Introducing FHWA's New Visual Impact Assessment Process

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Introducing FHWA’s New VIA Process

The Problem

The Research

The Solution
Part 1:
The Problem
How do we make our surroundings aesthetically pleasing?
• Landscapes are different than works of art.

• We create and admire art as individuals.

• We create and live together, as a community, in a landscape.

• Art, therefore, tends to be more idiosyncratic; landscapes more communal.
Systems Approach
1972

Habitat Approach
1975

Cross-Cultural Approach
2012
Transactional Approach

Perception is an interaction between the environment and viewers. As Appleton notes in his *The Experience of Landscape*:

“Dewey’s main message is that beauty resides neither intrinsically in ‘beautiful’ objects nor ‘in the eye of the beholder’, but that it is to be discovered in the relationship between the individual and his environment, in short, what he calls ‘experience’.”

*Dewey, 1934*
Visual Resources

Viewers

Visual Quality

**Visual Quality** is simply the value people place on their relationship with the visual resources found in their environment.

**Visual Impacts** are simply how these relationships are affected by a proposed action.
Minnesota Department of Transportation

Visual Impact Assessment Process

1987-1992
Whose responsibility is it to ensure that we have aesthetically pleasing surroundings?

- Individuals or Families?
- Businesses or Commercial Enterprises?
- Neighborhoods or Communities?
- Social Institutions and Organizations?
- Local, State, Tribal, Federal Governments?
- Professional Designers?
Responsibility and Authority

“It is the continuing responsibility of the Federal Government to use all practicable means . . . to improve and coordinate Federal plans, functions, programs, and resources to the end that the Nation may... assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings.”

National Environmental Policy Act of 1969
VISUAL IMPACT ASSESSMENT PROCESS CONCEPT DIAGRAM (FHWA) WORKSHEET

Visual Resources (Stimulus)

- Change to Visual Character
- Change to Visual Quality
  \[(VC + VQ) / 2\]
  \[\text{Resource Change}\]

Viewers (Response)

- Viewer Exposure
- Viewer Sensitivity
  \[(VE + VS) / 2\]
  \[\text{Viewer Response}\]

\[\frac{(|\text{Absolute Value of RC|} + VR)}{2}\]

Visual Impact *

* Type of impact (positive or negative) is determined by direction of Resource Change (+/-).
Issues with the FHWA VIA process

• Complex, time-consuming, and difficult to follow
• Inconsistently and arbitrarily applied
• Expert driven with little public involvement
• Not reflective of contemporary research
Part 2: The Research
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NCHRP 741 Process:

- State Survey
- Literature Review
- VIA Document Reviews
- Evaluation Criteria
- 5 Case Studies
- Best Practices
How can we design our highways and streets to avoid adverse visual impacts to the harmony of the natural environment?
How can we design our highways and streets to avoid adverse visual impacts to the order of our cultural environment?
How can we design our highways and streets to avoid adverse visual impacts to the visual cohesion of the project corridor?
NCHRP Findings: Administrative Best Practices

- Complies with NEPA
- Practical, efficient, effective
- Scientifically and legally robust
- Involves the public
- Conducted by qualified personnel
- Tailored to any project setting, type, and scale
- Contributes to location and design decisions
- Provides reference for consistent use of terms, methods, and techniques
Part 3:
The Solution
GUIDELINES FOR THE VISUAL IMPACT ASSESSMENT OF HIGHWAY PROJECTS

Federal Highway Administration

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Publication in 2014
CHAPTERS
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Regulatory Context
VIA Basics
Establishment Phase
Inventory Phase
Analysis Phase
Design Phase

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VIA Scoping Questionnaire
Types of VIA Documents
Field Reconnaissance Techniques
Photo Simulations
Visual Character Terminology
Prepared Statements for Environmental Documents
Establishment Phase

Inventory Phase

Analysis Phase

Design Phase
Establishment Phase

Inventory Phase

Analysis Phase

Design Phase
Process and Products

- Determine *legal context*
- Define the *proposed project’s rudimentary visual character*
- Determine *appropriate level of VIA analysis*
- Define the *Area of Visual Effect (AVE)*
- Establish *key views*
Process and Products

- **Determine legal context**
  - Federal
  - State
  - Local

- **Define the proposed project’s rudimentary visual character**
  - Scale
  - Form
  - Materials
Process and Products

- Determine appropriate level of VIA analysis

The new FHWA VIA process includes an initial screening for differentiating the levels of effort necessary for conducting a VIA based on project complexity.
Process and Products

• Define the Area of Visual Effect (AVE)
  • Physical constraints of the environment
    ✓ Landform
    ✓ Land Cover
  • Physiological constraints of human perception
    ✓ Location
    ✓ Proximity
    ✓ Light
    ✓ Psychology
• Establish Key Views
Establishment Phase

- Affected environment
- Affected population
- Visual quality
Visual Impact Assessment Process

Establishment Phase

Inventory Phase

Analysis Phase

Design Phase

Inventory Phase
Process and Products

• Identify visual resources
  • Natural
  • Cultural
  • Project

• Identify viewers
  • Neighbors
  • Travelers

• Identify existing visual quality and visual preferences
  • Natural Harmony
  • Cultural Order
  • Project Coherence

Inventory Phase
How can we design our highways and streets to avoid adverse visual impacts to the harmony of the natural environment?
How can we design our highways and streets to avoid adverse visual impacts to the order of our cultural environment?
How can we design our highways and streets to avoid adverse visual impacts to the visual cohesion of the project corridor?
Process and Products: Establishing a Visual Quality Management Plan

- Determine Visual Preferences
- Establish Visual Goals and Objectives
- Instruments to Protect Existing Visual Quality
- Strategies for Improving Visual Quality

Inventory Phase
Establishment Phase

Inventory Phase

Analysis Phase

Design Phase
Process and Products

• Identify visual impacts by alternative
• Identify what is impacted and how it is impacts
  • Absorption capacity of visual resources to changes in visual character
  • Tolerance of viewers to visual changes
  • Value of change to visual quality
• Rank, not rate, alternatives
Analysis Phase

*Compatibility of the Impact:* The ability of environment to visually absorb the proposed project.

*Sensitivity to the Impact:* The ability of viewers to see and care about a project’s impacts.

*Value of the Impact:* A beneficial, adverse, or neutral change to visual quality.
Establishment Phase

Inventory Phase

Analysis Phase

Design Phase
Process and Products

- Identify mitigation measures
  - Avoidance
  - Reduction
  - Minimization
  - Compensation

- Identify enhancement opportunities
  - Addition of harmonious, orderly, or cohesive visual resources or views
  - Removal of disharmonious, disorderly, or incoherent visual resources or views
### Table 7-1. Direction for Developing Mitigation Measures by Impact Type

<table>
<thead>
<tr>
<th>Impact Type</th>
<th>Mitigation Measure Type</th>
<th>Environment (Visual Resources of the Natural, Cultural, or Project Environments)</th>
<th>Viewers (Visual Experience of Travelers and Neighbors)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adverse</td>
<td>Avoidance</td>
<td>Choose options that maintain the quantity and quality of existing visual resources</td>
<td>Maintain existing views for all viewer groups</td>
</tr>
<tr>
<td></td>
<td>Minimization</td>
<td>Choose option that does the least harm to existing visual resources</td>
<td>Maintain to the largest extent possible existing views for most viewer groups</td>
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<tr>
<td></td>
<td>Compensation</td>
<td>Replace adversely affected resource with the same type of resource</td>
<td>Re-establish similar views of the same visual feature</td>
</tr>
<tr>
<td></td>
<td>Compensation</td>
<td>Provide substitute for affected resource</td>
<td>Create substitute views of similar visual features or other interesting features</td>
</tr>
<tr>
<td>Beneficial</td>
<td>Enhancement</td>
<td>• Remove degraded resources</td>
<td>• Screen undesirable views</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Rehabilitate degraded visual resources</td>
<td>• Create desirable views</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Add complementary visual resources to the natural, cultural, or project environments</td>
<td></td>
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Design Phase
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