

Aesthetics & Landscape Architecture

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Aesthetics & Landscape Architecture Overview

- CSD Principle 6: Aesthetic Integration
- Visual Impact Assessment (VIA)
- Aspects of aesthetic design
- Visual design elements
- Aesthetic Design Guidance
- Integration of Landscape Architecture
- VIA Video

CSD Principle 6:



- “Incorporate aesthetics as an integral part of good design”
- WHY ??

Aesthetics is not something that you add or tack onto a project to make it visually successful...

Aesthetics must be integrated early and continuously in project development.

WHY ??



A Perspective on Highway Aesthetics

“Over the years the highway engineers have increasingly enlisted landscape architects, and more recently architects and city planners, to aid them in highway location and design. Note that includes location as well as design. Esthetics must be an important consideration from the beginning; it is not a trimming to be tacked on after the location is settled and the design details are half done.”

Rex Whitton (Federal Highway Administrator) 1964

Authoritative Basis

- Highway Beautification Act of 1965
- Historic Preservation Act of 1966
- Federal-Aid Highway Act of 1968 [Section 4(f) of DOT Act]
- National Environmental Policy Act of 1969
- Intermodal Surface Transportation Efficiency Act of 1991
- National Highway System Designation Act of 1995
- Transportation Equity Act for the 21st Century of 1999

Authoritative Basis

" It is hereby declared to be the national policy that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites...

[Section 4(f) in Federal-Aid Highway Act of 1968]

It is the "continuous responsibility" of the federal government to "use all practicable means" to "assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings."

[National Environmental Policy Act of 1969]

Authoritative Basis

" The new statute (23 USC 109 as stated on page 6 of the NHS Designation Act of 1995) gives broader authority for design issues than has ever been presented to engineers before, taking into consideration environmental, scenic, aesthetic, historic, community and preservation impacts. You could go back to your local jurisdictions and ask for someone to adapt the federal code to the state system."

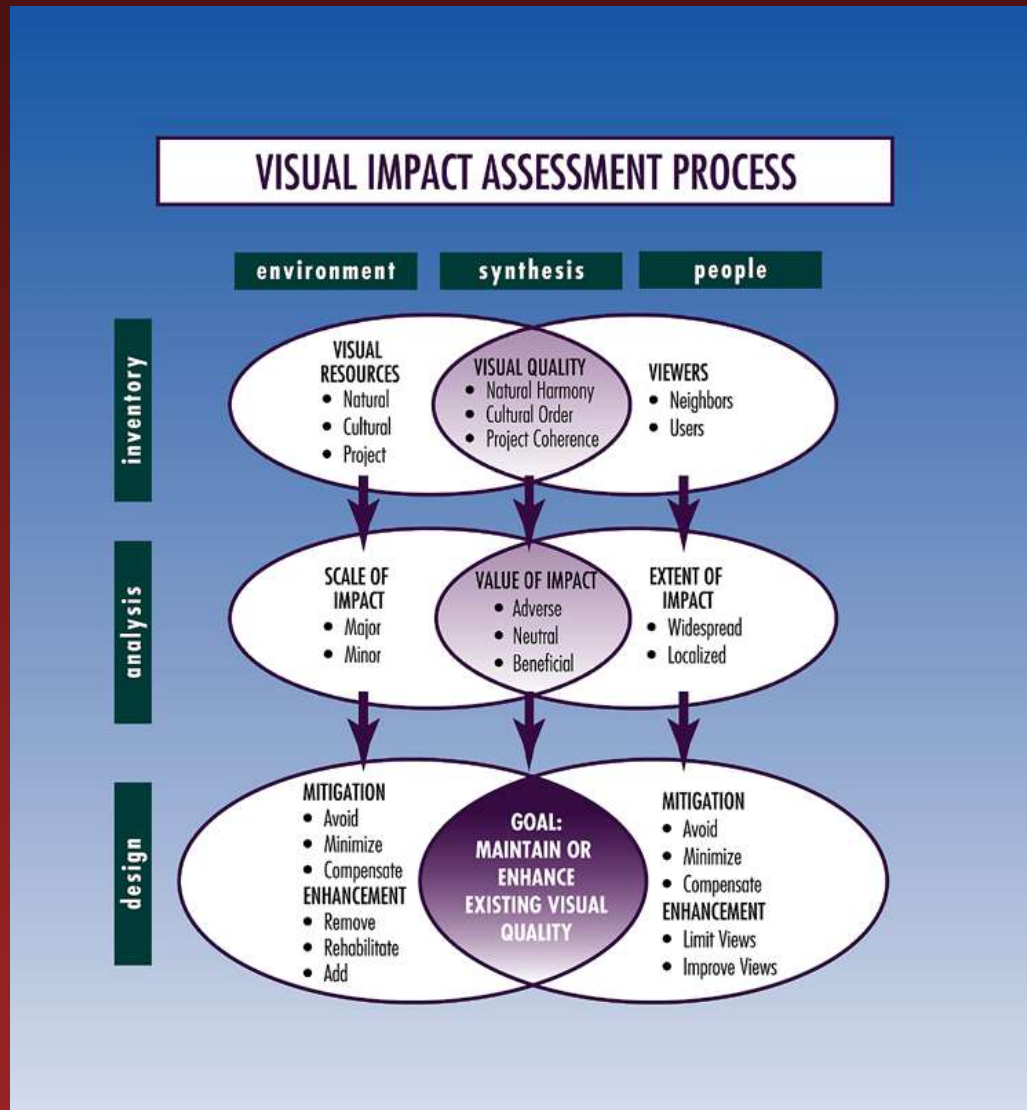
Pamela Brown (former Deputy Counsel to MSHA)
May 1998 - Thinking Beyond the Pavement Nat'l. Workshop

Visual Quality



A description of the relationship between viewers and their environment and a composite of their perceived sense of:

- Natural Harmony
- Cultural Order
- Design Integrity (or Project Coherence)



* Refer to Mn/DOT's VIA Video on CD

Visual Quality of Highways

- Road Surfaces & Alignment
- Roadside Environment & Beyond
- Bridges and Structures
- Appurtenances
- Highway-Related Facilities

Road Surfaces & Alignment





Roadside Environment



Bridges and Structures



Appurtenances (Computer Simulation)

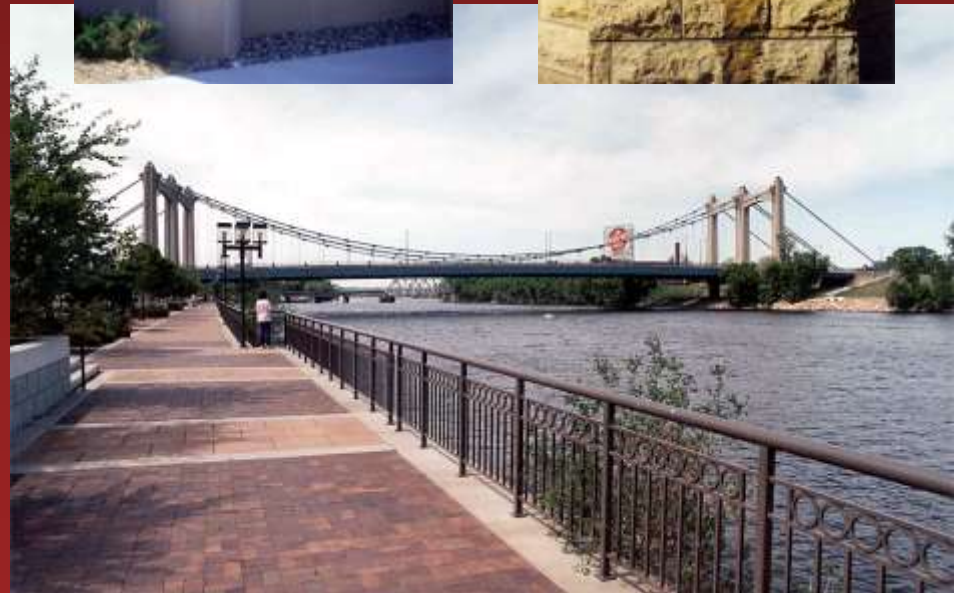


Highway-Related Facilities



Fundamentals of Aesthetic Design

- Form
- Character
- Detail
- Scale
- Proportion



Form

- The shape, contour or external structure of something
- Form follows function as a basis for good design... generally it should not run counter to it

Form



Character

- A combination of qualities and peculiarities that distinguishes something
- Character is place-sensitive and gives places meaning ... "place-sensitive" design
- Roadways are always part of an experience that can contribute to the "sense of place"



Character





Character



Detail

- A secondary part and yet important to the completeness and finish of the whole.
- Affects perception and perceived attention to beauty
- Expresses or clarifies function and scale
- Adds interest and aesthetic appeal



Detail



Color



Tropme L'oeil "Deceiving the eye"



Architectural Concrete



Scale

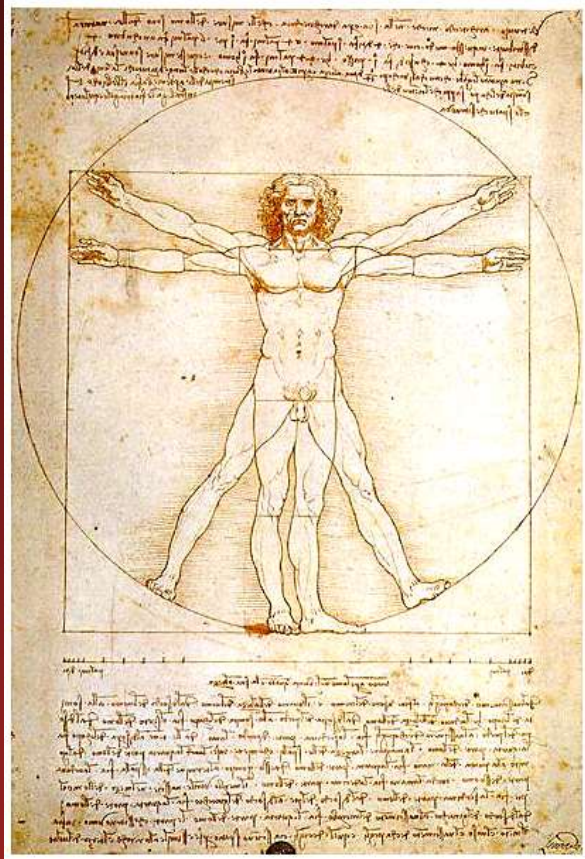
- Scale describes relative size relationships
- Our perception and experience of scale is often relative to the size of a person ("human scale")

Scale



Proportion

- The magnitude, number or degree relationships of the parts to each other and to the whole
- Affects comparisons and visual judgments
- Creates beauty through balanced and harmonious geometric relationships



Vitruvian Man & "PHI"
"Divine" Proportion ?

Proportion



Visual Design Elements

- Paving
- Bridges
- Retaining Walls
- Noise Barriers
- Grading
- Signing
- Lighting
- Landscaping
- Fencing
- Ponds and Wetlands
- Transit Facilities
- Pedestrian and Bicycle Facilities
- "View Sheds"

Pavement Color





Bridges





Retaining Walls





Noise Barriers





Grading



Signing



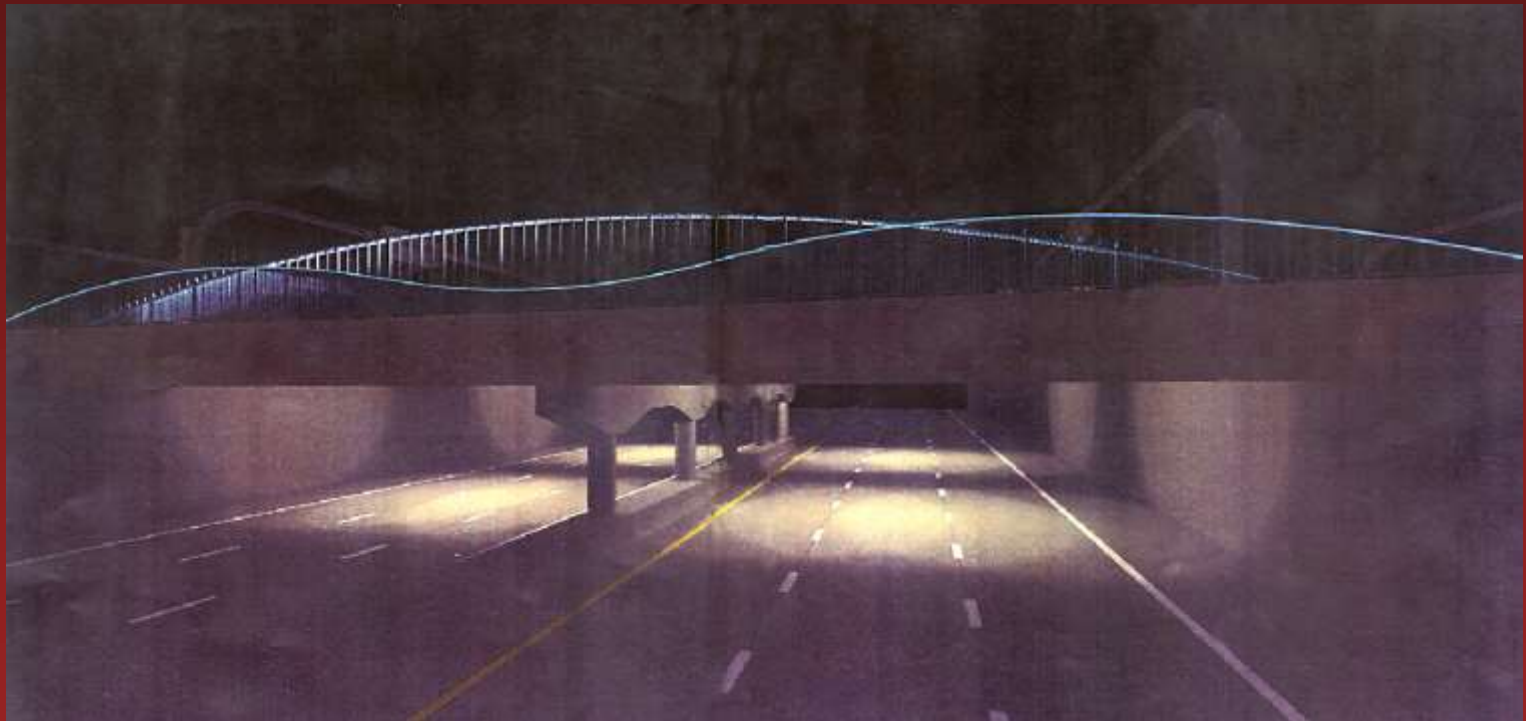


Lighting



Architectural Lighting

(Computer Simulation)





Landscaping





Fencing



Ponds & Wetlands





Transit Facilities



Pedestrian & Bicycle Facilities



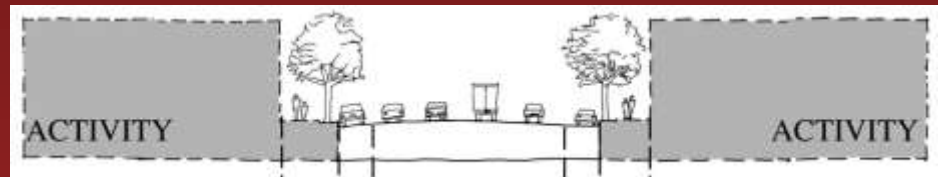
View Shed ("Field of Vision")

The 3 - dimensional design of the physical environment, surrounding and including transportation ways, informs and influences movement, activity and behavior.



- From a "drivers" perspective, the design of a view shed is critical in visually reinforcing appropriate speed and necessary decision making by the driver.
- From a "resident or merchant" perspective along a roadway,, design of a quality view shed is critical in visually reinforcing a sense of economic, social and environmental health, safety, and welfare for activity along the roadway.

30-35 mph



40-45 mph



50-55 mph



View Shed Example: Excelsior Boulevard



Cue to speed up or slow down ?

View Shed Example:



Cue to speed up or slow down ?

Hypothesis...

(Transportation & Land Use Planning)

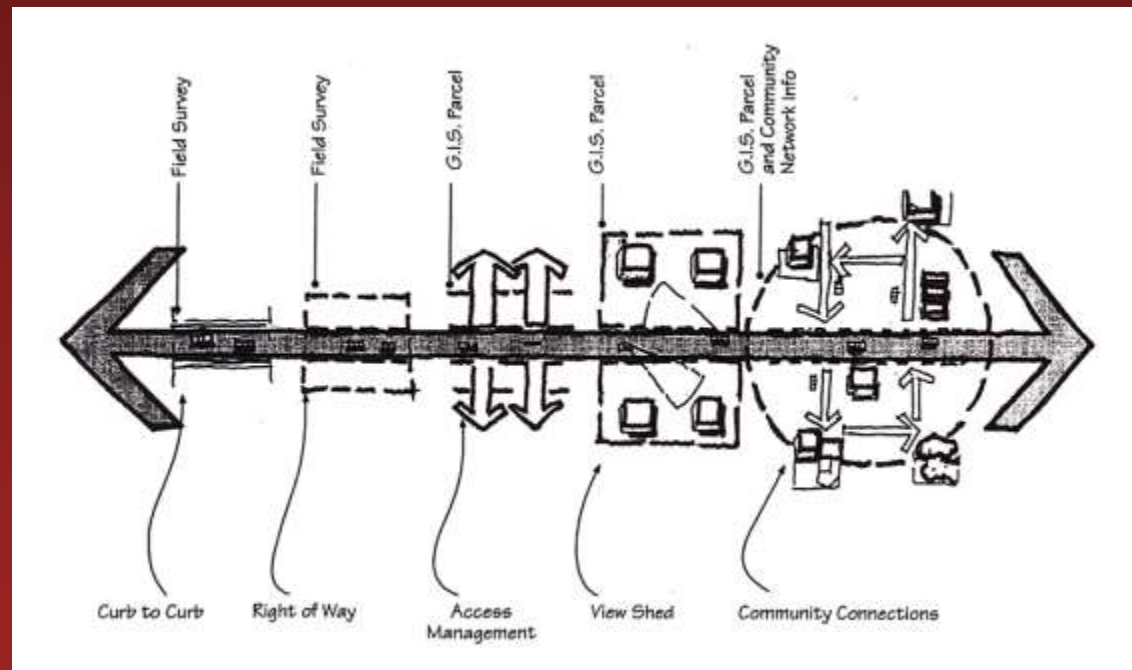
Better integration and design of Movement and Activity systems, relationships and view sheds will positively reinforce:

1. Improvements in driver behavior and safety.
2. Improvements in the quality, operations and experience of movement and activity zones.
3. Development of a wider range of mixed land uses that encourage and support pedestrian, bicycle and transit activity.

A "Challenge" for "Planning"

How to leverage development and redevelopment to bring land use and transportation into alignment as mutually supportive in design and functions ?

Influence Zones



Aesthetic Design Process

- Early involvement of someone experienced in visual quality and aesthetic design
- Comprehensive aesthetic design coordination
- Inclusion of a multidisciplinary design team

Understanding Community Values

- Requires early and continuous public involvement
- Adds meaning and value to inform aesthetic decision-making
- Increases the likelihood of project acceptance by the public

Vision Development

- Focus on discovery to understand what the community values and aspires to
- Integrate design preferences with potential design solutions

Aesthetic Design Review Committee

- Reviews aesthetic design issues
- Recommends appropriate architectural and aesthetic design treatments



Aesthetic Design and Costs

- Involve stakeholders in taking a comprehensive and balanced approach to aesthetic considerations, planning and design... early and continuously in project development.
- Build solid relationships and alliances to inform effective decision making and partnership opportunities
- Consistent with Mn/DOT's "Cost Participation Policy", articulate upfront what is negotiable and what is not.

(<http://www.dot.state.mn.us/stateaid>)



Contextual Considerations



Important Material Choice and Design Detail Considerations:

- Context and functional integrity
- Preference and affordability
- "Life cycle cost" evaluation:
 - Durability and service life
 - Repair and replacement
 - Maintenance requirements
 - "Maintainability and Liability"
 - Waste stream and environmental considerations
- "Commitment beyond the project"... to preserve investments and design intent

Material Choices Affect Cost



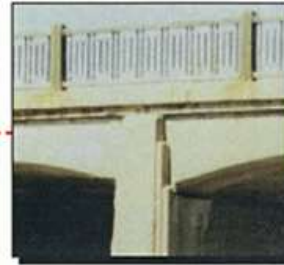
Material Choices Affect Perception & Function



Design Theme



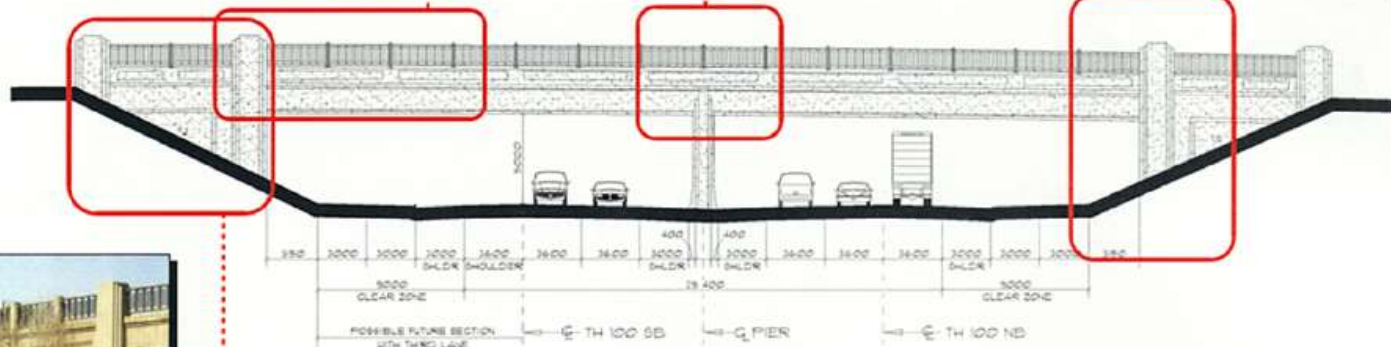
decorative metal railings



elegant pier caps



stylized pilaster end posts



GENERAL ELEVATION

PRELIMINARY DESIGN - BRIDGE NO. 27188
TH 100 under 39th Avenue North



relief panel abutments

Aesthetic Treatment Proposal for
T.H. 100 Highway Corridor Development
Structures Design Concept

Existing View of I-494 Bridge in Newport



Computer Simulation of Proposed Design



Computer Simulation of Proposed Night View

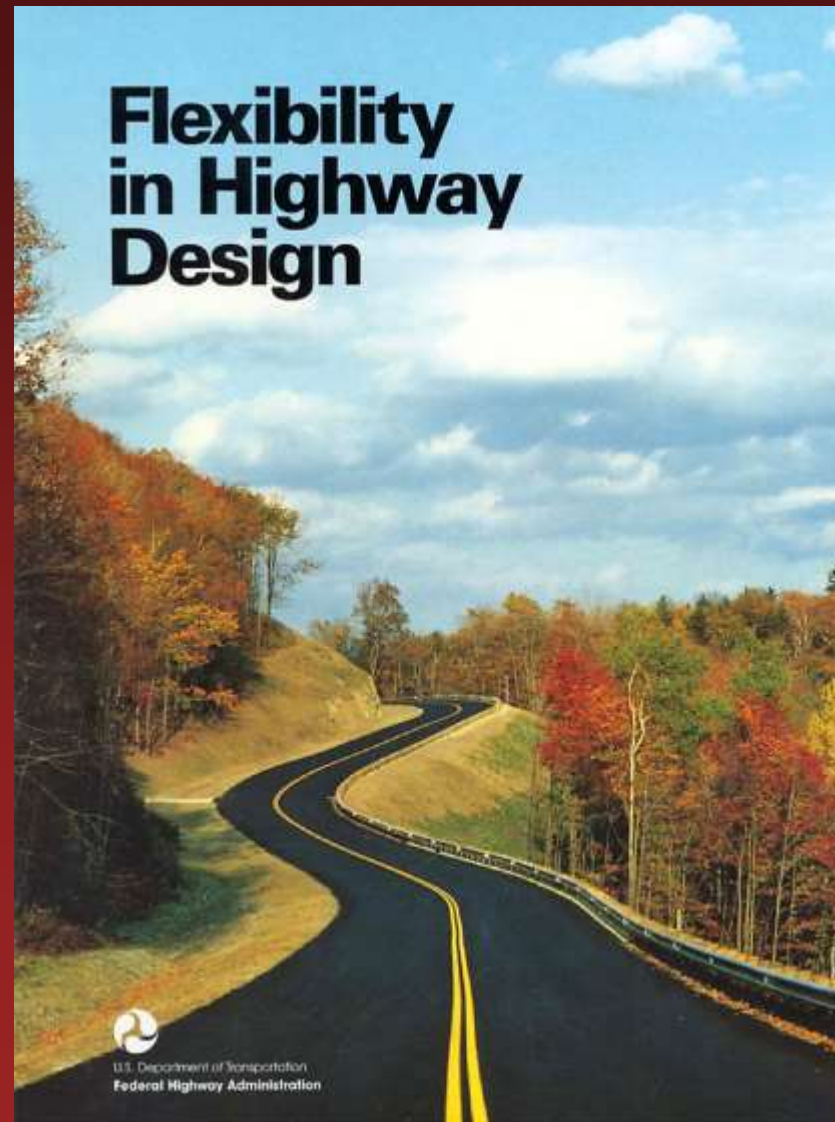


Aesthetic Design Guides



Design Development

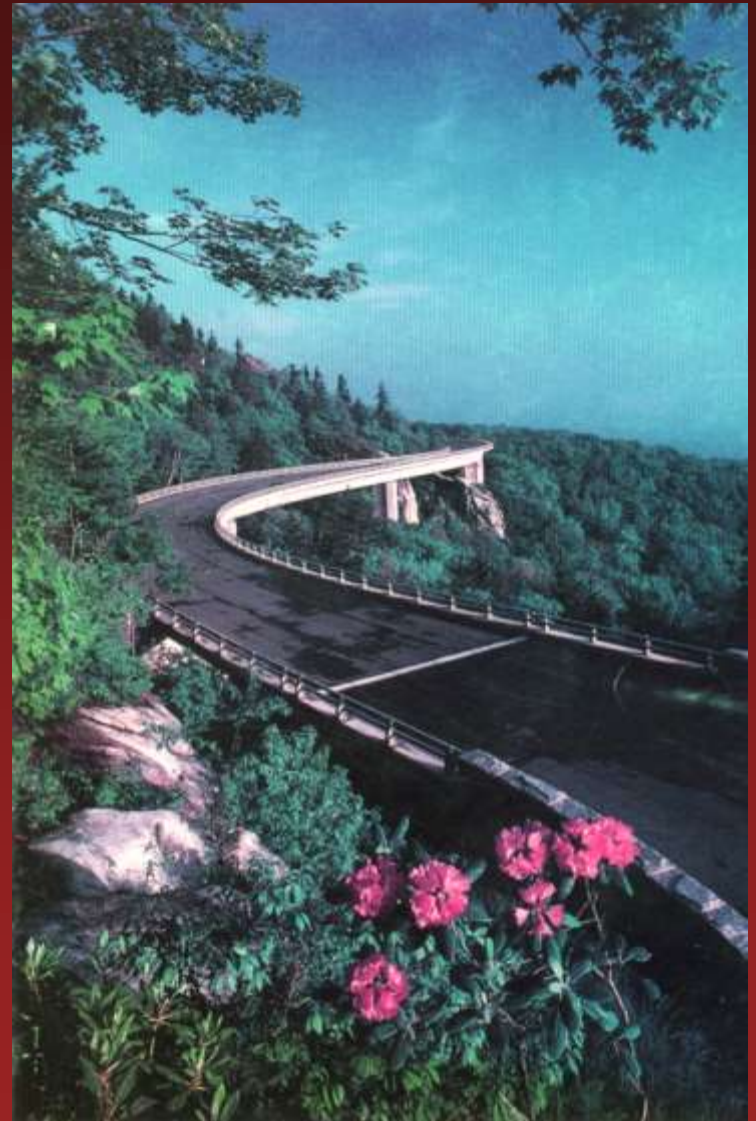
- Building visually successful highways and livable communities requires design flexibility
- Avoid "cookie-cutter" design solutions
- AASHTO "Green Book" Forward...
 - "Unique combinations of requirements that are always conflicting, result in unique solutions to the design problems."
 - "Sufficient flexibility is permitted to encourage independent designs tailored to particular situations."



Transportation
"Landscaping"

or

Landscape
Architecture ?



Blue Ridge Parkway

In transportation, we all know what "landscaping" is... do we know why we do it?

- History and tradition?
- Public and department policies?
- Public and customer expectations?
- Politics and special initiatives?
- Environmental mitigation and stewardship?
- Functional opportunities?

Functional opportunities of landscaping:

1. Mitigation of project impacts
2. Public/Stakeholder acceptance of projects
3. "Livable" communities
4. "Sense of Place"
5. Economic development and property values
6. Influence driver behaviors and safety
7. Visual reinforcement of geometrics for safety
8. Errant vehicle buffers for safety
9. Headlight glare screening for safety
10. Blowing & drifting snow control for safety

continued...

Functional opportunities of landscaping:

11. Erosion prevention and sediment control
12. Stormwater infiltration and water quality
13. Air quality
14. Soil management and bioremediation
15. Ecological restoration
16. Wildlife food, habitat and connectivity
17. Biological diversity and sustainability
18. Energy conservation & maintenance efficiencies
19. Noise buffers
20. Visual screening and aesthetics

The problems with landscaping...

Failure to attain:

- Early interdisciplinary & stakeholder involvement
- Informed public and stakeholder consent
- Sufficient right of way
- Sufficient soil management
- Sufficient coordination of utilities and drainage
- right plant... right place... right function
- Sufficient construction inspection and contract administration
- Commitment beyond the project to maintain the investments.
- "Maintainability"

Landscaping is an important element of context sensitive design in transportation... the landscape is a more continuous visual element than the road itself! If you expect landscaping to satisfy expectations and intent... landscaping considerations must be integrated early and continuously in project development or future opportunities will be lost!

but, landscaping is not Landscape Architecture!

Integration of Landscape Architecture

CSD Principle 4:

Use an interdisciplinary team tailored to project needs.

"Landscape architecture is one of the disciplines that should be involved early and continuously throughout all stages of transportation project planning, design, construction and maintenance."

Scott Bradley (Mn/DOT) 2001

WHY ??

What is Landscape Architecture ??

- The Art and Science of Analysis, Planning, Design, Management, Preservation and Rehabilitation upon the Land.
- A very broad and diversified design profession integrating working knowledge of art, architecture, civil engineering, environmental science and broad scale planning.

with over-simplification, if:

Artists arrange elements in aesthetically pleasing and meaningful ways.

Architects design buildings and structures for specific uses.

Civil Engineers apply scientific principles in the design of infrastructures.

Environmental scientists apply scientific principles in the management and design of ecological systems.

Planners deal with the management of broad development and change in cities and regions.

Then ...

Landscape Architects seek to integrate elements from all these fields to preserve, design and manage aesthetic, practical, safe, healthy and sustainable relationships between people, living things, built development and the land.



A Legacy of Landscape Architecture in Roadway Design

" The complete highway is the product of the combination of good engineering design and good landscape design applied in balanced agreement."

Wilbur Simonson (Bureau of Public Roads) 1953

" With few exceptions, the roads we most love and cherish as a nation were aligned, crafted and placed within the landscape with the able assistance and foresight of landscape architects."

Paul Daniel Marriott (Nat'l. Trust for Historic Preservation) 2000



Blue Ridge Parkway

A Legacy of Landscape Architecture in Roadway Design

Landscape architects were critically involved in the location, alignment, design and construction of many of our nations early roadways ... and they worked in close collaboration with engineers.

Late 19th - century Park and City Planning
Movement landscape architects helped lay some of the groundwork for 20th - century road way design.

- Building on the legacy of Olmsted (Central Park, Prospect Park) landscape architects such as Cleveland, Eliot, Jensen, Abbott, Clarke and others, through park road and parkway design, were the first “modernists” to study the movement of vehicles through our nation’s landscape.



“ It was important to have the road lie lightly on the land like a ribbon.”

- Landscape architect Stanley Abbott coined this phrase in laying out the entire length of the Blue Ridge Parkway in North Carolina and Virginia.
- Stanley Abbott pioneered the concept of acquiring conservation easements and wider rights of way to better preserve natural, cultural and scenic resources and the local and regional character within which the roadway would exist.



Lying lightly
on the land
like a ribbon

(Blue Ridge Parkway)



- Chief Engineer Jay Downer and Chief Landscape Architect Gilmore Clarke led the Bronx River Parkway effort (completed in 1923 after WW1) which is regarded as the first “true” parkway in the U.S. that exhibited a new set of distinguishing parkway characteristics that evolved in the early 20th-century.



- The Bronx River Parkway was not only a model of success in public acclaim, environmental reclamation and increased property values... it demonstrated the capacity of design to influence human behavior positively.
- The BRP was also such a significant advance in highway design that it served as a prototype for the Autobahn in Germany and the beginnings of the California freeway system.

- The new distinguishing characteristics and innovations of the “true” parkways included:
 - Strips of land with varying rights of way responding to natural and cultural conditions and dedicated to recreation and the movement of non-commercial pleasure vehicles.
 - The parkway was not a road... the parkway contained a road designed for pleasant driving in enjoyable surroundings.

- Abutting land owners had no right of light, air or access over the parkway.
- The alignment was one of gentle and flowing curves responding to the land.
- Grade separated activities, wide medians and passing lanes.

While the earliest parkways were merely wider and grandly furnished roadways or "boulevards" responding to existing urban grids... the evolved parkways were often designed as a means of structuring urban growth rather than simply responding to it.



The 1944 Defense Highways Act helped initiate the decline of collaborative highway design in favor of urgent, rapid construction of military highways to satisfy national security and mass employment needs.

- Wider pavement with longer and flatter curves for faster movement.
- Flattened vertical alignments allowing military convoys to maintain uphill velocity.

In 1956 AASHO (now AASHTO) published the first national standards for all kinds of roadways “with seemingly little room for creative and flexible design”?

- Even parkways built in this period (like the Baltimore-Washington Parkway) became less attuned to the land and resources and mainly a highway that excluded all but passenger vehicle traffic.
- Wide, flat pavement with limited access for high speed travel and limited “tack-on” plantings to soften the edges of highways passing anonymous towns on the way. (Pennsylvania Turnpike)

- The tide in roadway design has been shifting again toward context sensitivity since the 1960's.
 - The public began to demand more respect and sensitivity toward their impacted communities and environment.
 - Federal and state legislation and guidance has followed suit.



I-70 Glenwood Canyon, Colorado



" It is essential that the highway be considered as an element of a total environment, not apart from it or in conflict with it. All highway-oriented disciplines should collaborate at all stages of highway corridor selection, location, and design in order to obtain the maximum beneficial potential of the highway, its roadsides, and its environment. The exchange and use of information and expertise is of dominant importance and should begin early."

1970 AASHO Guide for Highway
Landscape and Environmental Design

" The need for design flexibility has become increasingly apparent in the decades since initiation of the interstate highway program. The effects, that the expanded highway network has had on ecological systems, individual communities and general society, have prompted recognition of the need for carefully considered and broadly informed measures in addressing transportation needs. A flexible approach to road design - intended to support balance among safety, mobility, economy, design consistency, community, environmental and aesthetic objectives - is necessitated by Mn/DOT's obligation to reflect societal values in its work."

Scott Bradley & Jim Rosenow (Mn/DOT) 2002

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