of visual quality**

The following terms are used to describe levels of visual quality throughout the assessment procedure, both in developing a framework and in the final assessment of the resource. It is important to become familiar with them and their use at this time.

- a. Distinct--something that is considered unique and is an asset to the area. It is typically recognized as a visual/aesthetic asset and may have many positive attributes. Diversity and variety are characteristics in such a resource.

# **VISUAL RESOURCE SUMMARY/DESCRIPTION**

**FORM 1** (MCS)  
VIA

**SIMILARITY ZONE** (✓)

**INVENTORY** ( )

**BASIC** ( )

**FORECASTING** (✓)

**DETAILED** ( )

**PROJECT NAME**

**DATE** 4/9/85

**LOCATION** MPLS. Riverfront

**TIME**

**VIEWPOINT( )** **ZONE( 1)**

**WEATHER**

**WITH PLAN( )** **WITHOUT PLAN( )**

**PERSONNEL** R. Snyder

**PROJECT DETAILS AND COMMENTS**

**TIME PERIOD** 10 YEARS

In your own words, describe the visual resource of the zone. In doing so, try to describe the elements that unify the area so that it can be considered a zone. Make note of other aesthetic characteristics that are present.

Redevelopment of the Riverfront area will continue. Historic Mill District projects and establishment of the Riverside Parkway System will further unify the Riverfront zone and continue focus on the river. Visual characteristics and the visual quality of the area can expect to receive increased attention. Developments will increase user activity and exposure.

**Figure 6. Forecast using VISUAL RESOURCE SUMMARY/DESCRIPTION FORM**

- b. Average--something that is common in the area and not known for its uniqueness, but rather is representative of the typical landscape of the area.
- c. Minimal--something that may be looked upon as a liability in the area. It is basically lacking any positive aesthetic attributes and may actually diminish the visual quality of surrounding areas.

Within the Distinct, Average, and Minimal designations for the resources, it can prove useful to order or distinguish resource types that are more "Distinct" or perhaps more "Average" than others within the same category. For instance, if impoundments and white water streams are determined as Distinct because they are scarce in a Similarity Zone or Regional Landscape, are the two resources equally important? During impact assessment, questions such as these may arise, for instance, when an impoundment is developed by damming a white water stream. During Assessment Framework development, it is not necessary to make these distinctions, but these types of judgments can prove useful and may be required in impact assessment and appraisal.

An Assessment Framework developed for a basin study for small streams, using the input from Figures 4, 5, and 6, and other inventory and forecast information, is included as Figure 7. An Assessment Framework developed for a large navigable river is included as Figure 8.

### **Public Framework Development**

For Corps planning activities, it is important to consider public perceptions of visual resources and visual quality. Public perceptions by persons who are very familiar with a study area or are in constant contact (e.g., residents) may differ from professional judgments of Corps environmental resources personnel. Therefore, it is important to attempt to incorporate public input in the establishment of the Assessment Framework (Smardon, Palmer, and Felleman 1986).

The type of public input obtained for aesthetic and visual resource evaluations varies with planning study requirements and the nature of proposed projects. Direct public input techniques can be used to solicit opinions from specific groups on Regional Landscape visual quality and potential project effects. Indirect sources of public input can provide more generalized information. Examples of direct and indirect public input are listed below:

| <u>Direct Sources</u>        | <u>Indirect Sources</u>                           |
|------------------------------|---|
| Project public meetings      | Published landscape preference research           |
| Visual resources workshops   | Acknowledged scenic areas and corridors corridors |
| Questionnaires               | Public response to other projects                 |
| Interviews                   | Federal, State, and local legislation             |
| Unsolicited project comments |   |

Given planning needs, time, funding, and other constraints, judgment should be exercised in determining the extent to which direct or indirect public input is obtained and incorporated in a visual resource study. As with implementation of the MCS Procedure in general, public input can be gathered independent of proposed projects and used to develop a soundly based Assessment Framework that is applicable for immediate use in planning studies and land-management decisions.



# ASSESSMENT FRAMEWORK

FORM 3 MCS

PROFESSIONAL (✓)

COMPOSITE ( )

STUDY AREA Levisa and Russell Fork Basin DATE 7-25-85

NOTES:

PERSONNEL M. Benner

|                 | DISTINCT   | AVERAGE  | MINIMAL  |
|-----------------|--|--|--|
| WATER RESOURCES | Waterfalls<br>Rocky stream channel in undeveloped area   | River through any developed area.<br>Placid river in undeveloped area<br>Narrow reservoir            | Polluted streams-debris and plastic jugs in water<br>Flood waters<br>"Ditched" streams-no bank trees, eroding banks  |
| LANDFORM        | Large mountain ridge<br>Rocky river gorge  | High hills, small mountains, discontinuous ridges<br>Narrow valleys<br>Wide valleys                  | Active and unreclaimed surface mines and rock quarries<br>Road cuts  |
| VEGETATION      | None-possibly fall color and rhododendrons   | Deciduous mixed hardwood forest<br>Hemlock and broad-leaf evergreen<br>Understory street trees, lawn | No vegetation, barren areas, logging clear cuts  |
| LANDUSE         | Undeveloped area<br>Well designed residential, park, institutional, bldgs. and historic structures | Residential, Commercial, Industrial Roads, City and County Parks, Agriculture<br>Logging Mines       | Active and unreclaimed surface mines and quarry<br>Junk in residential, commercial and industrial yards. Poorly maintained structures-especially in congested areas. |
| USER ACTIVITY   | Trout fishing<br>White water boating   | Living, working, shopping and recreation areas   | Congested commercial areas<br>Heavy traffic  |

Are there any federal/state/local (institutional) policies that directly affect the visual and aesthetic resources of the area? If so list them below.

Historic preservation No wild and scenic rivers being considered on Levisa and  
Surface mining reclamation Russell Fork, Litter laws, Zoning

Note any important technical recognition in the area, i.e. important scenic areas often used for literary/artistic purposes, wildlife habitat, archaeological site, etc.

Breaks Interstate Park

Note other important issues concerning aesthetic resources that you think will affect the assessment.

Figure 7. Assessment Framework for basin study (small streams) using ASSESSMENT FRAMEWORK FORM

# ASSESSMENT FRAMEWORK

FORM 3 MCS

PROFESSIONAL (✓)

COMPOSITE ( )

STUDY AREA Upper Mississippi River

DATE 2/15/86

NOTES:

PERSONNEL L. Peyman

|                 | DISTINCT  | AVERAGE  | MINIMAL   |
|-----------------|---|--|---|
| WATER RESOURCES | Lake-like quality of water channel<br>Backwater areas | Waterway   | Sedimentation<br>Erosion<br>Low water quality at industrial areas |
| LANDFORM        | High limestone bluffs<br>Rolling hills                | Islands<br>Agricultural land                               | Backwater fill areas  |
| VEGETATION      | Mature riparian and upland species                    | Small trees, shrubs, brush                                 | Vegetation in succession  |
| LANDUSE         | Recreational areas                                    | Commercial areas<br>Agricultural area<br>Residential areas | Industrial areas<br>Abandoned facilities                          |
| USER ACTIVITY   | Water recreation<br>River viewing                     | Land based re-creation<br>Waterway and lock operations     | Industrial and fleeting activities                                |

Are there any federal/state/local (institutional) policies that directly affect the visual and aesthetic resources of the area? If so list them below.

Note any important technical recognition in the area, i.e. important scenic areas often used for literary/artistic purposes, wildlife habitat, archaeological site, etc.

Lady of the River Shrine

Lewis and Clark Expedition Point

Note other important issues concerning aesthetic resources that you think will affect the assessment.

Figure 8. Assessment Framework for a large, navigable river, using ASSESSMENT FRAMEWORK FORM

### **Public meetings**

General public reactions to the visual effects of a project can be obtained during public meetings held as part of the public involvement program of a study. A *brief* statement of how visual quality may change in the study area and what steps may be taken to avoid or lessen adverse impacts can be included in District presentations that also discuss other design, environmental, and cultural issues. Areas of public concern regarding visual resources can be inferred from the comments or lack of comments from meeting attendees. This level of input, used in conjunction with indirect sources of public opinion, is usually adequate for most projects. Beyond this, however, time constraints, early or late scheduling during the study process, and the range of project issues covered may limit the usefulness of public meetings for obtaining public input on specific visual resource questions and project alternatives.

### **Visual resource workshops**

Workshops dealing specifically with visual resources are useful for gathering more complete information from a more representative sample of people. This kind of information is useful in developing sound regional evaluation frameworks, defending controversial visual assessment decisions, planning acceptable means of ameliorating adverse visual changes, and justifying aesthetic project design features.

Topics covered by these workshops should include: (a) public evaluations of visual quality in the study area and (b) public preferences for Corps project alternatives and management measures. The visual quality evaluations augment the Assessment Framework developed by the professional and follow a similar format. The information on project types is important in plan formulation and project design.

Public preferences on visual resources and alternative plans can be obtained from a workshop or other meeting format that allows for presentation of information and responses by the public participants. Workshops should use civic or other public groups in a study area, provided that the participants represent the general public. Public groups that may be approached are:

- a. Local social organizations, e.g., Kiwanas, Garden Clubs, Sierra Club, Lions.
- b. Other Federal/State agencies.
- c. Local government officials.

Other public groups should be included. It is important to contact these groups explaining what is being done and requesting their participation in such a manner that they can decide if they choose to participate. At least three workshops should be held so as to get a representative sample.

The workshops should allow members of the group to express their opinions in an informal manner. However, the Corps presentation and responses by the group should be structured enough so that the required preference information is obtained in an efficient manner. Preparation for these workshops must also be thorough to ensure productivity. Using individual response forms to record workshop information may be more productive than group discussions because the opinions of each participant are less likely to be swayed by the group and responses are more likely to be obtained from members hesitant to speak before the group.

Response forms can be used to document visual quality evaluations of the resources previously categorized on FORM 3--ASSESSMENT FRAMEWORK by the professional assessment.

To prepare a public Assessment Framework, the photos previously taken of the study area are presented to the workshop participants as representative examples of the study area landscape. The best medium to use is slides, which allow for easy review by many people.

Using no more than 50 slides, an overview of the area is presented. The participants should be given some time to discuss the study area and the concept of visual resources. The meeting should then focus on determining preferences and evaluations of the landscapes. To document the input from the participants, it is best if each participant has a response form to complete while viewing the slides. More spontaneous comments may be elicited from participants by asking them to describe study area views that they consider attractive or unattractive. Space for positive and negative comments is also useful. Figures 9a and 9b are the response forms used in a workshop to record the evaluations of slides of visual resources in a study area.

To obtain public preferences on project alternatives or management measures, a presentation similar to the overview of the study area landscapes can be prepared. Examples of various design alternatives or planning measures should be shown to and discussed with the participants to obtain an indication of preferences for the visual character of certain management solutions or measures. Project alternatives presented should be those likely to be implemented, given engineering, hydraulic, and economic considerations. This information can be used in future planning and design work. Figures 10a and 10b are response forms used to obtain preference information for a flood-control study.

The results of public input should be reviewed as soon as possible to incorporate pertinent information that may be forgotten with time. Clear and adequate records of these workshops or meetings should be kept for future reference. Responses can be summarized by averaging visual quality evaluations and categorizing comments. This information should be used to complete a FORM 3--ASSESSMENT FRAMEWORK that reflects public assessments.

#### **Composite evaluation**

After the public input has been analyzed, it is necessary to develop a Composite ASSESSMENT FRAMEWORK. The purpose of the Composite Framework is to combine the public and professional visual resource assessments. The Public Framework, developed from the public input, is used to revise and further define the framework developed by the professional. Discrepancies in the two Framework evaluations should be resolved by reviewing the Corps assessment and the public input.

#### **Similarity Zone Assessment**

The visual quality of each Similarity Zone is assessed by evaluating the visual resources found in the zone. The assessment is completed on FORM 4--ASSESSMENT SUMMARY and requires the following additional information:

- a. FORM 1--VISUAL RESOURCE SUMMARY/DESCRIPTION.
- b. FORM 2--VISUAL RESOURCE INVENTORY/FORECAST.
- c. FORM 3--ASSESSMENT FRAMEWORK.
- d. Definitions of Distinct, Average, and Minimal.

Consult the visual resources described for the zone on FORM 1--VISUAL RESOURCE SUMMARY/ DESCRIPTION and FORM 2--VISUAL RESOURCE INVENTORY/FORECAST, and use the visual quality evaluations recorded on FORM 3--ASSESSMENT FRAMEWORK or COMPOSITE ASSESSMENT FRAMEWORK to determine a single, overall classification (Distinct, Average,

VISUAL QUALITY

|                                   | 5<br>EXTREMELY<br>ATTRACTIVE | 4<br>ATTRACTIVE | 3<br>AVERAGE | 2<br>UNATTRACTIVE | 1<br>EXTREMELY<br>UNATTRACTIVE |
|-----------------------------------|------------------------------|-----------------|--------------|-------------------|--------------------------------|
| <b>LANDFORM</b>                   |                              |                 |              |                   |                                |
| Steep hills                       | ✓                            |                 |              |                   |                                |
| Wide valley                       | ✓                            |                 |              |                   |                                |
| Narrow valley                     |                              |                 | ✓            |                   |                                |
| Mountain                          |                              | ✓               |              |                   |                                |
| Canyon                            |                              |                 | ✓            |                   |                                |
| Surface mine                      |                              |                 |              | ✓                 |                                |
| Road cut                          |                              |                 |              |                   | ✓                              |
| <b>WATER</b>                      |                              |                 |              |                   |                                |
| Large, smooth<br>flowing river    |                              | ✓               |              |                   |                                |
| Small, rocky<br>stream            | ✓                            |                 |              |                   |                                |
| Waterfalls and<br>rapids          | ✓                            |                 |              |                   |                                |
| Lake                              |                              | ✓               |              |                   |                                |
| Pond                              |                              | ✓               |              |                   |                                |
| Floodwaters                       |                              |                 |              |                   | ✓                              |
| Debris &<br>Pollution in<br>water |                              |                 |              |                   | ✓                              |

**a. Public assessment of landform and water**

**Figure 9. Response form for public assessment of visual resources in a basin (Continued)**

VISUAL RESOURCEVISUAL QUALITY

|                            | 5<br>EXTREMELY<br>ATTRACTIVE | 4<br>ATTRACTIVE | 3<br>AVERAGE | 2<br>UNATTRACTIVE | 1<br>EXTREMELY<br>UNATTRACTIVE |
|----------------------------|------------------------------|-----------------|--------------|-------------------|--------------------------------|
| VEGETATION                 |                              |                 |              |                   |                                |
| Deciduous forest           |                              | ✓               |              |                   |                                |
| Rhododendron thicket       |                              | ✓               |              |                   |                                |
| Fall color                 | ✓                            |                 |              |                   |                                |
| Street trees/lawns         | ✓                            |                 |              |                   |                                |
| Farm crops/pasture         |                              | ✓               |              |                   |                                |
| No vegetation              |                              |                 |              | ✓                 |                                |
| COMMERCIAL LAND USE        |                              |                 |              |                   |                                |
| City-downtown              |                              |                 | ✓            |                   |                                |
| City-outskirts             |                              |                 | ✓            |                   |                                |
| Flea market/roadside sales |                              | ✓               |              |                   |                                |
| Small town-center          |                              |                 | ✓            |                   |                                |
| Small town-outskirts       |                              |                 |              | ✓                 |                                |
| Rural crossroads           |                              |                 | ✓            |                   |                                |

**b. Public assessment for vegetation and commercial land use****Figure 9. (Concluded)**

# FLOOD DAMAGE REDUCTION MEASURES

| TYPE OF MEASURE                  | VISUAL QUALITY<br>(circle your choice)  | COMMENTS   |
|----------------------------------|---|--|
| <b>FLOODWALL</b>                 |   |  |
| A. Textured surface              | <div> <div>5</div> <div>4</div> <div>3</div> <div>2</div> <div>1</div> </div> <div> <div>Extremely Attractive</div> <div>Attractive</div> <div>Average</div> <div>Unattractive</div> <div>Extremely Unattractive</div> </div> | Positive <u>Since no trees exist,</u><br><u>nearby texturing would be effec-</u><br><u>tive</u><br>Negative _____<br>_____<br>_____        |
| B. Plain surface                 | <div> <div>5</div> <div>4</div> <div>3</div> <div>2</div> <div>1</div> </div> <div> <div>Extremely Attractive</div> <div>Attractive</div> <div>Average</div> <div>Unattractive</div> <div>Extremely Unattractive</div> </div> | Positive _____<br>_____<br>_____<br>Negative <u>Confining look (like</u><br><u>prison walls)</u><br>_____<br>_____                         |
| C. Plain surface with trees      | <div> <div>5</div> <div>4</div> <div>3</div> <div>2</div> <div>1</div> </div> <div> <div>Extremely Attractive</div> <div>Attractive</div> <div>Average</div> <div>Unattractive</div> <div>Extremely Unattractive</div> </div> | Positive <u>A good selection of trees</u><br><u>and shrubbery would make more</u><br><u>attractive</u><br>Negative _____<br>_____<br>_____ |
| D. Part of local park facilities | <div> <div>5</div> <div>4</div> <div>3</div> <div>2</div> <div>1</div> </div> <div> <div>Extremely Attractive</div> <div>Attractive</div> <div>Average</div> <div>Unattractive</div> <div>Extremely Unattractive</div> </div> | Positive _____<br>_____<br>_____<br>Negative _____<br>_____<br>_____   |

a. Public assessment of floodwall

Figure 10. Response form for public assessment of flood-control alternatives (Continued)



# FLOOD DAMAGE REDUCTION MEASURES

| TYPE OF MEASURE        | VISUAL QUALITY<br>(circle your choice)  | COMMENTS   |
|------------------------|---|--|
| RESERVOIR PROJECT      |   |  |
| A. Dam - Grass surface | <div> <div>5</div> <div>4</div> <div>3</div> <div>2</div> <div>1</div> </div> <div> <div>Extremely Attractive</div> <div>Attractive</div> <div>Average</div> <div>Unattractive</div> <div>Extremely Unattractive</div> </div> | Positive _____<br>_____<br>_____<br>Negative _____<br>_____<br>_____ |
| B. Dam - Rock surface  | <div> <div>5</div> <div>4</div> <div>3</div> <div>2</div> <div>1</div> </div> <div> <div>Extremely Attractive</div> <div>Attractive</div> <div>Average</div> <div>Unattractive</div> <div>Extremely Unattractive</div> </div> | Positive _____<br>_____<br>_____<br>Negative _____<br>_____<br>_____ |

b. Public assessment of reservoir project

Figure 10. (Concluded)

Minimal) for each general resource component. Judgment must be exercised in deciding on an appropriate "average" assessment when a resource component category includes several resources of varying quality. Numerical values are assigned to the visual quality classifications (Distinct = 3, Average = 2, Minimal = 1) and used to calculate an overall Total Assessment Value for each Similarity Zone.

### **Management Classification**

The last step in the MCS assigns the Similarity Zone to a Management Class on the basis of the zone's Total Assessment Value. The assignment to a particular class is, therefore, a reflection of the visual resources present in the zone or study area, as well as technical, institutional, and public recognition of the visual quality of those resources.

The MCS classes provide general guidelines as to the degree and nature of visual change acceptable in a landscape. As such, they provide goals and constraints to be considered in the planning and design of water resource projects and in the management of Corps project lands. In the VIA Procedures, appraisals of project visual impacts are made, in part, by comparing VIA Values with the acceptable range specified by the MCS classification. MCS descriptions of acceptable changes are also used in qualitative appraisals of project visual quality conditions.

The visual resource criteria contained in the MCS classes are applicable to both developed and undeveloped areas and provide guidelines on the following aspects of visual change:

- a. Degree and type of visual change.
- b. Degree of structure or project visibility.
- c. Compatibility of visual change with study area landscape.

General consideration of other aspects can be included as necessary for particular projects.

### **Method**

Five MCS classes are described below. The objectives are assigned from FORM 4--ASSESSMENT SUMMARY by comparing the zone's Total Assessment Value with the range of values defined for each MCS class. For each Regional Landscape, a summary listing of Similarity Zones and assigned objectives is recorded on FORM 5--MANAGEMENT CLASSIFICATION SUMMARY. This summary should be used to compare and review the appropriateness of zone objectives, constraints, and criteria relative to those of the other zones in the region.

### **Preservation class**

These areas are considered to be unique and to have the most distinct visual quality in the region. They are highly valued and are often protected by Federal and State policies and laws. These areas include wilderness areas, some natural areas, portions of wild and scenic rivers, historic sites and districts, and similar situations where changes to existing resources are restricted.

While limited project activity is not precluded, it should not be readily evident. Structures, operations, and use activities should appear to be extensions of the protected resource and should faithfully represent, repeat, or reinforce the visual character of that resource.

Similarity Zones having a Total Assessment Value of 17 or more would be included in this class. Projects in these zones should have VIA Values of 0.

**Retention class**

These areas are regionally recognized as having distinct visual quality, but may not be institutionally protected.

Project activity may be evident, but should not attract attention. Structures, operations, and use activities should remain subordinate to the existing visual resources and should repeat the form, line, color, texture, scale, and composition characteristics of the resource.

Similarity Zones having a Total Assessment Value of 14 to 16 should be included in this class. Projects in these zones should have VIA Values no lower than -2.

**Partial retention class**

These areas are locally valued for above average visual quality, but are rarely protected by institutional policies.

Project activity may be evident and begin to attract attention. Structures, operations, and use activities should remain subordinate to the existing visual resources. Form, line, color, texture, scale, and composition may differ from but should be compatible with the visual characteristics of the existing resource.

Similarity Zones having a Total Assessment Value of 11 to 13 should be included in this class. Projects in these zones should have VIA Values no lower than -5.

**Modification class**

These areas are not noted for their distinct qualities and are often considered to be of average visual quality.

Project activity may attract attention and dominate the existing visual resource. Structures, operations, and use activities may display characteristics of form, line, color, texture, scale, and composition that differ from those of the existing visual resources. However, the project should exhibit good design and visual compatibility with its surroundings.

Similarity Zones having a Total Assessment Value of 9 to 10 should be included in this class. Projects in these zones should have VIA Values no lower than -6.

**Rehabilitation class**

These areas are noted for their minimal visual quality and are often considered blighted areas.

Project activity should alter the existing undesirable visual resources. Structures, operations, and use activities should exhibit good design and display characteristics of form, line, color, texture, scale, and composition that contribute to making the area compatible with the visual character of adjacent higher quality landscapes.

Similarity Zones having a Total Assessment Value of less than 8 would be included in this class. Projects in these zones will have VIA Values above 0. Projects that have a Visual Impact Value of less than or equal to -8 should be reformulated or redesigned and reassessed before any implementation is considered.

**PART III:  
VISUAL IMPACT  
ASSESSMENT  
PROCEDURES**

## **Introduction to General, Basic, and Detailed Procedures**

Three different VIA Procedures are presented in this part: General, Basic, and Detailed Procedures.

### **General Procedures**

The General VIA Procedures are used in early or preliminary studies to assess general study areas and preliminary plans. The resources and time available for environmental analysis in preliminary planning studies or Reconnaissance studies are often limited. These constraints often preclude use of analysis methods that can provide an adequate basis for decisionmaking or that produce the more detailed analysis for Feasibility level studies. Visual resource evaluations are sometimes neglected or not well developed in planning studies because of a lack of an expedient VIA method or a method that would not require significant additional data collection efforts. These conditions are unfortunate because the earlier visual resources become part of the planning effort, the greater the likelihood that a project will incorporate the evaluation into design and engineering. This situation is especially important for basin or regional studies, where the objective is to identify water resource problems and opportunities (without alternatives identified), and the identification of significant visual resources provides a more complete assessment of environmental conditions.

Because of the constraints encountered in the visual analysis of preliminary planning studies, the General VIA Procedure is designed to develop guidance for the planner that is meaningful for the study level and that can be used when formulating planning study objectives and resource allocations for advanced planning. The outputs of the General VIA Procedure analysis are visual resource planning objectives, constraints, or design criteria. The detail of the General VIA Procedure is determined by the study needs, the existing or readily available information, and the resources available for further data development. The available information is analyzed to identify:

- a. Visual resources in the study area that are likely to be affected by a Corps project, especially those areas or resources perceived to have high scenic quality as well as areas with degraded visual conditions.
- b. Trends or forecasted changes in visual resources (e.g., vegetative succession) that will cause changes in visual quality.
- c. Potential visual impacts caused by possible Corps projects, (e.g., loss of vegetation, introduction of structures).

Based on the analysis of this information, a planner can project or formulate a scenario of future visual resource conditions and identify areas that should be identified as significant visual resources.

### **Basic and Detailed Procedures**

Depending upon the characteristics of a study, one of two VIA Procedures is followed for study investigations in which specific sites and plan alternatives are being considered or require more detailed analysis than is provided in the General Procedure. The Basic Procedure provides the impact assessment and evaluation information required for most Corps studies. The Detailed Procedure permits a more sensitive and extensive VIA by adding an inventory and assessment of design elements, i.e., line, form, color, and texture. This additional information is used to determine the landscape composition elements that are responsible for the changes in visual quality, i.e., what changed going from the without- to the with-project condition. This additional information may be used to identify visual elements that can be changed to improve visual quality or minimize adverse visual impacts of a plan.

The determination of using the Basic or Detailed Procedure is based on characteristics of the study and the type and number of alternatives under consideration. The Basic Procedure is used with most Corps projects while the Detailed Procedure is used for projects of unusual scale or significance or for projects that have been processed through the Basic Procedure but require a more detailed assessment. If the study or alternatives are of high public interest or are controversial, the Detailed Procedure should probably be used. If different types of management measures or alternative designs are being considered, the Basic Procedure can be used to compare the visual impacts of the different alternatives. After an alternative is selected, the additional analysis of the Detailed Procedure can be accomplished if mitigation of impacts or reformulation of the design is required.

Table 3 characterizes the differences between the types of projects that would implement the General, Basic, and Detailed Procedure. The significance of the visual resources and the magnitude of potential impacts are the primary considerations in determining whether the General, Basic, or Detailed Procedure is used, and Table 3 provides general guidance on deciding which procedure to use.

**Table 3**  
**General, Basic, and Detailed VIA Procedures\***

| <i>General Procedures</i>  | <i>Basic Procedures</i>   | <i>Detailed Procedures</i>   |
|--|---|--|
| <b>Examples</b>  |   |  |
| Reconnaissance studies   | Localized streambank protection.  | Major flood-control projects   |
| Basin studies  | Access roads  | Major highways   |
| Preliminary studies without identified alternatives  | Low-voltage powerlines  | High-voltage powerlines  |
|  | Pipelines   | Power plants   |
|  | Small utilitarian buildings   | Dams and reservoirs  |
|  | Water tanks   | Large structures   |
|  | Small levees  | Recreation facilities  |
|  |   | Major levees   |
| <b>Characteristics</b>   |   |  |
| Studies with time, funding, or data limitations that prevent use of the Basic or Detailed VIA Procedures | Standard maintenance activities   | Unique, rare or unusual projects   |
|  | Structures built with standard designs primarily for functional purposes  | Structures with unique design or heavily modified from normal design specifications  |
|  | Smaller in scale, of frequent occurrence in landscape   | Larger in scale, infrequent and novel in appearance in the landscape   |
|  | Low to moderate visual sensitivity  | Controversial studies with high public interest  |
|  | Straightforward situations  | High visual sensitivity in the landscape   |
|  |   | Problematic situations or borderline decisions stemming from Basic Procedure   |
| <b>Visual Quality Objectives</b>   |   |  |
| Identify important visual resources.   | Reduce visual contrast with landscape as much as possible. In mitigation, borrow from visual elements of surrounding landscape. Impact on visual resource is minimal. | Reduce visual contrast with landscape as much as possible unless project has symbolic value, informative significance, creative design. Borrow at least partly from visual elements of surrounding landscape. Mitigation may be necessary to assure compatibility. |
| Identify potential visual impacts in the study area.   |   |  |
| Formulate visual resource planning and design criteria for use in more detailed planning.                |   |  |
| <b>VIA Procedure</b>   |   |  |
| Use General Procedure.   | Use Basic Procedure, carried out by a minimum of two personnel.   | Use Detailed Procedure, carried out by three to five personnel, one of whom is a landscape architect.  |

\* Adapted from Smardon, Sheppard, and Newman (1984).

## Significant visual resource considerations

The environmental assessments and impact statements for Corps planning studies are supposed to focus on significant environmental considerations as recognized by technical, institutional, and public sources (OCE 1981 and 1982). If significant resources and impacts are identified early in a planning study, important environmental factors are not overlooked, and the study focuses on issues that can make a difference in alternative selection. Table 4 is a list of factors that help to determine potentially significant visual impacts as a result of a project. These criteria assist in identifying resources and impacts in terms of institutional, technical, and public significance. Applying the criteria to a study area should help identify:

- a. Areas of high and low visual quality.
- b. Important natural and cultural resources.
- c. Areas that can be seen from a project and areas that have a view of a project.
- d. Recreation, urban, and other areas that are characterized by high concentrations of viewers.

**Table 4**  
**Significant Visual Resource Considerations\***

- 
- Important urban landscapes include visual corridors, monuments, sculpture, landscape plantings, and urban "green space."
  - The area is easily accessible by a major population center.
  - The project type is typically highly visible and/or requires major changes in the existing landscape.
  - Project will create scenic easements, especially view to surface water.
  - Project area has low scenic quality and limited visibility.
  - The project will improve the scenic quality of an area.
  - Dominant visual characteristics of an area allow a sympathetic design form.
  - Historic or archeological sites are designated as such by the National Register or State Register of Historic Places.
  - Architectural structures and sites are of traditional importance.
  - Important architectural elements and structures represent community style and neighborhood character.
  - The area is the actual site of landscape painting, poetic subject, literary subject, or artistic treatment.
  - Parkways, highways, or scenic overlooks and vistas are designated as such by a Federal, State, or municipal government agency.
  - The visual resources are the source of institutional recognition--Federal, State, or local policies (see Environmental Quality Procedures (EQP) in US Water Resources Council 1983b).
  - Tourism is important in the area's economy.
  - The area contains parks, forest preserves, or municipal parks.
  - Wild, scenic, or recreational water bodies are designated or considered by governmental agencies.
  - The project has publicly or privately operated recreation areas.
  - The project has publicly or privately operated recreation areas primarily devoted to conservation or the preservation of natural environmental features.
  - Hiking or ski-touring trails are designated as such by government agencies.
- 

\* State Environmental Quality Review (SEQR) Process--significant effects on the visual environment for Environmental Impact Statements in New York State (Smardon, Shepard, and Newman 1984).



The list in Table 4 is not comprehensive and is preliminary in nature. The Environmental Quality Procedures (EQP) (US Water Resources Council 1983b) contain a list of Federal policies that may also affect visual quality. If several significant considerations are noted for a project, it is likely that the Detailed Procedure should be used to assess the project. This list should be used as a guide to consider resource conditions of the study area and changes over time.

## General VIA Procedure

### Complete MCS

The General VIA Procedure is outlined in Figure 11. Before implementing the General VIA Procedure, visual resources information or previous studies that included visual resources should be identified. An MCS or abbreviated MCS classification should be performed. Using a complete or abbreviated version of the MCS, establish the following as needed for analyzing the visual resources of the study area:

- a. Identify Regional Landscape.
- b. Determine what Similarity Zone might be present in the study area.
- c. Establish a regionally applicable Assessment Framework.
- d. Identify the general Management Classification that applies to Similarity Zones in the study area.

The MCS investigation may have already been completed or may be conducted concurrently with the inventory or existing study area conditions.

### General Procedure

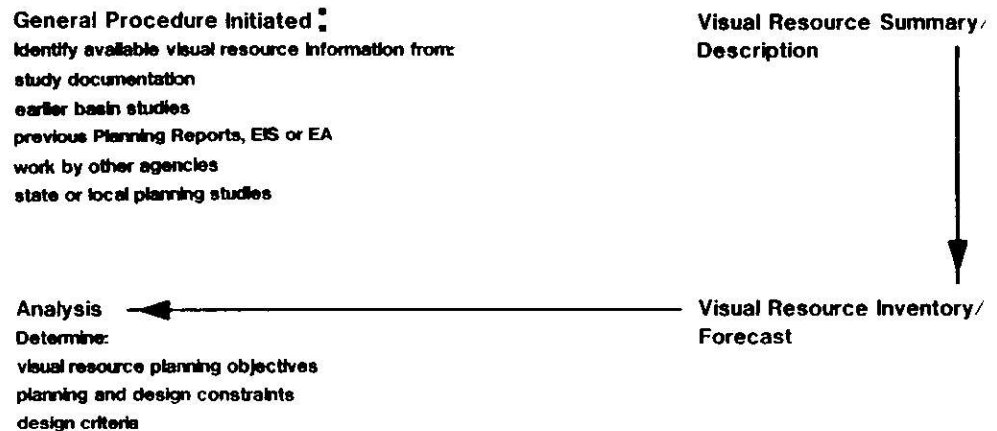


Figure 11. General VIA Procedure

### **Inventory existing conditions**

The General VIA Procedure begins with an inventory of existing landscape conditions. The output of this step is an inventory and evaluation of the visual resources specific to the study area. In most cases, the same information developed in the MCS can be applied directly to the study area inventory. The inventory is conducted to determine which Similarity Zones and general Management Classification apply to the study area. The visual resources inventory is drawn primarily from existing study area information. The evaluation of visual resources is based on the Assessment Framework and Management Classification developed using the MCS. Field investigation to verify the study area information is important.

### **Method**

The inventory of existing conditions requires identifying relevant visual resources information. Available sources should be reviewed to identify inventory information on visual resources in the study area. Potential information sources include:

- a. Study documentation on vegetation, water resources, landforms, and user activities.
- b. Earlier basin studies.
- c. Previous planning reports, Environmental Impact Statements, or other study documentation for projects in the study area.
- d. Work by other agencies (e.g., highway or transmission line location) that would include vegetation and other visual resource information.
- e. State or local planning studies.
- f. Published landscape preference research.

The visual resources information is recorded on FORM 1--VISUAL RESOURCE SUMMARY/DESCRIPTION and possibly FORM 2--VISUAL RESOURCE INVENTORY/FORECAST FORMS. (The available information may not be detailed enough for use of FORM 2--INVENTORY/FORECAST FORMS.) When inventorying in the field, one should be aware of the unusual effects of vegetation and especially seasonal changes. Streams and backwater areas may not be visible in a viewpoint because of canopy cover or dense undergrowth. In addition, seasonal changes cause variability in vegetation, land use, and user activities.

Identify the Similarity Zones that are present in the study area by comparing the visual area with the Similarity Zone information on MCS FORMS 1 and 2. The same Assessment Values and Management Classifications recorded on MCS FORM 4--ASSESSMENT SUMMARY and MCS FORM 5--MANAGEMENT CLASSIFICATION SUMMARY should be applicable to the study area. Record study area zones' Assessment Values and Management Classifications on FORM 5. This information can also be included on a study area map as needed for study documentation.

### **Forecast without-plan conditions**

Use FORM 1--VISUAL RESOURCE SUMMARY/DESCRIPTION and FORM 2--VISUAL RESOURCE INVENTORY/FORECAST for recording forecasts of without-plan conditions for the study area. This activity can be accomplished by using the data base generated in the previous inventory and predicting or projecting changes in each visual resource component without-project implementation. Forecasting should use trends or future conditions from the visual resources information to determine changes in water resources, landforms, vegetation, land use, and user activities. Some forecasting efforts (e.g.,

vegetation changes) are easier to predict than others (e.g., changes in user activities). Additionally, data on which to predict future conditions may be insufficient. These data gaps should be identified. Separate forecasts should be performed for the same time periods that are forecasted for with-project conditions.

#### **Forecast with-project conditions**

Forecasting with-project conditions is required if visual impacts are to be assessed. The forecast of with-project conditions can be no more detailed than the level of proposed alternatives. Basin and some Reconnaissance level studies may not identify alternatives, so the type and extent of impacts cannot be determined. The location or siting of alternative measures is often not decided until much later in planning, so the impacts to, for instance, water resources, can only be related to the general impacts of the type of alternative (e.g., impoundment or channelization) likely to be implemented.

Changes in visual resource components that can be projected should be summarized on FORM 1--VISUAL RESOURCE SUMMARY/DESCRIPTION and FORM 2--VISUAL RESOURCE INVENTORY/FORECAST. If a number of alternatives or different scales of the same management measure (e.g., different channel widths) will be considered, the changes caused by these variations should be summarized. Separate forecasts for each alternative should be performed for short-term changes, i.e., the construction period, and long-term changes by forecasting conditions for 5 and 15 years in the future (or whatever time period is appropriate for the study).

#### **Analysis**

Compare the inventory and forecasting information with the Assessment Framework and Management Classification for the study area. It should be possible to identify significant visual resources or impacts to be avoided (e.g., soil erosion), predict adverse changes in visual resources, or conclude that specific components (e.g., riparian vegetation) should be protected to preserve existing visual quality. These observations are used as the basis for formulating visual quality objectives or visual resource criteria to be used for more detailed planning and design. The detail and type of analyses and conclusions depend on the requirements of the study. Table 5 lists Planning Criteria from a Section 205 study (US Army Corps of Engineers, Wilmington 1983). Table 6 contains some of the recommendations from a basin study (Henderson and Peyman 1986)

**Table 5**  
**Planning Criteria--Environmental\***

---

Because parts of the project area will be highly visible, trees and shrubs will be used for screening and to improve the aesthetic appearance of the project.

Minimize introduction of foreign materials into the area, particularly downstream of the Masonite plant, to preserve existing aesthetic appeal (i.e., use vegetative slope protection instead of stone riprap).

Any earthwork in the area downstream of the Masonite plant (below station 1593-60) will be graded to blend with the existing topography in order to maintain the pastoral visual quality of the area.

Exposed or disturbed soil will be replanted to permanently maintain its natural character and to provide food and cover for wildlife.

---

\* Planning criteria from a Section 205 study (US Army Corps of Engineers, Wilmington 1983).

Table 6

**Visual Resource Recommendations\***

Access should be limited to areas of high visual quality, the Preservation and Retention Zones. This would concentrate viewers away from fleeting, industrial, and commercial activities in the study area. Recommended access is by pedestrian paths and vehicle pull-offs from roads.

Vegetation should be cleared at various points on roads along the river to allow view of undeveloped portions of the river.

Vegetation should be established along the river to screen new fleeting and river development activities.

Although placement of dredged material outside the floodplain is not always feasible, it should be considered in areas of high user activity (urban) or in areas of high visual quality.

The concept of high density industrial development should be considered as an alternative to strip industrial development along the river. This would concentrate development and reduce shoreline area that is used. Setback and screening requirements can reduce the abrupt visual edges along the shoreline.

\* Henderson and Peyman (1986).

**Planning process and VIA Procedures**

The Basic and Detailed VIA Procedures are to be implemented as part of the ongoing planning process rather than after planning is complete. Table 7 is a repetition of Table 1 for comparison of the narratives of the VIA Procedures with the P&G planning process. Data collection can be accomplished in the same data collection effort as other impact studies. Again, it is important to emphasize that the Procedures follow along and are integrated with Corps planning activities and that there is a great deal of flexibility in the Procedures.

Table 7

**Planning Process and the VRAP Procedure**

| <i>Planning Process</i>             | <i>VRAP Procedure</i>  | <i>Forms</i>   |
|-------------------------------------|--|--|
| Specify problems and opportunities. | Define study area.   | VISUAL RESOURCE SUMMARY/DESCRIPTION ASSESSMENT FRAMEWORK |
|                                     | Identify Regional Landscape.   |  |
|                                     | Determine MCS class.   |  |
|                                     | Establish what method to use for the study (General, Basic, or Detailed).  |  |
| Inventory and forecast.             | Inventory existing visual resources.   | VISUAL RESOURCE INVENTORY/FORECAST                       |
|                                     | Forecast without-plan conditions to assess any changes from existing visual resource conditions.   | VISUAL RESOURCE INVENTORY/FORECAST                       |
|                                     | Forecast with-plan conditions.   | VISUAL RESOURCE INVENTORY/FORECAST                       |
| Formulate alternative plans.        | Use simulations to show designs of alternatives.   |  |
| Evaluate alternative plans.         | Assess visual impacts by calculating the difference between future with- and without-plan conditions for each landscape component, for each viewpoint. | VISUAL IMPACT ASSESSMENT-VIEWPOINT                       |
|                                     | Combine viewpoint assessments from each evaluator to calculate VIA Values for the landscape components and landscape modifiers.                        | VISUAL IMPACT ASSESSMENT-VIEWPOINT SUMMARY               |
|                                     | Combine the evaluators VIA to calculate a VIA Value.   | VISUAL IMPACT ASSESSMENT-SUMMARY                         |
| (If public input is available.)     | (Combine public and professional VIA Values to calculate a Total VIA Value.)   | (COMPOSITE PROJECT ASSESSMENT)                           |
| Compare alternative plans.          | Compare VIA Values with MCS criteria.  |  |

## Basic VIA Procedure

### Introduction

The Basic VIA Procedure is used for assessing specific sites and project alternatives. The same process is also used, along with some additional analyses, in the Detailed VIA Procedure. The process for the Basic VIA Procedure is outlined in Figure 12.

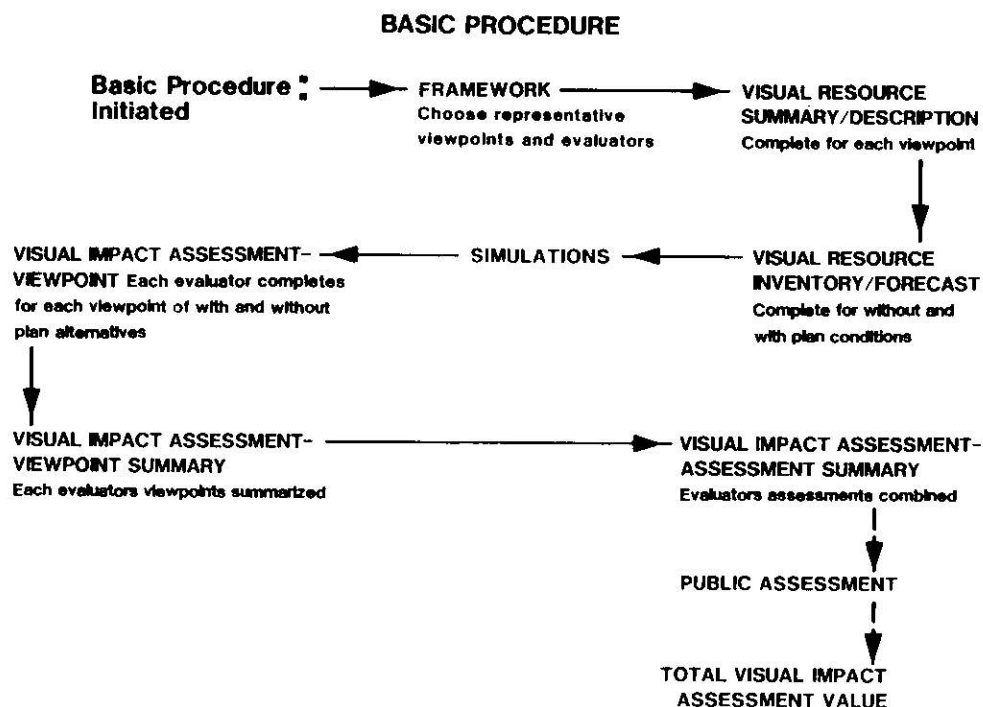


Figure 12. Basic VIA Procedure

### Complete MCS

Using a complete or abbreviated version of the MCS, the following steps are established as needed for analyzing the visual resources of the study area:

- a. Identify Regional Landscape.
- b. Determine what Similarity Zone or Zones might be present in the study area.
- c. Establish a regionally applicable Assessment Framework.
- d. Identify the general Management Classification that applies to Similarity Zones in the study area

The MCS investigations may have already been completed or may be conducted concurrently with the inventory of existing study area conditions.

### Selection of viewpoints and evaluators

The number of evaluators to be used and the viewpoints from which evaluators make their evaluations in accomplishing the VIA are determined by project characteristics and the activities associated with the project area.

**Viewpoints.** It is important to choose viewpoints that are representative of the study area. The viewpoints should be chosen because they represent:

- a. Typical viewer location.
- b. Typical viewer activities or expectations.
- c. Potential project visibility.

Any number of viewpoints is possible, but two or three should be a minimum number.

After the viewpoints have been established, their locations should be properly designated on a map accompanied by a written description. The written description would include direction of viewing, observer position, and geographic viewpoint location. Figure 13 shows viewpoints for an assessment of a lock and dam project.

**Evaluators.** It is necessary for two personnel to perform the inventory and assessment for the Basic VIA Procedure. These people should be familiar with VIA concepts.

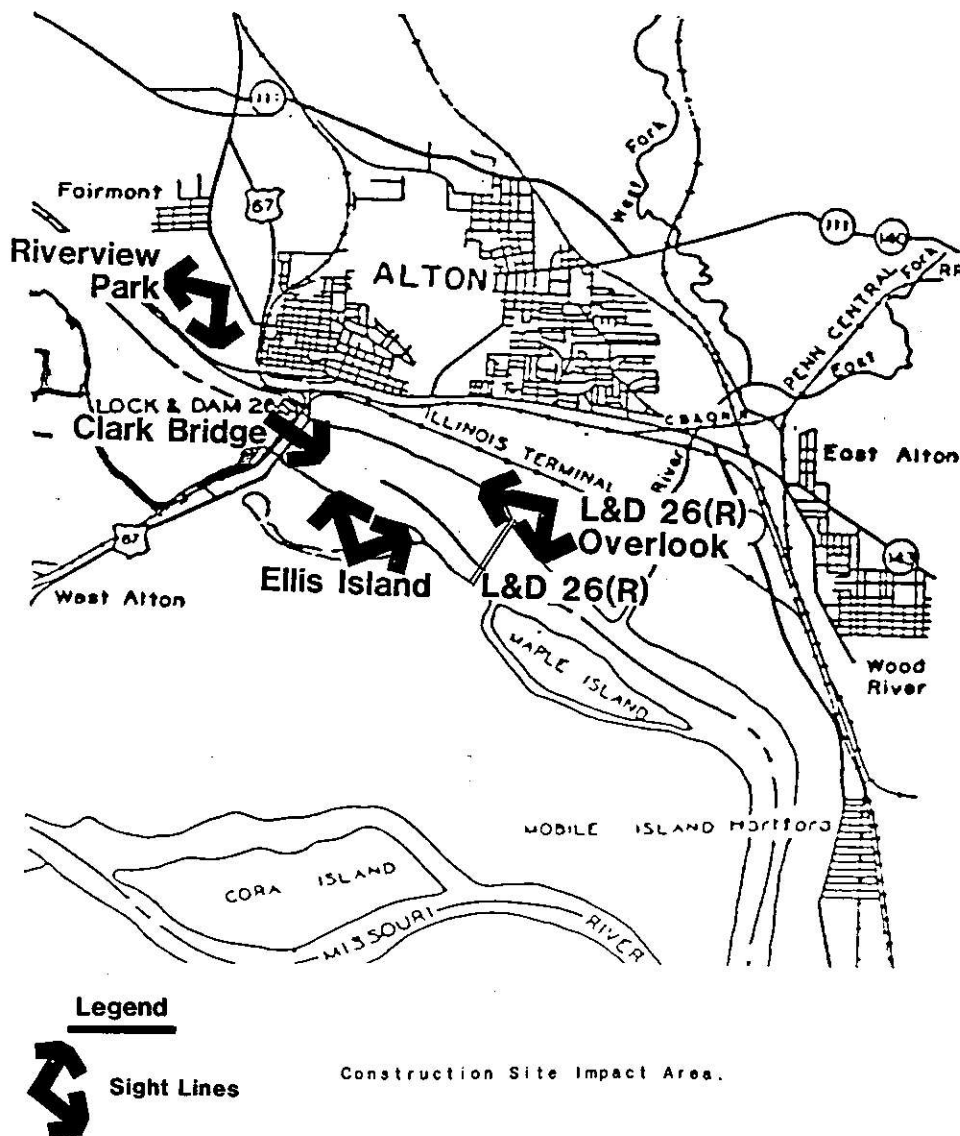


Figure 13. Map showing viewpoints for an assessment of a lock and dam project



### **Viewpoint inventory**

Each designated viewpoint is inventoried separately using FORM 1--VISUAL RESOURCE SUMMARY/DESCRIPTION and FORM 2--VISUAL RESOURCE INVENTORY/FORECAST.

There are two parts to the inventory. FORM 1--VISUAL RESOURCE SUMMARY/DESCRIPTION requires that the visual resources of the viewpoint be described in a holistic manner. The visual resources are described in a narrative, identifying the visual components that unify and dominate the viewpoint. FORM 2--VISUAL RESOURCE INVENTORY/FORECAST is a list of those visual resource components important to VIA. These components (e.g., water resources) and their properties are the same as those evaluated in the MCS. The viewpoint inventory differs from the MCS inventory since it involves specific viewpoints for data collection rather than an entire Similarity Zone. Figures 14 and 15 show completed inventory forms.

### **Collection of data**

While the VIA information is being collected, a number of guidelines on data collection should be kept in mind. The following paragraphs discuss the collection of written information, still photography, and video filming.

Once the viewpoints have been selected, written information must be gathered. The VISUAL RESOURCE SUMMARY/DESCRIPTION and VISUAL RESOURCE INVENTORY/FORECAST FORMS are filled out individually in the field at each viewpoint. It is imperative that information concerning data, time, evaluator, and any relevant site condition (e.g., fog) be filled out completely and that the viewpoint location is clearly identified so that the viewpoint can be relocated easily. It is important that the forms be filled out completely in the field.

Still photographic data collection is a valuable tool in visual impact work. It is particularly useful for viewpoints where user activity is relatively static or stationary. It is a relatively inexpensive, quick, familiar skill and is useful for simulation work and public presentations. In photographing the environment for visual assessment work, it is important to take representative photos, not trying to create "nice" pictures, as they can be misleading. It is important to keep adequate records of photo (viewpoint) location, data, and site conditions, along with the written inventory and forecasting information. A thorough review of photographic techniques (equipment and procedures) that can be used for inventory work is found in the *St. Lawrence River Scenic Access Study* (Smardon, Price, and Volpe 1983). All or portions of this technique may be used as it is rather detailed.

Video photography is another option for the collection of information. While it is yet to be used extensively, it can be advantageous in instances where typical viewer observation involves motion (e.g., canoeing down a stream or driving through an area). In order to use video, it is necessary to study the various ways to approach the use of this technique.

### **Forecast without-plan condition**

Based upon the inventoried viewpoint data and available planning projections and trends, predict what visual changes may be expected to occur for each viewpoint without project implementation. Forecasts should identify changes that may occur in all of the visual resource components (water resources, landform, vegetation, land use, and user activity). Forecasts should be performed for the same time periods as with-project conditions.

For each viewpoint, a without-plan forecast for each time period should be developed. The forecast information is recorded on FORM 1--VISUAL

# VISUAL RESOURCE SUMMARY/DESCRIPTION

FORM 1 **MCS**  
**VIA**

SIMILARITY ZONE ( )

INVENTORY (✓)

BASIC (✓)

FORECASTING ( )

DETAILED ( )

PROJECT NAME Site 1.01A

DATE 9/13/85

LOCATION MPLS. Riverfront

TIME 1:20 PM

VIEWPOINT(1) ZONE(1)

WEATHER sunny/breezy 65+

WITH PLAN ( ) WITHOUT PLAN ( )

PERSONNEL R. Snyder

PROJECT DETAILS AND COMMENTS

TIME PERIOD YEARS

In your own words, describe the visual resource of the zone. In doing so, try to describe the elements that unify the area so that it can be considered a zone. Make note of other aesthetic characteristics that are present.

Foreground - overstory cottonwood, unmowed tall grass.

Midground - Avenue 35W and 10th Ave. bridges.

Background - bluffs over river flood plain.

Wildlife - not apparent.

Noise - river spillway/interstate highway traffic, crickets.

Activity - loading and trucking of fly ash from University steam/heat plant.

Human Activity - utility van and one private auto.

Figure 14. Inventory, VISUAL RESOURCE SUMMARY/DESCRIPTION

# VISUAL RESOURCE INVENTORY/FORECAST

FORM 2 MCS  
VIA

SIMILARITY ZONE ( )

BASIC (✓)

DETAILED ( )

PROJECT NAME Site 1.01A

LOCATION MPLS. Riverfront

VIEWPOINT (1) ZONE (1)

WITH PLAN ( ) WITHOUT PLAN ( )

PROJECT DETAILS AND COMMENTS

INVENTORY (✓)

FORECASTING ( )

DATE 9/13/85

TIME 1:30

WEATHER sunny/breezy 65+

PERSONNEL R. Snyder

TIME PERIOD YEARS

## WATER

RESOURCE  
MOVEMENT  
SCALE

STREAM  
NONE  
SMALL

RIVER  
MEANDER

LAKE/RES.  
SWIFT  
MEDIUM

WETLANDS  
RAPID

MARINE  
FALLS  
LARGE

## LANDFORM

TYPE

COASTAL

PLAINS

ROLLING  
HILLS

HILLS

MOUNTAINS

## VEGETATION

COVER

0

0-25%

25-50%

50-75%

75-100%

DIVERSITY

NONE

LITTLE

PRESENT

SUBSTAN.

EXTENSIVE

SEAS CHANGE

NONE

PRESENT

SUBSTANTIAL

## LAND/WATER USE

INTENSITY  
TYPE

WILDERNESS  
RECREAT.

UNDEVEL.  
AGRIC.

RURAL  
RESIDENT.

SUBURBAN  
COMMER.

URBAN  
INDUST.

## ACCESS

TYPE

TRAIL

WALKWAY

SECOND. RD.

PRIMARY RD. HIGHWAY

## USER ACTIVITY

DEGREE

LOW

MEDIUM

HIGH

FREQUENCY

LOW

MEDIUM

HIGH

## LITTER/POLLUTION

AMOUNT

NONE

PRESENT

EXTENSIVE

## ADJACENT SCENERY

SIMILARITY

NOT

SOMEWHAT

VERY

## SOUNDS

PRESENCE  
TYPE

ABSENT  
DISCORDANT

PRESENT  
INCONSPICUOUS

DOMINANT  
HARMONIOUS

## SMELLS

PRESENCE  
TYPE

ABSENT  
DISCORDANT

PRESENT  
INCONSPICUOUS

DOMINANT  
HARMONIOUS

## VISIBILITY

AMOUNT  
POSITION

SCREENED  
INFERIOR

PARTIALLY SCREENED  
NORMAL

PANORAMA  
SUPERIOR

Does this area contain any other significant attributes?  
If Yes, explain in Comments above.

Yes No

Is this area known for its wildlife observation?

Yes No

Does this area contain any cultural or historical landmarks?

Yes No

Figure 15. Inventory, VISUAL RESOURCE INVENTORY/FORECAST

RESOURCE SUMMARY/DESCRIPTION and FORM 2--VISUAL RESOURCE INVENTORY/FORECAST in the same manner as in the viewpoint inventory. Figure 16 is a forecast of without-plans conditions.

#### **Forecast with-plan condition**

This procedure predicts what visual changes may be expected to occur at each viewpoint as a result of project implementation. Forecasts should be performed for the construction period, short-term changes and long-term changes in 5- and 15-year periods (or whatever time period is appropriate for the study). If more than one project alternative is being considered, a with-plan forecast is prepared for each appropriate time period of each alternative.

As in the without-plan forecasts, the VIA evaluators develop a forecast of each alternative and time period for each viewpoint. The changes anticipated for each forecast are recorded on FORM 1--VISUAL RESOURCE SUMMARY/DESCRIPTION for the viewpoint as a whole and on FORM 2--VISUAL RESOURCE INVENTORY/FORECAST for the visual resource components. A generic checklist of project activities identifies potential visual impacts associated with each project regardless of the site characteristics (see Appendix C of Dick and Smardon, *Generic Visual Impact Checklist*(1981)). Figure 17 is an example of a with-plan forecast.

#### **Viewpoint simulations**

Using the information assembled in the inventory and forecasting phases, it is possible to simulate the landscape. District offices have illustration and graphic capabilities that can be used for simulation work. A rough simulation is adequate to assess the visual quality impacts of a Basic Procedure project. Such techniques as freehand drawing and rendering on a photograph are excellent simulation methods for use in the Basic Procedures.

Simulations of each viewpoint are prepared as needed for the study to show with- and without-plan conditions at different periods of time. If the without-plan conditions do not change from existing conditions, then only the with-plan conditions need to be simulated (Smardon, Palmer, and Felleman 1986). Use of the viewpoint simulations makes it possible to determine changes in the visual resource components by comparing the with- and without-plan conditions.

Figures 18 and 19 are viewpoint simulations used in a field test of the VIA Procedures for a dredged material transfer site. The figures show with- and without-plan conditions for viewpoints on opposite sides of the river.

#### **Professional assessment**

Visual quality assessments are made by the Corps evaluators for with- and without-plan conditions in a series of three steps:

- a. Viewpoint Assessment--individual assessments of selected viewpoints by each evaluator.
- b. Summary Viewpoint Assessment--summary of each evaluator's viewpoint assessments.
- c. Project Assessment--all evaluators' assessments combined into a single assessment.

#### **Viewpoint assessment**

Evaluators complete their own assessments of the with- and without-plan visual impacts for each viewpoint, plan alternative, and forecast period. Each assessment is recorded on a separate FORM 6--VIEWPOINT ASSESSMENT.

# VISUAL RESOURCE INVENTORY/FORECAST

FORM 2 <sup>MCS</sup>  
VIA

SIMILARITY ZONE ( )

BASIC ☒

DETAILED ( )

PROJECT NAME Site 1.01A

LOCATION MPLS. Riverfront

VIEWPOINT (1) ZONE (1)

WITH PLAN ( ) WITHOUT PLAN ☒

PROJECT DETAILS AND COMMENTS

INVENTORY ( )

FORECASTING ☒

DATE 9/13/85

TIME 1:45

WEATHER sunny

PERSONNEL R. Snyder

TIME PERIOD 5 YEARS

## WATER

RESOURCE  
MOVEMENT  
SCALE

STREAM  
NONE  
SMALL

RIVER  
MEANDER

LAKE/RES.  
SWIFT  
MEDIUM

WETLANDS  
RAPID

MARINE  
FALLS  
LARGE

## LANDFORM

TYPE

COASTAL

PLAINS

ROLLING  
HILLS

HILLS

MOUNTAINS

## VEGETATION

COVER

0

0-25%

25-50%

50-75%

75-100%

DIVERSITY

NONE

LITTLE

PRESENT

SUBSTAN.

EXTENSIVE

SEAS CHANGE

NONE

PRESENT

SUBSTANTIAL

## LAND/WATER USE

INTENSITY  
TYPE

WILDERNESS  
RECREAT.

UNDEVEL.  
AGRIC.

RURAL  
RESIDENT.

SUBURBAN  
COMMER.

URBAN  
INDUST.

## ACCESS

TYPE

TRAIL

WALKWAY

SECOND. RD.

PRIMARY RD. HIGHWAY

## USER ACTIVITY

DEGREE

LOW

MEDIUM

HIGH

FREQUENCY

LOW

MEDIUM

HIGH

## LITTER/POLLUTION

AMOUNT

NONE

PRESENT

EXTENSIVE

## ADJACENT SCENERY

SIMILARITY

NOT

SOMEWHAT

VERY

## SOUNDS

PRESENCE  
TYPE

ABSENT  
DISCORDANT

PRESENT  
INCONSPICUOUS

DOMINANT  
HARMONIOUS

## SMELLS

PRESENCE  
TYPE

ABSENT  
DISCORDANT

PRESENT  
INCONSPICUOUS

DOMINANT  
HARMONIOUS

## VISIBILITY

AMOUNT  
POSITION

SCREENED  
INFERIOR

PARTIALLY SCREENED  
NORMAL

PANORAMA  
SUPERIOR

Does this area contain any other significant attributes?  
If Yes, explain in Comments above.

Yes No

Is this area known for its wildlife observation?

Yes No

Does this area contain any cultural or historical landmarks?

Yes No

Figure 16. Forecast of without-plan conditions, VISUAL RESOURCE INVENTORY/FORECAST FORM

## VISUAL RESOURCE SUMMARY/DESCRIPTION

FORM 1 MCS  
VIA

SIMILARITY ZONE ( )

BASIC (✓)

DETAILED ( )

INVENTORY ( )

FORECASTING (✓)

PROJECT NAME Site 1.01A

LOCATION MPLS. Riverfront

VIEWPOINT(1) ZONE(1)

WITH PLAN (✓) WITHOUT PLAN ( )

PROJECT DETAILS AND COMMENTS

DATE 9/13/85

TIME 1:50 PM

WEATHER sunny

PERSONNEL R. Snyder

TIME PERIOD 5 YEARS

In your own words, describe the visual resource of the zone. In doing so, try to describe the elements that unify the area so that it can be considered a zone. Make note of other aesthetic characteristics that are present.

Middle ground fly ash pile replaced by sand stockpile.

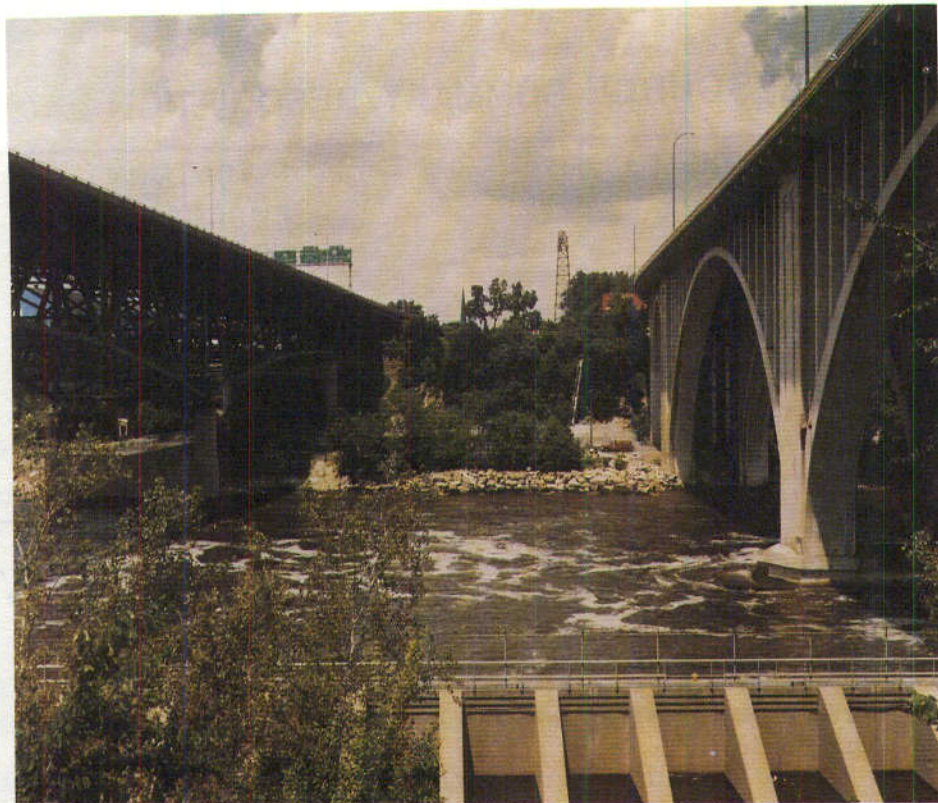
Removal of University buildings increased truck and loading activity.

Park area development - trail/path development. Increased public use.

Improved roads.

Minor loss of vegetation with project implementation. New plantings associated with Corps project.





**a. Without-plan conditions**



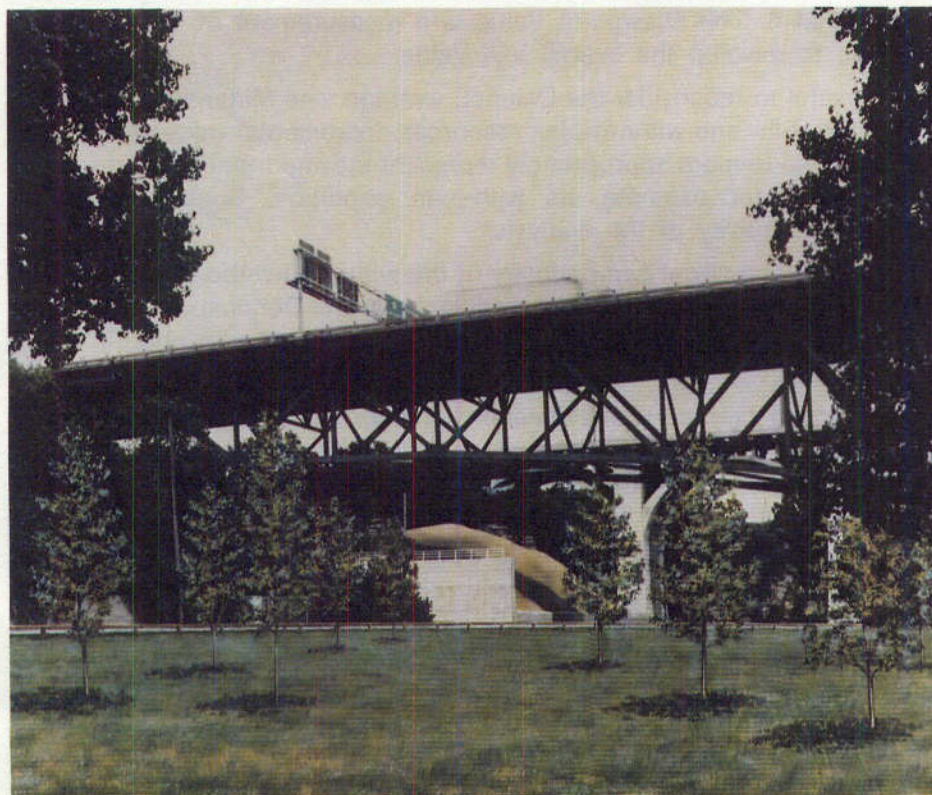
**b. With-plan conditions, showing simulated dredged material transfer facility**

**Figure 18. Viewpoint simulations used in a field test of VIA Procedure**





**a. Without-plan conditions**



**b. With-plan conditions, showing simulation of a proposed landscaping and park development**

**Figure 19. Viewpoint simulations of bank opposite that shown in Figure 18**

Figure 20 is a Viewpoint Assessment used in the St. Paul field test.

The following information is used in the Viewpoint Assessment:

- a. FORM 3--ASSESSMENT FRAMEWORK for the Regional Landscape.
- b. Definitions of Distinct, Average, Minimal.
- c. FORM 1--VISUAL RESOURCE SUMMARY/DESCRIPTION and FORM 2--INVENTORY/FORECAST for with- and without-plan forecast viewpoint conditions.
- d. Viewpoint simulations for with- and without project forecast.

**Visual Impact Assessment.** Consult the visual resource forecast information for the appropriate viewpoint/plan alternative/forecast period that is recorded in the viewpoint simulations and on FORMS 1 and 2. Using the Distinct, Average, and Minimal criteria developed for the Regional Landscape in the MCS and recorded on FORM 3--ASSESSMENT FRAMEWORK, assess the visual quality of each visual resource component in the viewpoint landscape: water, land-form, vegetation, land use, user activity, and special considerations. For each visual resource component, a Distinct, Average, or Minimal designation is determined for the with- and without-plan conditions and recorded on FORM 6--VIEWPOINT ASSESSMENT. For the without-plan condition, the letter "B" is recorded in the appropriate box for each of the resource components. The with-plan condition is assessed in the same way, and the values are recorded on the same form, using the letter "A."

A separate form is completed for each alternative. Any comments on the visual quality designations should also be noted. Each visual quality designation has a numerical value associated with it: Distinct = 3, Average = 2, Minimal = 1. The numerical difference between the with- and without-plan alternatives (i.e., "A" minus "B") is the Viewpoint Value and is recorded in the designated column on FORM 6. This Viewpoint Value is a measurement of visual change and is used to develop the overall VIA Value.

It may be useful to reconsider the Distinct, Average, and Minimal designations in light of the with- and without-plan resources. Incremental values (e.g., 2.75) may be assigned to more appropriately represent the importance of a resource, compared with, for example, its with-plan condition. Such adjustments increase the sensitivity of the analysis.

**Modifier rating.** The visual compatibility of the with- and without-project alternatives is also rated in terms of three modifiers--Spatial Dominance, Scale Contrast, and Compatibility. Definitions of these modifiers are presented in Table 8.

Evaluators record their modifier evaluations on FORM 6--VIEWPOINT ASSESSMENT. Consult the with- and without-plan viewpoint simulations and the rating categories of each modifier. For each visual resource component, determine which modifier rating best describes the forecast conditions, and record the rating in the appropriate modifier rating column. Any comments on the ratings should also be noted.

Although not shown on FORM 6 or described in these procedures, a numerical system could also be applied to the modifier ratings, to compare with- and without-plan conditions.

# VIEWPOINT ASSESSMENT

FORM 6 VIA

BASIC (✓)

PROJECT NAME Site 1.01A

LOCATION MPLS. Riverfront

VIEWPOINT MAP REFERENCE #1

ALTERNATIVE (A)

PROJECT DETAILS AND COMMENTS

DETAILED ( )

DATE 9/16/85

TIME NA

WEATHER NA

PERSONNEL R. Snyder

1 of 4

USE THE LETTER 'A' FOR  
WITH PLAN CONDITION.

USE THE LETTER 'B' FOR  
WITHOUT PLAN CONDITION

|                                 | DISTINCT 3 | AVERAGE 2 | MINIMAL 1 | DIFFERENCE | COMPATIBILITY<br>C Compatible<br>SC Somewhat Compatible<br>NC Not Compatible | SCALE CONTRAST<br>MI Minimal<br>MO Moderate<br>S Severe | SPATIAL DOMINANCE<br>S Subordinate<br>C Co-dominant<br>D Dominant | COMMENTS |
|---------------------------------|------------|-----------|-----------|------------|--|---|---|----------|
| WATER RESOURCES                 |            |           | A/B       | 0          | NA   | NA  | NA  |          |
| LANDFORM                        |            | A/B       |           | 0          | C  | MI  | C   |          |
| VEGETATION                      |            | A/B       |           | 0          | C  | MI  | C   |          |
| LANDUSE                         |            | A/B       |           | 0          | SC   | MI  | C   |          |
| USER ACTIVITY                   |            | A/B       |           | 0          | SC   | NA  | NA  |          |
| SPECIAL CONSIDERATIONS *        |            |           |           | 0          |  |   |   |          |
|                                 |            |           |           |            | INCONSPICUOUS  | SIGNIFICANT   | PROMINENT   |          |
| LANDSCAPE COMPOSITION WITH PLAN |            |           |           |            |  | ✓   |   |          |
| WITHOUT PLAN                    |            |           |           |            |  | ✓   |   |          |

\* The following will give you the value for Special Considerations. A sum of 3 or more distinct, 1-2 average, and 0 minimal.

|  | Yes<br>1 | No<br>0 |
|--|----------|---------|
| Does this zone contain any Cultural or Historical Landmarks?   |          | A/B     |
| Is this zone, or areas within it, known for its distinct visual quality and/or wildlife observation? |          | A/B     |
| Is this zone free from pollution and litter?   |          | A/B     |
| Are there other aesthetic elements that add to this resource?  |          | A/B     |
| Total  |          | 0       |

Figure 20. VIEWPOINT ASSESSMENT FORM



**Table 8**  
**Modifier Ratings**

| <i>Modifier</i>   | <i>Definition</i>   | <i>Rating</i>  |
|-------------------|---|--|
| Spatial dominance | The prevalent occupation of a space in a landscape by an object(s) or landscape element. Spatial dominance can be described in terms of being Dominant, Co-dominant, or Subordinate.                    | Dominant--the modification is the major object or area in a confined setting and occupies a large part of the setting.<br>Co-dominant--the modification is one of the major objects or areas in a confined setting, and its features are of equal visual importance.<br>Subordinate--the modification is insignificant and occupies a minor part of the setting. |
| Scale contrast    | The difference in absolute or relative scale in relation to other distinct objects or areas in the landscape. Scale contrast can be described in terms of being Severe, Moderate, or Minimal.           | Severe--the modification is much larger than the surrounding objects.<br>Moderate--the modification is slightly larger than the surrounding objects.<br>Minimal--the modification is much smaller than the surrounding objects.  |
| Compatibility     | The degree to which landscape elements and characteristics are still unified within their setting. Compatibility can be described in terms of being Compatible, Somewhat Compatible, or Not Compatible. | Compatible--The modification is harmonious within the setting.<br>Somewhat Compatible--The modification is more or less harmonious within the setting.<br>Not Compatible--The modification is not harmonious within the setting.   |

### **Landscape composition**

The last viewpoint assessment item examines the landscape composition for the with- and without-plan conditions. Landscape composition is the organization of the elements of the landscape. Some elements are more vulnerable to visual contrast (prominent) than others (inconspicuous). Each viewpoint simulation is assessed as a whole instead of as individual elements. Landscape composition is then described in terms of being:

- a. Prominent--focal, feature, or enclosed landscapes.
- b. Significant--panoramic or weak focal, feature, or enclosed landscapes.
- c. Inconspicuous--canopied, indistinct, or obscured landscapes.

Evaluators again make their own assessments and record the results in the Landscape Composition Section of FORM 6--VIEWPOINT ASSESSMENT.

### **Summary Viewpoint Assessment**

In this step, the assessments of each evaluator are summarized. For each evaluator, a separate FORM 7--SUMMARY VIEWPOINT ASSESSMENT is completed for each with- and without-plan alternative and each forecast period. A Summary Viewpoint Assessment is shown on Figure 21.

For the appropriate plan alternative/forecast period, consult all the FORM 6--VIEWPOINT ASSESSMENT Forms completed by the same evaluator. For each viewpoint, transfer the Viewpoint Value for each visual resource component to the appropriate Viewpoint column on FORM 7--SUMMARY VIEWPOINT ASSESSMENT.

The Viewpoint Values are then summed for each resource component, and the sum is then divided by the total number of viewpoints. This quotient is that evaluator's summary Viewpoint Value for that resource.

# SUMMARY VIEWPOINT ASSESSMENT

FORM 7 VIA

PROJECT NAME Site 1.01A

BASIC (✓) DETAILED ( )

LOCATION MPLS. Riverfront

DATE

ALTERNATIVE (A)

PERSONNEL R. Snyder

WITH PLAN (✓) WITHOUT PLAN ( )

## PROJECT DETAILS AND COMMENTS

### VISUAL IMPACT ASSESSMENT VALUE

|                           | VIEWPOINT<br>#1 | VIEWPOINT<br>#2 | VIEWPOINT<br># | VIEWPOINT<br># | TOTAL<br># OF<br>VIEWPOINTS | QUOTIENT |
|---------------------------|-----------------|-----------------|----------------|----------------|-----------------------------|----------|
| WATER                     | 0               | 0               |                |                | 2                           | 0        |
| LANDFORM                  | 0               | -1              |                |                | 2                           | -.5      |
| VEGETATION                | 0               | -1              |                |                | 2                           | -.5      |
| LANDUSE                   | 0               | 0               |                |                | 2                           | 0        |
| USER ACTIVITY             | 0               | 0               |                |                | 2                           | 0        |
| SPECIAL<br>CONSIDERATIONS | 0               | 0               |                |                | 2                           | 0        |

### MODIFIER RATING

CR = Compatibility Rating SC = Scale Contrast Rating SDR = Spatial Dominance Rating

MAJORITY  
RATING

|                          | CR | SCR | SDR | CR | SCR | SDR | CR | SCR | SDR | CR | SCR | SDR | CR | SCR | SDR |
|--------------------------|----|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|
| WATER                    | NA | NA  | NA  | NA | NA  | NA  |    |     |     |    |     |     | NA | NA  | NA  |
| LANDFORM                 | C  | MI  | C   | SC | MO  | D   |    |     |     |    |     |     | SC | MO  | C   |
| VEGETATION               | C  | MI  | C   | NC | MO  | C   |    |     |     |    |     |     | SC | MO  | C   |
| LANDUSE                  | SC | MI  | C   | SC | MO  | D   |    |     |     |    |     |     | SC | MO  | C   |
| USER ACTIVITY            | SC | NA  | NA  | SC | NA  | NA  |    |     |     |    |     |     | SC | NA  | NA  |
| LANDSCAPE<br>COMPOSITION |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |
| P Prominent              |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |
| S Significant            | S  |     |     | I  |     |     |    |     |     |    |     |     |    |     |     |
| I Inconspicuous          |    |     |     |    |     |     |    |     |     |    |     |     |    |     |     |

Figure 21. SUMMARY VIEWPOINT ASSESSMENT FORM

### **Modifier rating and landscape composition**

The modifier and landscape composition assessments are also transferred to the appropriate viewpoint column on FORM 7. For each visual resource component, a simple majority of any rating determines the composite rating for each modifier. Majority ratings are also determined for landscape composition.

Relevant comments for all sections of this form should be included to describe unusual circumstances and provide additional information.

### **Project assessment**

In this step, a single assessment value is obtained for the project by combining the assessments of all the evaluators. A separate FORM 8--VISUAL IMPACT ASSESSMENT SUMMARY is completed for each forecast period. An ASSESSMENT SUMMARY is shown in Figure 22.

For the appropriate plan alternative/forecast period, consult the FORM 7--SUMMARY VIEWPOINT ASSESSMENT Forms completed by all the evaluators. Transfer the Summary Viewpoint Value for each visual resource component to the appropriate Evaluator column on FORM 8--VISUAL IMPACT ASSESSMENT SUMMARY.

The values are summed for each visual resource component and then divided by the number of evaluators to produce a VIA Value for each component. These are then summed to produce a Summary Value. Figure 22 shows this process.

### **Modifier rating and landscape composition**

The modifier ratings are also transferred to FORM 8--ASSESSMENT SUMMARY. The majority of any one of the modifier descriptors is recorded for each resource component. The process is repeated for the landscape composition rating. Although not on FORM 8, a numerical system could also be applied to evaluate the modifier ratings.

### **Public assessment**

If a public assessment of visual impacts is done, the results are combined with the professional assessment (Figure 12). Differences between the public and professional assessments should be examined and a Total VIA Value determined.

### **Evaluation of visual impacts and report documentation**

**P&G requirements.** The evaluation of environmental effects in Corps planning studies involves the assessment and appraisal of effects on or impacts to environmental resources, assessment being the identification and description of the impact and appraisal, the process of assigning the value to the impacts (US Water Resources Council 1983a). The VIA Value (from the landscape components), the modifier ratings, and the landscape composition ratings are the basis for assessment and appraisal.

**Assessment.** Assessment determines the difference between the without-plan and with-plan conditions, i.e., the Project VIA Values. The VIA Value for an alternative is a numerical measure of visual impact and is tractable by examining the specific changes in landscape components. The modifier and landscape composition ratings show how the changes in landscape components result in changes in spatial dominance, scale contrast, compatibility, and landscape composition. The visual modifier and landscape composition ratings are used to support and explain the numerical values of the VIA Value. Further descriptive analysis of visual impacts can be developed by describing the

# VISUAL IMPACT ASSESSMENT SUMMARY

FORM 8 VIA

PROJECT NAME Site 1.01A

BASIC (✓) DETAILED ( )

LOCATION MPLS. Riverfront

DATE 9/26/85

ALTERNATIVE (A)

PERSONNEL VIA Team

WITH PLAN (✓) WITHOUT PLAN ( )

## PROJECT DETAILS AND COMMENTS

### VISUAL IMPACT ASSESSMENT VALUE

|                           | EVALUATOR<br>1 | EVALUATOR<br>2 | EVALUATOR<br>3 | EVALUATOR<br>4 | TOTAL<br>OF<br>EVALUATORS | QUOTIENT |
|---------------------------|----------------|----------------|----------------|----------------|---------------------------|----------|
| WATER                     | 0              | 0              | 0              | 0              | 4                         | 0        |
| LANDFORM                  | -.5            | -.5            | -1             | -.5            | 4                         | -.62     |
| VEGETATION                | -.5            | 0              | -1             | 0              | 4                         | -.37     |
| LANDUSE                   | 0              | 0              | 0              | -1.5           | 4                         | -.37     |
| USER ACTIVITY             | 0              | -1             | 0              | +.5            | 4                         | -.12     |
| SPECIAL<br>CONSIDERATIONS | 0              | 0              | 0              | 0              | 4                         | 0        |

VISUAL IMPACT ASSESSMENT VALUE -1.5

### MODIFIER RATING

CR= Compatability Rating SC=Scale Contrast Rating SDR= Spatial Dominance Rating

MAJORITY  
RATING

|               | CR | SCR | SDR | CR | SCR | SDR | CR | SCR | SDR | CR | SCR | SDR |   | CR | SCR | SDR |
|---------------|----|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|---|----|-----|-----|
| WATER         | NA | NA  | NA  | NA | NA  | NA  | NA | NA  | NA  | NA | NA  | NA  | 4 | NA | NA  | NA  |
| LANDFORM      | SC | MO  | C   | SC | MI  | C   | SC | MO  | C   | SC | MO  | C   | 4 | SC | MO  | C   |
| VEGETATION    | SC | MO  | C   | C  | MI  | C   | SC | MO  | C   | SC | MO  | C   | 4 | SC | MO  | C   |
| LANDUSE       | SC | MO  | C   | C  | MI  | C   | C  | MO  | C   | SC | MO  | C   | 4 | SC | MO  | C   |
| USER ACTIVITY | SC | NA  | NA  | SC | MO  | NA  | C  | MO  | NA  | SC | MO  | C   | 4 | SC | MO  | NA  |

### LANDSCAPE COMPOSITION

P Prominent  
S Significant  
I Inconspicuous

|   |   |   |   |   |
|---|---|---|---|---|
| S | S | S | P | S |
|---|---|---|---|---|

Figure 22. VISUAL IMPACT ASSESSMENT SUMMARY



changes in visual resource components ("A" minus "B") from FORM 6--VIEW-POINT ASSESSMENT.

**Appraisal.** Appraisal involves identifying the desirability of the impacts or evaluation by assigning social values of the impacts. The MCS criteria are designed to guide appraisal by providing a basis for determining whether the visual impact caused by a project is desirable. The VIA Value is compared with the visual impact guidelines contained in the MCS:

| <i>Management Class</i> | <i>VIA Value</i> |
|-------------------------|------------------|
| Preservation            | 0                |
| Retention               | 10 to -2         |
| Partial retention       | 10 to -5         |
| Modification            | 10 to -7         |
| Rehabilitation          | 10 to -10        |

Alternatives with VIA Values of -8 to -10 should be redesigned.

If the calculated VIA Value is within the range of the visual impact guidelines for the management class, the visual impact should be appraised as beneficial, acceptable, or desirable. If, however, the visual impact falls outside the range, it is appraised as adverse. The assessment and forecast information can be used to further identify the temporal (short or long term) and resource or spatial distribution of the beneficial and adverse effects.

**Significant effects.** Following *Principles and Guidelines* (US Water Resources Council 1983a), significant effects are identified. By examining the visual impacts identified in assessments and considering the technical, institutional, and public considerations, judgments are made on the significance of the visual impacts. Identification of significant effects is similar to the earlier consideration of significant visual resources (Table 4). The MCS and VIA Procedures provide a technical basis for identifying significant impacts. Institutional significance is derived from laws and policies that affect visual resources. The cultural resource protection statutes identify institutional significance for protecting the visual quality of those resources. Public significance is based on expressed public perceptions of visual impacts.

The outcome of this analysis is that the visual impact is or is not significant, given technical, institutional, and public considerations. If a project assessment is only 1 or 2 points from being within the appropriate range of VIA Values, the project assessment documentation should be reviewed to identify those visual resource components and characteristics that were most different between the without- and with-plan conditions. This information can be used to modify the alternative, and the Basic VIA Procedure could be applied again to the assessment. No forms were developed for the assessment and appraisal because they should be in a narrative to be included in a planning report.

## Detailed VIA Procedure

### Introduction

For most of the VIA process, the Detailed Procedure is identical to the Basic Procedure. The differences stem from additional descriptors rather than differences in the process. The differences are explained at length in this section. Where the process is the same, instructions in the Basic Procedure section should be used. The steps of the Detailed Procedure are outlined in Figure 23.

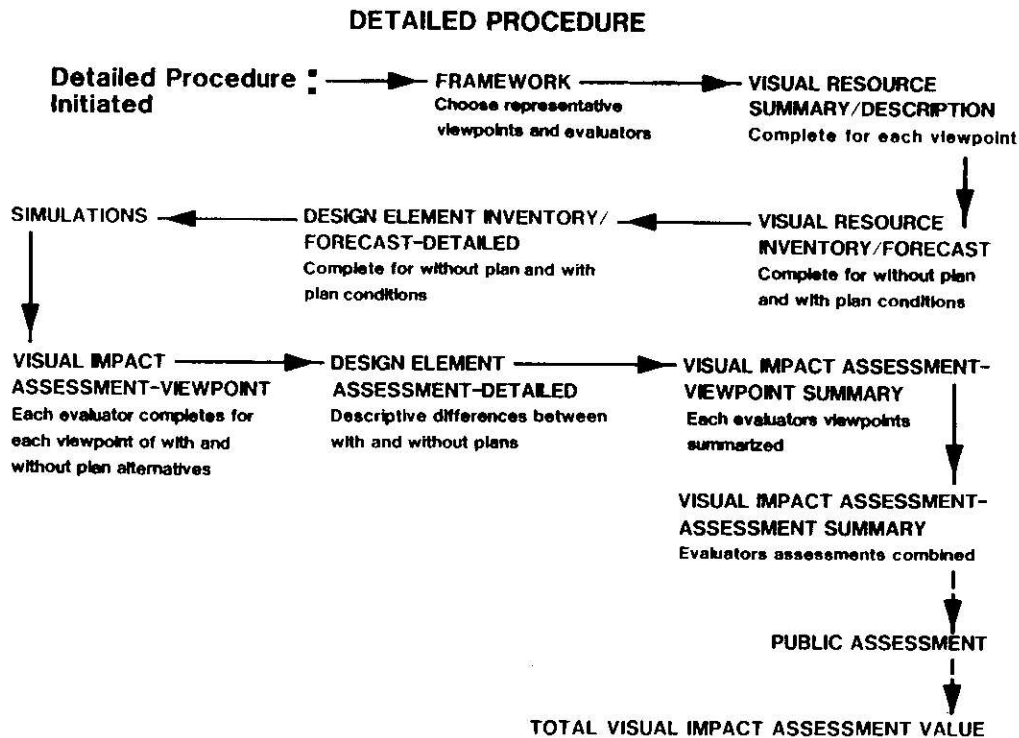


Figure 23. Detailed VIA Procedure

#### Complete MCS

Conduct a complete or abbreviated version of the MCS as described in the Basic Procedure.

#### Selection of viewpoints and evaluators

**Viewpoints.** Choose representative study area viewpoints as described in the Basic Procedure.

**Evaluators.** Three to five people should ideally perform the inventory and assessment for the Detailed Procedure. These people should be familiar with VIA concepts, and at least one should be a landscape architect.

#### Viewpoint inventory

**Visual resources.** Inventory the designated study area viewpoints on FORMS 1 and 2 as described in the Basic Procedure.

**Design elements.** The Detailed Procedure inventory is differentiated from the Basic inventory by an additional analysis of the landscape's four most basic visual resource components, i.e., water, landform, vegetation, and cultural modifications. Each resource is inventoried in a narrative in terms of the visual design elements of form, line, color, texture, and scale contrast and the appropriate distance zone. This inventory is recorded on FORM 9--DESIGN ELEMENT INVENTORY/FORECAST--DETAILED (Figure 24). In describing these design elements, it is important to include the effects of variables such as light direction, motion, seasonal change, temporal patterns, observer position, observer angle, and distance. Refer to the Glossary (Appendix B) for definitions of all of these terms.

# DESIGN ELEMENT INVENTORY/FORECAST-DETAILED

FORM 9 VIA

## INVENTORY ( )

PROJECT NAME Tank Farm - Grindon  
 LOCATION Between Ridge Road and Lake  
 VIEWPOINT MAP REFERENCE 2 Grindon  
 WITH PLAN ( ) WITHOUT PLAN (✓)  
 PROJECT DETAILS AND COMMENTS

## FORECASTING (✓)

DATE 8/20/85  
 TIME Assume same  
 WEATHER Assume same  
 PERSONNEL P. Kopf  
 1 of 3  
 TIME PERIOD 15 YEARS

|                   | FOREGROUND                        | MIDDLEGROUND                      | BACKGROUND                          |
|-------------------|-----------------------------------|-----------------------------------|-------------------------------------|
| <b>WATER</b>      | None                              | Lake                              | Lake                                |
| <b>COLOR</b>      |                                   | Blue, med. value, glare           | Blue with gray, some glare          |
| <b>LINE</b>       |                                   | Bold, horizontal, undulating      | Bold, horizontal                    |
| <b>FORM</b>       |                                   | Two-dimensional, simple, organic  | Simple, two-dimensional             |
| <b>TEXTURE</b>    |                                   | Smooth and Uniform                | Smooth, flat                        |
| <b>SCALE</b>      |                                   | Insignificant                     | Insignificant                       |
| <b>LANDFORM</b>   | Ridge                             | Not Visible                       | Ridge                               |
| <b>COLOR</b>      | None                              |                                   | None                                |
| <b>LINE</b>       | Gently sloping, horizontal        |                                   | Gently sloping, horizontal, bold    |
| <b>FORM</b>       | Two-dimensional, simple, rounded  |                                   | Rounded, simple, silhouette         |
| <b>TEXTURE</b>    | None                              |                                   | None                                |
| <b>SCALE</b>      | Insignificant                     |                                   | Small                               |
| <b>VEGETATION</b> | Grass/Trees                       | Grass/Trees                       | Grass/Trees                         |
| <b>COLOR</b>      | Lt. green grass, dark green trees | Green of Med. to dark value, cool | Green of dark to med. value, shaded |
| <b>LINE</b>       | Organic, vertical straight        | Organic                           | Organic, complex                    |
| <b>FORM</b>       | Three-dimensional, organic        | Two-dimensional                   | Silhouette, organic, massed         |
| <b>TEXTURE</b>    | Grass-fine, trees-coarse to med.  | Medium, massed                    | Fine, clumps,                       |
| <b>SCALE</b>      | Closure, medium                   | Small                             | Insignificant                       |
| <b>STRUCTURES</b> | None                              | None                              | Village                             |
| <b>COLOR</b>      |                                   |                                   | Browns and whites, high chroma      |
| <b>LINE</b>       |                                   |                                   | Definite, regular, geometric        |
| <b>FORM</b>       |                                   |                                   | Regular, simple, 3-D cubes, clumped |
| <b>TEXTURE</b>    |                                   |                                   | Smooth, even                        |
| <b>SCALE</b>      |                                   |                                   | Insignificant                       |

ADDITIONAL COMMENTS: A number of the shoreline estates and town's houses are on the National Register.

Figure 24. DESIGN ELEMENT INVENTORY/FORECAST--DETAILED FORM

**DESIGN ELEMENT ASSESSMENT--DETAILED****FORM 10 VIA**

PROJECT NAME Tank Farm - Grindon  
LOCATION Between Ridge Road and Lake  
VIEWPOINT MAP REFERENCE 2 Grindon  
ALTERNATIVE (A)  
PROJECT DETAILS AND COMMENTS

DATE 9/10/85  
TIME Simulated for mid-morning  
WEATHER Simulated for sunny day  
PERSONNEL P. Kopf  
1 of 4  
TIME PERIOD 15 YEARS

Describe the differences between with and without projections in terms of the following, consider foreground, middleground and background if applicable.

**WATER** Remains unchanged except for the dock structure in it and additional  
**COLOR** boat traffic.

**LINE**

**FORM**

**TEXTURE**

**SCALE**

**LANDFORM** Remains unchanged.

**COLOR**

**LINE**

**FORM**

**TEXTURE**

**SCALE**

**VEGETATION** Additional foreground and middleground trees.

**COLOR** Additional dark green of medium value in foreground

**LINE** More organic in foreground and middleground along edge of meadow

**FORM** Still three-dimensional in foreground and 2-D in middleground

**TEXTURE** More coarse texture in foreground and medium texture in middle-  
ground

**SCALE** Foreground trees are significant in scale & create an enclosure

**STRUCTURES** Tank Farm, Pier, Road

**COLOR** Dark green of med. value and chroma in foreground and middleground

**LINE** More vertical and geometric elements, cylindrical

**FORM** Regular, massed, non-directional

**TEXTURE** Even, smooth, clumped

**SCALE** Except for the two tall towers, not extremely out of scale

**ADDITIONAL COMMENTS:** A number of the shoreline estates and houses in the town are on the National Register.

**Figure 25. DESIGN ELEMENT ASSESSMENT--DETAILED FORM**

### **Forecast without-plan condition**

**Visual resources.** Forecast the without-plan conditions of the visual resources at each viewpoint as described in the Basic Procedures, and record the results on FORMS 1 and 2.

**Design elements.** For the Detailed Procedure, changes that might occur in design element characteristics are also predicted for each viewpoint. As with the visual resource forecasts, a single without-plan forecast for each time period should be developed and agreed upon jointly by all the VIA evaluators for each viewpoint. The Detailed forecast information is recorded in the same manner as in the Detailed viewpoint inventory.

### **Forecast with-plan conditions.**

**Visual resources.** Forecast the with-plan conditions of the visual resources at each viewpoint as described in the Basic Procedure, and record the results on FORMS 1 and 2.

**Design elements.** For the Detailed Procedure, the design element changes for each time period and project alternative are forecast in the same manner as the without-plan conditions. The forecast information is recorded on FORM 9--DESIGN ELEMENT INVENTORY/FORECAST--DETAILED (Figure 24).

### **Viewpoint simulations**

As described in the Basic Procedures, with- and without-plan conditions should be simulated for each viewpoint as needed for the study. Accurate and detailed simulations of with- and without-plan conditions are necessary to assess the effects for the Detailed Procedure project. Such techniques as rendering on a photograph, scale models, or photomontage simulations are highly suitable for the Detailed Procedure.

### **Professional assessment**

As in the Basic Procedure, visual quality assessments are made by Corps evaluators in a series of three steps:

- a. Viewpoint Assessment.
- b. Summary Viewpoint Assessment.
- c. Project Assessment.

### **Viewpoint assessment**

**Visual resources.** Visual resource changes associated with the forecasted with- and without-plan conditions are assessed for each viewpoint as described in the Basic Procedure. The assessments are recorded by each evaluator on FORMS 1 and 2.

**Design elements.** In the Detailed Procedure, the components of water resources, landform, vegetation, and cultural modification are also assessed in terms of form, line, color, texture, and scale. This is done in a descriptive format on FORM 10--DESIGN ELEMENT ASSESSMENT--DETAILED. As with the Viewpoint Assessment of visual resources, each evaluator completes a separate form for each viewpoint, plan alternative, and forecast period. Consult the appropriate viewpoint simulations and design element forecast information from FORM 9--DESIGN ELEMENT INVENTORY/FORECAST--DETAILED. Note the differences in design elements between the with- and without-plan conditions. This information can be used in qualitative descriptions of project impacts, but is primarily intended for use in mitigation feature development, plan reformulation, and project design. Figure 25 shows an example of a FORM 10--DESIGN ELEMENT ASSESSMENT--DETAILED.

### **Summary viewpoint assessment**

**Visual resources.** The visual resource assessments of each evaluator are summarized on FORM 7--SUMMARY VIEWPOINT ASSESSMENT as described in the Basic Procedure.

**Design elements.** Viewpoint assessments of design elements are not summarized for each evaluator.

### **Project assessment**

**Visual resources.** A single assessment of visual resource impacts is developed for each forecast period of each plan alternative as described in the Basic Procedure. The results are recorded on FORM 8--VISUAL IMPACT ASSESSMENT-SUMMARY.

**Design elements.** In the Detailed Procedure, the evaluations of design element changes at each viewpoint are summarized. Consult the appropriate FORM 10--DESIGN ELEMENT ASSESSMENT--DETAILED forms, and compare the changes described by each evaluator for a particular plan alternative and forecast period. Combine the assessments of all the evaluators to develop a composite FORM 10--DESIGN ELEMENT ASSESSMENT--DETAILED for each viewpoint. Note which design element changes were identified by more than one evaluator and which were deemed to be the most significant. For each viewpoint, one composite FORM 10 is completed for each forecast period of each plan alternative.

### **Evaluation of visual impacts and report documentation**

**Visual resources.** The evaluation of general visual resource effects in Corps planning studies involves the assessment and appraisal of effects or impacts to environmental resources, assessment being the identification and description of the impact and appraisal being the process of assigning value to the impacts (US Water Resources Council 1983a). The process for the Detailed Procedure is virtually the same as evaluation using the Basic Procedure. The VIA Value (from the visual resource components), the modifier ratings, and the landscape composition ratings are the basis for assessment and appraisal. Refer to the Basic Procedure for guidance on assessment and appraisal.

**Design element.** The design element information gathered in the Detailed Procedure and summarized on FORM 10--DESIGN ELEMENT ASSESSMENT--DETAILED can be included in qualitative descriptions of project impacts. However, the primary use of this information is to identify specific aspects of the project that contribute to adverse visual impacts and should thus receive mitigation treatment. The design element evaluations are used as a tool to guide mitigation feature development, plan reformulation, and project design.

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# **APPENDIX A MCS AND VIA FORMS**

**VISUAL RESOURCE SUMMARY/DESCRIPTION****FORM 1 MCS  
VIA**

SIMILARITY ZONE ( )

INVENTORY ( )

BASIC ( )

FORECASTING ( )

DETAILED ( )

PROJECT NAME

DATE

LOCATION

TIME

VIEWPOINT( ) ZONE( )

WEATHER

WITH PLAN ( ) WITHOUT PLAN ( )

PERSONNEL

PROJECT DETAILS AND COMMENTS

TIME PERIOD YEARS

In your own words, describe the visual resource of the zone. In doing so, try to describe the elements that unify the area so that it can be considered a zone. Make note of other aesthetic characteristics that are present.

# VISUAL RESOURCE INVENTORY/FORECAST

FORM 2 MCS  
VIA

|  |            |          |                    |             |             |
|--|------------|----------|--------------------|-------------|-------------|
| SIMILARITY ZONE ( )  |            |          | INVENTORY ( )      |             |             |
| BASIC ( )  |            |          | FORECASTING ( )    |             |             |
| DETAILED ( )   |            |          |                    |             |             |
| PROJECT NAME   |            |          | DATE               |             |             |
| LOCATION   |            |          | TIME               |             |             |
| VIEWPOINT ( ) ZONE ( )                                       |            |          | WEATHER            |             |             |
| WITH PLAN ( ) WITHOUT PLAN ( )                               |            |          | PERSONNEL          |             |             |
| PROJECT DETAILS AND COMMENTS                                 |            |          | of                 |             |             |
|  |            |          | TIME PERIOD YEARS  |             |             |
| <b>WATER</b>   |            |          |                    |             |             |
| RESOURCE   | STREAM     | RIVER    | LAKE/RES.          | WETLANDS    | MARINE      |
| MOVEMENT   | NONE       | MEANDER  | SWIFT              | RAPID       | FALLS       |
| SCALE  | SMALL      |          | MEDIUM             |             | LARGE       |
| <b>LANDFORM</b>  |            |          |                    |             |             |
| TYPE   | COASTAL    | PLAINS   | ROLLING HILLS      | HILLS       | MOUNTAINS   |
| <b>VEGETATION</b>  |            |          |                    |             |             |
| COVER  | 0          | 0-25%    | 25-50%             | 50-75%      | 75-100%     |
| DIVERSITY  | NONE       | LITTLE   | PRESENT            | SUBSTAN.    | EXTENSIVE   |
| SEAS CHANGE  | NONE       |          | PRESENT            |             | SUBSTANTIAL |
| <b>LAND/WATER USE</b>  |            |          |                    |             |             |
| INTENSITY  | WILDERNESS | UNDEVEL. | RURAL              | SUBURBAN    | URBAN       |
| TYPE   | RECREAT.   | AGRIC.   | RESIDENT.          | COMMER.     | INDUST.     |
| <b>ACCESS</b>  |            |          |                    |             |             |
| TYPE   | TRAIL      | WALKWAY  | SECOND. RD.        | PRIMARY RD. | HIGHWAY     |
| <b>USER ACTIVITY</b>   |            |          |                    |             |             |
| DEGREE   | LOW        |          | MEDIUM             |             | HIGH        |
| FREQUENCY  | LOW        |          | MEDIUM             |             | HIGH        |
| <b>LITTER/POLLUTION</b>                                      |            |          |                    |             |             |
| AMOUNT   | NONE       |          | PRESENT            |             | EXTENSIVE   |
| <b>ADJACENT SCENERY</b>                                      |            |          |                    |             |             |
| SIMILARITY   | NOT        |          | SOMEWHAT           |             | VERY        |
| <b>SOUNDS</b>  |            |          |                    |             |             |
| PRESENCE   | ABSENT     |          | PRESENT            |             | DOMINANT    |
| TYPE   | DISCORDANT |          | INCONSPICUOUS      |             | HARMONIOUS  |
| <b>SMELLS</b>  |            |          |                    |             |             |
| PRESENCE   | ABSENT     |          | PRESENT            |             | DOMINANT    |
| TYPE   | DISCORDANT |          | INCONSPICUOUS      |             | HARMONIOUS  |
| <b>VISIBILITY</b>  |            |          |                    |             |             |
| AMOUNT   | SCREENED   |          | PARTIALLY SCREENED |             | PANORAMA    |
| POSITION   | INFERIOR   |          | NORMAL             |             | SUPERIOR    |
| Does this area contain any other significant attributes?     |            |          |                    | Yes         | No          |
| If Yes, explain in Comments above.                           |            |          |                    |             |             |
| Is this area known for its wildlife observation?             |            |          |                    | Yes         | No          |
| Does this area contain any cultural or historical landmarks? |            |          |                    | Yes         | No          |

**ASSESSMENT FRAMEWORK****FORM 3 MCS****PROFESSIONAL ( )****COMPOSITE ( )****STUDY AREA****DATE****NOTES:****PERSONNEL**

|                        | <b>DISTINCT</b> | <b>AVERAGE</b> | <b>MINIMAL</b> |
|------------------------|-----------------|----------------|----------------|
| <b>WATER RESOURCES</b> |                 |                |                |
| <b>LANDFORM</b>        |                 |                |                |
| <b>VEGETATION</b>      |                 |                |                |
| <b>LANDUSE</b>         |                 |                |                |
| <b>USER ACTIVITY</b>   |                 |                |                |

Are there any federal/state/local (institutional) policies that directly affect the visual and aesthetic resources of the area? If so list them below.

Note any important technical recognition in the area, i.e. important scenic areas often used for literary/artistic purposes, wildlife habitat, archaeological site, etc.

Note other important issues concerning aesthetic resources that you think will affect the assessment.

**ASSESSMENT SUMMARY****FORM 4 MCS****STUDY AREA****DATE****ZONE +****PERSONNEL****NOTES:**

|                            | DISTINCT<br>3 | AVERAGE<br>2 | MINIMAL<br>1 | COMMENTS |
|----------------------------|---------------|--------------|--------------|----------|
| WATER RESOURCES            |               |              |              |          |
| LANDFORM                   |               |              |              |          |
| VEGETATION                 |               |              |              |          |
| LANDUSE                    |               |              |              |          |
| USER ACTIVITY              |               |              |              |          |
| SPECIAL<br>CONSIDERATIONS* |               |              |              |          |
| TOTALS                     |               |              |              |          |

**TOTAL ASSESSMENT VALUE** \_\_\_\_\_

\*The following will give you the value for Special Considerations. A sum of 3 or more distinct, 1-2 average, and 0 minimal.

|     |    |
|-----|----|
| Yes | No |
| 1   | 0  |

Does this zone contain any Cultural or Historical Landmarks?

Is this zone, or areas within it, known for its distinct visual quality and/or wildlife observation?

Is this zone free from pollution and litter?

Are there other aesthetic elements that add to this resource?

Total

**MANAGEMENT CLASSIFICATION SUMMARY****FORM 5 MCS****STUDY AREA****DATE****TES:****PERSONNEL****MANAGEMENT CLASS****TOTAL ASSESSMENT VALUE**

Preservation

17 and above

Retention

14-16

Partial Retention

11-13

Modification

8-10

Rehabilitation

7 and below

**ZONE +****CLASSIFICATION****COMMENTS**



# VIEWPOINT ASSESSMENT

FORM 6 VIA

## BASIC ( )

PROJECT NAME

LOCATION

VIEWPOINT MAP REFERENCE

ALTERNATIVE ( )

PROJECT DETAILS AND COMMENTS

## DETAILED ( )

DATE

TIME

WEATHER

PERSONNEL

of

USE THE LETTER 'A' FOR  
WITH PLAN CONDITION.

USE THE LETTER 'B' FOR  
WITHOUT PLAN CONDITION

|                          | DISTINCT 3 | AVERAGE 2 | MINIMAL 1 | DIFFERENCE | COMPATIBILITY<br>C Compatible<br>SC Somewhat Compatible<br>NC Not Compatible | SCALE CONTRAST<br>MI Minimal<br>MO Moderate<br>S Severe | SPATIAL DOMINANCE<br>S Subordinate<br>C Co-dominant<br>D Dominant | COMMENTS |
|--------------------------|------------|-----------|-----------|------------|--|---|---|----------|
| WATER RESOURCES          |            |           |           |            |  |   |   |          |
| LANDFORM                 |            |           |           |            |  |   |   |          |
| VEGETATION               |            |           |           |            |  |   |   |          |
| LANDUSE                  |            |           |           |            |  |   |   |          |
| USER ACTIVITY            |            |           |           |            |  |   |   |          |
| SPECIAL CONSIDERATIONS * |            |           |           |            |  |   |   |          |

|                                 | INCONSPICUOUS | SIGNIFICANT | PROMINENT |
|---------------------------------|---------------|-------------|-----------|
| LANDSCAPE COMPOSITION WITH PLAN |               |             |           |
| WITHOUT PLAN                    |               |             |           |

\* The following will give you the value for Special Considerations. A sum of 3 or more distinct, 1-2 average, and 0 minimal.

Does this zone contain any Cultural or Historical Landmarks?

Is this zone, or areas within it, known for its distinct visual quality and/or wildlife observation?

Is this zone free from pollution and litter?

Are there other aesthetic elements that add to this resource?

Total

# SUMMARY VIEWPOINT ASSESSMENT

FORM 7 VIA

PROJECT NAME

BASIC ( ) DETAILED ( )

LOCATION

DATE

ALTERNATIVE ( )

PERSONNEL

WITH PLAN ( ) WITHOUT PLAN ( )

PROJECT DETAILS AND COMMENTS

## VISUAL IMPACT ASSESSMENT VALUE

|                           | VIEWPOINT<br>+ | VIEWPOINT<br>+ | VIEWPOINT<br>+ | VIEWPOINT<br>+ | TOTAL<br>+ OF<br>VIEWPOINTS | QUOTIENT |
|---------------------------|----------------|----------------|----------------|----------------|-----------------------------|----------|
| WATER                     |                |                |                |                |                             |          |
| LANDFORM                  |                |                |                |                |                             |          |
| VEGETATION                |                |                |                |                |                             |          |
| LANDUSE                   |                |                |                |                |                             |          |
| USER ACTIVITY             |                |                |                |                |                             |          |
| SPECIAL<br>CONSIDERATIONS |                |                |                |                |                             |          |

## MODIFIER RATING

CR = Compatibility Rating SC = Scale Contrast Rating SDR = Spatial Dominance Rating

MAJORITY  
RATING

|                          | CR | SCR | SDR | CR | SCR | SDR | CR | SCR | SDR | CR | SCR | SDR |  | CR | SCR | SDR |
|--------------------------|----|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|--|----|-----|-----|
| WATER                    |    |     |     |    |     |     |    |     |     |    |     |     |  |    |     |     |
| LANDFORM                 |    |     |     |    |     |     |    |     |     |    |     |     |  |    |     |     |
| VEGETATION               |    |     |     |    |     |     |    |     |     |    |     |     |  |    |     |     |
| LANDUSE                  |    |     |     |    |     |     |    |     |     |    |     |     |  |    |     |     |
| USER ACTIVITY            |    |     |     |    |     |     |    |     |     |    |     |     |  |    |     |     |
| LANDSCAPE<br>COMPOSITION |    |     |     |    |     |     |    |     |     |    |     |     |  |    |     |     |
| P Prominent              |    |     |     |    |     |     |    |     |     |    |     |     |  |    |     |     |
| S Significant            |    |     |     |    |     |     |    |     |     |    |     |     |  |    |     |     |
| I Inconspicuous          |    |     |     |    |     |     |    |     |     |    |     |     |  |    |     |     |

# VISUAL IMPACT ASSESSMENT SUMMARY

FORM 8 VIA

PROJECT NAME BASIC ( ) DETAILED ( )  
 LOCATION DATE  
 ALTERNATIVE ( ) PERSONNEL  
 WITH PLAN ( ) WITHOUT PLAN ( )

PROJECT DETAILS AND COMMENTS

| VISUAL IMPACT ASSESSMENT VALUE |           |           |           |           |                           |          |
|--------------------------------|-----------|-----------|-----------|-----------|---------------------------|----------|
|                                | EVALUATOR | EVALUATOR | EVALUATOR | EVALUATOR | TOTAL<br>OF<br>EVALUATORS | QUOTIENT |
| WATER                          |           |           |           |           |                           |          |
| LANDFORM                       |           |           |           |           |                           |          |
| VEGETATION                     |           |           |           |           |                           |          |
| LANDUSE                        |           |           |           |           |                           |          |
| USER ACTIVITY                  |           |           |           |           |                           |          |
| SPECIAL<br>CONSIDERATIONS      |           |           |           |           |                           |          |

## VISUAL IMPACT ASSESSMENT VALUE

| MODIFIER RATING   |    |     |     |    |     |     |    |     |     |    |     |     | MAJORITY RATING |    |     |     |
|---|----|-----|-----|----|-----|-----|----|-----|-----|----|-----|-----|-----------------|----|-----|-----|
| CR=Comparability Rating SC=Scale Contrast Rating SDR=Spatial Dominance Rating |    |     |     |    |     |     |    |     |     |    |     |     |                 |    |     |     |
|   | CR | SCR | SDR | CR | SCR | SDR | CR | SCR | SDR | CR | SCR | SDR |                 | CR | SCR | SDR |
| WATER   |    |     |     |    |     |     |    |     |     |    |     |     |                 |    |     |     |
| LANDFORM  |    |     |     |    |     |     |    |     |     |    |     |     |                 |    |     |     |
| VEGETATION  |    |     |     |    |     |     |    |     |     |    |     |     |                 |    |     |     |
| LANDUSE   |    |     |     |    |     |     |    |     |     |    |     |     |                 |    |     |     |
| USER ACTIVITY   |    |     |     |    |     |     |    |     |     |    |     |     |                 |    |     |     |
|   |    |     |     |    |     |     |    |     |     |    |     |     |                 |    |     |     |
| LANDSCAPE COMPOSITION   |    |     |     |    |     |     |    |     |     |    |     |     |                 |    |     |     |
| P Prominent   |    |     |     |    |     |     |    |     |     |    |     |     |                 |    |     |     |
| S Significant   |    |     |     |    |     |     |    |     |     |    |     |     |                 |    |     |     |
| I Inconspicuous   |    |     |     |    |     |     |    |     |     |    |     |     |                 |    |     |     |

# DESIGN ELEMENT INVENTORY/FORECAST-DETAILED

FORM 9 VIA

## INVENTORY ( )

PROJECT NAME

LOCATION

VIEWPOINT MAP REFERENCE

WITH PLAN ( ) WITHOUT PLAN ( )

PROJECT DETAILS AND COMMENTS

## FORECASTING ( )

DATE

TIME

WEATHER

PERSONNEL

TIME PERIOD YEARS

|            | FOREGROUND | MIDDLEGROUND | BACKGROUND |
|------------|------------|--------------|------------|
| WATER      |            |              |            |
| COLOR      |            |              |            |
| LINE       |            |              |            |
| FORM       |            |              |            |
| TEXTURE    |            |              |            |
| SCALE      |            |              |            |
| LANDFORM   |            |              |            |
| COLOR      |            |              |            |
| LINE       |            |              |            |
| FORM       |            |              |            |
| TEXTURE    |            |              |            |
| SCALE      |            |              |            |
| VEGETATION |            |              |            |
| COLOR      |            |              |            |
| LINE       |            |              |            |
| FORM       |            |              |            |
| TEXTURE    |            |              |            |
| SCALE      |            |              |            |
| STRUCTURES |            |              |            |
| COLOR      |            |              |            |
| LINE       |            |              |            |
| FORM       |            |              |            |
| TEXTURE    |            |              |            |
| SCALE      |            |              |            |

ADDITIONAL COMMENTS:

**DESIGN ELEMENT ASSESSMENT-DETAILED****FORM 10 VIA**

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|                              |                      |
|------------------------------|----------------------|
| PROJECT NAME                 | DATE                 |
| LOCATION                     | TIME                 |
| VIEWPOINT MAP REFERENCE      | WEATHER              |
| ALTERNATIVE ( )              | PERSONNEL            |
| PROJECT DETAILS AND COMMENTS | TIME PERIOD    YEARS |

---

Describe the differences between with and without projections in terms of the following, consider foreground, middleground and background if applicable.

---

**WATER**  
COLOR

LINE

FORM

TEXTURE

SCALE

---

**LANDFORM**

COLOR

LINE

FORM

TEXTURE

SCALE

---

**VEGETATION**

COLOR

LINE

FORM

TEXTURE

SCALE

---

**STRUCTURES**

COLOR

LINE

FORM

TEXTURE

SCALE

ADDITIONAL COMMENTS:  

---

# COMPOSITE PROJECT ASSESSMENT

VIA

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|                 |           |              |
|-----------------|-----------|--------------|
| PROJECT NAME    | BASIC ( ) | DETAILED ( ) |
| LOCATION        | DATE      |              |
| ALTERNATIVE ( ) | PERSONNEL |              |

PROJECT DETAILS & COMMENTS

---

**PROFESSIONAL VISUAL IMPACT ASSESSMENT VALUE**

**PUBLIC VISUAL IMPACT ASSESSMENT VALUE**

**TOTAL VISUAL IMPACT ASSESSMENT VALUE**

(Average of professional and public values if the difference is 2 or less)

**MANAGEMENT CLASS**

**APPRAISAL:**

**CONCLUSIONS:**



# **APPENDIX B**

## **GLOSSARY**

## **APPENDIX B: GLOSSARY**

### **Absolute Scale**

The absolute size of an object obtained by relating the size of the object to definitely designated (i.e., measured) standard.

### **Accessibility**

The degree to which a resource can be approached.

### **Aesthetic Quality**

The distinctive property of a landscape determined by professional, public, or personal values and the intrinsic physical properties of the landscape.

### **Aesthetic Resources**

Those natural and man-made features of the environment that can be perceived by the senses, that is, what is seen and what is perceived by the other senses. Aesthetic resources elicit one or more sensory reactions and evaluations by the observer, particularly in regards to their pleasurable effects. Aesthetic resources include the combination of what can be perceived at a particular site. This involves the unified combination of water resources, landforms, vegetation, and user characteristics at a site. An aesthetic resource may be a particular landscape, viewshed, or view.

### **Atmospheric Conditions**

Fog, precipitation, pollution, and other ambient-air related conditions, which affect the visibility of an object or objects. These conditions can greatly impact the visual perceptions of the landscape components, e.g., vegetation and the perceptions of the design elements of form, line, color, texture, and scale.

### **Attribute**

The ecological, cultural, and aesthetic properties of natural and cultural resources that sustain and enrich human life, as defined and used by the Environmental Quality Procedures (US Water Resources Council 1983a\*).

### **Average**

A resource or activity that is common in the area and not known for its uniqueness, but rather as a reflection of the norm of the area.

### **Background**

The distance in the landscape where elements lose detailed distinctions. Emphasis is on the outline or edge of one land mass or water resource against another with a strong skyline element (refer to Distance).

### **Basic Procedure**

A Visual Impact Assessment Procedure that is a thorough process used for typical projects with low to moderate visual impact potential and relatively little controversy.

### **Canopied Landscape**

A landscape covered or bridged by an overhead plane (e.g., branching of vegetation or man-made objects).

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\* See References at the end of the main text.

**Color**

The phenomenon of reflecting light of a particular intensity and wavelength (as red or green) to which the eye is sensitive.

**Detailed Landscape**

A vista that involves the immediate foreground which demands attention and is known for its detailed attributes.

**Detailed Procedure**

The Visual Impact Assessment Procedure used for projects that are unique, controversial, and likely to cause a significant visual impact. It is a more sensitive and extensive process than the Basic Procedure.

**Distance**

The spatial separation between an observer and subject (i.e., visual); categorized as foreground, middleground, and background.

**Distinct**

A resource or activity that is considered unique and an asset to an area. It is typically known as a visual/aesthetic draw and/or has many distinctive attributes. Diversity and compatibility are characteristics in such a resource.

**Diversity**

The condition of having a variety of characteristics or elements.

**Ecoregions**

A physiographic area of land that is classified by similarity of land-surface form, climate, vegetation, soils, and fauna.

**Enclosed Landscape**

An area in which the spaces are surrounded or enveloped by groupings of objects or by continuous objects.

**Ephemeral Landscape**

An area that lasts only briefly because of atmospheric and/or hydrological conditions, e.g., flood riparian area or wetland project, displaced/windblown objects and/or indirect/direct signs of wildlife.

**Featured Landscape**

An area dominated by one or a group of outstanding objects that serve to orient the observer.

**Focal Landscape**

An area characterized by the convergence of its elements; the emphasis of such a landscape is placed at the point of convergence.

**Foreground**

The area that can be designated with clarity and simplicity not possible in middle and background because the observer is a direct participant. Maximum detail and color intensity are characteristic of this zone. (Refer to Distance.)

**Form**

The mass or shape of an object that appears unified; often defined by edge, outline, and surrounding space.

**General Procedure**

The Visual Impact Assessment Procedure used to evaluate studies that are preliminary or broad in scope, such as a Reconnaissance or basin study.

**Harmony**

The combination of parts into a pleasing or orderly whole; a state of agreement or proportionate arrangement of form, line, color, texture, and scale.

**Landscape**

Landform, water, and landcover forming a distant visual pattern; an expanse of natural and man-made scenery seen by the eye in one view.

**Landscape Compatibility**

The degree to which landscape elements/characteristics are unified within their setting.

**Landscape Composition**

The arrangement of objects and voids in the landscape that can be categorized by their spatial arrangement. Some spatial compositions, especially those that are distinctly focal, enclosed, detailed, or feature-oriented landscapes, are more vulnerable to modifications than panoramic, canopied, or ephemeral landscapes.

**Land Use**

Various human activities that impact the landscape in a variety of ways. Examples of land use types are industrial, commercial, residential, agricultural, recreational, and undeveloped.

**Land Use Intensity**

The degree to which a landscape is used by human activities. Examples of landscape intensity are urban, suburban, rural, and wilderness.

**Light Direction**

The direction from which light strikes a surface. Side lighting is usually the best situation for evaluating visual impacts. It is difficult to judge full visual impact under backlighting or full lighting.

**Line**

The path, real or imagined, that the eye follows when perceiving abrupt differences in form, color, or textures; usually evident as the edge of shapes or masses in the landscape.

**Management Class**

The designation given to a landscape resource that reflects its capability to support or assimilate visual impacts caused by projects. The five Management Classes are: Preservation, Retention, Partial Retention, Modification, and Rehabilitation.

**Middle Ground**

This is the distance in the landscape where elements begin to join. Conflicts of form, color, shape, or scale become evident. Although colors are unmistakable, they appear softer and bluer. Visual detail is also lessened. (Refer to Distance.)

**Minimal**

A resource or activity that may be looked upon as a liability in the area. It typically lacks any positive attributes and may actually diminish the quality of surrounding areas.

**Modification Class**

Landscape areas included in this class are not noted for their distinct qualities and are often considered common. Their use is moderate to heavy and typically not directly related to the visual resources of the areas. Management activities in these areas will cause visual change, but design and planning should recognize the need for visual compatibility, and the project itself should not dominate the resource.

**Motion**

The movement of visual resources, man, or objects in the landscape.

**Observer Angle**

See observer position.

**Observer Position**

The relationship between the location of the observer and the landscape that is being observed and how it affects the perception of the resource. The three viewer positions are inferior, normal, and superior.

**Panoramic Landscape**

A landscape with an unlimited, unobstructed view in all directions.

**Partial Retention Class**

Landscape areas included in this Management Class are often looked upon highly by local populations, but may not be protected by laws or institutional measures. Use in these areas are typically moderate and diverse. Management activities may cause visual change but should retain visual compatibility with the existing landscape. Changes that take place during the implementation of an activity must be unnoticeable within a year.

**Preservation Class**

Landscape areas included in this Management Class allow only ecological and natural change to occur. These areas are often protected by institutional policies. Use of the area is typically limited to off-road activities and may be low. Any Management activity in these areas must not be visible.

**Rehabilitation Class**

Landscape areas included in this Management Class have suffered from previously poor management practices. Use in these areas is typically low or non-existent, and the area is often considered a misfit or blighted area. Project features that enhance the resource would be included for project in areas in this class.

**Relative Scale**

The apparent size relationship between landscape components and their surroundings.

**Retention Class**

Landscape areas included in this Management Class are considered unique and distinct. Use in this area is typically moderate to low. Any management activity that would increase that use may be detrimental to the quality of the zone. These activities must also remain virtually unseen. Any changes taking place during the implementation of a project should be unnoticeable when the project is completed.

**Scale Contrast**

The difference in absolute or relative scale in relation to other distinct objects or areas in the landscape.

**Seasonal Change**

Change brought about by seasonal variation (i.e., vegetation color, density of foliage) that may affect visual perception of an area.

**Similarity Zone**

A physiographic area of land that has common characteristics of ecoregions, land use, land use intensity, and water resources. Similarity Zones are assigned to a specific Management Classification.

**Spatial Dominance**

The prevalent occupation of a space in a landscape by an object(s) or landscape element.

**Temporal Pattern**

The change of visual resources or objects in the landscape over time.

**Texture**

The visual or tactile surface characteristics and/or appearance of an object.

**Total Assessment Value**

The numerical value that represents the assessment of the visual resources of a Landscape Similarity Zone. The Total Assessment Value is determined by the Assessment Framework and the inventory of the resources in the Zone. The Total Assessment Value is used to assign a Zone to a Management Class.

**Total Visual Impact Assessment Value**

The value that represents the combination of the public and professional Visual Impact Assessment Values. The total Visual Impact Assessment Value is calculated in studies where there is a public assessment of visual impacts.

**Uniqueness**

An object or activity that is unusual or rare.

**User Activity**

Human behavior that can be evaluated in terms of kind (the variety of activities), use (the number of participating people), and degree or intensity (the frequency of the activity).



**Viewing Angle**

The angle at which an object is seen. This angle may affect the perception of that object by: (a) perceptive foreshortening when seen obliquely or at a low viewing angle, thereby reducing apparent sizes of surfaces or areas, and (b) increasing the object's relative scale when seen perpendicularly.

**Visibility**

The geographic extent of a resource and legibility of its features that can be seen by an observer(s), as determined by his/her location.

**Visual Absorption**

The physical capacity of a landscape to screen proposed development and still maintain its inherent visual character. The degree of visual penetration and the complexity of the landscape affect this capacity.

**Visual Character**

The character of a landscape is composed of patterns that consist of elements of form, line, color, and texture.

**Visual Compatibility**

The degree to which development with specific visual characteristics is visually unified with its setting.

**Visual Contrast**

The difference in appearance between two (or more) elements and/or an element and its background.

**Visual Dominance**

That visual object(s) that exerts the greatest influence on the visual character of the landscape.

**Visual Impact**

The significance and/or severity of change in visual resource quality as a result of activities or land use changes.

**Visual Impact Assessment Value**

The value that represents the visual impact caused by implementation of a proposed alternative. The Visual Impact Assessment Value is determined by the change in the landscape components, e.g., water resources.

**Visual Quality**

The visual significance given to a landscape determined by professional, public, or personal values and intrinsic physical properties of the landscape.

**Visual Resource**

Those natural and cultural features of the environment that can be potentially viewed.

**Visual Resource Considerations**

Primary considerations that should be considered prior to implementation of a Visual Impact Assessment Procedure. Institutional, technical, and public factors related to visual quality determine the significance of visual resources and visual impacts.

**Visual Sensitivity**

The degree of observer interest in visual quality and concern for existing conditions or proposed changes in the landscape.

**Visual Vulnerability**

An evaluation of a landscape's ability to accept change without diminishing visual quality.

**APPENDIX C  
GENERIC  
VISUAL-IMPACT  
CHECKLIST**

**Adapted from Dick and Smardon (1981)\***

**THE GENERIC VISUAL-IMPACT CHECKLIST: ACTIONS AND IMPACTS\***

- I. LAND MANAGEMENT: Agricultural Land Usage.
  - A. Use of herbicides.
    - Dead vegetation.
    - VEG\* Short-term adverse effect on visual quality until vegetation breaks down or is replaced.
  - B. Channelization projects.
    - LF Results in a straight ditch instead of a meandering streambed.
  - C. Drainage and irrigation projects.
    - VEG Change the landscape by changing the vegetation cover.
  - D. Water developments.
    - WATER Add the element of open water to the landscape.
    - Change the water element from meandering stream to open expanse of water.
  - E. Prescribed fire.
    - Returns landscape to previous condition.
  - F. Brush control, mechanical disruption of soil and vegetation.
    - VEG Temporary adverse effect on visual quality as a result of uprooted vegetation.
    - VEG Long-term improvement of visual quality of the landscape because of introduction of grass.
    - VEG Breaks up monotonous landscapes and creates pleasing patterns of change.
  - G. Grazing.
    - Presence of grazing animals.
    - Enhance interest for travelers.
  - H. Uncontrolled grazing.
    - VEG, LF Causes accelerated erosion or destruction of vegetation.
    - Sheet and gully erosion.
    - Increased turbidity.
    - Change in odor and clarity of water.
  - I. Structural range improvement; fences.
    - STR Introduction of structural elements in landscape.
    - Visual fragmentation of view.
    - Blocked or impaired view.
- II. POWER GENERATION: Power Plants.
  - A. Plant operation.
    - STR Scale dominance to existing landscape.
    - Introduction of stack plume.
    - Visibility degradation.
  - B. Building site cuts and fills, fences, and bulk-fuel loading.
    - Blocked or impaired views.
    - Concentrate demand on public view areas.
    - Cleared swaths across landscape.

\* See References at the end of the main text.

\*\* VEG = vegetation; LF = landform; STR = structure; LD = land.

LF VEG Marred natural landform and vegetation pattern.  
Highly visible slopes of disturbed cover.

### III. POWER TRANSMISSION: Overhead Transmission.

- A. Transmission route selection.
  - STR Visible poles and lines over streams, rivers, lakes, coastal areas.  
Increased visual access into previously inaccessible wetland or floodplain areas.
  - STR Unsightly intrusions within landscape.  
Increased desirability of unspoiled scenic areas.  
Overuse of areas and deterioration of scenic appeal.  
Congestion and overcrowding.
  - STR Highly visible vertical projections.
  - VEG Cleared swaths across landscape.
  - LF, VEG Marred natural landform and vegetation patterns.
- B. Site-preparation field office and storage yard.
  - General construction.
  - Clearing structural demolition and vegetation.
  - LF Earth work.  
Backfill and restoration.
- C. Removal of vegetation.
  - VEG Recognition that vegetation (except ground covers) has or will be removed for transmission line installation.
- D. Installation of overhead transmission.
  - STR Dominance because of extreme closeness.  
A structure located less than twice its height from observer.
  - STR Excessive variety of structures.  
More than one type of structure (e.g., H-frame or pole) in view and/or nonsynchronization of structure location.
  - STR, SKY Silhouette.  
Exposure of structures with the sky as partial or full background.
  - STR Focal interruption.  
The interruption of lines-of-sight to a focal point by a transmission line.
  - STR Concentration.  
A high density (real or apparent) of transmission structures in a localized area.
  - STR Spatial interruption.  
The apparent division of distinct landscape spaces or patterns by a transmission line. Space division is perceived from inferior viewing positions and pattern from normal or superior viewing positions and is usually related to middle ground.
  - STR Continual feature of extended view.  
Views along a right-of-way that extends from one distance zone to another, particularly through middle ground into background.
  - STR/LD Incompatible topographic alignment.  
Unsympathetic alignments that do not respect natural contours of existing landforms.
  - STR Scale dominance.  
Disparity in relative size of transmission structures and landscape elements (houses, barns) accentuated by proximity.

- LF Soil contrast as a result of grading.  
Observable cut or fill necessitated by transmission-line installation.
- STR Special-feature compatibility.  
The violation of landscape and/or cultural elements that are both singular and significant in a context of the project area as a whole (e.g., waterfalls, lakes, cultural centers).
- LF Edge violation.  
The visible crossing of a regional linear feature or line of transition from one landscape to another (e.g., valleys, ridge lines, or between different landscape types, such as forest-field or mountain-plain).
- E. Transmission towers.  
Rigid, unnatural appearance, medium contrast to the form, and lines expressed in natural landscape.
- IV. ACCESS STRUCTURES: Highways/roads
- A. Road alignments, cuts, fills, retaining walls, cribs, revetted embankments.
- LF, STR Drainage-way terraces.  
Contrast between natural landforms and engineering features of highway significant if visible from public recreation area, residential areas, or scenic highways.
- STR Urban or existing development patterns and engineering features of highway.  
Significant if visible from residential areas or from commercial operations that benefit from view.
- LF Increased prominence of land or landscape features visible from highways.  
Control or prevention of development that would visually degrade lands or landscape features prominently seen from highways.
- LF/STR B. Embankments (highway above grade), berms, elevated highway (on structures, fences, and barriers landscaping).  
Blocked viewlines along visual corridors (valleys, stream courses, streets).  
Severing of visual continuity of open-space network.  
Fragmentation of open-space expanse.  
Isolation of open-space areas from connection with larger open-space systems.  
Fragmentation of image of community or neighborhood as a discrete cohesive unit.  
Disorientation or confusion of visitor or resident.  
Blocked or reduced view from residential areas or commercial operations that benefit from view.  
Decreased residential and commercial property values and rents.  
Decreased patronage to commercial operations.  
Reduced affiliations to community by residents blocked off by highway.  
Blocked viewlines to landmarks in community from residential and recreational areas and commercial operations that benefit from view.  
Decreased patronage to commercial operations.
- STR Elevated or above-grade highway out of scale with adjacent urban development.



|     |  |
|-----|--|
|     | <p>Highway is dominant element in view of community or neighborhood.</p> <p>Scale of highway overpowers scale of community or neighborhood.</p> <p>Decreased property values.</p> <p>Contrast between scales.</p>  |
| LF  | <p>C. Fill slopes, grading cut slopes and faces, vegetation clearing.</p> <p>Highly visible erosion and/or bare earth or rock scars.</p> <p>Significant if visible from public recreation area, residential areas, or scenic highway.</p>  |
| VEG | <p>D. Landscaping of cut slopes, fill slopes, graded areas; landscaping of median strips and highway shoulders; revegetation of cut slopes, fill slopes, graded areas; revegetation of highway shoulders.</p> <p>Contrast between existing vegetation and revegetated or landscape area.</p> <p>Significant if visible from public recreation area, residential areas, or scenic highways.</p> |
| STR | <p>E. Night lighting, vehicle reflections, vehicle lights, vehicle movement.</p> <p>Glare visible in recreational or residential areas.</p> <p>Visual distraction from pursuit of recreational, residential, or commercial activities.</p>   |

#### V. WATER RESOURCE DEVELOPMENT: Impoundment

##### WATER, STR A. Impoundment.

|       |  |
|-------|--|
|       | <p>Block viewlines along visual corridors (valleys, stream courses).</p> <p>Opening of viewsheds.</p> <p>Protection of open space.</p> <p>Severing of visual continuity of open-space network.</p> <p>Fragmentation of open-space expanse.</p> <p>Isolation of open-space areas from connection with larger open-space systems.</p> <p>Introduction of water as a visual element.</p> <p>Recreation opportunities.</p> |
| LF    | <p>B. Grading, flooding, draining, filling, clearing.</p> <p>Creation of permanent, highly visible landscape (drawn-down rim, shoreline clearing, cut and fill faces) that vividly contrast with surrounding landscape.</p>  |
| VEG   | <p>Creation of areas of highly visible dead, dying, decaying, or unhealthy vegetation.</p> <p>Degradation of visual attraction of area to residents and visitors.</p> <p>Degradation of recreational potential.</p>  |
| LF    | <p>Creation of mudflats (drawndown rim), erosion scars.</p> <p>Loss of visual appeal to residents, recreational users, or visitors.</p> <p>Degradation of recreational potential.</p>  |
| VEG   | <p>Exposure of stumps and vegetation debris.</p> <p>Degradation of visual attraction of area to residents and visitors.</p>  |
| STR   | <p>Engineering feature of the project out of scale with landscape.</p> <p>Significant if visible from public recreation areas, residential areas, or scenic highways.</p>  |
| WATER | <p>Water body out of scale and character with surrounding</p>  |

landscape.

Significant if visible from public recreation areas, residential areas, or scenic highways.

## VI. WASTE TREATMENT AND INDUSTRIAL PROCESSING

### A. Wastewater treatment systems.

- STR Night lighting, vehicle reflections, vehicle lights.  
Glare visible in recreational or residential areas.  
Pipelines.
- STR Storage of unattractive materials, equipment, and unsightly excavation piles.  
Temporary decrease in visual access of surrounding areas (e.g., residential and commercial views).
- STR Landscaping, project structural facilities (tanks, ponds, operations building, incineration facilities).  
Alteration and/or blocking of viewlines to scenic attractions from public viewing areas (scenic highways, public recreation areas).  
Alteration and/or blocking of viewlines to scenic attractions from commercial operations that benefit from affected view.  
Decrease in profits to operation.  
Decrease in commercial property values.  
Alteration and/or blocking of viewlines to scenic attractions from existing or potential residential development.  
Decrease in property values.  
Alteration and/or blocking of viewlines along visual corridors (valleys, stream courses, streets).  
Severing of visual continuity of open-space network.  
Fragmentation of open-space expanse.  
Isolation of open-space areas from connection with larger open-space systems.  
Siting of project in open-space area that forms vivid edge of community and distinguishes community from adjacent communities.  
Blurring of community definition as a distinguishable unit.  
Fences, project structural facilities.
- STR, LF Contrast between natural landforms and engineering features of project.  
Significant if visible from public recreation area, residential areas, scenic highways, or commercial operations that benefit from affected view.
- STR Contrast between urban or commercial development pattern and engineering features of project.  
Significant if visible from residential areas or from commercial operations that benefit from affected view.  
Berms, fills, grading, cut slopes and faces, vegetation--clearing-treatment lagoons.
- LD Highly visible erosion and/or bare earth or rock scars.  
Significant if visible from public recreation area, residential areas, scenic highways, or commercial operations that benefit from affected view.  
Landscaping of cut slopes, fill slopes, graded areas; revegetation of cut slopes, fill slopes, graded areas.
- VEG Contrast between existing vegetation and revegetated or landscaped area.  
Significant if visible from public recreation area, residen-

|         |   |
|---------|---|
|         | tial areas, scenic highways, or commercial operations that benefit from affected view.  |
| LF      | <p>B. Solid-waste-disposal activities.</p> <p>Landfills of trash and garbage.</p> <p>Blown to adjacent property or into water.</p> <p>Litter left on beach.</p> <p>Attraction of insects, gulls, and rodents.</p> <p>Physical annoyance, disease vectors.</p> <p>Broken glass, sharp objects, rusty debris.</p> <p>Bodily injury.</p> <p>Increased public disregard for area.</p> <p>Increased litter, vandalism, misuse.</p> <p>Olefactory discomfort.</p>       |
| LF, STR | <p>Automobile junkyards.</p> <p>Low compatibility with surrounding landscape (can be ameliorated to some extent by fencing).</p> <p>Intrusion within visual scene.</p> <p>Increased desirability of unspoiled scenic areas.</p> <p>Overuse and deterioration of scenic appeal.</p> <p>Congestion and overcrowding.</p> <p>Offshore disposal of solid wastes.</p> <p>Accumulated organic sludge on bottom.</p> <p>Introduction of sewage and industry liquors.</p> |
| WATER   | <p>Unappealing water color and noxious odor.</p> <p>Intrusion within coastal scene.</p> <p>Increased desirability of unspoiled scenic areas.</p> <p>Overuse and deterioration of scenic appeal.</p> <p>Congestion and overcrowding.</p> <p>Landfill operation and completion.</p>   |
| LF      | <p>Visual impact of new landform in creation and completion.</p> <p>Possible blocking of views.</p>   |
| LF      | <p>Shape, height, and form incompatible with immediate surroundings.</p> <p>New land use stimulated by completion of the landfill may be compatible with immediate surroundings.</p>  |
| LF, VEG | <p>Final landscaping may add or detract from final landform.</p>  |
| STR     | <p>C. Manufacturing/industrial operation.</p> <p>New plant construction/operation.</p> <p>Low compatibility of manufacturing activity located within sight of a recreational facility, historical area, or unique ecological setting.</p>   |
| STR     | <p>Vertical structures of the plant visible from great distances.</p> <p>Building colors and design conflict with natural coloration and surroundings.</p>  |
| SKY     | <p>Plant gaseous emissions visible great distances.</p> <p>Power pylons and wires; bulk refining and processing utilities.</p>  |
| STR     | <p>High visible projections.</p> <p>Intrusions within the view.</p>   |
| STR     | <p>Power pylons and wires; utilities, fences, railroads, tanks, elevators and warehouses, building-site cuts and fills, structures solid waste disposal, bulk refining and processing.</p> <p>Visual intrusions.</p> <p>Increased desirability of unspoiled scenic areas.</p> <p>Overuse and deterioration of scenic appeal.</p>  |

LF, VEG

Congestion and overcrowding.  
Blocked or impaired views.  
Concentrated demand on public-view areas.  
Increased demand on public-view areas.  
Congestion and overcrowding of area.  
Overuse and deterioration of area and facilities.  
Insufficient space to accommodate parking.  
Building-site cuts and fills.  
Cleared swaths across landscape.  
Marred natural landform and vegetation pattern.  
Highly visible slopes of disturbed cover.  
Marred natural landform and vegetation pattern.