Session 9: Street Smarts with Complete Streets

NCHRP  Report 741
Evaluation of Methodologies for Visual Impact Assessment

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United Kingdom
Presentation

Part 1
The Issue

Part 2
The Study

Part 3
The Solution
Part 1
The Issue
NEPA Delegation

USDOT assigned the authority, responsibility and accountability to implement NEPA to Caltrans
Introductory Class Exercise

- Determine attractive and unattractive features as an individual; with a partner; and as a team
- Rank most attractive to least attractive as a team
- Compare team rankings

Most Attractive

Least Attractive
Systems Approach 1972

Habitat Approach 1975

Cross-Cultural Approach 2012

Landscapes are different than works of art.

We live together, as a community, in a landscape.

We admire art as individuals.
Transactional Approach

Perception as 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 Quality = Visual Resources + Viewers**

*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.
MnDOT VIA Process, 1987

VISUAL IMPACT ASSESSMENT PROCESS CONCEPT DIAGRAM (FHWA) WORKSHEET

Visual Resources (Stimulus)
- Change to Visual Character
- Change to Visual Quality
  \[(VC + VQ) / 2\]
  - Resource Change
  \[[(\text{Absolute Value of RC}) + VR] / 2\]
  - Visual Impact *

Viewers (Response)
- Viewer Exposure
- Viewer Sensitivity
  \[(VE + VS) / 2\]
  - Viewer Response

* Type of impact (positive or negative) is determined by direction of Resource Change (+/-).

STATUS OF VIA STANDARDIZATION

<table>
<thead>
<tr>
<th>LEVEL OF VIA STANDARDIZATION</th>
<th>Standard VIA Used</th>
<th>No Standard VIA</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series1</td>
<td>14</td>
<td>-34</td>
<td>-2</td>
</tr>
</tbody>
</table>

Graph showing the status of VIA standardization with positive and negative responses.
Part 2
The Study
NCHRP Report 741

- Executive Summary
- Literature Review
  - Legal and Scientific Critiques
  - Procedural Critiques
  - Project Critiques
- State Survey
- Evaluation Criteria
- Case Studies
  - Colorado
  - Minnesota
  - Vermont
  - Washington State
  - Scotland, United Kingdom
- Best Practices
Synthesize NCHRP Report 741
Findings of Best Practices

§ Conceptual Requirements
§ Procedural Requirements
§ Documentation Requirements
§ Manual Requirements
Best Practices

VIA Conceptual Requirements
VIA Conceptual Requirements

*Scientifically defensible*

- Consistent with peer-reviewed research
- Consistent with the field of environmental psychology
  - visual quality is transactional
  - visual quality = visual resources + viewer perception
  - visual impacts = changes to visual quality
- Appropriate use of measurement systems
VIA Conceptual Requirements

*Includes the public in the process*

- Establish Visual Preferences
- Assess or Verify Visual Impacts
- Identify or Verify Mitigation
- Identify or Verify Enhancements
VIA Conceptual Requirements

*Inclusive and flexible*

- Project Types
- Project Setting
- Project Scale
- Project Impacts
Best Practices

VIA Procedural Requirements
VIA Procedural Requirements

Administratively practical

- Easily implemented
- Easily understood
- Affects decisions
  - Location
  - Design
  - Mitigation
  - Construction
  - Operations and Maintenance
VIA Procedural Requirements

**Defines Area of Visual Effect and Key Views**

- Establish Area of Visual Effect (AVE)
  - Digital Terrain Model
  - Obscuring Elements
- Establish Key Views
  - Iconic
  - Representative
VIA Procedural Requirements

Identifies visual resources

- What
  - Natural Environment
  - Cultural Environment
  - Corridor Environment
- Visual Character
- Impact Tolerance (Absorption Capacity)
VIA Procedural Requirements

*Identifies viewers*

- **Who**
  - § Neighbors with views of the road
  - § Travelers with views from the road
- **Visual Preferences**
- **Impact Tolerance (Sensitivity)**
VIA Procedural Requirements

Identifies visual quality

• As the value viewers place on visual resources
  § Natural Harmony
  § Cultural Order
  § Project Coherence

• Determining baseline conditions
  § Existing Scene
  § Future No-Build Scene
  § Ideal Scene (Visual Quality Management Objective)

• Determining future build conditions
VIA Procedural Requirements

Identifies visual Impacts by alternative using key views

• Identify what is impacted
  § Visual Resources
  § Viewers
  § Visual Quality

• Identify how it is impacted
  § Adverse
  § Beneficial
  § Neutral
VIA Procedural Requirements

*Must compare alternatives*

- Rank impacts to viewers
- Rank impacts to visual resources
- Rank impacts to visual quality
VIA Procedural Requirements

*Identifies mitigation measures*

- Avoidance
- Minimization
- Compensation
VIA Procedural Requirements

Identifies enhancement opportunities

• Visual Resources
  § Natural
  § Cultural
  § Corridor

• Views
  § Neighbor
  § Traveler

• Visual Quality
  § Natural Harmony
  § Cultural Order
  § Corridor Coherence
Best Practices

VIA Documentation Requirements
VIA Documentation Requirements

*Identifies and complies with legal requirements*

- NEPA compliance
- Other federal requirements
  - § laws
  - § administrative rules and orders
  - § court rulings
- State requirements
- Local requirements
- Interagency coordination
- Policy and program coordination
VIA Documentation Requirements

*Identifies the VIA procedure it used*

- FHWA VIA Procedure
- Other Federal VIA Procedure
- State or Agency-Specific Procedure
- Amalgamated or Other Procedure
VIA Documentation Requirements

*Identifies its authors*

- Name
- Profession
- Organization
- Contact Information
- Years of Experience
VIA Documentation Requirements

**Findings are accurately portrayed in environmental review documents**

- Accurate summary of findings
  - Process
  - Inventory
  - Assessment
  - Mitigation
  - Enhancements
- Sufficiently robust
- Coordinated with other findings
- Concurrence by the VIA author
Part 3
The Solution
Best Practices

VIA Manual Requirements
VIA Manual Requirements

Allows VIA to be tailored to project scope

• Provide threshold worksheet
• Provide typical outline
  § Simple VIA
  § Intermediate VIA
  § Complex VIA
• Provide examples of each level for reference
Change to the Visual Environment – SER Question 2

Will the project complement or contrast with the visual character desired by the community?

Highly incompatible (3)
Somewhat incompatible (2)
Somewhat compatible (1)
<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>MINOR</th>
<th>MODERATE</th>
<th>ADVANCED</th>
<th>COMPLEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscape Units</td>
<td>One</td>
<td>Multiple</td>
<td>Multiple</td>
<td>Multiple</td>
</tr>
<tr>
<td>Controversy – At the most it will generate:</td>
<td>None/Limited</td>
<td>Local</td>
<td>State-wide organized opposition</td>
<td>Nationally organized opposition</td>
</tr>
<tr>
<td>Alteration of Visual Environment</td>
<td>Minor</td>
<td>Moderate</td>
<td>Substantial</td>
<td>Substantial, even significant</td>
</tr>
<tr>
<td>Viewer Groups</td>
<td>Neighbors and travelers</td>
<td>Neighbors and travelers</td>
<td>Some specific types of neighbors and travelers</td>
<td>Many specific types of neighbors and travelers</td>
</tr>
<tr>
<td>Key View Points</td>
<td>One or few</td>
<td>Multiple</td>
<td>Multiple</td>
<td>Multiple</td>
</tr>
<tr>
<td>Viewer Sensitivity</td>
<td>Low</td>
<td>Moderate</td>
<td>High</td>
<td>Very high</td>
</tr>
<tr>
<td>Compatible with Local Plans</td>
<td>Typically compatible</td>
<td>May be compatible</td>
<td>May conflict</td>
<td>May conflict</td>
</tr>
<tr>
<td>Impacts to Scenic Resources</td>
<td>None or limited</td>
<td>Potential</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Cumulative Impacts</td>
<td>None significant</td>
<td>Potentially significant</td>
<td>Significant</td>
<td>Significant</td>
</tr>
<tr>
<td>Permits</td>
<td>Unlikely</td>
<td>Potential</td>
<td>Likely</td>
<td>Very likely</td>
</tr>
<tr>
<td>Legal Challenge</td>
<td>Unlikely</td>
<td>Unlikely</td>
<td>May be challenged</td>
<td>Likely to be challenged</td>
</tr>
<tr>
<td>Simulations</td>
<td>Unlikely</td>
<td>Stills of key views potentially used</td>
<td>Multiple stills typically used</td>
<td>Multiple stills and animations used</td>
</tr>
</tbody>
</table>

THE SCOPING PROCESS – Levels of Assessment
VIA Manual Requirements

Offers and articulates a preferred VIA method

- Provide guidance for conducting an inventory
  - Visual Resources
  - Viewers
  - Visual Quality

- Provide guidance for conducting an analysis
  - Impacts by alternative using key views
  - Comparison of alternatives

- Provide guidance for mitigating adverse impacts
  - Avoid, minimize or compensate adverse impacts to visual quality

- Provide guidance for incorporating beneficial impacts
  - Mend, improve, modify, or add visual resources or views
<table>
<thead>
<tr>
<th>CONTENT</th>
<th>MINOR</th>
<th>MODERATE</th>
<th>ADVANCED</th>
<th>COMPLEX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pages</td>
<td>1-3, Memorandum</td>
<td>5-10, Report</td>
<td>10-30, Report</td>
<td>40+, Report</td>
</tr>
<tr>
<td>Project Description</td>
<td>Brief description</td>
<td>Description with corridor map and typical section</td>
<td>Detailed description with detailed maps and cross-sections</td>
<td>Detailed description with detailed maps and cross-sections</td>
</tr>
<tr>
<td>Pre-Conditions</td>
<td>General and descriptive</td>
<td>Detailed generalized description supplemented with photographs and maps</td>
<td>Detailed specific descriptions, photographs and maps</td>
<td>Detailed specific descriptions, photographs and maps</td>
</tr>
<tr>
<td>Viewers</td>
<td>General and descriptive</td>
<td>Generally describe viewer exposure and sensitivity</td>
<td>Describe viewer exposure and sensitivity by viewer group</td>
<td>Describe viewer exposure and sensitivity by viewer group</td>
</tr>
<tr>
<td>Level of Analysis</td>
<td>General and descriptive</td>
<td>Changes to vividness, intactness, unity described by viewpoints and landscape units</td>
<td>Changes to vividness, intactness, unity calculated by viewpoints and landscape units</td>
<td>Changes to vividness, intactness, unity calculated by viewpoints and landscape units</td>
</tr>
<tr>
<td>Simulations</td>
<td>None to one</td>
<td>One to a couple of stills</td>
<td>Multiple stills typical; animation as necessary</td>
<td>Multiple stills typical; animation frequently used</td>
</tr>
<tr>
<td>Mitigation (No mitigation for CEQA CE projects)</td>
<td>None to minor described</td>
<td>Minor to some described, possibly simulated</td>
<td>Detailed descriptions and simulations</td>
<td>Detailed descriptions and simulations</td>
</tr>
<tr>
<td>Cumulative Impacts</td>
<td>None</td>
<td>General description</td>
<td>Detailed description</td>
<td>Detailed description with simulations</td>
</tr>
<tr>
<td>Executive Summary</td>
<td>No</td>
<td>Yes, paragraph to page</td>
<td>Yes, several separate pages</td>
<td>Yes, several separate pages</td>
</tr>
</tbody>
</table>
VIA Manual Requirements

Offers technical advice for completing VIA

- Establishing the Area of Visual Effect (AVE)
- Establishing key views
- Mapping
- Writing descriptive narratives
- Composing photographs
- Creating simulations
- Measuring and measurement
- Incorporating public involvement
Creating Visual Assessment Units

Landscape Units

Viewsheds

Visual Assessment Units
VIA Manual Requirements

*Useful and practical*

- **Provide Guidance**
  - Conceptual Requirements
  - Procedural Requirements
  - Documentation Requirements

- **Provide Tutorial**
  - Course Guide
  - Self-Teaching Guide

- **Provide References**
  - Methodological and Technical
  - VIA examples
  - VIA literature
  - Agencies and programs

- **Provide Glossary**
Ø3-D Model Photo-Realism – Computer Simulation
VIA Manual Requirements

**Approach and Schedule**

- **Lead authors**
  - Craig Churchward, Avenue Design Partners, Minneapolis
  - Jen Stock, ICF International, San Francisco

- **Schedule**
  - Draft due July 2013
  - Final due August 2013
  - Publication anticipated late 2013
  - Training available, early 2014
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