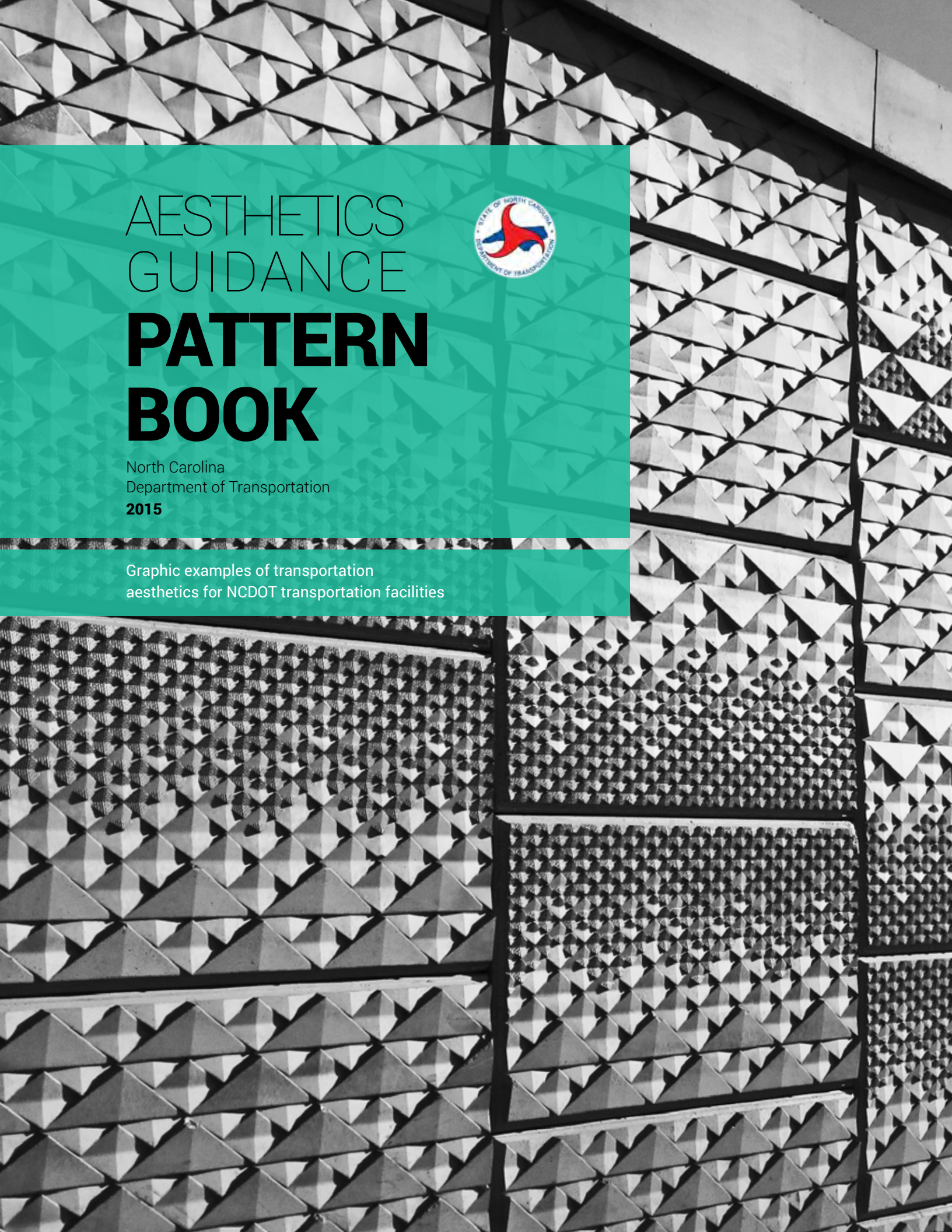
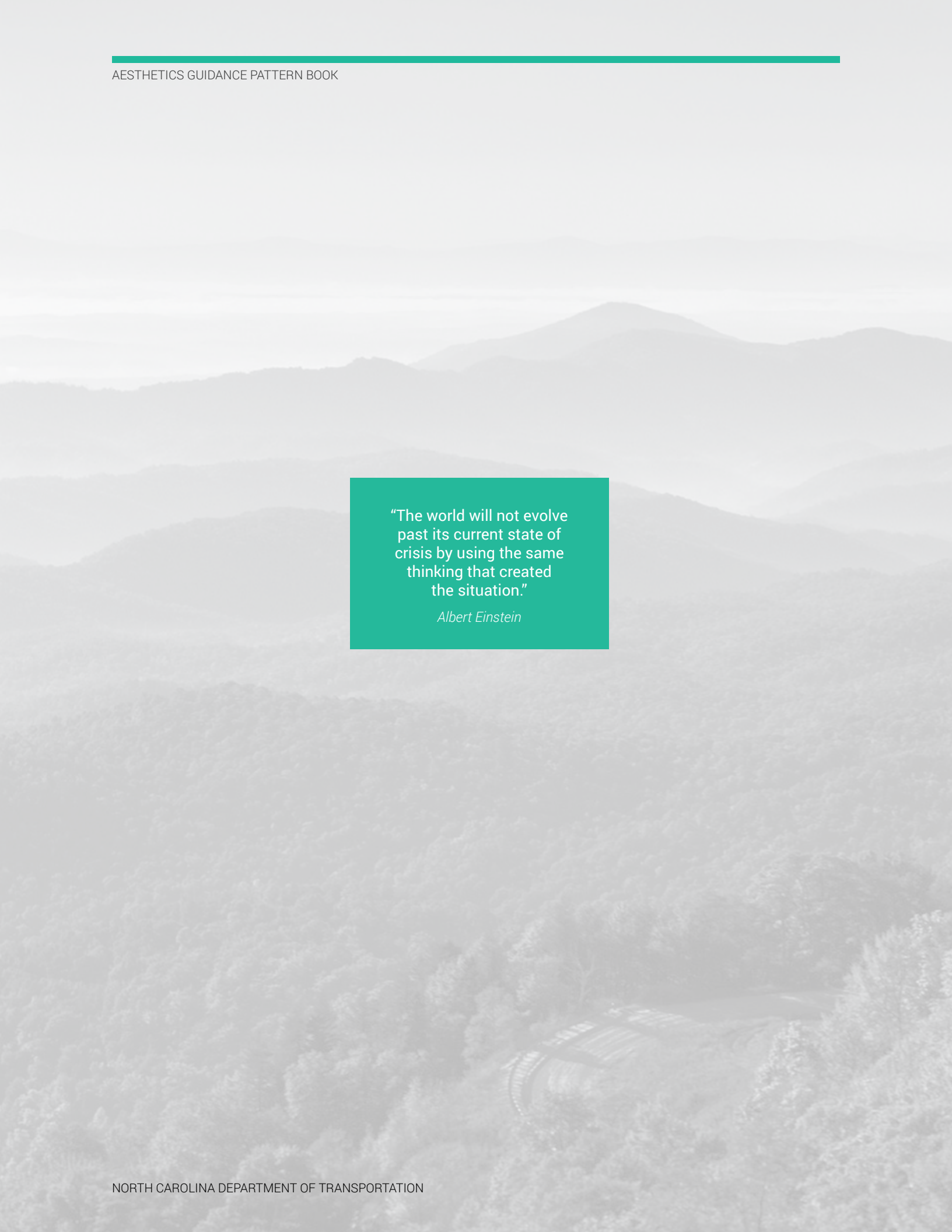


AESTHETICS GUIDANCE **PATTERN BOOK**

North Carolina
Department of Transportation
2015

Graphic examples of transportation
aesthetics for NCDOT transportation facilities



"The world will not evolve past its current state of crisis by using the same thinking that created the situation."

Albert Einstein

FOREWARD

Aesthetics in the planning of transportation facilities has increased in importance and has the opportunity to impact our transportation connections and reputation for the State of North Carolina. In recognition of the need to expand and organize this effort, Governor Pat McCrory, the North Carolina Department of Transportation (NCDOT), and the North Carolina Department of Cultural Resources (NCDCR) have developed an *Aesthetics Guidance Manual* and *Pattern Book for Transportation Aesthetics* to incorporate aesthetic considerations in transportation infrastructure across the state. The objective is to promote the importance of and provide guidance for the visual fit between transportation projects and the surroundings in rural, suburban, or urban settings in order to increase the visual experience for all who use the state's transportation infrastructure.

The Manual and Pattern Book are intended to serve those involved in the design and development of transportation facilities, including government officials, NCDOT staff, private and public entities, and citizens. It should be used as both a training tool and a reference document to help better incorporate aesthetic considerations into the creation and beautification of our state's transportation facilities.

"The longer I live the more beautiful life becomes. If you foolishly ignore beauty, you will soon find yourself without it. But if you invest in beauty, it will remain with you all the days of your life."

Frank Lloyd Wright

ACKNOWLEDGEMENTS

NCDOT has developed an *Aesthetics Guidance Manual* and *Pattern Book for Transportation Aesthetics* that combine aesthetic guidelines and procedures to aid in the design of transportation facilities. This Manual will serve as an active document and is intended for regular updates to appropriately reflect changes in policy and procedural changes within NCDOT and the state as well as continually build upon and expand the divisions, programs, sections, and units included in aesthetic considerations. Below includes a list of active participants in the development of this Manual.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

NCDOT DIVISION OF BICYCLE AND PEDESTRIAN TRANSPORTATION

NCDOT DEPUTY CHIEF ENGINEER

- NCDOT Preconstruction
- NCDOT Project Development and Environmental Analysis (PDEA)
- NCDOT Human Environment Section (HES)
- NCDOT Roadway Design Unit (RDU)
- NCDOT Geotechnical Engineering Unit (GEU)

NCDOT FIELD SUPPORT

- NCDOT Roadside Environmental Unit (REU)
- NCDCR Structures Management Unit (SMU)

NCDOT TRANSPORTATION MOBILITY AND SAFETY

- NCDOT Intelligent Transportation System (ITS) and Signals

NORTH CAROLINA DEPARTMENT OF CULTURAL RESOURCES

- North Carolina Arts Council (NCAC)

CONSULTANT TEAM

- AECOM | North Carolina
- Sand County Studios
- Denise New Dickens

"Aesthetic matters are fundamental for the harmonious development of both society and the individual."

Friedrich Schiller

TABLE OF CONTENTS

PATTERN BOOK
FOCUS AREAS

Introduction and graphic examples of standard, enhanced, and landmark aesthetic tiers for NCDOT transportation facility focus areas.

"Communities should be planned with an eye to the effect on the human spirit of being continually surrounded by a maximum of beauty."

Thomas Jefferson

CHAPTER 1

INTRODUCTION

"Without aesthetic, design is either the humdrum repetition of familiar cliches or a wild scramble for novelty... Form without relevant content, or content without meaningful form"

Paul Rand

1 INTRODUCTION

The North Carolina Department of Transportation's (NCDOT) *Pattern Book for Transportation Aesthetics* (Pattern Book) presents examples of approaches for improving the visual quality of transportation corridors within the state. The Pattern Book is a supplement to NCDOT's *Aesthetic Guidelines Manual* (Manual), which outlines the process of aesthetic considerations for North Carolina. The Manual and Pattern Book are intended for use by NCDOT staff, municipalities, public and private organizations and companies, citizens of North Carolina, and those invovled in the planning and development at all levels of decision making are encouraged to use these guidelines when incorporating aesthetics into NCDOT transportation projects.

Aesthetic upgrades to transportation facilities, both existing and new, offer many tangible economic and experiential benefits. Values of aesthetics can include benefits to tourism, cost efficiencies, and improved experience and safety.

> "To ignore aesthetics is irresponsible."
> *Transportation Research Board, Bridge Aesthetics Sourcebook*

Aesthetic enhancement is subjective, dependent largely on preference and context. Aesthetics is defined here as the visual enrichment of structural and non-structural elements specific to NCDOT transportation facilities. Aesthetic value is realized subconsciously, where all structural and non-structural decisions are an aesthetic decision and affect the perception of and response to a place or community.

The importance of incorporating aesthetics helps allow our infrastructure to be both efficient and safe while also being recognized as attractive features that respond to the environment in which they are built.

Interstate 26 Scenic Byway in North Carolina's Western region. Image courtesy NCDOT.

AESTHETICS GUIDANCE MANUAL

The Manual serves as the primary document for North Carolina to promote the importance of and provide guidance for the visual fit between transportation projects and the surroundings in rural, suburban, or urban settings. These are guidelines rather than a prescriptive set of mandates, and are intended to be regularly updated based on new procedures and/or objectives.

The success of the Manual is dependent on coordination at all levels of NCDOT and with applicable stakeholders, both public and private. Development was based on extensive interviews and meetings with NCDOT division, unit, and group leaders and staff that specialize in transportation focus areas, the North Carolina Department of Cultural Resources, and policy research. The practices proposed were designed with the intent to be efficient and effective in order for aesthetic considerations to be included in NCDOT transportation facility projects.

The Manual is divided into three sections and should be read collectively and as individual sections. These sections include:

Section A | Framework

Section A sets the framework for the Manual and includes the context, basics of aesthetics, and integration of the guidelines and is applicable to all stakeholders and NCDOT projects that incorporate aesthetics into the planning process. These chapters provide a common language to effectively communicate aesthetics concepts, definitions, and processes.

Section B | Focus Areas

Chapters in Section B of the Manual describe the aesthetic design process of individual transportation facility focus areas. The focus areas included in the Manual and Pattern Book to date should expand to incorporate a greater number of NCDOT divisions, programs, sections, and units to encompass additional focus areas.

Section C | Implementation

Section C of the Manual details strategies that can be used for implementing aesthetics into NCDOT transportation facilities.

FORMAT AND USE OF PATTERN BOOK

Examples of design elements in this document are intended to show designers, engineers, planners, decision makers, public and private agencies, the public, and other key stakeholder's example approaches for design elements that would contribute to enhancing the aesthetic character of North Carolina's transportation facilities.

The Pattern Book includes photographs, plans, and drawings of various design elements organized according to individual transportation facility focus areas and by aesthetic tiers of standard, enhanced, or landmark. See Section A, Chapter 3 in the Manual for the framework of the basics for aesthetics including additional information on the tier approach.

Aesthetic upgrades to a pedestrian streetscape in Rolesville, North Carolina. Image courtesy AECOM.

The wildflower program in North Carolina improves the visual character of roadways across the state. Image courtesy NCDOT.

American Tobacco Trail's I-40 pedestrian bridge in Durham, North Carolina. Image courtesy NCDOT.

The focus areas in the Pattern Book are intended to be utilized as an individual section or sections depending on application and project needs. The following chapters and design elements in the Pattern Book include:

Chapter 1 | Introduction: Provides a brief overview of resources specific to the focus areas described throughout the section.

Chapter 2 | Focus Area | Roadways: Includes all roadways and roadway systems throughout North Carolina.

Chapter 3 | Focus Area | Bridges: Includes all NCDOT bridges across the state that traverse natural obstacles such as steep topography, rivers, creeks, lakes, and human-made obstacles such as other roads and developments.

Chapter 4 | Focus Area | Noise Walls: Includes a type of freestanding wall installed where traffic noise exceeds or is expected to exceed established threshold levels.

Chapter 5 | Focus Area | Retaining Walls: Includes walls that minimize impacts to existing natural and human-made resources along roadway systems.

Chapter 6 | Focus Area | Roadside Environment and Landscape: Includes landscape plantings within NCDOT ROWs.

Chapter 7 | Focus Area | Bicycle and Pedestrian Infrastructure: Includes the integration of bicycle and pedestrian systems into the overall transportation network across North Carolina.

Chapter 8 | Focus Area | Scenic Byways: Includes both nationally and state designated scenic byways.

Chapter 9 | Focus Area | Public Art: Includes public art in NCDOT ROWs.

For each design element, examples are organized based on the fit with standard, enhanced, or landmark elements as defined in the Manual. Most design elements use all three categories, where some use two of the three. Both scenic byways and public art use only enhanced and landmark categories because they are considered to go beyond the level of aesthetic detail than would be expected for the standard category.

"Road infrastructure can be beautiful too. NEPAs emphasis on the overall environment has expanded the context of project aesthetics."

Federal Highway Administration

CHAPTER 2

FOCUS AREA ROADWAYS

"The design of the reconstructed highway is premised on the idea that the road is a visitor."

Grant Jones
(referring to U.S. 93 on the Flathead Indian Reservation)

STANDARD ROADWAYS

In North Carolina, basic roadway standards apply to road types throughout the state. In general, all roadway alignment sections will need to be consistent with design guidance in AASHTO's A Policy on Geometric Design of Highways and Streets to allow for consistency and safety of the transportation facility. For the purposes of the Manual and this Pattern Book, roads within the state are designated as standard, enhanced, or landmark.

NCDOT has established design and planning standards to make sure standard roadways within the state take into account the visual character of the landscape.

Coontree Loop Trail in Pisgah National Forest, North Carolina. Image courtesy James Sipes.

Aerial image of the cloverleaf interchange where highway 64 meets I-26 at Hendersonville, North Carolina. Image courtesy NCDOT.

Addition of new guardrails and road surfaces in Avery and Watauga Counties, North Carolina. Image courtesy FHWA.

Southbound US 220 near Rockingham, North Carolina. Image courtesy James Sipes.

This shows the entry to downtown Raleigh, North Carolina. Image courtesy James Sipes.

This view is of Durham, North Carolina, from Fayetteville Street over NC 147. Image courtesy NCDOT.

Looking southwest from the scenic overlook along Interstate 26 westbound. Image courtesy NCDOT.

This view is of I-73/I-74 in North Carolina. Image courtesy NCDOT.

This is a view of the Clara Barton Parkway, a 6.8 mile highway that is in Maryland and the District of Columbia. Image courtesy FHWA.

This image shows U.S. 221 in North Carolina. The narrow shoulders and curvilinear alignment of the roadway helps minimize impacts to the surrounding landscape. Image courtesy NCDOT.

This image shows the more utilitarian side of a rest area along I-85 in western North Carolina. The rest area is actually very nicely landscaped, but the western side of the structure includes signage and fairly standard foundation plantings, gravel drainage beds, and other ornamental plantings to reduce the visual impact of the signs and utility boxes. Image courtesy James Sipes.

This image shows the layout of the Randolph County Rest Area along I-73/I-74. Image courtesy James Sipes.

This rest area along I-26 includes the facilities and spaces typically found for these types of rest areas. The facilities are clean, well-maintained, and serviceable. Image courtesy James Sipes.

Scenic overlooks along the Blue Ridge Parkway are among some of the highest elevations in the state, and they provide excellent opportunities to view the surrounding landscape. Image courtesy FHWA.

A standard sign gantry on I-295 is used to support directional signage for 13 North and I-95. The small size of the metal components, openness of the horizontal elements, and light gray color of the structure helps reduce the visual impact of the gantry. Image courtesy NCDOT.

ENHANCED ROADWAYS

Enhancements to a roadway include upgrades such as materials, lighting, or other decorative additions to standard roadways. These enhancements do not require structural changes, but should focus on small improvements to the overall aesthetic quality of the roadway.

This diamond roundabout helps direct traffic while keeping automobiles moving. The planting, sculpture, and changes in paving pattern in and around the roundabout is intended to soften the visual impact of the paving. Image courtesy Colorado DOT.

The Cataloochee Valley, North Carolina, as seen from a scenic overlook has fencing that complements the natural scenery. Image courtesy NCDOT.

The scenic overlook on Mount Magazine, Arkansas, is one of the highest points within the state. The split rail fence and concrete columns are intended to provide a visual and physical barrier while also complementing scenic views. Image courtesy FHWA.

This scenic overlook uses split rail fencing to create a more rustic look along the edge of the overlook. Image courtesy James Sipes.

The views from this scenic overlook show North Carolina highways and landscape. Virginia is in the background. The dense vegetation and rolling terrain is typical of the mountainous regions of North Carolina. Image courtesy NCDOT.

This split rail fence is used to define the edge of a roadway in North Carolina. Image courtesy DepositPhotos.com.

In Yellowstone National Park, wooden posts and wooden beams connected via steel struts are commonly used as a roadway barrier. Image courtesy FHWA.

Travelers read the interpretive sign at the kiosk while enjoying the turning fall colors at the Haynes Canyon Vista. Image courtesy American Scenic Byways.

This view is of the Pilot Mountain Road, North Carolina. The meandering roadway and the color vegetation is close to the road creates a pleasant driving experience. Image courtesy FHWA.

This roundabout is on Griffith Street in Davidson, North Carolina. Image courtesy NCDOT.

These jersey barriers used form liners to create stone textures. The darker color, stone pattern, and smooth cap are more attractive than standard jersey barriers. Image courtesy FHWA.

Reinforced grass shoulders are used to reduce the visual scale of Paris Pike in Lexington, Kentucky. The shoulders can be used for emergency stops because geotechnical cell grids provide reinforcement for the soil. Image courtesy James Sipes.

The stone walls on the left and guardrail on the right allow trees to be close to the road in this photograph from western North Carolina. Image courtesy DepositPhotos.com.

The US 97 Bypass, which loops around Bend, Oregon, includes colored roadway edges, defined bike lanes, and decorative landscaping to enhance the roadway character. Image courtesy EDAW.

A wide median helps break up the visual impact of North Carolina Highway 211. Image courtesy NCDOT.

Bike lanes are added along University Place, Washington. Image courtesy Carl Sundstrom.

This is a typical roundabout used to slow down and direct traffic. Image courtesy FHWA.

This road in the forest uses wooden guardrails that are visually appropriate in such a rustic setting. Image courtesy DepositPhotos.com.

Grandfather Mountain south of Boone, North Carolina.Image courtesy FHWA.

Park at one of the overlooks on the Cherohala Skyway and admire the rugged stonework parapet. Image courtesy Dennis Adams, FHWA.

This bridge is at the intersection of Blue Ridge Parkway and Hwy 421. Image courtesy America's Scenic Byways.

This is the Craggy Gardens Visitor Center, which is located along the Blue Ridge Parkway near Asheville, North Carolina. Image courtesy NCDOT.

The Dismal Swamp Canal Welcome Center is an NCDOT facility. The canal was opened in 1805 and is the oldest continually operating man-made canal in the United States. The U.S. Army Corps of Engineers currently operates and maintains the canal. Image courtesy NCDOT.

This is typical of the type of layout found in rest areas in North Carolina. Image courtesy James Sipes.

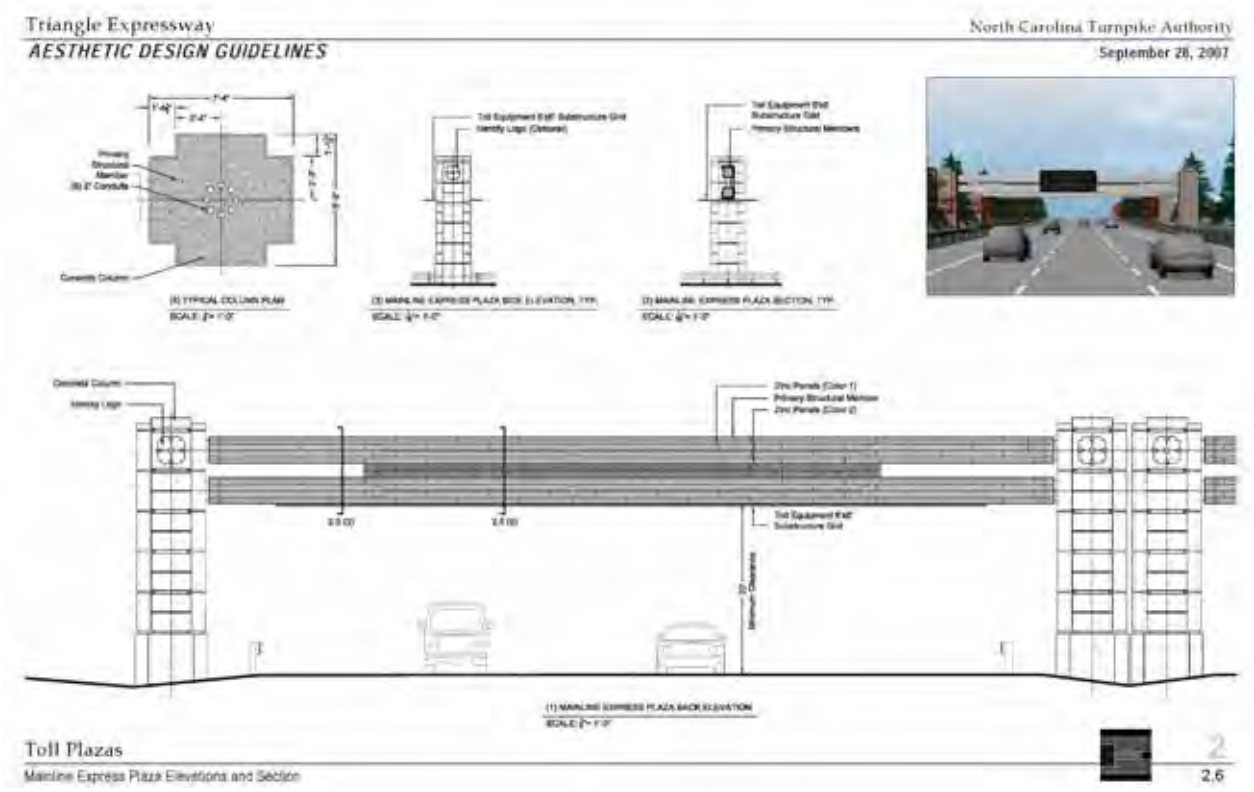
This is a standard landscape planting at a rest area along I-85 in wester North Carolina. Image courtesy James Sipes.

In Arlington, Texas, precast concrete walls separate pedestrian from vehicular traffic on some of the city's major bridges. The darker panels in the walls provide a greater level of visual detail and is consistent with other details of the bridge. Image courtesy NCDOT.

This kiosk located at the Mark O. Hatfield West Trailhead and Visitor Center east of Portland, Oregon, provides information about the surround wilderness area. The Mark O. Hatfield Wilderness is located within the Columbia River Gorge National Scenic Area and Mt. Hood National Forest. Elevations range from approximately 100 feet near the Columbia River to 4,900 feet on Mount Defiance. Image courtesy Dennis Adams, FHWA.

This scenic overlook provides a view of I-26 in Madison County, North Carolina, and mountains in the background. Image courtesy NCDOT.

This image shows a typical steel guardrail. Image courtesy FHWA.



These drawings show the overall layout and details used to construct sign toll gantries and support posts for the Triangle Expressway in Raleigh, North Carolina. The enhanced visual quality of the gantries and supports is consistent with that provided for bridges, noise walls, and other details along the Triangle Expressway. Image courtesy NCDOT.

Image of one of the entry to a North Carolina rest area. Image courtesy James Sipes.

Image of one of the entry to a North Carolina rest area. Image courtesy James Sipes.

This overlook provides outstanding views of the Black Hills in North Dakota. Image courtesy FHWA.

The Newman, Overlook, which is part of the Cornell Plantations in Ithica, New York, is constructed of native stone. Image courtesy EDAW.

The rest area near Benson uses a consistent color palette that helps tie the architectural structures together. Image courtesy James Sipes.

This is a bridge along the Triangle Expressway in Raleigh, North Carolina. Image courtesy James Sipes.

This overpass is for Farm Lane Road in Lansing, Michigan. The structure also functions as a visual landmark. Image courtesy Sara Sipes.

These interpretive signs are located at the Ladybird Park in Cache Valley, Utah. Image courtesy Richard Justis of Cache Valley Visitors Bureau.

The Randolph County Rest Area visitor center uses a variety of colors, textures, and modern forms to create an exciting structure. Image courtesy NCDOT.

The brick colored pavers at the Randolph County Rest Area visitor center is consistent with the color of the structure. Image courtesy NCDOT.

Electric charging station in Asheville, North Carolina, is defined by simple, timeless lines and shapes. Image courtesy NCDOT.

This entrance sign is for the Great Smoky Mountains National Park as seen when entering the park from Cherokee, NC. The dark gray materials used in the sign are consistent with the grays found in the native stones used to create the base of the sign. Image courtesy NPS.

Precast concrete panels with a stone pattern on the surface was used to create this retaining wall for the McGinnis Ferry Road Extension in McGinnis, Georgia. Existing vegetation was preserved in order to reduce the visual impact of the wall on adjacent land uses. Image courtesy James Sipes.

These toll gantries along Western Wake Freeway are constructed of enhanced, decorative columns and gantries. Image courtesy James Sipes.

The use of bold, angular geometric forms painted on jersey barriers helps blur the barrier's edges and soften the visual impact. This approach is intended to induce nearby traffic to slow down, producing a safer, more bike- and pedestrian-friendly thruway. Image courtesy John Locke.

This image shows new plantings at the Randolph County Rest Area. Image courtesy NCDOT.

US 93 is a 53-mile highway improvement project through the Flathead Reservation in Northwest Montana. This interpretive overlook is part of a scenic overlook that provides views down the hill to Flathead Lake. Image courtesy Jones + Jones.

The sign shows toll rates for the Triangle Expressway. Image courtesy James Sipes.

The toll gantries for the Triangle Expressway allows cars using an NC Quick Pass to use the road without slowing down to pick up a ticket or pay a toll. All cars are required to have an NC Quick Pass. Image courtesy James Sipes.

This interpretive overlook provides an outstanding view of Flathead Lake in the distance. The overlook was constructed as part of the US 93 Highway project on the Flathead Indian Reservation. Image courtesy Jones + Jones.

The entrance to the YMCA of the Rockies in Estes Park, Colorado is highlighted by the YMCA sign over the road. Image courtesy James Sipes.

This image is of the Johnston County I-40 rest area near Benson, North Carolina. Image courtesy James Sipes.

This image shows a rest area along I-85 as seen from the upper parking lot. Image courtesy James Sipes.

The entrance to the YMCA of the Rockies in Estes Park, Colorado serves as a visual landmark defined by the stone walls and columns, wooden rails, and wooden rail sign that extends across the road. Image courtesy YMCA. Image courtesy James Sipes.

This is the front entrance to the rest area in Johnston County, North Carolina. Image courtesy James Sipes.

This scenic overlook is constructed of native stone masonry. Image courtesy FHWA.

This image shows the landscaping at the entrance of one of North Carolina's rest areas. Image courtesy James Sipes.

North Carolina rest area. Image courtesy NCDOT.

These signs are mounted on styled gantries used for the Triangle Expressway. Image courtesy James Sipes.

This is another image of a North Carolina rest area. Image courtesy NCDOT.

This scenic overlook provides a majestic view of the Columbia River. The light color of the stone used for the overlook blends with the surrounding native grasses. Image courtesy Dennis Adams, FHWA.

This image shows the entrance at the Randolph County Rest Area. Image courtesy James Sipes.

This bronze sculpture by David Alan Clark tells the story of local hero Tom Lee. The site is in Memphis, Tennessee. Image courtesy EDAW.

This is the Sherman Overlook Structure in the Colville National Forest in Washington state. Image courtesy USFS.

This scenic overlook is along the Sunrise Highway in New York. Image courtesy FHWA.

This is the entrance into the Randolph County Rest Area. Image courtesy James Sipes.

This sign is located at the Randolph County Rest Area. Image courtesy NCDOT.

These curvilinear retaining walls serve as edges for plantings and visually help create a dynamic entrance for this resort club in Sacramento, California. Image courtesy EDAW.

This is a view of the front entrance to this rest area in Randolph County, North Carolina. Image courtesy James Sipes.

The Overlook and Canopy Design is part of the Cypress Bridge Replacement Project in Redding, California. The project retains the decorative concrete pedestrian safety barrier of the original bridge, and adds four half-circle belvederes, or overlooks, at the pier locations. These overlooks allow pedestrians to comfortably stop and enjoy the bridge's beautiful views. The belvederes' dicroic glass shade canopies are envisioned as sculptural features that would incorporate copper sheathing, streaming water, and sunlight. Image courtesy CALTRANS.

This overhead shelter includes solar panels that help charge these electric cars. Image courtesy EDAW.

This landscape area is along a North Carolina rest area off of I-85. The sloped area separates the main level of the rest area from an upper parking lot. The stairs help create a grand entry to the area, although it limits public accessibility. ADA accessible walks are available along the lower portions of the site, which does include parking. Image courtesy James Sipes.

This split wood fence defines the edge of this landscaped area along one of NCDOT's rest areas. Image courtesy James Sipes.

Randolph County Rest Area. Image courtesy James Sipes.

Image of the Benson Rest Area. Image courtesy NCDOT.

Snoqualmie Point Park has one of the region's grandest views of the Snoqualmie Valley, Mount Si, and the Cascade Mountain Range all the way to Mount Baker. The 8-acre Snoqualmie Point Park site was acquired in 2000 through the cooperative efforts of the Trust for Public Lands, the United States Forest Service, and the City of Snoqualmie, with assistance from the Mountains to Sound Greenway Trust. The wooden beams of the scenic overlook structure in the park frame a dramatic view of open sky and majestic mountains along Washington's Mountains to Sound Greenway. Image courtesy Jones + Jones.

This planting is at the base of a flagpole in one of North Carolina's rest areas. Image courtesy James Sipes.

This metal sign is located near the entry of Marshall, West Virginia. Image courtesy FHWA.

These stone weirs are used to slow down stormwater runoff and prevent scouring. The stone walls also create a more attractive setting. Image courtesy EDAW.

This view is from inside the shelter at Snoqualmie Point and shows Mt. Si, Washington. Image courtesy Jones + Jones.

The shelter at Snoqualmie Point has a free-flowing curved roof that is a visually dominant element. Mt. Si, Washington, is in the background. Image courtesy Jones + Jones.

Another view of Snoqualmie Point. Image Courtesy of Mountains to Sound Greenway Trust.

View of Snoqualmie Point. Image Courtesy of Mountains to Sound Greenway Trust.

The shelter at Snoqualmie Point is constructed of simple, native materials, but the unique shape of the structure makes it visually stand out. Image courtesy Wikipedia Commons.

This fountains and flagpoles are located at the Randolph County Rest Area in North Carolina. Image courtesy James Sipes.

This rest area along I-85 in western North Carolina includes enhanced landscaping. Image courtesy NCDOT.

Another view from inside the shelter at Snoqualmie Point. Image courtesy Jones + Jones.

This image shows a landscaped area at a rest area along I-85 in western North Carolina. Image courtesy James Sipes.

LANDMARK ROADWAYS

Roadways that are considered landmark have a high level of design because they are integrated into the cultural, historical, natural, and human-made surroundings through a consistent design theme and aesthetic considerations. A higher level of detail is placed on the aesthetic elements of roadside structures including roadside facilities, markers, and signage.

Cornerstones of History is a concrete mural installed into a water feature that is part of a central park in the historic Northeast District of Washington, DC. As commuters approach the H Street intersection, they briefly see the vibrantly colored sections of this curved mural honoring Duke Ellington, Bessie Smith, Martin Luther King, Jr., and Rosa Parks. Image courtesy Creative Design Resolutions.

Pushing the travel lanes out to the far edges of the right of way provide space for a wide bioswale for rain harvesting. This image is of Independence Parkway in Houston, Texas, and was prepared for the Texas Land and Water Forum's Low Impact Development Competition. Image courtesy AECOM.

This is another view of a proposed plan for the Salem Creek Connector on Behance. Image courtesy Parsons Brinckerhoff.

This concept is to improve transportation and aesthetics at the Buckhead Gateway along GA 400 and Lenox Road. Image courtesy GDOT.

This areal view of Paris Pike near Lexington, Kentucky, shows how the travel lanes vary to fit existing cultural and natural resources. Image courtesy FHWA.

The Linn Cover Bridge extends over Green Mountain Creek on the Blue Ridge Parkway near Grandfather Mountain. Image courtesy NPS.

Along US Highway 97 in Bend, Oregon, are stained walk/bike trails, raised medians with native plant materials, a meandering road geometry to maintain a pedestrian scale, and lighting for security and safety. Image courtesy Oregon DOT.

This is a planned roundabout at Salem Avenue and City Yard Drive in Wake Forest, North Carolina. Image courtesy NCDOT.

Dynamic views are visible from the Blue Ridge Parkway. Image courtesy Wikipedia Commons.

This diagram of the diverging diamond interchange on I-77 in North Carolina shows the way landscaping helps enhance the intersection by softening the visual impact of the access ramps. Image courtesy NCDOT.

U.S Highway 93 runs from Missoula, Montana north through the Flathead Indian Reservation to Polson, which is on the edge of Flathead Lake. Placename signs are in English as well as Salish & Kootenai in order to incorporate local cultural heritage of Native American tribes. Image courtesy Jones + Jones.

The Jocko River Bridge along U.S. 93 on the Flathead Indian Reservation in northwest Montana is simple in design so it doesn't distract from the surrounding landscape. It is also designed with sufficient height and span to allow for the continuation of ecosystems and the crossing of wildlife. The incorporation of wildlife considerations makes this bridge a more integrated solution than is normally used. Image courtesy MTDOT.

For U.S. Highway 93 in Montana, tribal authorities wanted measures to protect their threatened culture, their sensitive environment, and their breathtaking scenery. A series of spiral curves helps give the road a more organic feel that flows with the landscape and focuses on outstanding natural features in the landscape. Image courtesy Jones + Jones.

This master landscape plan for a new bridge and on off ramp construction is at the intersection of Highway 801 and Interstate 40 MLA. The design and planning process emphasizes an integrated approach that incorporates all of the various design elements. Image courtesy NCDOT.

This view of Grandfather Mountain is from Beacon Heights on the Blue Ridge Parkway. The parkway is recognized for its context sensitive solutions because of the narrow shoulders, the wooden railings, and the curvilinear nature of the road that flows with the landscape. Image courtesy Vicki Dameron.

In 2007, Portland City Council approved a policy to promote the use of green roadways in design and construction. Since then, Portland has been on the forefront of promoting green streets. More than five hundred green street facilities are already in place, with plans to add another five hundred in the next few years. The program integrates aesthetics, roadway safety, water management, improving pedestrian circulation, and creating greenspace. Image courtesy Kevin Robert Perry, City of Portland.

The Paris to Lexington road - frequently called Paris Pike - was widen from a two-lane road to a four-lane road using context-sensitive solutions. Instead of simply widening the existing road, the road was built as two separate roads—one northbound and one southbound—with a wide median between the two. The basic idea was to create the feeling of driving on a rural Kentucky road. These new roads followed the contours of the land and wove through the existing landscape, preserving existing cultural and natural features. The new four-lane Paris Pike is integrated into the Kentucky landscape. It weaves through the beautiful horse farms, around historic fences dating back to the Civil War, and past hundred-year-old trees, and the best part is that motorists can use the roadway safely. Image courtesy Kentucky Transportation Cabinet.

The Blue Ridge Parkway is considered by many to be the nation's 'most beautiful highway' because of how the road is integrated with the surrounding landscape. Image courtesy FHWA.

This view of Blue Ridge Parkway shows the use of stone retaining walls, narrow shoulders, and a limited right of way to minimize impacts on the surrounding landscape. Image courtesy FHWA.

The George Washington Memorial Parkway uses a wide median and separate curvilinear travel lanes to maintain the character of the surrounding landscape. Image courtesy NPS.

This structure serves as a backdrop and provides shelter from bad weather at the Fayetteville Festival Park. Image courtesy Pearce Brinkley Cease + Lee Architects.

This structure in the Fayetteville Festival Park, North Carolina, was designed by Architects Pearce Brinkley Cease + Lee. The structure has a clean, modern look that makes it a visual landmark. Image courtesy Pearce Brinkley Cease + Lee Architects.

These images show the Apopka Bike Bridge and the West Orange Trail in Florida. Images courtesy FHWA.

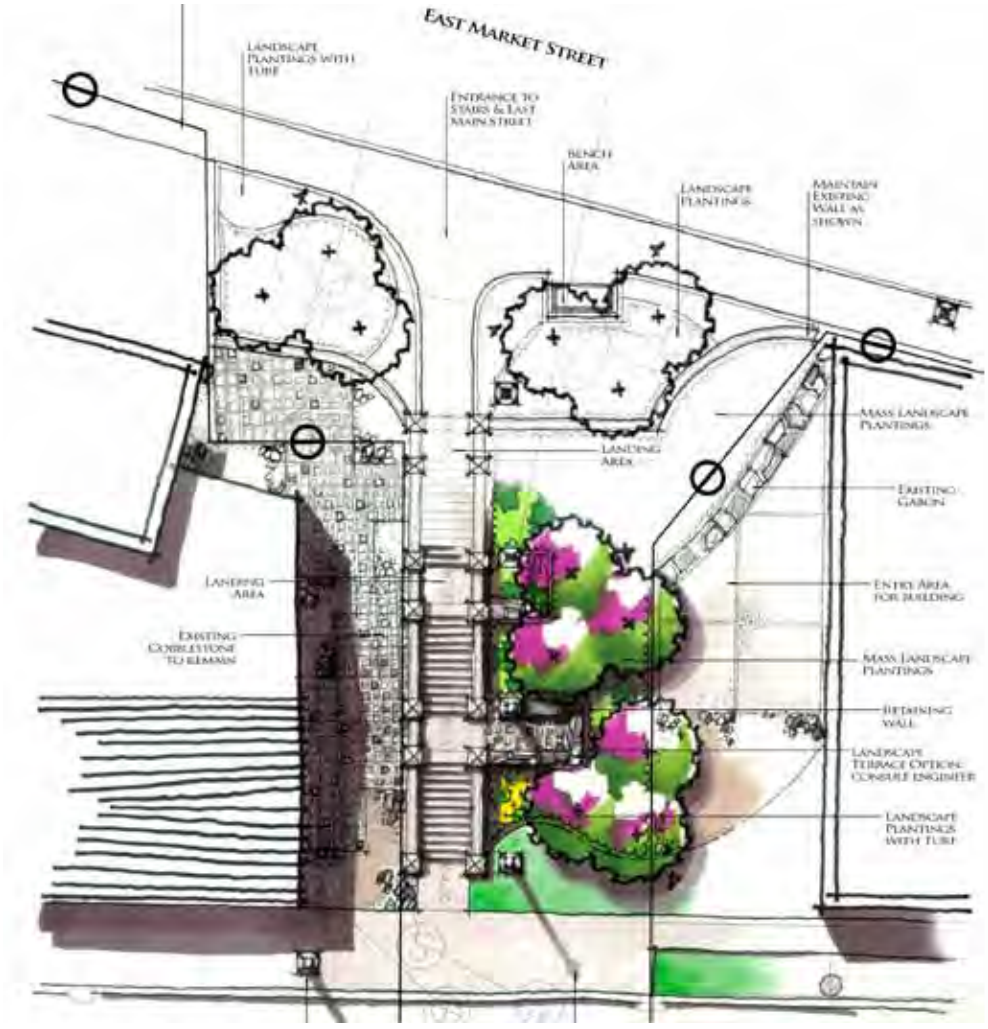
This overhead trellis of stone, wood, and metal is designed to provide support for vegetation that will grow over the latticework. The structure is a visual landmark because of its strong design elements. Image courtesy DepositPhotos.com.

This unique structure looks like an radio but is actually a bus stop. The structure was designed by artist Joe Tyler in 2004. Image courtesy Joe Tyler.

Forest Heritage National Scenic Byway A group of students waits outside the entrance to the Cradle of Forestry in America's Forest Discovery Center. Image courtesy FHWA.

This teardrop interchange along US 64 combines improved functionality while also enhancing aesthetics by the use of strong curvilinear lines and the combination of patterns and textures. Image courtesy FHWA.

These bus stations in Hamburg, Germany, are constructed of metal sheets laid out in a curvilinear, organic patter. Images courtesy Archimages.



This plan and section show the plans for the renovation project in Elkins, North Carolina that removed an existing bridge and added steps for improved pedestrian connectivity. The plans show the use of hardscapes and landscaping to create a safe and inviting setting. Images courtesy NCDOT.

"Space is the breath of art."

Frank Lloyd Wright

CHAPTER 3

FOCUS AREA BRIDGES

"It so happens that the work which is likely to be our most durable monument, is a work of bare utility; not a shrine, not a fortress, not a palace but a bridge."

Montgomery Schuyler

STANDARD BRIDGES

Standard bridges in North Carolina are typically composed of prestressed, precast concrete girder, steel plate, or wide flange I-girder bridges designed to address the issues of a specific site location. NCDOT has documented standard design plans and standard drawings with details available to NCDOT engineers and engineering consultants serving NCDOT.

The bridge over I-75 South just north of Atlanta, Georgia, has light green girders that help reduce the visual impact of the bridge. Image courtesy James Sipes.

The underside of a bridge is also part of the overall visual character seen by those traveling on the roadway. Images courtesy NCDOT.

This prestressed girder bridge crosses I-440 near Durham, North Carolina. Image courtesy James Sipes.

The flyover ramp from I-74 East to I-85 North uses a simple steel plate girder design with concrete for support. Image courtesy NCDOT.

This is a typical 4-lane highway in North Carolina. Image courtesy DepositPhotos.com.

This roadway leads to Asheville, North Carolina. Image courtesy NCDOT.

This is the Atlantic Beach Bridge in Morehead, North Carolina. Image courtesy NCDOT.

A steel girder bridge is one of the basic NCDOT bridge standards. Image courtesy FHWA.

This is a standard North Carolina bridge. Image courtesy James Sipes.

The Page Road bridge is a steel plate girder bridge and is one of several types of standard NCDOT bridges. Image courtesy James Sipes.

This simulation of the 9th Street Bridge in Washington, DC, uses darker colors for the girders that extend across the roadway as well as pigmented or painted concrete elements. Image courtesy Creative Design Resolutions.

A prestressed girder bridge along the John P. East Memorial Highway in Greenville, North Carolina. Image courtesy James Sipes.

ENHANCED BRIDGES

Enhanced bridges include adding upgrades in the form of precast elements, lighting, and other decorative additions to standard bridges. Incorporating enhancements to a bridge does not require structural changes, but should focus on small improvements that can offer advances to the overall aesthetic quality of the bridge. Historical bridges are also a type of enhanced bridge and should have enhanced applications for improved aesthetics.

Many of the bridges in the state are considered standard bridges such as box girder bridges, where addressing the aesthetics of the abutments, girders, piers, and parapets is recommended to enhance the visual character of bridges. Because of the wide variation of structural systems and bridge type, see the Section B, Chapter 7 in the Manual for Level 1 and Level 2 enhanced bridges.

The Kellogg Oliver Bridge in Wichita, Kansas includes decorative elements along the bridge span and metal rails along the top of the bridge. Image courtesy Creative Design Resolutions.

The Bunker Hill Covered Bridge is one of two covered bridges in North Carolina. Image courtesy NCDOT.

Massive geometric concrete rails are used on the Brownsville Bridge, Texas. Image courtesy FHWA.

This bridge rail has a neoclassic look highlighted by the detailed concrete columns and the iron patterns between columns. Image courtesy DepositPhotos.com.

This bridge over the Jocko River in Montana has strong, simple lines that don't distract from the landscape. Image courtesy MDOT.

The Lake Butte des Morts Crossing project consisted of 9 bridge structures in Oshkosh, Wisconsin. This bridge includes red rails and red flames along the side of the bridge to increase visual appeal. Each set of bridges represent a specific natural element; earth, water, and fire. Image courtesy WisDOT.

The Lake Butte des Morts Crossing includes expanded pedestrian crossings as part of bridge structures. For this bridge, the 'fire' them is captured by the graphic elements along both sides of the walkway and the red color and wiggly pattern of the rails. Image courtesy WisDOT.

The signature structures on the project were two 6 span pre-stressed girder bridges, which replaced two 9 span steel girder bridges. There was large focus on the aesthetic details stemming from the community outreach done during the design phase which included having each of the 5 piers represented by a different meaningful symbol. Overall, the three sets of bridges over the causeway each represented a specific natural element; earth, water, and fire. This bridge represents water. Image courtesy WisDOT.

Aesthetic design for I-275 in Tampa, Florida. Image courtesy EDAW.

End bent MSE wall for a bridge over I-75. Image courtesy James Sipes.

An image of one of the Triangle Expressway overpasses during construction. Image courtesy NCDOT.

Graphic panels on the Colorado Avenue Bridge in Colorado Springs, Colorado. Image courtesy CDOT.

The design elements define the visual quality of this bridge. Image courtesy FHWA.

Fieldstone patterns are used for piers, rails, and abutments of the Bodine Road, which crosses the Pennsylvania Turnpike. Image courtesy James Sipes.

The Heritage Bridge in Oklahoma City, Oklahoma, uses decorative abutments and piers, and red girders to define visual character. Image courtesy Creative Design Resolutions.

NCDOT replaced the bridge at Exist 104 for Enola Road that crosses Interstate 40. The City of Morganton , North Carolina, worked with NCDOT to design and fund enhancements to this bridge, including stone treatments to the retaining walls, bridge rails, and columns visible from I-40. Images courtesy NCDOT.

The stone treatments for the new bridge at Exist 104 - Enola Road that crosses Interstate 40 are created using form liners. The patterns created from the form liners were then stained to create a more natural -looking stone pattern. The columns use an attractive modular pattern that creates strong, simple lines. Image courtesy NCDOT.

This image of the Triangle Expressway and shows the use of reveals in the columns and a relief of a dogwood flower on the end of the cap. Image courtesy James Sipes.

This pedestrian bridge extends over U.S. 24 in North Carolina. Image courtesy NCDOT.

This is the Main St. Bridge in Westerville, Ohio. Image courtesy Cameron Williams.

This historic brick bridge uses stone to outline the bridge deck and rail cap. Image courtesy EDAW.

View of the Bunker Hill Covered Bridge. Image courtesy NCDOT.

Decorative elements are added to bridge railings in Indiana. Image courtesy INDOT.

The Cape Fear Memorial Bridge in Wilmington, North Carolina, contrasts with the dark blues of the sky. Image courtesy Wikipedia Commons.

The Van Duzen River Bridge in Humboldt County, California, uses light green rails to enhance the visual quality of the bridge. Image courtesy CALTRANS.

This pattern is used on support columns at the I-630 and I-430 Interchange in Little Rock, Arkansas. Image courtesy Creative Design Resolutions.

The La Cholla Boulevard from Magee Road to Lambert Lane in Tucson, Arizona includes wavy rails and decorate cactus patterns on side of the bridge. Image courtesy Creative Design Resolutions.

This bridge has a rustic ashlar surface created with form liners. Image courtesy Customrock.

This wall uses a minnehaha blend form liner to create the appearance of stone. Image courtesy Customrock.

Artistic Railing is used on the Legacy Parkway . Image courtesy Sharen Hauri, FHWA.

The Otter Creek Bridge on the Blue Ridge Parkway is constructed of stone faced arches that mimic rigid frame structures. Image courtesy FHWA.

Image of the Bunker Hill Covered Bridge. Image courtesy NCDNR.

This modern interpretation of rails includes u-shaped arches connected to a metal rail at the top of a stone retaining wall. Image courtesy DepositPhotos.com.

The Garth Brooks Bridge in Canadian County, Oklahoma, is design with strong horizontal lines, details on the columns on horizontal members, and darker girders to help add a sense of depth. Image courtesy Creative Design Resolutions.

On Paris Pike, which connects Paris, Kentucky, to Lexington, Kentucky, the new bridge over North Elkhorn Creek has a low profile that blends with the landscape. The light gray concrete, stone abutments, simple columns, and open rail are all part of the bridge aesthetics. Image courtesy Wikipedia Commons.

With the aid of visualization techniques, a presenter can create images that provide the public with a better idea of how a given project could look once implemented. Image courtesy of AECOM.

The columns under State Highway 161 in Grand Prairie, Texas, are decorated with sandstone colored stones and native plants. The raised medians use brick-colored pavers to create a greater sense of contrast. Image courtesy TXDOT.

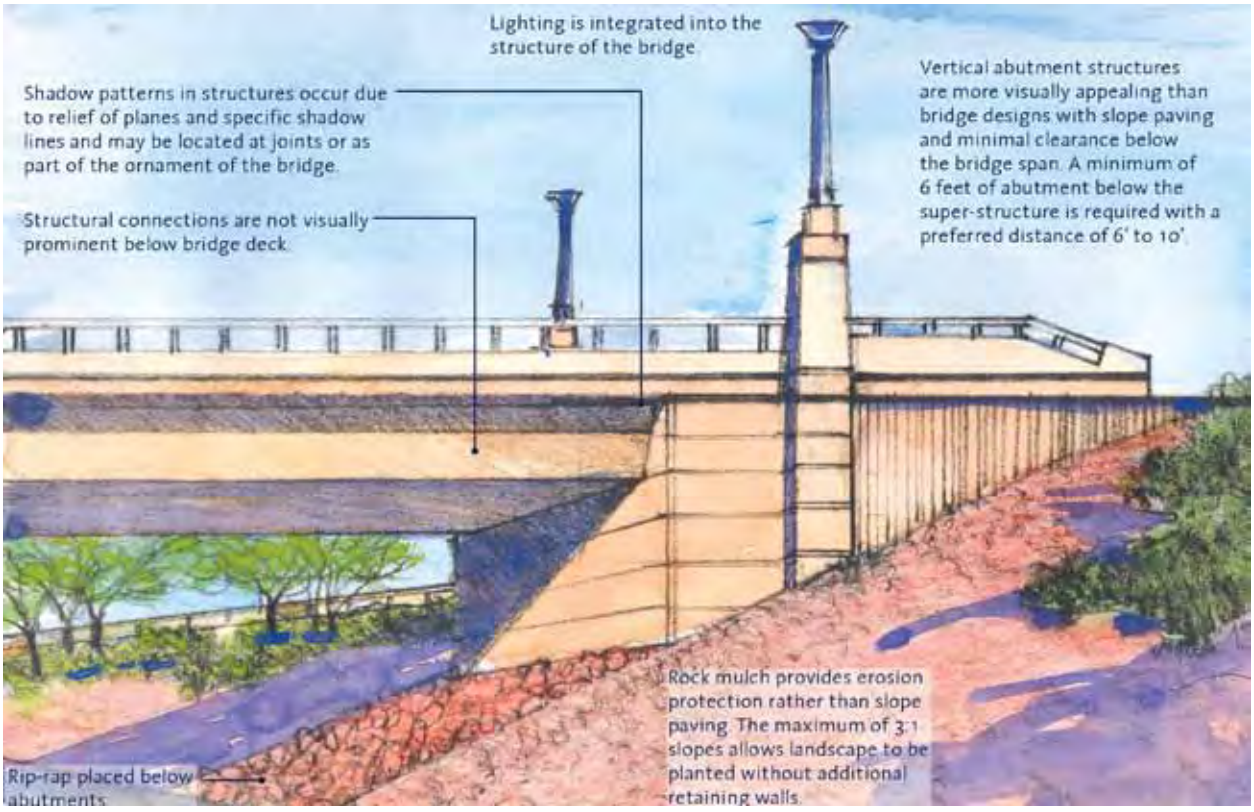
The small size of the bars makes it easier to see the river from the bridge. Image courtesy FHWA.

This concept for an interchange of I-270 and US 33 in Dublin, Ohio, includes strong lines and textured patterns. Image courtesy Creative Design Resolutions.

This overhead structure provides visual interest for this overpass. The overhead trellis will eventually be covered by the vines planted at the base of each post. This will soften the impact of the structure and create a more inviting pedestrian walk. Image courtesy EDAW.

The abutments and beam under a bridge for SR 9 over I-35 in Norman, Oklahoma, include decorative patterns. Image courtesy James Sipes.

These details were part of guidelines for bridges in Nevada. The guidelines define basic colors, patterns and forms that be applied to the bridges. Some details emphasize a neo-classic look for bridges, while other details are more simplistic and focus more on the bridge blending into the surrounding landscape. Image courtesy Design Workshop.



This sketch shows concepts for how to integrate the railings, columns, bridge deck, abutment, and landscaping for a bridge over I-15 in Las Vegas, Nevada. The sketch shows the use of shadow patterns, integrated lighting, vertical abutments structures, rock mulch and rip-rap, and structural connections. Image courtesy NVDOT.

The Lacey Road Bridge, which crosses U.S. Highway 14 in Fitchburg, Wisconsin, is highlighted by overlapping green arches that provide visual interest while also increasing safety. Image courtesy FHWA.

The "keystone" of the Thomas Jefferson Parkway is the Saunders Bridge, which opened in 2002. The bridge serves as Monticello's main vehicular entrance and links the Saunders-Monticello Trail on the north and south side of Route 53. Image courtesy VDOT.

The bridge at the junction of US 276 with the Blue Ridge Parkway is highlighted by attractive native stone. Image courtesy FHWA.

This stone bridge on the Taconic State Parkway near Shrub Oak, New York, picks up the colors of the surrounding vegetation and stone. This helps reduce the visual impact of the bridge and makes it appear to be a more permanent part of the landscape. Image courtesy Wikipedia Commons.

Concrete patterns are along this slope along Pima Drive in Scottsdale, Arizona. Image courtesy James Sipes.

The paved areas underneath the Stockton Delta Bridge in Stockton, California, have added detail created by concrete form liners. Image courtesy Creative Design Resolutions.

This simulation shows an alternative for light rail that would also serve as a gateway for the City of Raleigh, North Carolina. Image courtesy NCDOT.

Oregon Department of Transportation coordinated highway and bridge construction in the Columbia River Gorge just west of Portland, Oregon. Image courtesy FHWA.

Rock Creek Road which crosses I 35 in Norman, Oklahoma, includes reddish girders, detailed frescos on the horizontal parts of the bridge, and metal railings along the top to serve as a barrier for pedestrians. Image courtesy Creative Design Resolutions.

The dark green, metal structure that extends over Center Street in Arlington provides shade for pedestrians and also provides an extra level of visual interest. Sign posts and light fixtures use a similar style. Barriers along the road are enhanced by using dark tan panels surrounded by a light gray, smooth concrete. Image courtesy James Sipes.

The structure on the Baird Farm Road Bridge in Arlington, Texas is visually very similar to the one on Center Street, also in Arlington. The difference is that this structure has a hip roof, metal columns are smaller, and some of the details are a bit different. The two structures in Arlington are a good example of visual consistency without having to be visually uniform. Image courtesy James Sipes.

The bridge for US-77 over I-35 in Norman, Oklahoma, includes decorative details such as emblems on the abutments and horizontal rails, a styled pier, and red girders to add visual interest. Image courtesy Creative Design Resolutions.

A wooden arch bridge in North Carolina also has wooden guard rails and posts for the pedestrian walkway so there is a visual consistency for all the design elements. Image courtesy FHWA.

These patterns under Pima Drive in Scottsdale, Arizona, use native styles and colors to make the bridge more interesting. Image courtesy James Sipes.

The bridges and sloped abutments along Pima Drive in Scottsdale, Arizona, have added details that provide visual interest. Image courtesy James Sipes.

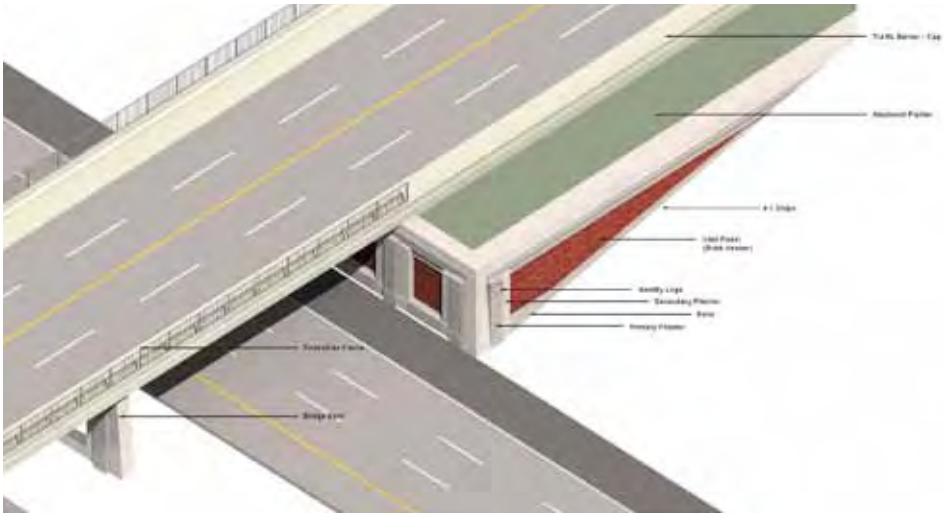
The contrast of the reddish girders with the white abutments, piers, and railing makes this bridge in Norman, Oklahoma, visually more interesting than if the girders were a light color. Image courtesy James Sipes.

View of the Triangle Expressway Toll Road. Image courtesy NCDOT.

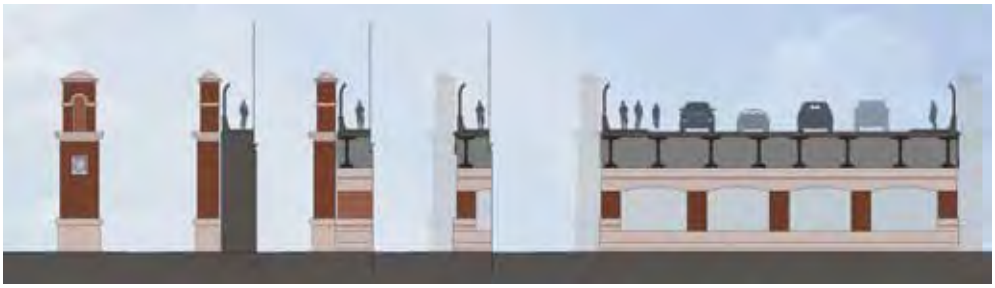
View of the Triangle Expressway Toll Road during construction. Image courtesy NCDOT.

View of a bridge abutment that is part of the Triangle Expressway Toll Road. The brick and light colored concrete defines the visual character of elements that are part of the expressway. Image courtesy NCDOT.

View of signage along the Triangle Expressway Toll Road. Image courtesy NCDOT.



This 3D model identifies the key elements for a bridge along the Triangle Expressway Toll Road. Image courtesy NCDOT.



This image shows various cross-sections and elevations for a 130' bridge for the Monroe Parkway - also referred to as the Monroe Bypass - near Charlotte, North Carolina. Image courtesy EDAW.

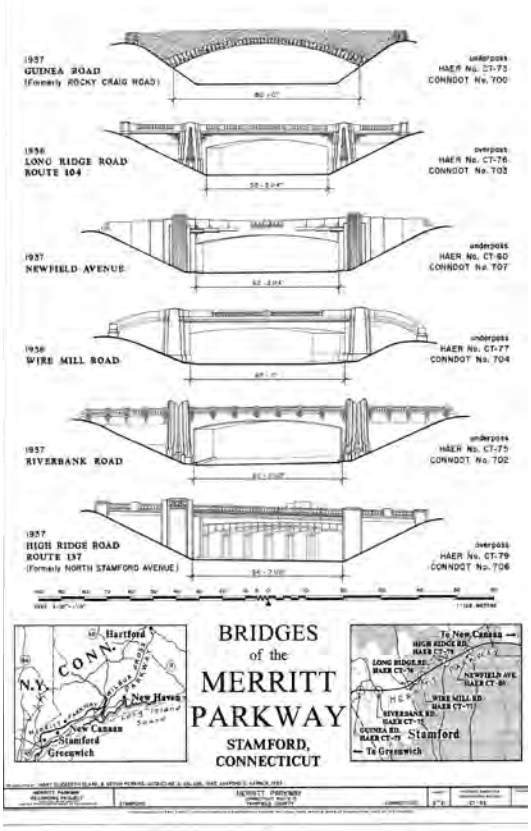
3D simulation showing a bridge on the Monroe Parkway. Image courtesy NCDOT.

3D simulation showing passing under a bridge on the Monroe Parkway. Image courtesy NCDOT.

An alternative drawing based on concepts in the Monroe Parkway Aesthetic Design Guide showing the cross-section of a major bridge. Image courtesy EDAW.

This elevation shows a bridge crossing on the Monroe Parkway. Image courtesy EDAW.

When the Merrit Parkway in southwest Connecticut was originally built, it included 69 bridges designed by George L. Dunkelberger. Each bridge had a unique design that represented various 1930s architectural styles, such as Art Deco, Art Moderne, French Renaissance, Gothic, Neoclassicism, and Rustic. Some of the bridges have been reconstructed in recent years, and three of the original bridges have been torn down and replaced. The presence of these artistic bridges is one of the reasons that the Merritt Parkway has been listed on the National Register of Historic Places. Collectively, these bridges have a major role in defining the visual character of the parkway. Image courtesy Wikipedia Commons.

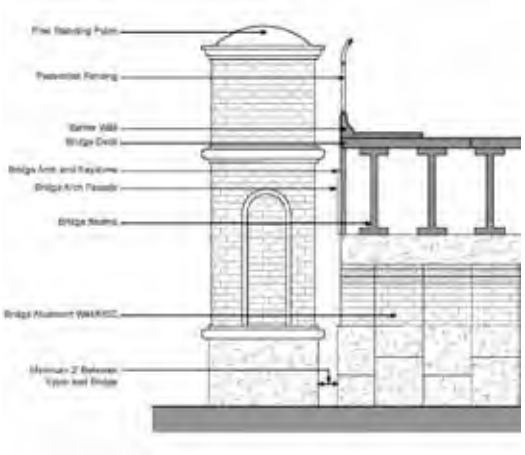


This is one set of cross sections defining some of the bridges along Merritt Parkway. Image courtesy Historic American Engineering Record (Library of Congress).

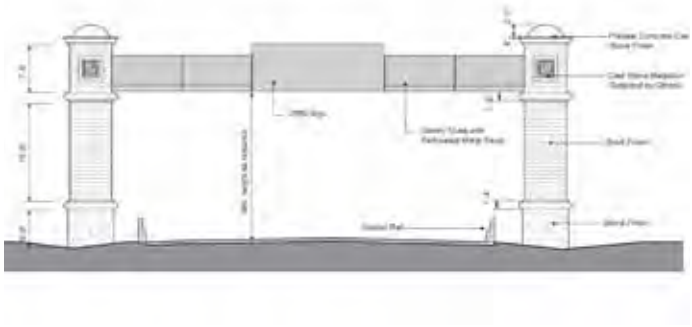
Another bridge along the Merritt Parkway. Image courtesy Dennis Adams, FHWA.

This view is along the main avenue to the bridge that carries the Merritt Parkway. Image courtesy Historic American Engineering Record (Library of Congress).

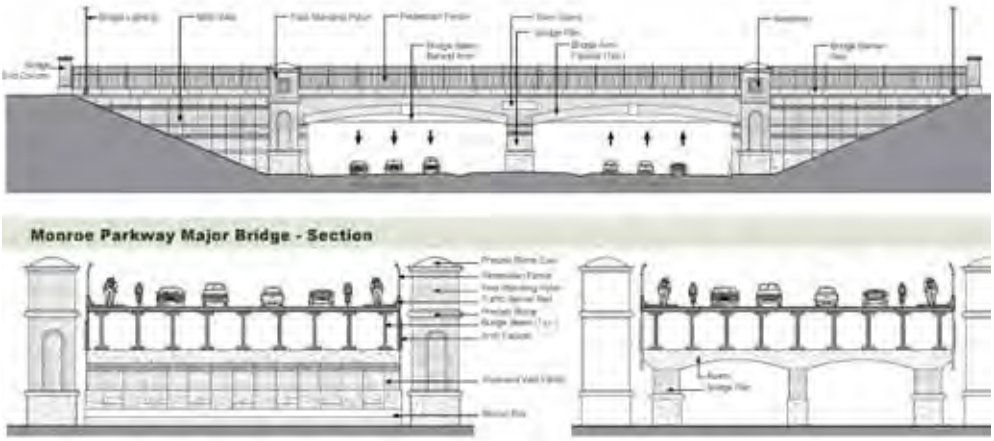
The James Farm Road Bridge is a concrete arch bridge over Merritt Parkway (CT 15) on James Farm Road in Stratford, Connecticut. Image courtesy Wikipedia Commons.



Elevation of a pylon for a Monroe Parkway bridge. Image courtesy EDAW.



This drawing shows details for a toll gantry and informational signage for the Monroe Parkway. The design elements for the gantries were consistent in design with other parts of the Parkway. Image courtesy EDAW.



Elevation of a major bridge for the Monroe Parkway. A central pier is used to support the bridge. Image courtesy EDAW.

A random fieldstone form liner gives the bridge a more natural, historic feel to the final project. Image courtesy Customrock.

A sandstone ashlar pattern was created for this bridge using form liners. The beige color of the stone pattern contrasts with the lighter color of the bottom of the arches. Image courtesy Customrock.

The work along Arlington Boulevard in Arlington, Virginia, is inspired by the native redbud trees that once inhabited the site, now displaced by the highway project. The heart-shaped leaf patterns and their seed pods add form and texture to concrete MSE walls and to two city entryway bridges at Courthouse Road and 10th Street. The leaf patterns are developed as sculptural forms with intricate detail and veining. They drape the retaining walls along the site, adding scale while softening the impact of the infrastructure on the once wooded site. Bridge spans are enhanced with laser-cut leaf patterned grills fabricated in weathering steel. These are LED back illuminated with programmable color, reflecting sky tones, transitioning hues over a fifteen-minute loop, to provide interest, movement and memorable landmarks at the entries to Arlington. Images courtesy ©Vicki Scuri SiteWorks.

LANDMARK BRIDGES

Landmark bridges typically dominate the visual landscape of their surroundings and are a sight to behold by the traveling public. These structures often elicit an emotional response and leave a lasting impression. Landmark bridges become landmarks that people recognize and these landmarks may help to define the surrounding vicinity.

Bridge types that fall into this category are suspension bridges, cable stayed bridges, extradosed bridges, arch bridges of all types and variable depth segmental concrete box girder bridges.

The Enneus Heerma Bridge connects the urban district of IJburg with eastern Amsterdam, the capital of the Netherlands. The steel bridge is 750 ft. long, 125 wide, and 85 ft. high. The bridge was completed in 2001 and the arches and lateral gables were classic gables of the canal houses in Amsterdam. Image courtesy Wikipedia Commons.

This artistic rendering is of the New Inner Belt Bridge in Cleveland, Ohio. The lacy, open steel design connecting the piers to the truss of the bridge received the greatest amount of public support in comparison to other bridge concepts. Image courtesy ODOT.

The segmented appearance of the Enneus Heerma Bridge is based on the skeleton of a crab. The wavy pattern of the bridge represents water. The arches were pre-assembled arches and floated in on pontoons, and then lifted by cranes. Image courtesy Wikipedia Commons.

The City of Council Bluffs, Iowa has been beautifying infrastructure improvements by incorporating artwork in new structures. The latest art is called "Gateway" which incorporates support pylons and tubular structures to resemble the sun's rays that were placed on the rebuilt Broadway Avenue viaduct near downtown Council Bluffs. Image courtesy Iowa DOT.

The radiating pylons and tubular structures on the Council of Bluffs Gateway Bridge is highlighted by the early morning rays of the sun. Image courtesy Iowa DOT.

The Swannanoa River Bridge is a concrete box girder bridge that was built in 1966. Located in North Carolina, it crosses the Swannanoa River and Interstate 40. Image courtesy Historic American Engineering Record (Library of Congress).

New River Gorge Bridge crosses the gorge near Fayetteville, West Virginia. For many years it was the world's longest steel single-span arch bridge, and is now the fourth longest. Image courtesy A. E. Crane.

The New River Gorge Bridge is closed to automobiles during Fayette County's "Bridge Day", which is held the third Saturday of every October. On that day the bridge becomes a large pedestrian walkway and is a destination point for both locals and tourists. Image courtesy Wikipedia Commons.

The Nanning Bridge is a through arch bridge spanning the Yong River in Guangxi, China. Image courtesy Wikipedia Commons.

The Bill Emerson Memorial Bridge extends over the Mississippi River at Cape Girardeau, Missouri. It is a cable-stayed bridge, and the combination of cables and the towers (or pylons) used to allow the cables to support the bridge deck create a dynamic visual image. Image courtesy Wikipedia Commons.

This bridge in Munich, Germany has two long, flat arches that are supported by a central column. The stone pattern on the bridge walls, the smooth lines of the arches, and the open rail all combine to define the visual character of the bridge. Image courtesy DepositPhotos.com.

The Arthur Ravenel Jr. Bridge, near Charleston, South Carolina, uses a cable-stayed suspension design with two diamond-shaped towers. Each tower is 575 feet tall, and the combination of towers and cables help make this a landmark bridge. Image courtesy David Oppenheimer.

The Arthur Ravenel Jr. Bridge is a cable-stayed bridge over the Cooper River near Charleston, South Carolina. The bridge connects downtown Charleston to Mount Pleasant. Image courtesy FHWA.

The I-91 Brattleboro Bridge Improvements Project located in Brattleboro, Vermont includes the replacement of four bridges with two new bridges. One bridge, referred to as "A Bridge to Nature," is a new 3-span, 1,036-foot arching concrete bridge over the West River. The 515-foot main span forms an open gateway anchored by curving, cathedral piers. The superstructure, piers, viewing platforms, and railings are complementary of the natural landscape. The piers feature Vermont inspired, stone-formed concrete that blends with the local environment. A Visual Quality Advisory Team selected eco-friendly concrete stain colors, platform railing designs, and other aesthetic details. Image courtesy Vermont Transportation.

This is a close-up view of the stone-formed central columns for the Bridge to Nature that are intended to reflect the natural stone found in Vermont. Image courtesy Vermont Transportation.

The Chaotianmen Bridge in Chongqing city is the largest arch bridge world. Its main span is 1811 feet. Image courtesy Wikipedia Commons.

Santiago Calatrava's Sundial Bridge is a cantilever spar cable-stayed bridge for bicycles and pedestrians that spans the Sacramento River in Redding, California. The bridge has become iconic for Redding. The tall vertical element serves as a visual focal point. Image courtesy Wikipedia Commons.

The Sundial Bridge involved the redesign of an old railroad bridge over the Sacramento river. It connects to Caldwell Park in Redding, California. The contrast of the light colors of the bridge with the dark green vegetation makes the bridge more visible. Image courtesy Wikipedia Commons.

The French King Bridge in Erving, Massachusetts is a landmark bridge with strong lines that are complimented by the setting. Image courtesy Tom NC Photography.

The Linn Cove Viaduct is part of the Blue Ridge Parkway in North Carolina. The clean, simple lines of the bridge contrast with the vegetation in the background, and the color is consistent with the exposed stone in the mountain. Image courtesy NPS.

A View of Sunlight Bridge as it crosses Sunlight Creek on Wyoming Highway 296, also known as the Chief Joseph Scenic Highway. The strong, simple horizontal lines of the bridge reduce potential visual impacts and allow visitors to focus more on the surrounding landscape. Image courtesy Talbot Hauffe, WYDOT.

The Ridge Road Bridge over I-70 in Frederick County, Maryland, serves as a visual landmark because of the strong, simple lines of the top deck and support columns, and the curved arch of the bottom support. The bridge crosses I-70 at an angle, so the bridge is shown with foreshortening. Image courtesy FHWA.

Pisgah Covered Bridge is a wooden covered bridge that spans the west fork of the Little River in Randolph County, North Carolina. It is one of two remaining original historic covered bridges in the state and is designated as both a local and federal historic landmark. The landmark character of the bridge comes from the bridge's historic significance. Image courtesy Wikipedia Commons.

This arch bridge, with its visually dominant vertical ties, creates a strong, dominant landmark in the landscape. The earth tone colors of the bridge are consistent with that of adjacent exposed stone. Image courtesy DepositPhotos.com.

The Millau Viaduct has been called the 'most beautiful bridge in the world' by many critics. It is designed by the French structural engineer Michel Virlogeux and British architect Norman Foster. The Millau Viaduct is the tallest bridge in the world, with one mast's summit at 343 meters above the base of the structure. This image shows the walkway on the outer edge of the bridge. Image courtesy Wikipedia Commons.

This is another view of Millau Viaduct. Image courtesy AECOM.

A view of Millau Viaduct. Image courtesy AECOM.

The Millau Viaduct a cable-stayed bridge that spans the valley of the River Tarn near Millau in southern France. Image courtesy DepositPhotos.com.

Salginatobel Bridge is a reinforced concrete arch bridge designed by Swiss civil engineer Robert Maillart. It was constructed across an alpine valley in Schiers, Switzerland between 1929 and 1930. Image courtesy Wikipedia Commons.

The Natchez Trace Parkway Bridges is a double-arch bridge that spans across Highway 96 near Nashville, Tennessee. It's located at mile marker 438 on the Natchez Trace Parkway. The bridge was completed in 1994, and is the first segmentally constructed concrete arch bridge in the United States. Image courtesy FHWA.

CHAPTER 4

FOCUS AREA NOISE WALLS

"A barrier is more likely to be accepted by the public if it is a visual complement to the community."

Federal Highway Administration

STANDARD NOISE WALLS

Standard noise wall used by NCDOT in the past have been constructed of steel piles and concrete panels with exposed aggregate on the roadway facing and a smooth concrete surface on the community facing. Concrete columns with the use of patterns in various textures and colors created using form liners are becoming common. The most commonly used patterns for standard noise walls are ashlar stone, stacked stone, and brick. Some walls include a stain along the upper section of wall in order to visually create a faux cap.

These are examples of Standard Noise Walls used along North Carolina roadways. Both use a pier and panel approach for wall construction. Images courtesy NCDOT.

These walls are variations of Standard Walls along North Carolina roadways. Images courtesy NCDOT.

ENHANCED NOISE WALLS

Enhanced noise walls involve adding an additional level of detail to standard noise walls. This detail could include decorative surfaces, a combination of materials, the addition of emblems and artistic pieces, creative colors and textures, or a combination of all of the above. These walls are typically more visible and enhance the visual character of the roadway corridor.

This ashlar stone finish noise wall includes a reflective facing. This side of the wall is on the residential side of the development. Image courtesy NCDOT.

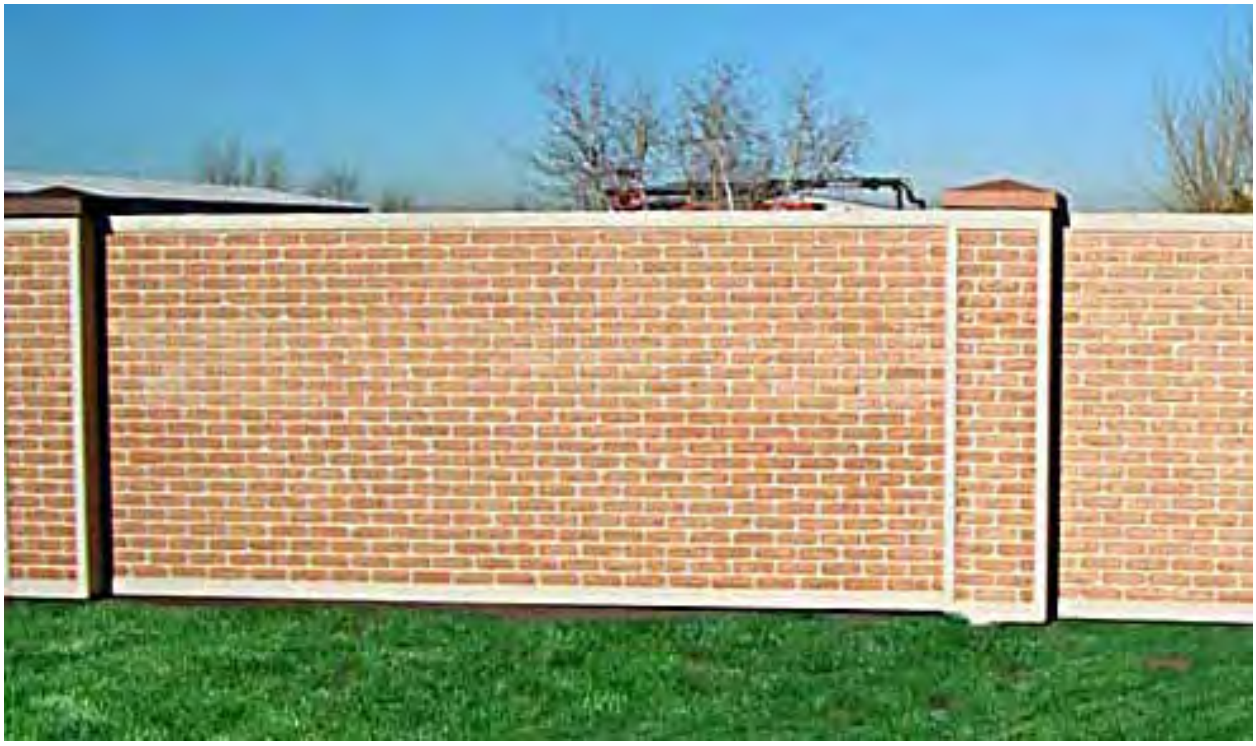
This basketweave pattern on MSE walls is near the 193rd East Avenue and US-412 Interchange in Tulsa, Oklahoma. Image courtesy Creative Design Resolutions.

These decorative panels use a combination of light and dark gray colors for added visual contrast. Image courtesy FHWA.

These wooden panels in Disney World,Orlando, Florida, help reduce noise and minimize views of surrounding areas. The road leads to a tunnel that goes under the surrounding land. Image courtesy James Sipes.

This is a test panel constructed for a proposed aesthetic wall treatment on US 321 in Blowing Rock, North Carolina. The test panel shows the color, texture, and detail of the front panel and the top of wall treatment. The basic idea behind a test panel is to ensure that the wall, as constructed, is consistent with the design for the wall. Image courtesy NCDOT.

This precast concrete panel wall is decorated with what looks like stylistic vegetation patterns. Light gray jersey barriers are located in front of the wild. This is a great example of artist designed precast panels from artist Carolyn Braaksma. Image courtesy Carolyn Braaksma.



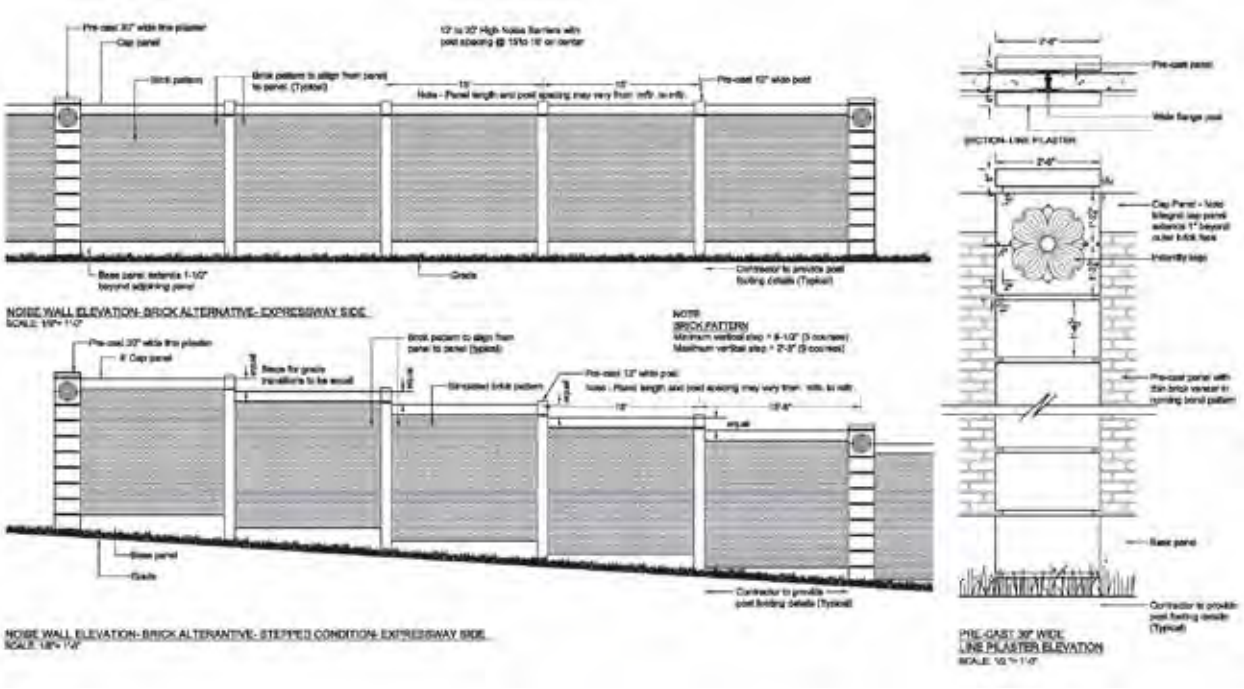
This is a standard concrete noise wall with form liners used to create the appearance of bricks. The lighter colors on the columns and along the top and bottom of the walls visually fits the 'grout' lines in the panels. Image courtesy FHWA.

This wall is constructed of light-colored concrete piers and cap, and precast panels created with used brick form liner. Image courtesy Customrock.

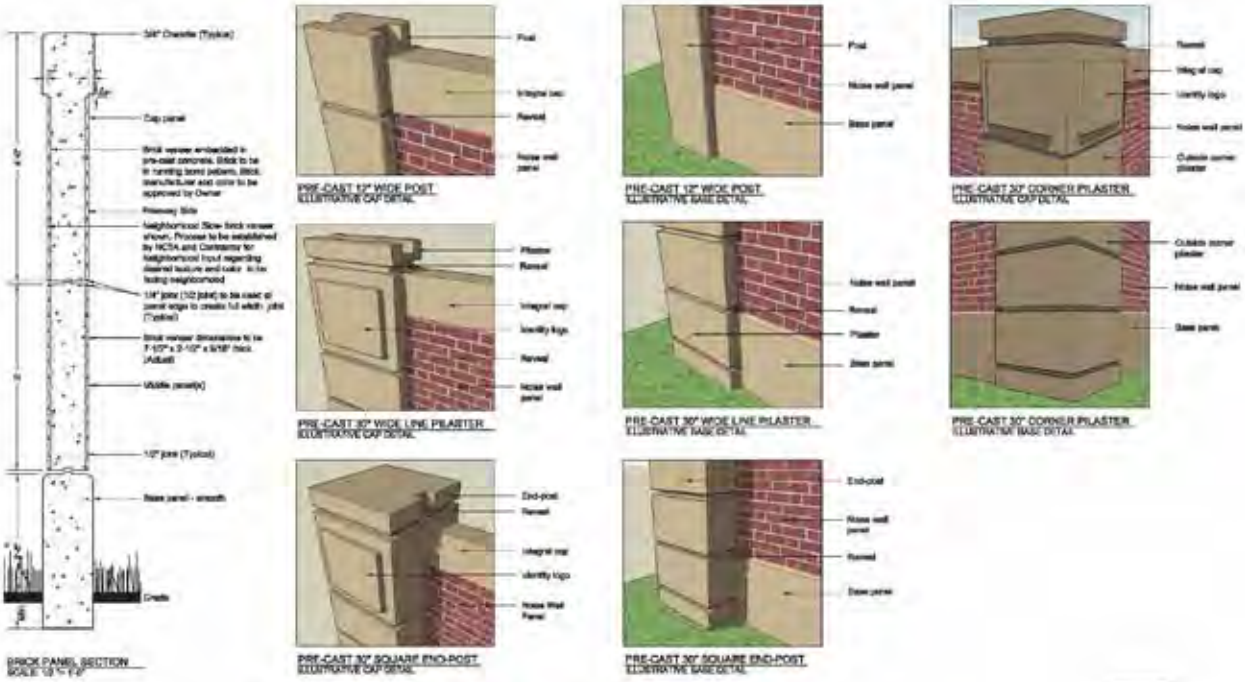
This standard NCDOT wall includes steel pilings, an ashlar stone pattern created with form liners, and a faux top created by a smooth surface along the top of the wall. Image courtesy James Sipes.

This visual simulation shows a brick wall pattern with concrete columns along I-277. Image courtesy NCDOT.

A rustic ashlar stone pattern stained to create a darker surface is outlined by smooth concrete piers. There is no cap along the top of the wall. Image courtesy Customrock.



These elevations show the level of detail to be implemented as part the the noise walls used for the Triangle Expressway in Raleigh, North Carolina. The top elevation shows a noise well along level ground, while the bottom elevation shows how the walls would step down to follow the grade for steeper slopes. Image courtesy NCDOT.



These graphics show additional details for the Triangle Expressway noise walls. Image courtesy NCDOT.

This brick noise wall is installed along U.S. 540 in Raleigh, North Carolina. The mature vegetation behind the wall and the newer vegetation in front help reduce the visual impact of the wall. Image courtesy James Sipes.

Decorative precast concrete panels are used along SR 216 in Howard County, Maryland. It is worth noting that these decorative panels and adjacent to exposed aggregate panels (to the right). Image courtesy Creative Design Resolutions.

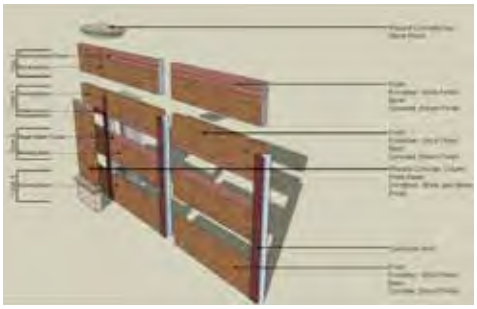
Retaining walls along US 54 through Wichita, Kansas, use a darker earthtone stain and wavy patterns to provide visual interest while also reducing the visual impact of the wall. Image courtesy Creative Design Resolutions.

This noise barrier system uses taller, more decorative panels to add visual interest to the wavy concrete panels. All of the components use earth colors such as beige and light brown, with shadow patterns added visual interest. Image courtesy Durisol.

These precast concrete panels represent a rolling landscape on the bottom and an infinite sky on the top, represented by darker horizontal lines. Image courtesy FHWA.

This noise wall along State Highway 161 in Grand Prairie, Texas, is a fairly standard precast concrete wall with concrete Jersey barriers in front of the wall. However, the panels are decorated with clouds, wildflowers, and native grasses via the use of form liners, and the barriers, panels, and columns are all stained with a tan earthtone color. Image courtesy James Sipes.

These LSE Sound Barrier walls help absorb noise. Image courtesy James Sipes.



These 3D digital models show concepts for sound walls along the Monroe Bypass, a proposed toll road near Charlotte, North Carolina. Image courtesy NCDOT.

Ashlar gray stone patterns are used to create these precast panels. The smooth piles and caps help create a more finished look. Image courtesy Customrock.

As part of the Willamette (OR) Passage Bridge, which opened to traffic in August 2013, the project included a new multi-use path, soundwalls, and landscaping. The soundwalls are constructed of light and dark gray concrete masonry units (CMU), with darker CMU blocks on the lower parts of the wall. The changes in color add visual interest without being too distracting. Image courtesy ODOT.

Neighborhood side of noise wall with cactus images designed by Braaksma Design in Scottsdale, Arizona. Image courtesy Liz Pope, Scott Systems.

LANDMARK NOISE WALLS

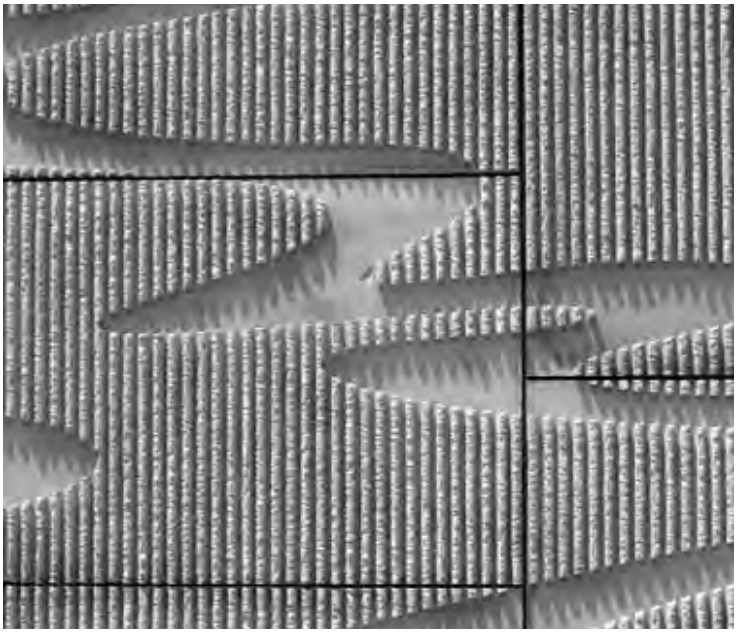
A landmark noise wall is one that goes beyond functionality only to create a visual focal point that stands apart from its surroundings. A landmark noise wall can be considered a public art piece that attracts the attention of not only motorists, but others on the roadway and members of a community.

These types of walls can help define a community's sense of identity, or enhance one that already exists. It is intended to be something different and unique and often builds upon the history and culture of a place, but may be more abstract and modernistic. It goes beyond enhancing a standard wall by the use of higher quality materials, native materials, or the level of detail and increased quality.

This sound wall in Scottsdale, Arizona, is designed to be a positive visual element within the community. The wall has a curved shape that is augmented by the meandering patterns of stone encased in a metal mesh, and the diagonal pattern of the bricks in the wall help suggest the fish is moving forward. The same wall pattern is used along the length of the street. Image courtesy James Sipes.

This precast concrete noise wall uses a fieldstone pattern on the panels, a shadow box and cap on columns, and a smooth pattern for the base and cap of the panels to add visual consistency and continuity. All of the components are a light grey, which helps reduce the visual dominance of the wall. Image courtesy James Sipes.

Stone walls and wood fences help define the visual character of Paris Pike, which runs through Kentucky horse country. Image courtesy FHWA.



This is an example of precast concrete panels that fit together to create a wave pattern. The combination of the wave pattern and the variations in texture with the groved vertical lines in the foreground and the smooth texture in the background help create visual interest. Image courtesy FHWA.

This noise wall under construction is designed by artist Carolyn Braaksma for the Charlotte Area Transit System.

CHAPTER 5

FOCUS AREA RETAINING WALLS

"Wall structures are prominent and high cost components of the highway system and their aesthetic treatments can have a strong influence on the visual character of a highway corridor."

California Department of Transportation

STANDARD RETAINING WALLS

In North Carolina, typical retaining walls have standard wall facing of smooth concrete. Typical wall types can vary largely depending on the roadway context, type, and structural requirements. Most retaining walls are incorporated toward the end of the planning process with little time available to improve a standard wall to an enhanced or landmark wall.

These retaining walls are used to create bridge abutments that structurally support the bridge over the roadway and stabilize the adjacent slopes. These walls are made of modular MSE panels outlined by concrete caps. A standard jersey barrier is located in front of the wall. Image courtesy James Sipes.

This standard retaining wall is constructed of modular concrete blocks. Image courtesy NCDOT.

This bridge abutment is located near the intersection of I-85 and I-485. Image courtesy NCDOT.

These images show Standard bridge abutments (very top & right) that are poured-in-place concrete that stabilizes the slopes, with plantings along the sides, The image above shows a Standard concrete retaining wall along a roadway. Image courtesy James Sipes.

These retaining walls constructed of steel piers and precast concrete panels are used to stabilize slopes along North Carolina roadways. Emphasis is more on functionality than aesthetic appeal. Image courtesy NCDOT.

ENHANCED RETAINING WALLS

Enhanced retaining walls involve adding an additional level of detail to standard retaining walls. This detail could include decorative surfaces, a combination of materials, the addition of emblems and artistic pieces, and creative colors and textures. These are walls that are typically visible and do more than provide functionality because they enhance the visual character of the roadway corridor.

The retaining walls that make up the abutments for this bridge along I-70 near the Indianapolis Airport are constructed of reinforced earth MSE precast retaining wall. The smooth texture and while color of the bridge and railings visually fit with the light to medium gray panels that look a bit like slate. Image courtesy INDOT.

A reinforced earth MSE precast retaining wall in Charlotte, North Carolina. The red cap and vertical lines creates contrast with the medium gray brick pattern of the precast panels. Image courtesy James Sipes.

Despite its height, this retaining wall is not visually objectionable because the stone veneer reduces the perceived scale of the wall. Image courtesy DepositPhotos.com.

Retaining walls along I-405 through Renton, Washington, are constructed of precast Mechanically Stabilized Earth (MSE) wall panels. The smooth texture of the horizontal caps and base provide a level of contrast from the stone panel texture. Image courtesy WSDOT.

A used brick form liner is used for the surface of this wall. Image courtesy EDAW.

This is a tiered retaining wall system in Scottsdale, Arizona. Image courtesy James Sipes.

A close-up view of the wooden panels along the roadway in Disney World, Orlando, Florida, shows the variety of patterns that are used to provide visual interest. The green is used to highlight lattice work and to make the panels visually fit better with adjacent vegetation. Image courtesy James Sipes.

This noise wall in Bonville, New South Wales, is at a slight angle so that adjacent panels have an offset from the previous panel. An angular pattern is used to decorate the wall. Image courtesy EDAW.

This retaining wall uses a form liner stone pattern to minimize visual impacts on the adjacent neighborhood. Image courtesy Charles Scott.

This bridge abutment is constructed of MSE panels with form lined stone pattern surfaces. Image courtesy James Sipes.

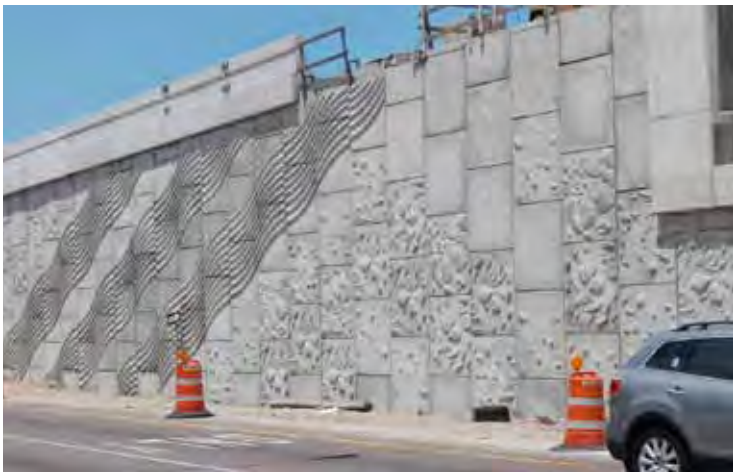
This retaining wall is along the Sam Rayburn Tollway in Plano, Texas. Image courtesy TXDOT.

This bridge abutment has a stone pattern surface to add visual interest by using a finer texture and warmer color. Image courtesy NCDOT.

Old Frankfort Pike is a scenic byway in Lexington, Kentucky. The dry stack stone walls, also called 'slave walls,' that line both sides of much of the road were created in the early 1800s from limestone collected in neighboring fields. Dry stone is a building method by which structures are constructed from stones without any mortar to bind them together. Image courtesy A. Crane.

Contractors are using shotcrete to complete the structural construction phase of a wall below the Food Lion on US 321 in Blowing Rock North Carolina. Image courtesy NCDOT.

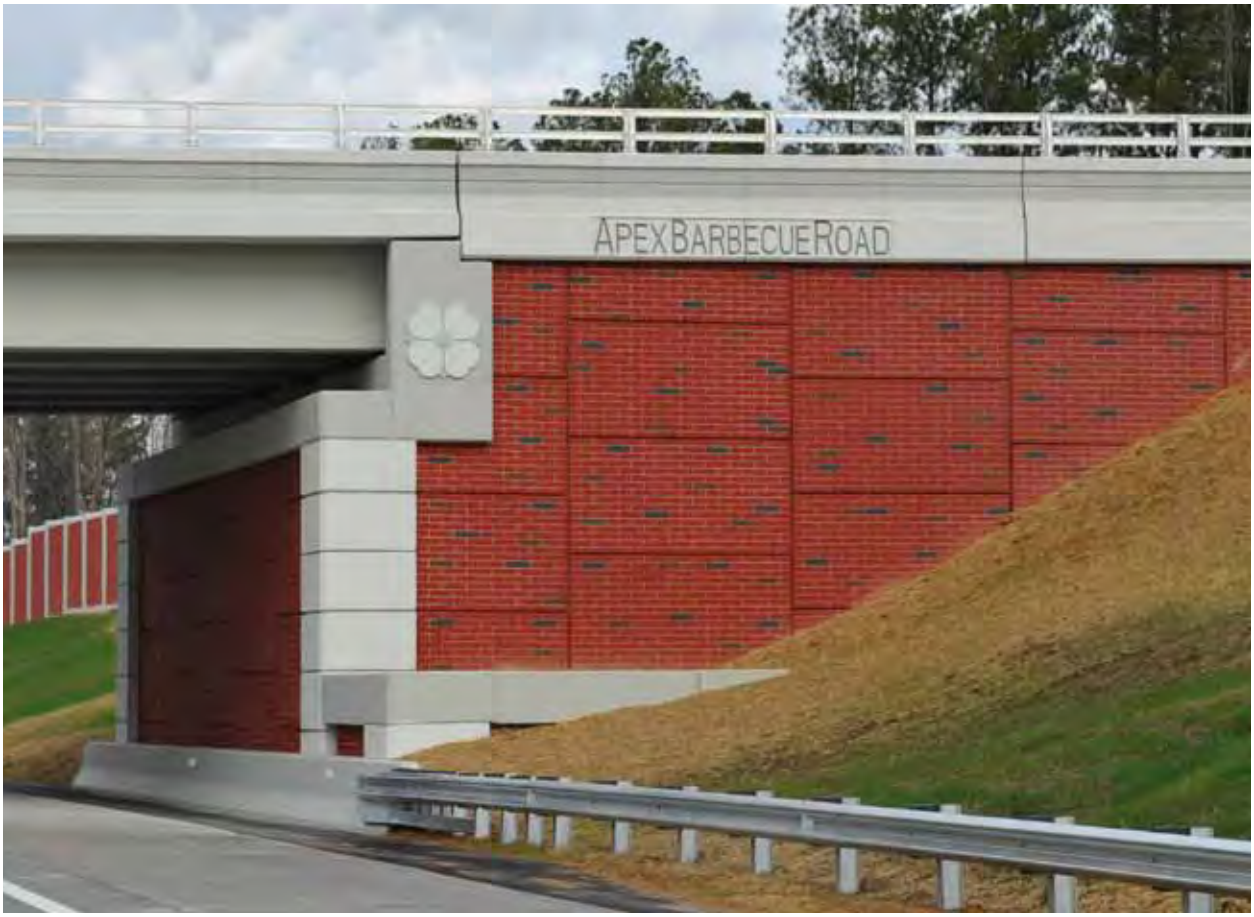
This image shows the construction of a retaining wall using MSE panels featuring a variety of concrete textures, forms, and colors. The variation in the panels helps add visual interest, but the basic consistency in color and the modular approach to the panels helps provide visual continuity. Image courtesy James Sipes.



Wavy diagonal lines and patterns that look like shells and other sea elements are used for a precast concrete retaining wall at the intersection of US 19 and SR 60 in Clearwater, Florida. Image courtesy Creative Design Resolutions.

Construction for this concrete retaining wall is nearing completion. Form liners were used to create the patterns. Image courtesy FHWA.

This image shows how a wall created with a form liner is being stained by hand to create a more realistic appearance of the stone. Image courtesy NCDOT.



The bridge abutments for the Triangle Expressway consist of brick patterns created with form liner, grey concrete panels that create a strong, defined edge, a decorative image, and the title of the road that crosses overhead. Image courtesy James Sipes.

At the Ravens Roost Overlook along Blue Ridge Parkway, a rusticated stone retaining wall railing with stone curbing helps define the overall character of the Parkway. This level of detail compliments that natural beauty of the surrounding landscape because the stone was quarried locally. Image courtesy Historic American Engineering Record (Library of Congress).

The two murals at Exit 105 on Sterling Street, a silhouette carving of the Table Rock and Hawksbill mountain range, were designed by Michael Berley, Project Designer for the City of Morganton. Images courtesy NCDOT.

LANDMARK RETAINING WALLS

A landmark retaining wall is one that goes beyond functionality to create a visual focal point that stands out from its surroundings. Walls that are considered landmark incorporate public art features or represent cultural or historical values of the community through aesthetic features.

The Path Most Traveled is an artist designed wall located along six miles of the Pima Freeway/Loop 101. The artwork by Braaksma Design Inc, reflects the culture and character of Scottsdale, Arizona, and its desert environment. This detail shows a lizard on a background of lizard skin. The wall is visible to pedestrians, cyclists and motorists traveling on local streets. Image courtesy of Arizona DOT.

This pattern of an airplane flying through the clouds is on a retaining wall in Milwaukee, Wisconsin. Image courtesy Customrock.

Birds, clouds, and arched panels are used for this retaining wall in San Juan Capistrano, California. Image courtesy Customrock.

This abutment on the Main Street Bridge in Norman, Oklahoma, includes diagonal patterns, a stone cap, and large round images showing the Oklahoma Land Rush that occurred in 1889. Image courtesy Creative Design Resolutions

NCDOT is replacing both bridges at Interstate 40 Exits 105 on Sterling Street and Exit 104 on Enola Road. This provided an opportunity to improve visual character of the bridges. Enhancements at Exit 105 include two murals on the underpass walls, stone treatments to the bridge rails, and stone treatment of a retaining wall on the westbound off ramp. Images courtesy NCDOT.

The Outer Loop traverses the Franklin Mountains linking East and West El Paso around the perimeter of the City. The new construction creates a central spine flanked on both sides by one-way frontage roads that lead into neighborhoods and businesses. The work is a sequential ribbon of faceted and undulating pattern motifs based on geometric mountain faceting and the local diamond back rattler. There are approximately nine interchanges along this route. The project features 2" relief that responds to light conditions and enhances the experience of travel and destination marking neighborhood entries. There are over 400,000 sq. ft. of patterned MSE walls linking this project together, promoting mobility and place making. Images courtesy Vicki Scuri SiteWorks.

Turtles are part of a form liner pattern on this wall in Corpus Christi, Texas. Image courtesy Customrock.

This bridge is part of a decorative motif along a retaining wall that parallels an adjacent highway. The consistency of the color helps make the motif part of the overall wall. Image courtesy EDAW.

This decorative stone retaining wall in Scottsdale, Arizona, is used in a neighborhood area along the edge of the roadway. The look of the wall, along with the variations in color and patterns, provide a nice level of detail that is visible to slow moving traffic. Image courtesy James Sipes.

This wall, designed by artist Vicki Scuri SiteWorks with AECOM Transportation, is along the Arlington Boulevard, Highway 50, in Arlington County, Virginia. Image courtesy ©Vicki Scuri SiteWorks.

The Pere Marquette Rail Trail is a 30-mile rail to trail conversion project that runs from Midland to Clare, Michigan. Image courtesy FHWA.

This precast retaining wall in Alberta, Canada, with cobblestones use for the walls, headwalls, bridges, and roads. Image courtesy Redi-Rock.

This stone wall is along NC 215. The road crests where it meets the Blue Ridge Parkway, North Carolina. Image courtesy FHWA.

This is another example of using native materials to create a green wall along the grade separation of the roadway and a multipurpose trail. Image courtesy EDAW.

The use of keystone blocks or other materials that provide openings can be used to develop a green wall. Image courtesy EDAW.

Retaining wall with relief of Dallas Cowboy football players along the Tom Landry Freeway in Texas. Image courtesy James Sipes.

This large retaining wall uses a mosaic of mountain peaks created with form lined concrete to add visual interest and break up the perceived scale of the wall. Image courtesy FHWA.

CHAPTER 6

FOCUS AREA ROADSIDE ENVIRONMENT AND LANDSCAPE

"Our environment, the world in which we live and work, is a mirror of our attitudes and expectations."

Earl Nightingale

STANDARD ROADSIDE ENVIRONMENT AND LANDSCAPE

Standard roadside environment and landscape practices in North Carolina include plantings in accordance with NCDOT REU standards. Generally, standard plantings include using indigenous vegetation to the extent possible for low-maintenance plantings. Visually, standard plantings should incorporate the surrounding landscape and roadway infrastructure.

A large landscaped median separates travel lanes. The median includes groundcover of different colors and textures to add visual interest, and the trees help create a visual buffer. Image courtesy DepositPhotos.com.

The I-85 Corridor Enhancement. Image courtesy James Sipes.

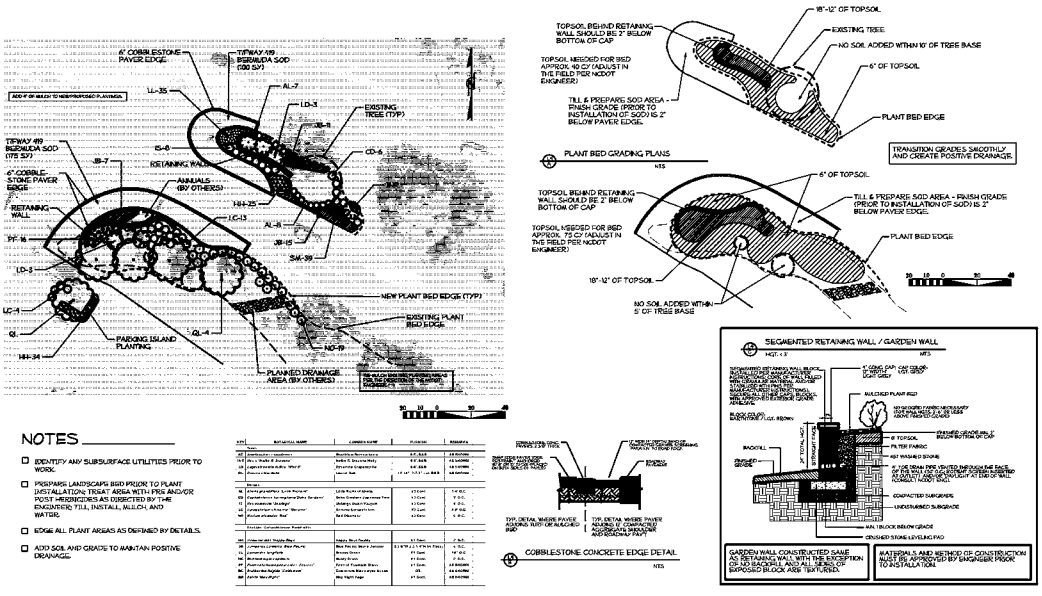
This wooded areas is located near one of the rest areas along I-85. Typically these types of vegetated areas are preserved, helping maintain the existing visual and environmental character of the area, and reducing the visual impacts associated with the rest area and the adjacent interstate highway. Image courtesy James Sipes.

Poppies are planted along the edge of the right of way for this North Carolina road. Image courtesy NCDOT.

A conceptual plan for US 321 near Blowing Rock, North Carolina, shows how mass plantings would help define the corridor. Image courtesy NCDOT.

This standard landscaping is for Erwin Road in Durham, North Carolina. Image courtesy NCDOT.

This streetscape plan is for Elizabethtown, North Carolina. Image courtesy NCDOT.



This sheet is part of the landscape development plan prepared for Wrightsville Beach. The sheets identify the design, layout, and specifications for the areas to be planted. Image courtesy NCDOT.

An image of plantings at West Chapel Hill Street during summer. Image courtesy James Sipes.

A mix of different wildflowers are planted along this rural road in eastern Iowa. Image courtesy DepositPhotos.com.

A variety of landscape plantings are used in the road median at Disney World, Florida. Image courtesy James Sipes.

In September 2004 NCDOT launched a new long-range plan that prioritizing transportation investments. Image courtesy NCDOT.

This planting is part of Iowa's Integrated Roadside Vegetation Management Program. Image courtesy FHWA.

Wildflowers are planted along many of the state's highways and roads in order to enhance visual character, stabilize the soil, and reduce maintenance associated with mowing. Yellow day lilies are commonly planted in long rectilinear patterns along the right of way, in triangle patterns along bridge abutments and exit ramps, and in mass in other ways where the lilies have a more natural, dispersed pattern. Image courtesy James Sipes.

The visual impact of wildflowers is increased if they are planted along both sides of the highway. This is especially true if wildflowers are also planted in the media, creating a visual expanse of the yellow day lilies. Image courtesy James Sipes.

These images show planting beds located at rest areas along I-85 in western North Carolina. Images courtesy James Sipes.

These plantings are part of Iowa's Wildflower Program. Image courtesy Iowa DOT.

This new planting augments existing trees and will eventually develop into a dense massing that helps define the roadway corridor. Image courtesy James Sipes.

This planting mass is along a step slope that is part of the elevation for a bridge over I-85. The planting is visible for eastbound traffic. Image courtesy James Sipes.

This colorful planting is at the intersection of Guess Rd. and Hillandale Rd. near I-85. The median helps define the planting bed. Image courtesy James Sipes.

This plan shows basic planting concepts for the US 321 streetscape. Image courtesy NCDOT.

Wildflowers along a North Carolina highway. Image courtesy NCDOT.

The use of a different native grasses and wildflowers along the Manchaca Greenway near Austin, Texas, creates subtle colors that blend with the surrounding landscape. Image courtesy TXDOT.

This planting mass helps reduce the visual impact of the abutment for the Highway 26 Bridge. Image courtesy James Sipes.

A new planting of deciduous trees is located along I-85 in the western part of North Carolina. Image courtesy James Sipes.

This mass of wildflowers provides visual interest along I-85. This planting is along an entry to the roadway. Image courtesy James Sipes.

This is another view of the plantings at the interchange of 141 and Huffman Mill Road in Burlington, North Carolina. Image courtesy NCDOT.

This mass of wildflowers is located at the entrance to a visitor center along I-85 in western North Carolina. Image courtesy James Sipes.

A row of trees are planted along an access road to I-85 in western North Carolina. These trees block views of the interstate and encourage motorists to focus their views on the access road itself. Image courtesy James Sipes.

The use of masses of native wildflowers along both sides of I-85 in western North Carolina helps create the feeling of driving through a field of flowers. Image courtesy James Sipes.

Dense plantings help reduce the perceived scale of this bridge crossing I-40 near Winston Salem, North Carolina. Image courtesy James Sipes.

These plantings help guide pedestrian movement and provide visual variety for the entrance into the I-26 Rest Area in North Carolina. Image courtesy James Sipes.

A mature landscape planting along I-40 has grown into a dense massing. Image courtesy James Sipes.

This planting is at Exit 145 off of I-95. The planting includes several large shrubs, native grasses, and plant massing to minimize the visual impact of the bridge abutments. Image courtesy James Sipes.

This planting is at a rest area along I-40 in North Carolina. Image courtesy James Sipes.

This mature landscaping is in Winston-Salem, North Carolina. Image courtesy James Sipes.

New plantings along the interchange of 1-41 and Huffman Mill Road in Burlington, North Carolina, will eventually help soften the visual impact of the abutments. Image courtesy NCDOT.

These ornamental plantings were installed in Winston Salem, North Carolina, along I-40. The combination of colors, textures, and forms help reduce the visual image of bridge abutments while provide visual interest for motorists crossing over I-40. Image courtesy James Sipes.

These plantings are along I-85 in North Carolina. The colors of the native grasses and small shrubs visually blend with the surrounding landscaping, but the shapes stand out because of their clearly defined edges. As the plants grow and mature, these visual edges won't be so prominent. Image courtesy James Sipes.

This is a combination of new plantings and mature landscaping along a North Carolina roadway. Image courtesy James Sipes.

This landscaping is along I-40 in North Carolina. Image courtesy James Sipes.

This layered landscaping is along Highway 26 near Asheville, North Carolina. Image courtesy James Sipes.

This close-up view of roadside flowers implemented as part of NCDOT's wildflower program shows some of the species that add a touch of color within the highway right of way. Image courtesy NCDOT.

Grayhead Coneflowers are in bloom in July along this North Carolina roadway. Image courtesy NCDOT.

This image shows mature landscaping at a bridge intersection along the John P. East Memorial Highway in Farmville, North Carolina. Image courtesy James Sipes.

Landscaping along the parking area at this I-26 rest area is used to control pedestrian movement while also adding visual interest. Image courtesy James Sipes.

This mass of wildflowers is in NCDOT's Division 9, which includes Davidson, Davie, Forsyth, Rowan, Stokes counties. Image courtesy NCDOT.

This plan shows landscaping for the traffic circle at Pinehurst, North Carolina. The basic idea is to preserve existing trees and to use impatiens, marigolds, and salvia for added visual interest. Image courtesy of NCDOT.

These wildflowers are near Robbinsville, North Carolina. Image courtesy Sheridan Alexander.

The use of wildflowers is one of the easiest ways to visually distinguish North Carolina roads from those of other states. Image courtesy NCDOT.

Native grasses are used along the roadside along I-85. The variations in color and height make the plants more visible, and the fine texture creates a "fuzzy" appearance. Image courtesy James Sipes.

Mass planting of wildflowers in the highway median helps visually separate the travel lanes. Image courtesy NCDOT.

This rendered plan is for the Smith Creek Parkway (U92 Project) in North Carolina. This image shows NCDOT's plan to mitigate for a historic district area. Image courtesy NCDOT.

Wildflowers are used among major roadways in North Carolina. Images courtesy NCDOT.

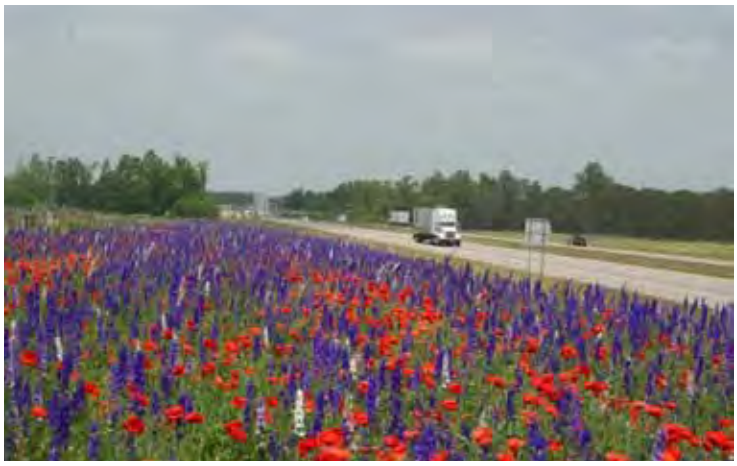
This image in south-central North Carolina shows the variety of wildflowers being used. Images courtesy NCDOT.

This is a standard streetscape plan developed along North Carolina roadways. The actual plan varies based upon existing site conditions. Image courtesy NCDOT.

ENHANCED ROADSIDE ENVIRONMENT AND LANDSCAPE

Enhanced roadside environment and landscape involves building on the standard approach. It is recommended to do this through adding additional detail to planting designs, coordinating the visual fit of plantings with other transportation facilities, or by incorporating more robust sustainable approaches to planting schemes.

Wildflowers such as Queen Anne's Lace and Purple Vetch add a subtle visual interest along the roadside. These flowers are not as vivid as those along many North Carolina roads. Image courtesy FHWA.



Wildflowers such as red poppy, catchfly, baby blue eyes, lance-leaved coreopsis, and rocket larkspur add a striking display of color and texture during spring along North Carolina roads. Image courtesy NCDOT.

This mass of wildflowers near Nashville, North Carolina, provide subtle color changes close to the road. Image courtesy NCDOT.

This is a standard landscaping pattern of shrubs along a bridge across I-26. The shrubs will eventually fill in and create a solid green mass of plantings. The combination of shrubs and mulch eliminates the need for mowing. Image courtesy NCDOT.

This is a standard planting for an interchange along a major roadway in North Carolina. Image courtesy NCDOT.

This field of sunflowers in North Carolina has a dramatic impact on motorists driving past because of the sheer scale of the plantings. From this perspective it appears that the flowers extend to the mountains in the background. Image courtesy FHWA.

Foundation plantings help reduce the scale of this structure at one of North Carolina's rest areas. Image courtesy James Sipes.

This landscaping is at a rest area along I-85. Image courtesy James Sipes.

Stone structures along Donaldson Run in Zachary Taylor Park, Florida, help prevent erosion while maintaining the natural character and sinuosity of the stream. Image courtesy EDAW.

This planting of red and pink wildflowers creates a vivid contrast with the surrounding green landscape. This planting is very visible to motorists. Image courtesy NCDOT.

This landscaping is along the median on Martin Luther King road in Chicago, Illinois. The variation of flower types and resulting colors and textures highlights the median. Image courtesy FHWA.

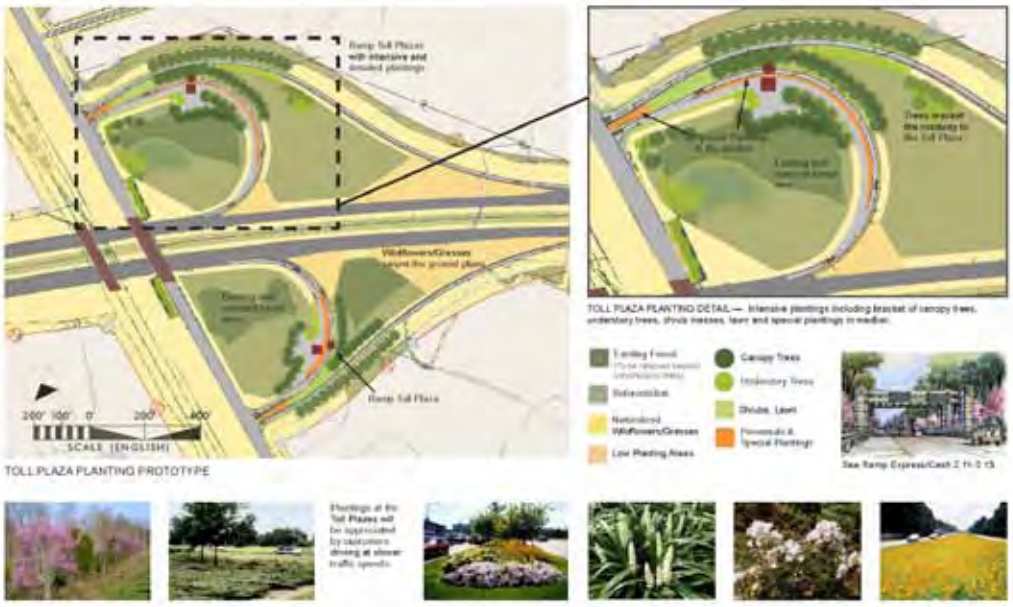
This bioswale uses plant material, soil improvements that encourage infiltration, weirs, and grading to control stormwater runoff. Rougher textures help slow down runoff. Image courtesy Mike Houck.

Native plantings are part of a bioretention basin used for stormwater management. This is part of a Low Impact Development (LID) solution in Portland, Oregon. The use of native materials creates a naturalistic setting. Image courtesy Jim Newman.

This bioswale in Seattle, Washington uses a mixture of native grasses to create a visually exciting solution for stormwater runoff. Image courtesy EDAW.

These rain gardens help manage stormwater runoff in this neighborhood in Ballard, Washington. Image courtesy James Sipes.

Native plantings in this median along Allendale Road, Philadelphia, provide bright colors and a variety of forms and textures. Image courtesy FHWA.



This plan show templates for landscaping interchanges along the Triangle Expressway in Raleigh, North Carolina. Images courtesy NCDOT.

LANDMARK ROADSIDE ENVIRONMENT AND LANDSCAPE

Landmark roadside environment and landscape areas go beyond enhanced in terms of cultural significance, environmental sustainability, and the level of detail. These landscapes have the highest level of visual appearances that include a more ecologically sound and environmentally sustainable landscape consistent with natural processes and systems

This image shows improvements made to Donaldson Run in Arlington, Virginia, by adding stone weirs that slow down water, reduce sediment, and help restore the natural landscape character. Image courtesy EDAW.

Wild poppy flowers along the right of ways of this road in order to create a more dynamic visual experience. Image courtesy DepositPhotos.com.

This image shows wildflowers growing in wooded areas along the Blue Ridge Parkway. The preservation of the existing landscape when the parkway was originally built has had a lot to do with how motorists view the Blue Ridge Parkway. Image courtesy Historic American Engineering Record (Library of Congress).

The layering of plant material - with native flowers in the foreground, taller wildflowers in the middleground, and evergreen trees in the background - help add visual interest. Image courtesy DepositPhotos.com.

The bioswales in the middle of the medians have a meandering pattern that provides visual interest and emulates the meandering pattern of a natural stream. Native plant materials are used in order to reduce the need to mow the medians. Image courtesy AECOM.

Ornamental plantings were used along bioswales. Image courtesy AECOM.

Gravel was used to emulate the meandering flow of a stream as part of this bioswale. Image courtesy AECOM.

The Texas Land and Water Forum conducted a Low Impact Development (LID) competition in 2009 to explore how LID could be implemented in Harris County. The winning entry for Independence Parkway pushed the roadways to the edge of the right-of-way and created a bioswale in the median. This bioswale is able to handle all run-off from a 100-year storm and it also reduces sedimentation and pollution runoff, and significantly improves aesthetics. Image courtesy AECOM.

Gravel is used to slow down stormwater runoff in this bioswale, and the plants filter sediment and pollution runoff. Image courtesy EDAW.

This bioretention basin adjacent to the French Broad Overview near Weaverville, North Carolina, uses native plantings to recreate a natural ecosystem. Image courtesy NCDOT.

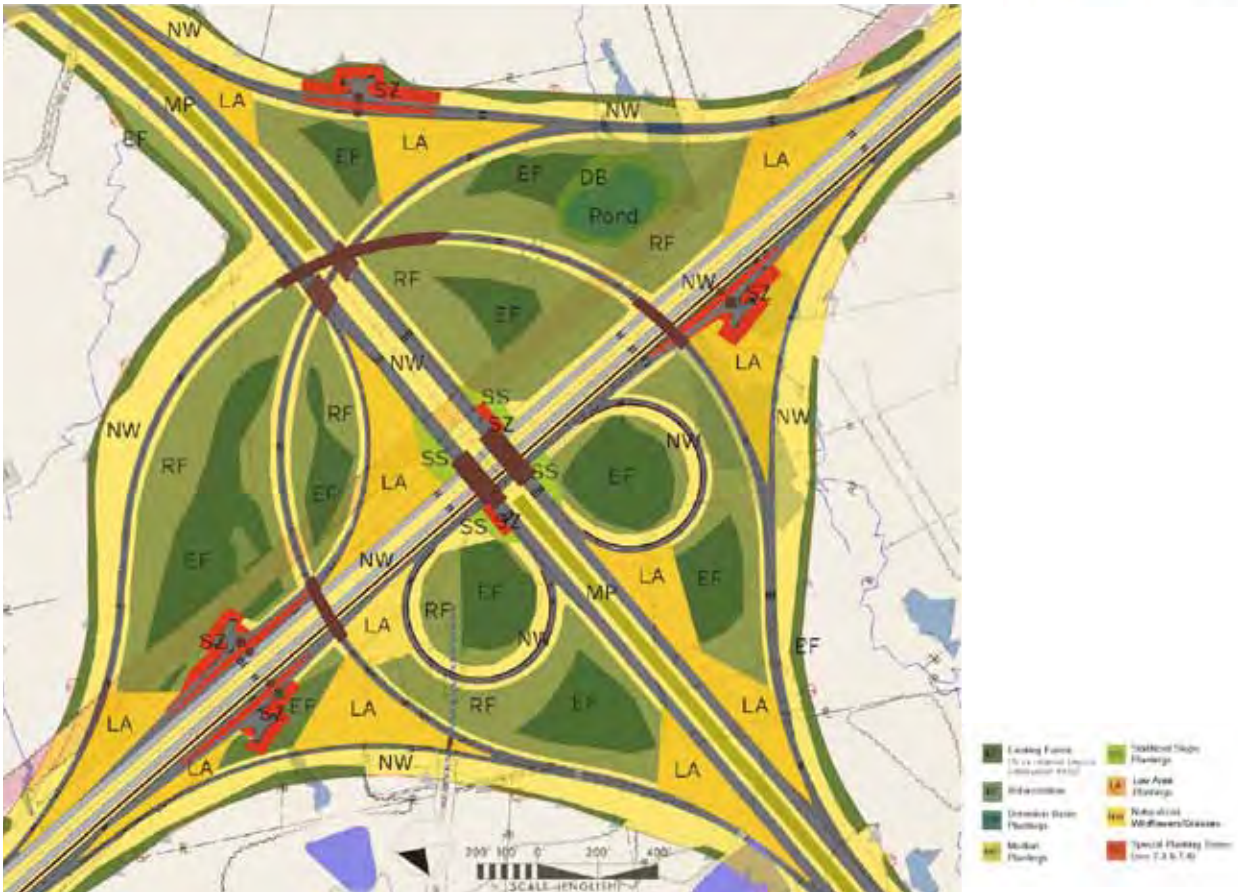
This landscape in Portland, Oregon is considered 'landmark' because it not only looks good and is an attractive way to address stormwater management, but it also emulates the natural processes of a wetland. The result is that sedimentation and pollution runoff is reduced and the quality of water running through the system is improved. Image courtesy City of Portland.

This plan is a planting plan for the Dixie Highway Gateway interchange in Louisville, Kentucky. Image courtesy Kentucky Transportation Cabinet.

This bioswale is located within a roadway median in Lynbrook, Australia. The combination of plant material, gravel, and larger rocks helps management stormwater runoff in a manner similar to natural systems. Image courtesy AECOM.

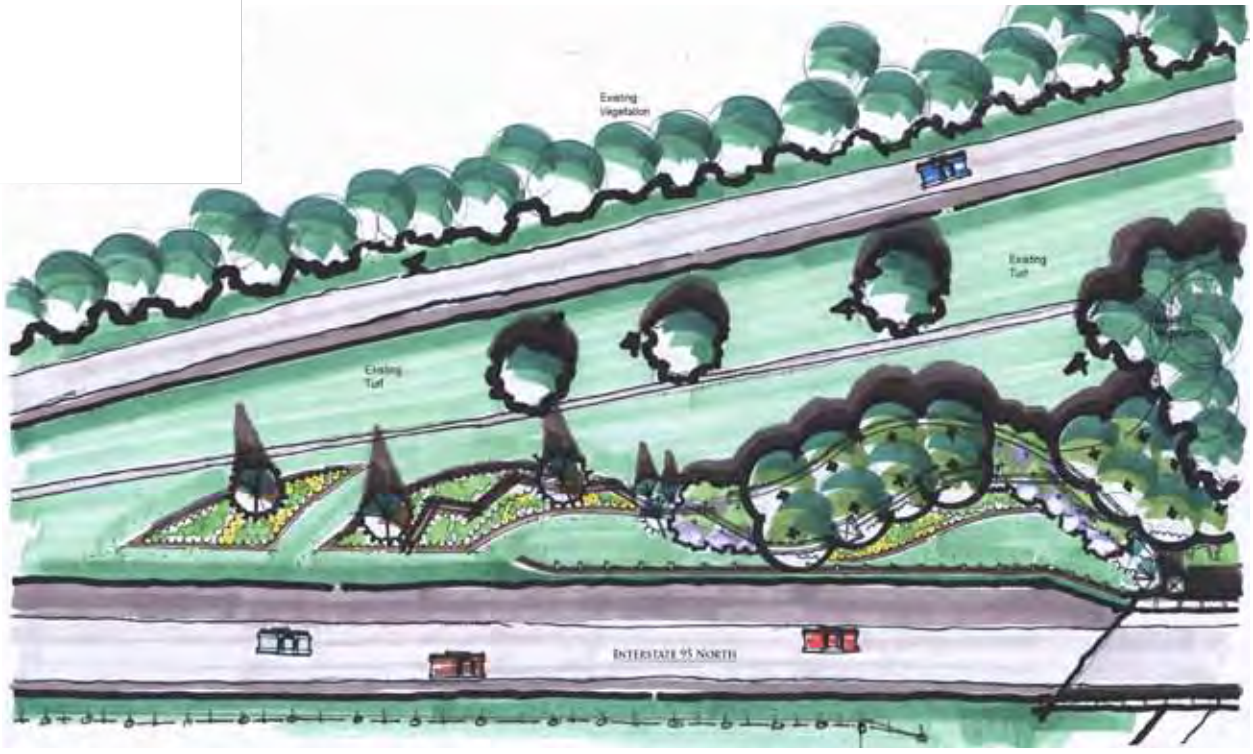
This bioretention area helps reduce sedimentation and stormwater runoff into this river in Austin, Texas. Image courtesy PBIC Image Library and Dan Burden.

These plans outline the basic aesthetic guidelines for planting along various interchanges that are part of the Triangle Expressway. These plans provide a template that can be applied to all of the interchanges that are part of the project. Image courtesy NCDOT.



This plan outlines the basic aesthetic guidelines for planting along a four-way interchange that is part of the Triangle Expressway. This serves as a design template for all similar interchanges that are part of the project. Image courtesy NCDOT.

This plan view shows the landscaping for the I-77 Welcome Center in Charlotte, North Carolina. The combination of hardscape and landscaping help create an inviting entrance. Image courtesy NCDOT.



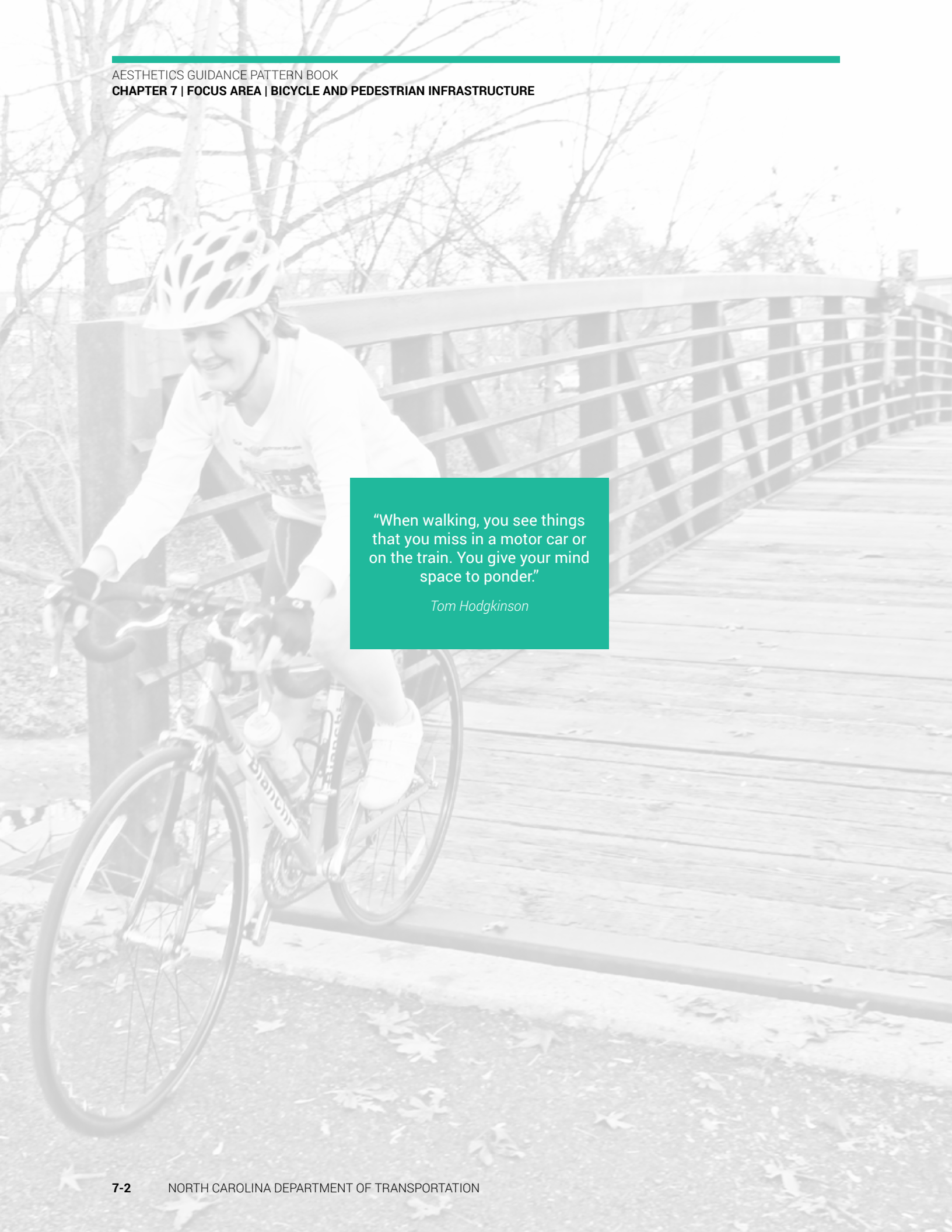
The interchange at the North Carolina and South Carolina state line poses some unique challenges to provide visibility to any development that is part of the visitor center. Some grading was required to raise the grade and make the visitor center more visible. This design concept uses stone, split railing, rustic guardrail, and local native plant material that provides a gateway that is locally inspired and provides visual interest year round. Image courtesy NCDOT.

This bridge in Staten Island, New York, extends over a reclaimed ecosystem that was part of the original stream. Image courtesy EDAW.

In this landmark landscape, the road appears to meander through a natural wooded area. The road follows the contours of the land so that views focus as much on the surrounding landscape as on the roadway. Image courtesy Historic American Engineering Record (Library of Congress).

CHAPTER 7

FOCUS AREA BICYCLE AND PEDESTRIAN INFRASTRUCTURE



"When walking, you see things that you miss in a motor car or on the train. You give your mind space to ponder."

Tom Hodgkinson

STANDARD BICYCLE AND PEDESTRIAN INFRASTRUCTURE

Most bicycle and pedestrian projects are locally administered and funded, independent of a roadway project. Local governments are responsible for decisions about how and what type of aesthetic elements should be built into the project, where the decision to incorporate standard or landmark improvements will be based on financial policies NCDOT has with the local government. The following aesthetic recommendations should be utilized on a case-by-case basis by the local community and per state and federal requirements. They are included for local governments to consider in project scoping processes.

Standard bicycle and pedestrian infrastructure focuses on functionality over aesthetics and adds design elements in a practical, affordable manner. Projects should place emphasis on facilities and treatments that maintain affordability and increase efficiency and safety. Examples include standard surfacing options to preserve longevity and allow ease of maintenance, adequate lighting and signage for visibility, or landscaping needed for erosion control, maintenance reduction, or buffering from the street and traffic.

This multiuse trail runs parallel to the Suncoast Parkway, Florida. Image courtesy EDAW.

This crosswalk is in Grandview, Illinois. Image courtesy PBIC Image Library and Dan Burden.

This crosswalk in Bellevue, Washington, allows for a diagonal safe area in the median. Image courtesy Dan Burden.

Kiosk Visitors read about the Laurentian Divide at an informative kiosk at a rest area. Image courtesy S W Clyde.

The area around the Wooden Nickel in Hillsborough, North Carolina, exemplifies many of the characteristics of Complete Streets. Image courtesy NCDOT.

This multi-use wooden bridge at Aberdeen Lake, North Carolina, leads to a shelter that overlooks the lake. Image courtesy James Sipes.

The 15th Street area in Atlanta, Georgia, incorporates concepts of Complete Streets in urban settings. Image courtesy James Sipes.

The Laurel River Trail is a 7-mile loop trail in the Appalachian Mountains. It is typical of many of the trails accessible from the Blue Ridge Scenic Byway. Image courtesy NPS.

This information kiosk on the Eastern Shore Trail in Fairhope, Alabama is used to help coordinate travel plans along the trail. Image courtesy Sherry Sullivan.

Stone columns are used to support these interpretive signs. Image courtesy NPS.

This crosswalk includes stripes in the roadway, bollards to protect pedestrians, and signage to delineate the walks. Image courtesy DepositPhotos.com.

This crosswalk is highlighted by yellow stripes in the road and signage delineating the crossing. Image courtesy NCDOT.

This hearing bone brick pattern is created using Inlaid Thermoplastic that is used for a crosswalk along Beatties Ford Road near Charlotte, North Carolina. Image courtesy Inlaid ThermoPlastic.

This information kiosk is located at a scenic overlook along the Sherman Pass Scenic Byway in Washington State. The Sherman Pass byway stretches across Washington's highest mountain pass through the Colville National Forest. The historic route is named for Civil War general William T. Sherman, who passed through in 1883. Image courtesy WSDOT.

This Complete Streets approach for Salisbury, North Carolina, includes onstreet parking, street trees, lighting, signage, and changes in paving patterns. Image courtesy NCDOT.

ENHANCED BICYCLE AND PEDESTRIAN INFRASTRUCTURE

Most bicycle and pedestrian infrastructure projects are locally administered and funded. The tier approach should be considered by local governments to include in project scoping for bicycle and pedestrian infrastructure projects.

Enhanced bicycle and pedestrian infrastructure includes upgrades to standard facilities and treatments while maintaining efficiency and safety. Offering additional wayfinding information with bicycle route signs as appropriate can enhance quality of service. Lighting can be more decorative and more pedestrian in scale, addressing both safety and visual interest. Providing well-designed crossings at intersections or mid-block locations using crossing treatments and signalized intersections encourages walking and helps to safely complete the pedestrian network. Supplemental plantings can be used to add aesthetic diversity, especially at curb extensions, planters along complete streets, trailheads, and other areas that are visible to the community. Paved multi-use paths could be widened to accommodate more users, or use decorative patterns as part of the paving to add visual interest. Multi-use bridges are also considered an enhanced feature.

Downtown Greeley, Colorado, includes traffic calming, street trees, seating areas, sidewalks, and site features such as planters, light poles, benches, and information kiosks that are typically part of Complete Streets. The roadway also meanders, slowing down traffic and serving as a traffic calming device. Image courtesy Image courtesy PBIC Image Library and Dan Burden.

Onstreet parking in Charlotte, North Carolina, reduces the perceived scale of the street. Image courtesy James Sipes.

Pedestrians in Venice, Florida, are using a curb extension that improves the visibility of pedestrians and reduces exposure to motor vehicles. Image courtesy of PBIC Image Library and Dan Burden.

This wall with the railroad sign includes a Minnesota fieldstone form liner pattern and metal rails. Image courtesy Customrock.

The Buffalo Bayou Promenade in downtown Houston, Texas includes paved trails that extend under and across bridges to help create a more walkable community. Image courtesy City of Houston.

Plantings along Autumn Avenue in Brooklyn, New York, help soften the visual impact of so much paving. Image courtesy James Sipes.

A brick and concrete paver crosswalk in Annapolis, Maryland visually fits with the surrounding paving patterns. Image courtesy PBIC Image Library and Dan Burden.

This wooden kiosk is set on a base of native stone. Image courtesy USFS.

This bioswale is located near Portland State University in downtown Portland, Oregon. Image courtesy City of Portland.

A pedestrian crossing in Bellevue, Washington, is defined by red concrete pavers, signage, and a planted media. Image courtesy Dan Burden.

This pedestrian bridge is located on the Centennial Campus at North Carolina State University. Image courtesy NCDOT.

The sidewalk on Deadrick Street in Nashville, Tennessee, is separated from the street by a series of planters that are linked together to create an urban bioswale. Image courtesy EDAW.

In this image of a pedestrian bridge, the contrast between the white, snowy background and the bridge, with its dark green steel and dark brown wooden rails, creates an attractive, memorable scene. Image courtesy NCDOT.

Williamsburg, Virginia, uses brick pavers to define crosswalks in the downtown area. Image courtesy EDAW.

This streetscape in Gresham, Oregon, uses planting areas on both sides of the walk to help define the pedestrian space. Image courtesy PBIC Image Library and Dan Burden.

This water fountain with four horses serves as a roundabout to slow traffic in Scottsdale, Arizona. Image courtesy James Sipes.

These artistic security barriers serve as a physical separation. Image courtesy Veloepa.

This kiosk in Victoria, British Columbia is used to highlight the locations of devices that are used to purchase parking along streets. Image courtesy PBIC Image Library and Dan Burden.

The Old Greene Street Bridge in Greenville, North Carolina, has been transformed into a pedestrian bridge. Image courtesy City of Greenville.

This is an example of a pedestrian bridge over a small lake. Image courtesy EDAW.

The J Rush Oates Plaza in downtown Asheville, North Carolina, provides a place for pedestrians to sit and enjoy the fountain and the details of the park. Image courtesy Wikipedia Commons.

This image shows part of the streetscape in downtown Wilmington, North Carolina. Sidewalks are continuous along both sides of 3rd street to improve accessibility and walkability. Image courtesy James Sipes.

Pioneer Square in Portland, Oregon uses limestone curbs and brick paving to create a safe, attractive pedestrian corridor along the streets. Metal and glass structures provide shelter from bad weather, kiosks provide wayfinding information, and the large columns define the edge of a public space used for events. Image courtesy James Sipes.

The Gateway State Trail runs from downtown St. Paul, Minnesota, to the northeast suburbs. Image courtesy Reuben Collins.

This sidewalk in Windmark, Florida, is part of a larger walkway network. Image courtesy EDAW.

This drop off area in Greenville, North Carolina uses concrete bollards to define the edge of the roadway, but circular patterns of brick pavers and concrete bands visually connect the roadway with the pedestrian plaza. Image courtesy James Sipes.

Along parts of North Third Street in Wilmington, North Carolina, planted medians are used to separate travel lanes and create a greener, more attractive streetscape. Image courtesy James Sipes.

Ornamental plantings of flowers and shrubs help soften the impact of all of the paving that is part of the North Third Street project in Wilmington, North Carolina. Image courtesy James Sipes.

A complete streets solution in Asheville, North Carolina includes darker colored pavers for walkways that contrast with concrete curbs planter edges. Image courtesy James Sipes.

The Duke University Medical Center Medicine Pavilion and Cancer Center in Durham, North Carolina, includes a small park for that visually serves as an entrance and gateway. Image courtesy James Sipes.

The North Third Street project in Wilmington, North Carolina, involves new water and sewer lines, the placement of power and other utilities underground, new sidewalks, curbing, and pavement, as well as landscaping and other amenities, from Market Street to the Martin Luther King Jr. Parkway. Image courtesy James Sipes.

This image of Wilmington, North Carolina, provides an overview of the North Third Street project. Image courtesy James Sipes.

This pedestrian walkway in Lake Oswego, Oregon, is a good example of an enhanced walk. The use of brick pavers, concrete curbs and accessibility ramps, tree grants, retaining walls, and variety of landscaping all help create a comfortable, inviting pedestrian space. Image courtesy PBIC Image Library and Dan Burden.

This sidewalk includes color pavers to add visual interest and provide greater visual interest. Image courtesy DepositPhotos.com.

This crosswalk on Spruce Street in Winston Salem, North Carolina, is constructed of different color concrete panels that are highly visible and help motorists see where pedestrians cross the street. Image courtesy James Sipes.

The Hudson Road Overpass 90' x 11' steel beam pedestrian bridge for the University of Northern Iowa. Aesthetic improvements included brick and limestone treatment, decorative steel railing, galvanized safety railing, handrail and decorative lighting. Image courtesy Snyder Associates.

Roadways can be enhanced by adding bike lanes, crosswalks, and landscaped medians. This road is in Baldwin Park, California. Image courtesy PBIC Image Library and Dan Burden.

LANDMARK BICYCLE AND PEDESTRIAN INFRASTRUCTURE

Most bicycle and pedestrian infrastructure projects are locally administered and funded. The tier approach should be considered by local governments to include in project scoping for bicycle and pedestrian infrastructure projects.

Landmark bicycle and pedestrian infrastructure are those that incorporate aesthetic elements with a unique design approach to help enhance a community's sense of identity. Elements that can enhance an individual's experience while also improving the function of the street or multi-use path for cyclists and pedestrians include creating a unique or inviting atmosphere. This may be accomplished through temporary or moveable features, plantings, or public art with a high aesthetic appeal that reflects the community. Facilities and treatments should improve a bicyclist's or pedestrian's ability to safely navigate high-conflict areas through premier infrastructure upgrades and designs. Pedestrian bridges are more elaborate and iconic, helping to create a visual focal point.

This bridge is part of the Neuse Trail in Raleigh, North Carolina. Image courtesy NCDOT.

This corten steel bridge provides pedestrian access from one side of the creek to the other. The dark color of the steel bridge helps in visually blend with surrounding landscapes. Image courtesy DepositPhotos.com.

Reedy Creek Pedestrian Bridge at night. Image courtesy NCDOT.

Another view of the Reedy Creek Pedestrian Bridge at night. Image courtesy NCDOT.

Another view of the Reedy Creek Pedestrian Bridge from the I-440 Beltline. Image courtesy NCDOT. Image courtesy James Sipes.

View of the Reedy Creek Pedestrian Bridge during construction. Image courtesy NCDOT.

View of the Reedy Creek Pedestrian Bridge during nighttime construction. Image courtesy NCDOT.

SMEC South Africa developed a design for the Plettenberg Bay Pedestrian Bridge in South Africa that incorporated an inclined arch with a slender steel torsion box deck. The central span of 92 feet is supported by the inclined arch with the continuous back spans almost 30 feet. Image courtesy SMEC South Africa.

The design objective for the Plettenberg Bay Pedestrian Bridge was to produce an economical and functional aesthetic structure that might serve as a landmark for the local community. The bridge provides for safe passage across the N2 for over 2000 pedestrians on a daily basis. Image courtesy SMEC South Africa.

The Falcon Street Pedestrian and Cyclist Bridge in Sydney, Australia, separates pedestrians and cyclists from existing vehicular traffic flows. The local community was closely involved in the development phase, ensuring a high level of community engagement and acceptance of the project. A key consideration for the community was the structure's aesthetics. Unique details were developed for throw and privacy screens to create a distinctive look for the bridge. Image courtesy Roads and Traffic Authority of New South Wales (RTA).

This sculpture by artist Michael Stutz is part of the Hinshaw Greenway Bridge along US I-64 in Cary, North Carolina. Image courtesy Michael Stutz.

The pedestrian trails on either side of State Route 14 are connected via the Vancouver Land Bridge. The walkway over the bridge has a meandering shape that varies in width and includes seating areas and overhead structures to provide shelter from the weather. Raised walls along the wall provide for informal seating and help define the edge of planters. The dark colors of the plant material and columns for overhead structures contrast with the light colors of the walls and walkway. Image courtesy Jones + Jones.

The Mile High Swinging Bridge at Grandfather Mountain helps links trails on either side of a steep draw and offers views of up to 100 miles on a clear day. It is possible to see the city skyline of Charlotte from the bridge. Image courtesy NCDOT.

The Mile High Swinging Bridge provides views of the Grandfather Mountain State Park near Linville, North Carolina. Grandfather Mountain has an elevation of 5,946 feet, making it the highest peak on the eastern escarpment of the Blue Ridge Mountains, Image courtesy Wikipedia Commons.

Kicking Horse Pedestrian Bridge in Golden, British Columbia, is the longest authentic covered timber frame bridge in Canada. It was originally planned as a community project by the Timber Framer's Guild, and local volunteers from Canada, the U.S., and Europe helped construct the bridge in 2001. The bridge structure is 150 feet long, with a 210,000-pound Burr arch structure stretching between foundations. Image courtesy Wikipedia Commons.

At the grand opening of the Vancouver Land Bridge, hundreds of people participated. This pedestrian bridge, which crosses S.R. 14, commemorates the confluence of rivers and indigenous people encountered by the lewis and Clark expedition. Image courtesy Jones + Jones.

The Langkawi Sky Bridge is a 410-foot curved pedestrian cable-stayed bridge in Malaysia. The bridge offers outstanding views of the peaks of Gunung Mat Chinchang on Pulau Langkawi, an island in the Langkawi archipelago. It was originally completed in 2005 and is currently undergoing restoration work. Image courtesy Wikipedia Commons.

The Vancouver Land Bridge is a pedestrian bridge that provides connectivity across Highway 14 near Vancouver, Washington. Image courtesy Jones + Jones.

Initial concepts for the Vancouver Land Bridge. Image courtesy Jones + Jones.

CHAPTER 8

FOCUS AREA SCENIC BYWAYS

"The highway as a cultural asset is long overdue for consideration in the United States. Every day we are missing opportunities to bring this beauty into our lives."

Federal Highway Administration

ENHANCED AND LANDMARK SCENIC BYWAYS

Scenic byways in North Carolina are considered either enhanced or landmark, as a road typically has greater qualities than standard characteristics when designated as a scenic byway. Individual projects implemented along a scenic byway may have specific standards that address cultural, historical, natural, and aesthetic issues. The difference between enhanced and landmark depends largely on the intrinsic quality of existing resources and how well the roadway and supportive design solutions are integrated with the surrounding context.

Scenic byways may be considered enhanced when they reflect the local community but have existing natural and cultural resources of a lower quality than surrounding areas. Scenic byways with prominent cultural and natural resources with high visual character may be considered landmark.

The Cape Fear Historic Byway runs through downtown Wilmington, North Carolina. Experiencing the charm of the city is part of the overall byway adventure. Image courtesy America's Scenic Byways.

A view of Mallard Creek from the Pamlico Scenic Byway. Image courtesy America's Scenic Byways.

Display inside the Pisgah Visitor Center provides visitors with information about the 79-mile National Forest Heritage National Scenic Byway. Image courtesy FHWA.

This old gas stations is along the Scots-Welsh Heritage Byway outside Hillsborough, North Carolina. These types of buildings provide a glimpse of the cultural history of the area. Image courtesy America's Scenic Byways.

The Blue Ridge Parkway meanders through the landscape. Image courtesy NPS.

This sign identifies the Forest Heritage Scenic Byway as a North Carolina Scenic Byway. Image courtesy FHWA.

The Blount-Bridgers House is along the Tar Heel Trace Byway. It is a Federal-style plantation house built c. 1808 by Thomas Blount. Image courtesy America's Scenic Byways.

A view from the Rolling Kansas Byway shows a couple of stone buildings that are still standing. The name of the byway is because of its hilly terrain and turn of the century farms and windmills. Image courtesy America's Scenic Byways.

The Hanging Rock Scenic Byway runs through downtown Pilot Mountain, North Carolina. Image courtesy America's Scenic Byways.

This is a view of the I-26 Scenic Highway looking toward Asheville and the Black Mountains. Image courtesy America's Scenic Byways.

A view from Pisgah Loop Scenic at Linville Gorge West Rim. Image courtesy America's Scenic Byways.

The Rolling Kansas Byway offers views of rural North Carolina. Image courtesy America's Scenic Byways.

The Blue Ridge Parkway protects and preserves historically and culturally significant buildings for visitors to learn and appreciate early pioneer living. Image courtesy FHWA.

Low clouds blanket the mountains on the Cherohala Skyway in February. Image courtesy Dennis Adams, FHWA.

A view of the water from boat slips on the Pamlico Scenic Byway. Image courtesy America's Scenic Byways.

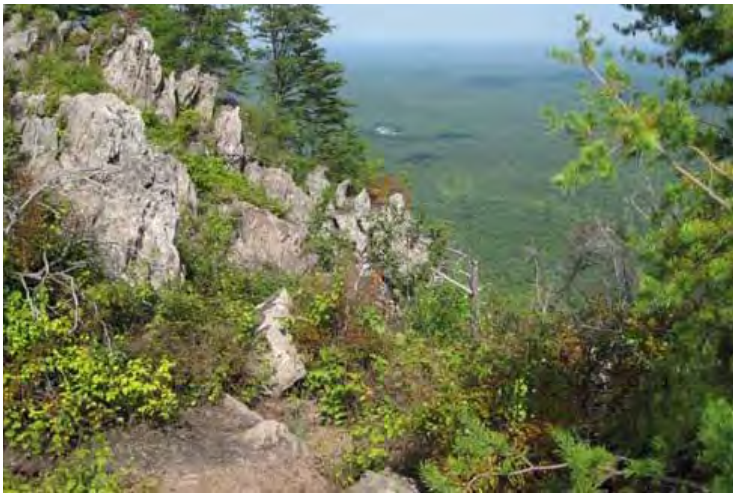
Lafayette's Tour offers a view of Laurel Mill. Image courtesy America's Scenic Byways.

A view from the Sandhills Scenic Drive. Image courtesy America's Scenic Byways.

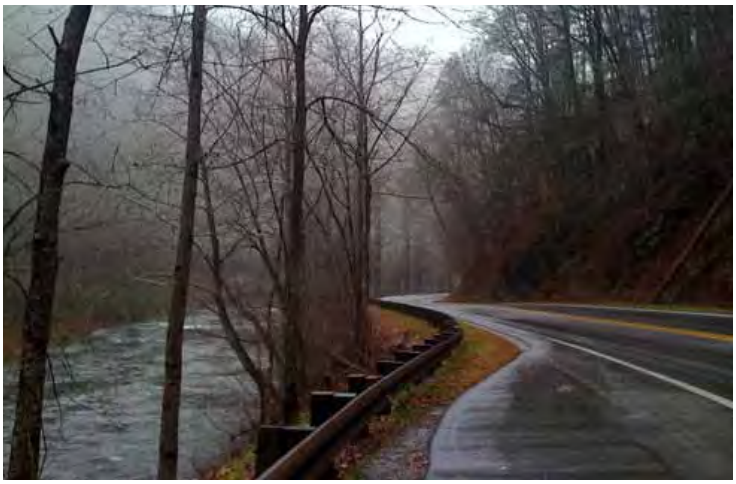
This is a view of the Blue Ridge Parkway. Image courtesy NPS.

The Sandhills Scenic Drive provides a view from Morrow Mountain in Uwharries, North Carolina. Image courtesy America's Scenic Byways.

This monument at the former Dobbs County Courthouse site is located along the Blue Gray Scenic Byway. Image courtesy America's Scenic Byways.



Crowders Mountain Drive provides access to this view from the top of Crowders Mountain. Image courtesy America's Scenic Byways.



The Indian Lakes Scenic Byway runs along the Nantahala River. Image courtesy NCDOT.

The Devil's Stompin' Ground Road runs through Glendon, North Carolina. Image courtesy America's Scenic Byways.

Devil's Stompin' Ground Road provides access to the Aberdeen Carolina & Western Railway trestle. Image courtesy America's Scenic Byways.

As travelers exit the parking lot of the Pisgah Center for Wildlife they see this sign. Image courtesy FHWA.

The Devil's Stompin' Ground Road also runs through Goldston, North Carolina. Image courtesy America's Scenic Byways.

This view is from the Crowders Mountain Drive toward the western end of King's Pinnacle. Image courtesy America's Scenic Byways.

The Blue-Gray Scenic Byway provides views of the Neuse River. Image courtesy America's Scenic Byways.

A new highway trestle along I-26 Scenic Highway. Image courtesy FHWA.

A view of the Caswell Courthouse from the Colonial Heritage Byway. It combines Italian Romanesque and Classical features that is unique to courthouse architectural design in North Carolina. Image courtesy America's Scenic Byways.

The Green Swamp Byway in North Carolina includes this dry creek bed near Simmons Bay. Image courtesy America's Scenic Byways.

View along North Carolina's Green Swamp Byway. This sign points out where James Abbot McNeill Whistler's mother used to live. Image courtesy America's Scenic Byways.

A view along the Nantahala Byway in North Carolina. Image courtesy NCDOT.

A large rock outcropping is located along the Pisgah Loop Scenic Byway. Image courtesy NCDOT.

View of the Devil's Stomping Ground Scenic Byway in Chatham County, North Carolina. Image courtesy David Blevins.

The Pisgah Covered Bridge is along the Uwharrie Scenic Road. Image courtesy America's Scenic Byways.

The Outer Banks Scenic Byway includes a number of bridges that help connect the various islands along eastern North Carolina. Image courtesy NCDOT.

This image shows the dramatic fall colors along the Cherohala Skyway in North Carolina. Image courtesy Wikipedia Commons.

The Hertford S-Bridge is part of Perquiman's Crossing. Image courtesy America's Scenic Byways.

Another view of the Cherohala Skyway. Image courtesy NCDOT.

The Outer Banks Scenic Byway extends down the entire length of the Outer Banks. Image courtesy Wikipedia Commons.

This lighthouse is along the Outer Banks Scenic Byway. Image courtesy Wikipedia Commons.

The Mission Crossing Ski Area is on Beach Mountain. Image courtesy FHWA.

The Scenic Byway along I-26 West extends north out of Buncombe County - where Asheville is located - and passes through Weaverville and Mars Hill. Along the highway there are outstanding views of the Blue Ridge Mountains, the Walnut Mountains, and the Bald Mountains of the Appalachian Range. The North Carolina Visitor Center includes a scenic overview with views of Grandfather Mountain, Mount Mitchell and the Blue Ridge Parkway. Images courtesy NCDOT.

The slopes at the North Carolina Visitor Center along I-26 West is stabilized with attracted plantings and native stones that provide structural support and add a level of visual interest. The texture of the walls is visible to motorists because of the slower traffic speeds as cars slow down to turn into the visitor center. Image courtesy NCDOT.

CHAPTER 9

FOCUS AREA PUBLIC ART

"Public art can express civic values, enhance the environment, transform a landscape, heighten our awareness, or question our assumptions."

Penny Balkin Bach

ENHANCED PUBLIC ART

Public art in the state's transportation facilities is considered either enhanced or landmark as it currently falls outside of typical NCDOT enhancements to roadways and provides greater aesthetic qualities than standard characteristics. The difference between enhanced and landmark depends on whether improvements to existing structural elements are incorporated or stand-alone. Integration with the surrounding context including cultural, historical, and environmental features helps define enhanced versus landmark public art aesthetic considerations.

Enhanced areas within the urban or smaller town context include gateways, public open space, historical sites, major recreational areas, and other sites that have meaning for the community. These are areas typically visible and have some importance to the community's sense of identity. Aesthetic treatments should be complementary to the overall look of the transportation corridor. The inclusion of public art within a transportation project would elevate or further improve the visual quality of the project adding to its "sense of place."Areas for enhancement would likely include noise and retaining walls, bridges, railings, lighting, and other functional elements of the project. These types of public art should be designed with specifications and materials that are durable and require minimal or no maintenance.

Red, Yellow, and Blue by Brooklyn artist, Orly Genger, was installed in Madison Square Park, New York. Image courtesy EDAW.

For this wall in Texas, Texas DOT included the Texas Star as part of the retaining wall that serves as an abutment for this bridge. The wall is made of MSE modules that ether have a smooth surface or offsetting horizontal bars to add visual interest. The Star is part of seven different MSE modules. Image courtesy Customrock.

This noise wall by Martha Schwartz Partners for the Miami (Florida) International Airport is made up of colored glass and sunlight enliven a mile–long sound attenuation wall along 36th Street, which lies along the northern boundary of the Miami International Airport. Image courtesy Martha Schwartz Partners.

These noise walls are along the Unser Boulevard Escarpment Crossing in the Petroglyph National Monument near Albuquerque, New Mexico. Artist Jack Mackie used CMU walls placed above and below cut through lava embankment, and used tile patterning based on colors/forms of plants important to the Pueblo People. Image courtesy Jack Mackie.

This mural is part of the Willamette (Oregon) River Bridge. Image courtesy James Sipes.

This mural helps make the Delphos Herald building in Lincoln, Ohio, a focal point. Image courtesy Delphos Herald.

This mural is on the Boeing Factory in Everett, Washington along State Route 526. Image courtesy Wikipedia Commons.

This new mural is in Bucyrus, New York. Image courtesy James Sipes.

This curvilinear stone wall designed by Michael Heizer, weaves through existing trees and ends in the small pond. The contrasting shapes and colors help make this visually exciting. Image courtesy Wikipedia Commons.

This art is part of one of the Dallas Area Rapid stops. Image courtesy DART.

A snake image is located along I-15 in Las Vegas, Nevada. Image courtesy Customrock.

Jersey barriers in New York City were painted in order to provide visual variety and interest. Image courtesy FHWA.

Bridge abutments for the Blue Diamond Interchange in Las Vegas, Nevada, are painted with scenes representing the surrounding desert landscape. The earth tones of the colors blend with the environment. Image courtesy NDOT.

A series of murals lines this roadway in Paducah, Kentucky. Image courtesy James Sipes.

This purple ribbon is along a noise wall in Albuquerque, New Mexico. Image courtesy James Sipes.

The Dalles, Öregon, "Fish bridge"is a visual icon in the community. Image courtesy Wikipedia Commons.

This wall, called "Jumping Trout," was selected by the Canadian Precast Concrete Institute (CPCI) as a project of the month. Image courtesy CPCI.

This jersey barrier in New York City is painted with a teeth and groves theme. Image courtesy FHWA.

Klyde Warren Park at sunset. Image courtesy of Curtis Simmons Flickr under Creative Commons License.

The Great Blue Heron sculptures are along the HWY 52 median in Wausau, Wisconsin. Image courtesy WisDOT.

The Los Angeles Marathon mural is on I-5 near Stadium Way. Image courtesy James Sipes.

An art installation along a greenway trail by artist Thomas Sayer at the North Carolina Museum of Art. Image courtesy Wikipedia Commons.

This is the Woodrow Wilson Triangle Monument in New York City. Image courtesy Wikipedia Commons.

Primary Flight, a Miami-based street art collective, created a mural for the Spring Garden underpass section of downtown Greensboro, North Carolina. Image courtesy NCDOT.

This painted jersey barrier is "Damsgard" and is by Oyvind Renberg and Miho Shimizu. The barrier is in New York City. Image courtesy NYDOT.

This abutment is along Pima Drive in Scottsdale, Arizona. Image courtesy James Sipes.

This historic mural is in Boulder, Colorado. Image courtesy James Sipes.

Sun Sculpture is an art piece created by Melody Lane. Image courtesy Melody Lane.

These decorative horses are on a retaining wall along I-15 in Las Vegas, Nevada. Image courtesy Customrock.

This street art piece is located under a bridge in Asheville, North Carolina. Image courtesy James Sipes.

This is an image of the mural on the Willamette River Bridge abutment. Image courtesy James Sipes.

Early Bird is a fanciful bronze bench and sculpture by Judy McKie of Cambridge, Massachusettes. Image courtesy Judy McKie.

Decorative wall graphics extend under this bridge on Pima Drive in Scottsdale, Arizona. Image courtesy James Sipes.

This public art layout is along Pima Drive in Scottsdale, Arizona. Image courtesy James Sipes.

This welcome sign serves as the gateway to Iowa. Image courtesy James Sipes.

Artistic elements add interest in Scottsdale, Arizona. Image courtesy James Sipes.

Image of Dallas Cowboy football players and coach located along the Tom Landry Freeway. Image courtesy James Sipes.

This image of a crane and wetland vegetation was created on a panel using form liners. This panel can be used as part of noise walls, retaining walls, or other structural elements. Image courtesy Liz Pope, Scott Systems.

Fresco along Tom Landry Freeway. Image courtesy James Sipes.

A bronze statue of a man holding a shovel stands in memory of those who served in the Civilian Conservation Corps. Image courtesy FHWA

'Walking Men' is a wraparound construction site mural at 99 Church Street in New York City. The work by artist Maya Barkai depicts the various pedestrian traffic light signs from cities all over the world. Image courtesy Wikipedia Commons.

This sculpture captures the attention of both pedestrians and motorists. Image courtesy Wikipedia Commons.

This painting at the intersection of Warren and North 14th Street in St. Louis, Missouri, is by Lucas Rouggly and volunteers recruited through his Love the Lou organization. Image courtesy St. Louis Restoration Group.

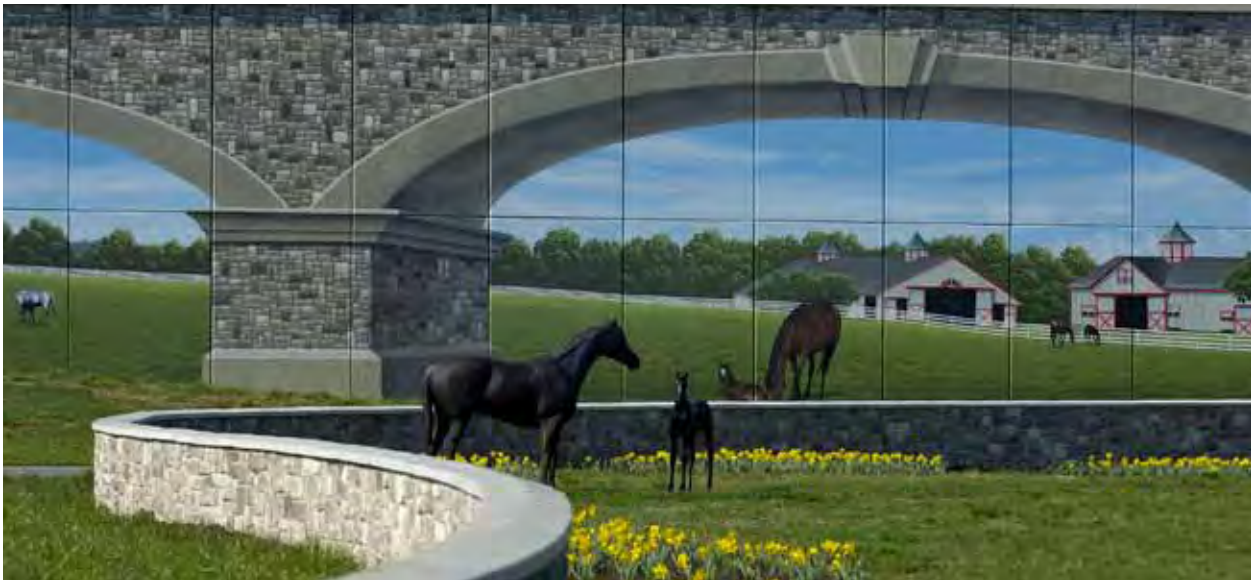
Artists decorate this series of outdoor arches in Rio de Janero. Image courtesy Louie Northern.

This arch defines the gateway for Ybor City near Tampa, Florida. Image courtesy James Sipes.

This images shows the Vancouver Remembrance Wall. Image courtesy Lyn Topinka.

Decorative paving and curvilinear walls create a nice contrast at the Vancouver Land Bridge. Image courtesy Jones + Jones.

Native American art is incorporated into the Vancouver Land Bridge. Image courtesy Jones + Jones.



A close-up view of the painted mural, stone walls, and sculptured horses at the Bluegrass Airport in Lexington, Kentucky. Image courtesy Kentucky Transportation Cabinet.

A broader view view of the painted mural, stone walls, and sculptured horses at the Bluegrass Airport in Lexington, Kentucky, show the scale of the project. Image courtesy James Sipes.

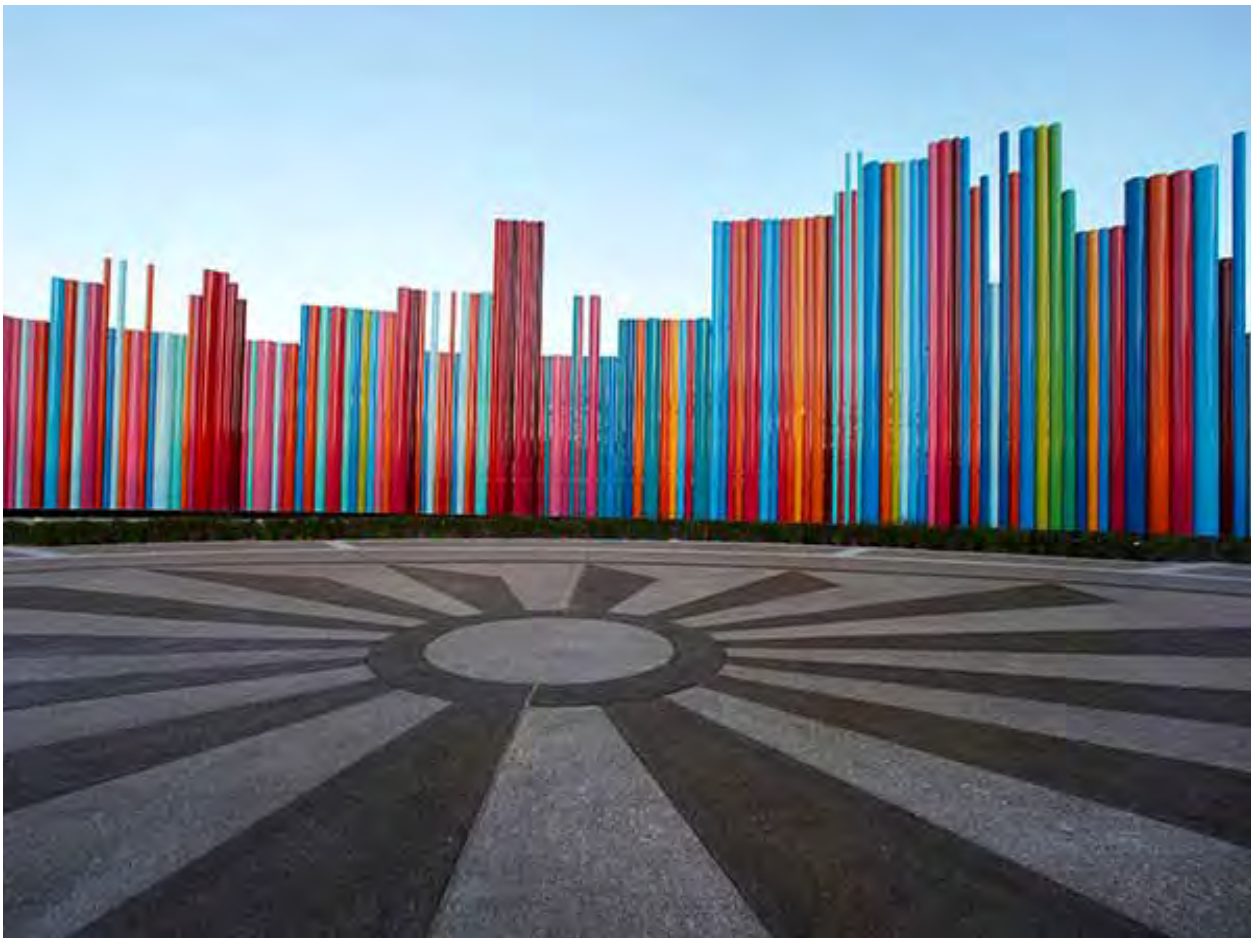
At the Bluegrass Airport in Lexington, Kentucky, a mural of the Kentucky horse farms is painted on a 30-foot by 800-foot retaining wall that creates a barrier from the airport's landing strips. Stone retaining walls, sculptures of horses, and rolling hills are constructed on the public side of the wall. Image courtesy Wikipedia Commons.

Sculptures of horses in the foreground and painted murals in the background at the Bluegrass Airport in Lexington, Kentucky. Image courtesy Wikipedia Commons.

The 1898 Monument and Memorial Park in Wilmington, North Carolina, commemorates the racial violence of 1898 and its consequences. Image courtesy James Sipes.

The Troy Pillow Sculpture is in Seattle, Washington. Image courtesy Wikipedia Commons.

The six paddles at the 1898 Monument and Memorial Park recognize and honor those who lost their lives during the 1898 race riots. Image courtesy James Sipes.



'Pipe Dream' is a 3D sculpture by Tim Bavington that is made up of 128 steel pipes that span eighty-six feet in length and are are up to twenty-seven feet tall. The art is displayed at the Smith Center for the Performing Arts in Las Vegas, Nevada. Image courtesy the Smith Center for the Performing Arts.

LANDMARK PUBLIC ART

Public art can be incorporated into landmark projects and environments. However, careful consideration should be given to these sites because a landmark area is usually notable for its pristine and unique landforms and visual quality. Typically, these areas require a greater level of aesthetic sensitivity because of surrounding natural resources.

Landmark artworks can symbolize a special sense of place and help orient visitors like markers or iconic signposts as they move about. Specially designed gateways into an urban area can serve as landmarks. Gateways are areas that define one's entrance into an urban area or a smaller town. They can incorporate a number of design elements, including bridges, stand-alone sculpture, unique landscaping, and specialized lighting. Gateways are the primary entrances into a city along these significant corridors and should be clearly defined through monumental sculpture, special landscaping, and unique lighting. Similar considerations apply for major gateways at larger airports and entrances into the state along major interstates. To qualify as a landmark work of art, an artwork must be a prominent or conspicuous object or feature on the land that serves as a guide or iconic boundary marker.

This aerial view is of the Justice Garden Path, which was designed by Lorna Jordon and Paul Sorey. Image courtesy Lorna Jordon and Paul Sorey.

These gateway sculptures are along Abbott Drive in Omaha, Nebraska. Image courtesy EDAW.

This curvaceous plywood structure is located in Bedford Square, London. Image courtesy Inhabitant.com.

Salmon Waves, which is located in Seattle, Washington, was designed and built by artist Paul Sorey. Image courtesy Paul Sorey.

The Dallas Fort Worth giant is a 35,000 lbs. steel robot that towers over DARTs Deep Ellum rail station in Dallas, Texas. Image courtesy DART.

This stylistic sculpture of cyclists is in Vargarda, Sweden. Image courtesy EDAW.

Main Terrain. By turning the wheel at the base of the pylon, users can turn the massive bridge truss elements to create new sculptural formations. Image courtesy Samuel Burns.

This life-size sculpture depicts a wagon train traveling the Santa Fe trail. Image courtesy NMDOT.

'Futuristic Public Art Fish Bellies' was developed by designers Joe O'Connell + Blessing Hancock Public Art. Image courtesy Lamahau.com.

This metal lizard is part of an art display along a local road in Scottsdale, Arizona. Image courtesy Arizona DOT.

Grande Disco is a public art piece in Charlotte, North Carolina, from artist Arnaldo Pomodoro. Image courtesy Wikipedia Commons.

This mural was displayed at the Montreal International Public Art Festival. Image courtesy Wikipedia Commons.

A farm implement manufacturer creatively advertises its business along I-80 near Williamsburg, Iowa. Image courtesy Wikipedia Commons.

The Coffee Pot is a piece of art from Paul Sorey that is installed in Seattle, Washington. Image courtesy Paul Sorey.

The Art Shelter Cascade Series is composed of four separate works of art along International Drive around the Orlando, Florida, Convention Center. Image courtesy FDOT.

The bow and arrow Cupids Span Sculpture is along the Embarcadero Waterfront in San Francisco, California. Image courtesy Wikipedia Commons.

The Sights The Sounds art installation follows the Imperial Highway in southern California. Image courtesy CALTRANS.

The Travelling Man by Brad Oldham, 38 foot high, which since 2009 is located outside the train station in Deep Ellum, Dallas, Texas. Image courtesy Brad Oldham.

This sculpture at the Shoreline Business Park in Williams-Sonoma, California. Image courtesy 3D Studios Oakland.

This large sculpture of 'North Dakota Pheasants on the Prairie' is located along Gary Greff's Enchanted Highway in Regent, North Dakota. Image courtesy Gary Greff.

This view shows the scale of 'North Dakota Pheasants on the Prairie.' Image courtesy Gary Greff.

'North Dakota Attraction Geese In Flight' is part of Gary Greff's Enchanted Highway in Regent, North Dakota. Image courtesy Gary Greff.

These sculptures of deer are also on Gary Greff's Enchanted Highway in Regent, North Dakota. Image courtesy Gary Greff.

This large grasshopper sculpture is located along the Enchanted Highway. Image courtesy James Sipes.

The Enchanted Highway is a collection of the world's largest scrap metal sculptures constructed along a 32 mile roadway in southwestern North Dakota. Local artist Gary Greff conceived of the project and began building the sculptures in 1989. He also maintains the current sculptures and has plans for new sculptures to be added later.
The metal sculptures include "World's Largest Tin Family," "Teddy Rides Again," "Pheasants on the Prairie," "Grasshoppers in the Field," and "Geese in Flight," "Deer Crossing" and "Fishermans Dream." Each sculpture has a developed pull-out and several have picnic shelters. (Wikipedia Commons.)

"Reflection Field" is a monumental installation that consists of five freestanding volumes of light and mirror scaled as large as 18 feet high and 17 feet wide. It was created by artist Phillip K. Smith. Image courtesy www.knstrct.com.

This obelisk is a visual landmark in downtown Asheville, North Carolina. Image courtesy James Sipes.

This large sculpture is part of the Porter Sculpture Park along I-90 in Montrose, South Carolina. Image courtesy Wayne Porter.

The Overlook and Canopy Design for the Cypress bridge Replacement Project retains the decorative concrete pedestrian safety barrier, and adds four half-circle belvederes, or overlooks, at the pier locations, which allow pedestrians to comfortably stop and enjoy the bridge's beautiful views. The belvederes' dicroic glass shade canopies are envisioned as sculptural features that would incorporate copper sheathing, streaming water, and sunlight, all natural elements found in abundance here in Redding. Image courtesy CALTRANS.

This is another view of Freedom Fountain in Jacksonville, North Carolina. Image courtesy James Sipes.

The 18-foot tall Fremont Troll sculpture wears a giant Santa-type. The troll is in the City of Fremont, Washington, and is located under Highway 99 at the Aurora Bridge. Image courtesy James Sipes.

Artist Tom Coffin was commissioned by Tucumcari, the New Mexico Highway Dept., and the New Mexico Arts Commission to create this sculpture for Route 66. Image courtesy James Sipes.

The Fremont Troll was sculpted in 1990 by Seattle area artists Steve Badanes, Will Martin, Donna Walter and Ross Whitehead for the Fremont Arts Council. Image courtesy Wikipedia Commons.

This is the "Passage to Knowledge"pedestrian bridge at a state community college in Columbus, Ohio, designed by Brower Hatcher. Image courtesy Brower Hatcher.

Nighttime view of the Tryon Bridge Beacons, Charlotte, North Carolina. Image courtesy Jeff Claire.

Underside view of the Tryon Bridge Beacons, Charlotte, North Carolina. Image courtesy Julie Mazella.

Underside view of the Tryon Bridge Beacons, Charlotte, North Carolina. Image courtesy Julie Mazella.

Side view of the Tryon Bridge Beacons, Charlotte, North Carolina. Image courtesy Tim DeCoster.

Nighttime view of the Tryon Bridge Beacons, Charlotte, North Carolina. Image courtesy Tim DeCoster.

Nighttime view of the Tryon Bridge Beacons, Charlotte, North Carolina. Image courtesy Tim DeCoster.

These columns along West Broadway in Council Bluffs, Iowa, serve as a gateway and a visual landmark. Image courtesy James Sipes.

The Maryland Avenue Bridge Public Art Project, by artist Judy Bales, encompassed the superstructure, ramps, and landscaping for a bicycle and pedestrian bridge over I-17 in Phoenix Arizona. Image courtesy Judy Bales

The Henderson Waves Bridge in Singapore is designed with seven undulating curved steel "ribs" that alternately rise over and under its deck. The unique waveform of the bridge gives it a distinct look. Image courtesy of Wikipedia Commons.

The lighting for the Henderson Waves Bridge helps enhance the visual character of the bridge at night. The lights make the curvilinear patter of the bridge more defined and more visible. Image courtesy of Wikipedia Commons.

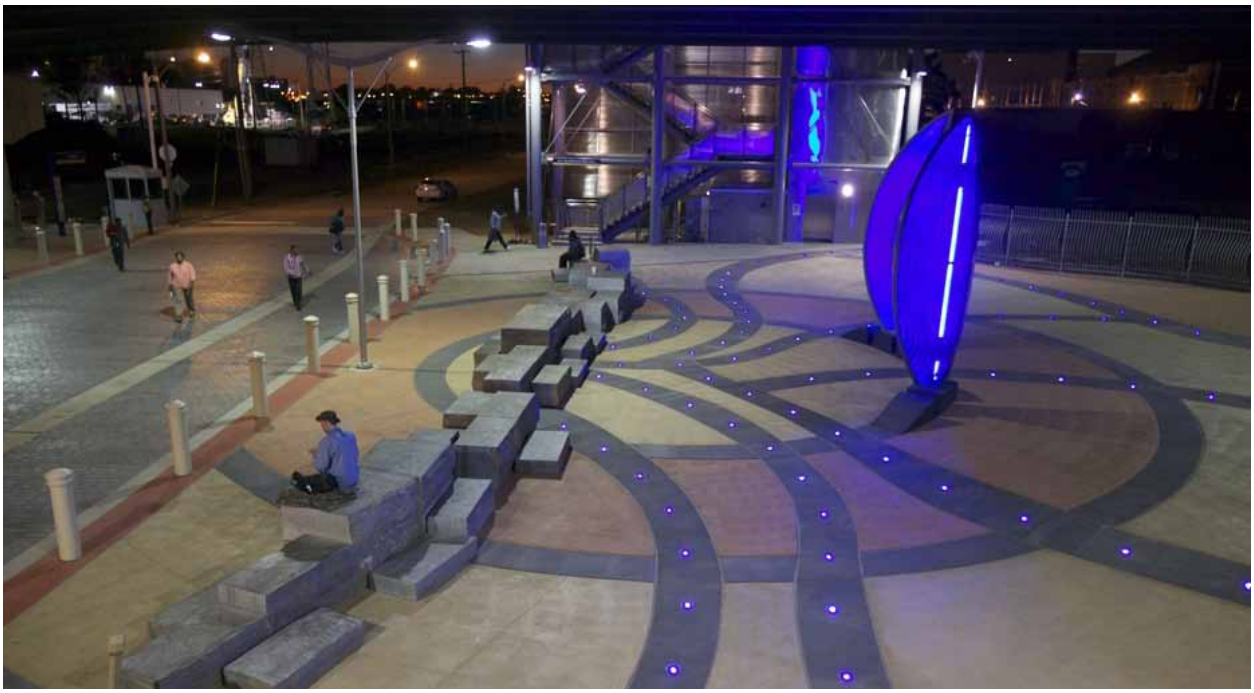
The curved ribs of Henderson Waves Bridge form alcoves that provide seating when needed for public events. Image courtesy of Wikipedia Commons.

The Rails to Sails / D Street Bridge in Tacoma, Washington, features an elevated roadway that is supported on structure and MSE green walls. The project includes artist-collaboratively-designed sail pedestrian lights, painted graphics for roadway lighting, shaped, patterned walls reflecting NW storefronts and tugboat forms (including historic boat names), custom roadway barrier, fencing with railroad rail posts, wavy walkway, MSE green walls, and rock walls. The Artist introduced the environmental approach and created the identity program for the project. The work is collaborative between Vicki Scuri and the Design Team. Images courtesy ©Vicki Scuri SiteWorks.

North Ninth is an entryway project for Salina, Kansas. This project involves the retrofit of an existing bridge; replacing the median, and adding fifteen colorful lights sticks that are angled at 65 degrees. The light sticks crisscross activating the "railroad patterned" brick median creating a graphic sculptural symbol that is visible for some distance. The North Ninth Bridge crosses a small creek. It would be barely noticeable without the Artwork. The light sticks mark it and provide counterpoint to its surround of truck stops, motels and I-70. Image courtesy ©Vicki Scuri SiteWorks.

The Maryland Avenue Bridge Public Art Project, by artist Judy Bales, encompassed the superstructure, ramps, and landscaping for a bicycle and pedestrian bridge over I-17 in Phoenix Arizona. Image courtesy Judy Bales

Vicki Scuri SiteWorks develop "Feathery Tower" sculptures on this bridge over the Arkansas River in Wichita, Kansas. Image courtesy ©Vicki Scuri SiteWorks 003.



The Scott Avenue Transit Plaza in St. Louis, Missouri, was designed by public artist Barbara Grygutis to be an interesting and user-friendly environment for the transit station, which had historically been a very dark site. The redesigned Plaza, renamed "Garden Under the Bridge," has decorative iron fencing, colored paving, new seating, and pot lights embedded into the pavement. These features revolve around two central 20-foot sculptural elements that gleam from within. To create this effect, static blue Lumenfacade fixtures were installed along the structural spine of each sculpture. The semi-transparent sculptures allow natural light to flow through them during the day, while the soft blue hue glows at night. Seating design by the Lawrence Group, Landscape Architects, St. Louis, MO. Image courtesy Dan Donovan.

Hinshaw Greenway is 1.66 miles of asphalt surface, connecting Maynard Drive to Marla Dorrel Park and crossing US Hwy 1/64 on a pedestrian bridge that is the site of a public art installation, "Bowstring Vines." It runs through the Swift Creek Watershed and has some siginificantly sized beech trees located just off the trail in the wooded northern section. The public art installation was develop by artist Michael Stutz. Image courtesy Michael Stutz.

This image shows the wall at the North Carolina Vietnam Veterans' Memorial, which is located at a rest area along I-85. Image courtesy James Sipes.

The Shoreline Interurban Trail Bridges form a vital community link allowing pedestrians and bicyclists to safely cross Aurora Avenue and 151st Street. The Interurban Trail, part of a regional park trail system, utilizes the historic Interurban Trail Trolley Line route from Seattle to Everett, WA. The two pedestrian bridges (one an arched gateway) feature programmable LED lighting (with laser cut panels), blue-glass and stainless steel-mesh screen walls (recalling trolley car window patterns), "rail-to-shore" concrete patterning (celebrating Shoreline's civic identity through its history and its proximity to water), and a connecting linear park including rain harvesting and a variety of native plants placed to recall Shoreline's historic orchards. Image courtesy ©Vicki Scuri SiteWorks.




Blossom Hill Pedestrian Bridge is located in a multi-ethnic neighborhood over railroad tracks next to a vibrant neighborhood mall. Its cherry blossom theme is inspired by the once famous cherry orchards visible from Blossom Hill Road. The sun disks of cherries represent the cycles of life and death, and commemorate the death of a child on the tracks. The bridge, named Xander's Crossing, honors his passing and celebrates life and renewal, providing a safe crossing. The bridge is in San Jose, California. Image courtesy ©Vicki Scuri SiteWorks.




Rock Creek Trail Bridge, designed by Vicki Scuri, provides opportunity for safe passage and for symbolic connection with Montgomery County's (Maryland) historic landscape. Image courtesy ©Vicki Scuri SiteWorks.

Rock Creek Trail Bridge connects trails and neighborhoods with county parks and open spaces crossing heavily traveled Veirs Mill Road. The design for the bridge is inspired by the Rock Creek and the watermill era. The artwork is integral to the design carrying watermill imagery through a number of forms; planters, concrete piers and fencing designs. Image courtesy ©Vicki Scuri SiteWorks.

The Shoreline Interurban Trail Bridges form a vital community link allowing pedestrians and bicyclists to safely cross Aurora Avenue and 160th Street. The Interurban Trail, part of a regional park trail system, utilizes the historic Interurban Trail Trolley Line route from Seattle to Everett, WA. The two pedestrian bridges feature programmable LED lighting, laser cut panels, blue-glass and stainless steel-mesh screen walls (recalling trolley car window patterns), "rail-to-shore" concrete patterning (celebrating Shoreline's civic identity through its history and its proximity to water), and a connecting linear park including rain harvesting and native plants placed to recall Shoreline's historic orchards. Public Art is integral to the project. The collaborative effort includes a Public Art and Urban Design Plan/Menu of Opportunities authored by Vicki Scuri with the Design Team. Images courtesy ©Vicki Scuri SiteWorks.

The La Cholla Boulevard project in Tucson, Arizona, includes 48,000 sq. feet of sound and retaining walls in the north section and 8,000 sq. of retaining walls in the south section of La Cholla Boulevard. The project features a sequence of pattern motifs that are derived from the Cholla Pencil Cactus. The images are "machine cut" emphasizing the intrusion of roads on environment. The patterns map using 12'x24' pattern layouts recombining in various configurations to create a variety of pattern sequences. Wall heights vary from 4'-12'. Relief is 3" maximum. Native plantings cast shadows on the walls; integrating light and shadow with ever changing pattern play. The south section includes split-face block walls stair-stepped; providing screening for the neighborhood. The project includes a linear park with stair-stepped seating along the path. Images courtesy ©Vicki Scuri SiteWorks.

This project at the Meadowood Mall Complex in Reno, Nevada, features "Great Basin" inspired patterned retaining walls, native landscaping and the mall entry overcrossing bridge with light towers forming the entrance to the mall. The light towers feature programmable LED lighting, programmed to mark seasons and holidays. Other improvements include two bridge widening renovations. It is the first project to apply NDOT's new Landscape and Aesthetics Corridor Plan involving extensive participation with neighborhood groups. The project includes a conceptual phase demonstrating upgrades in hardscape, landscaping and lighting; reflecting a regional signature. Emphasis is on regional identity and environment combining structure, aesthetics, native landscaping and rain harvesting. Images courtesy ©Vicki Scuri SiteWorks.

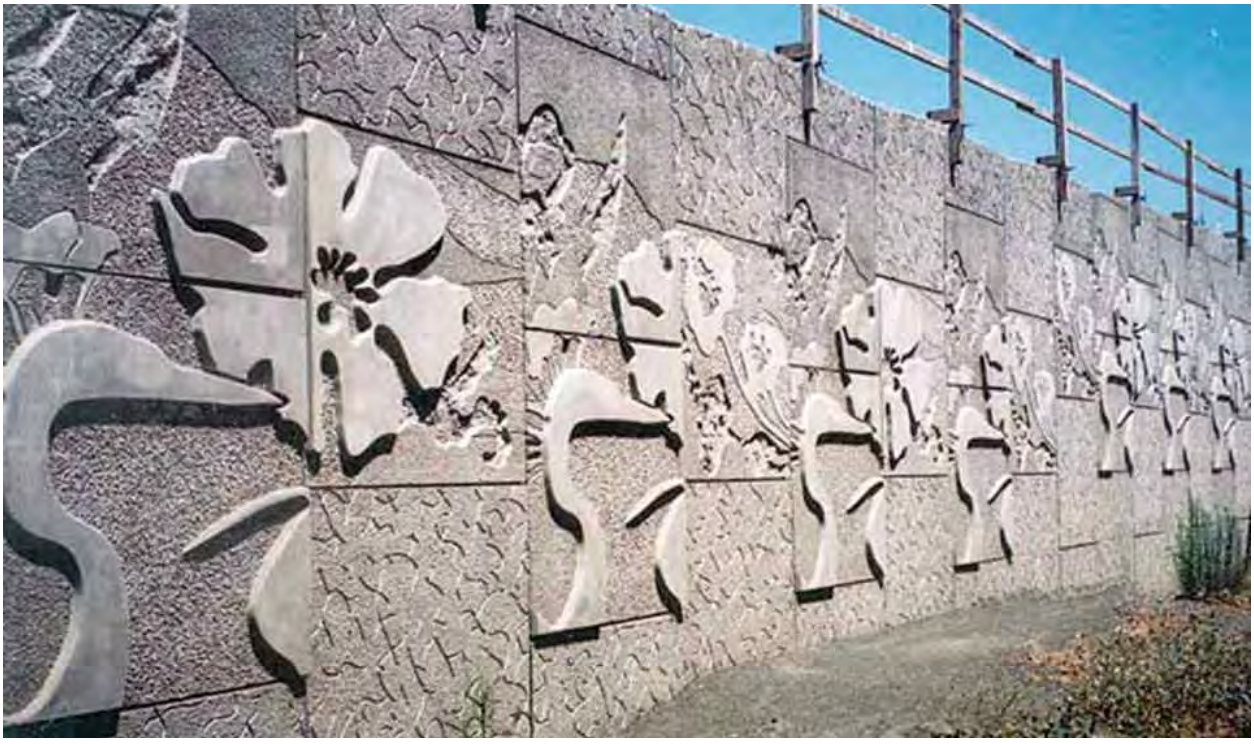
Enhancements to the Bob Hope Interchange on I-10 have made Basket Bridge into a landmark for the Agua Caliente Band of Cahuilla Indians' nearby casino. Braaksma Design Inc researched the Tribe's heritage and desert environment to present images for incorporation into the bridge railing, piers and sloped paving. The basket patterns and plant motifs that are fabricated from galvanized mesh and powder-coated steel, celebrate the Tribe's basket-making tradition.

Belardo Bridge, a two-lane vehicle bridge in Palm Springs, California, uses tile and color to reference basket patterns of the Agua Caliente Band of Cahuilla Indians who were basket weavers. The fox medallions signify a particular clan. Enhancements designed by Braaksma Design Inc.

Neighborhood side of pile panel noise wall with cactus images designed by Braaksma Design in Scottsdale, Arizona. Image courtesy Liz Pope, Scott Systems.

This visualization collage was prepared by Vicki Scuri SiteWorks for the I-10 Aesthetic Master Plan, El Paso, TX. Image courtesy ©Vicki Scuri SiteWorks.

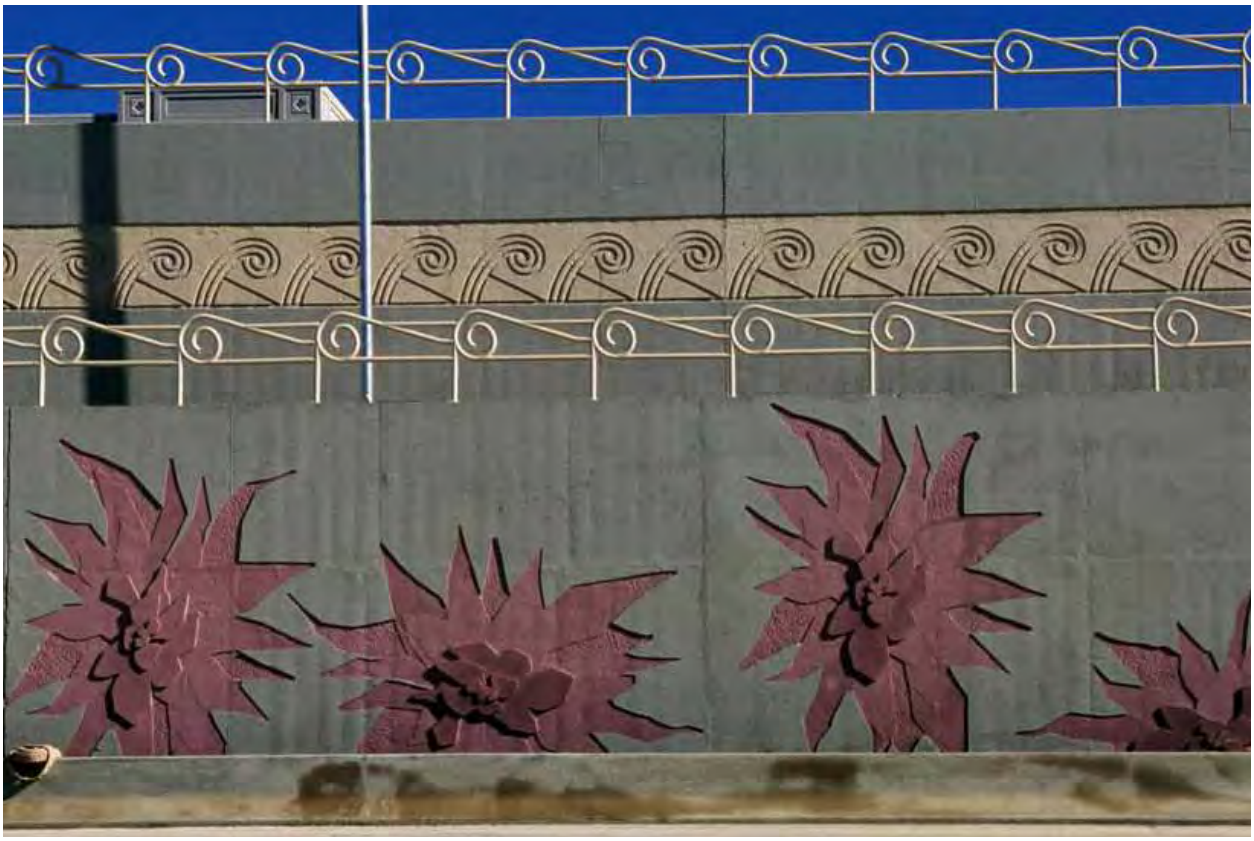
Artist Carolyn Braaksma teamed with architect Andrea Forman and landscape architect Jeffrey Engelmann to design images and textures on highway bridge piers and eight miles of concrete noise abatement walls and on/off ramps for Scottsdale's Pima Outer loop highway infrastructure project. The site-specific imagery includes lizard shapes, lizard skin texture, desert plants, topographical references, Maricopa Indian patterns and rustication that emulates saguaro ribbing. The designs are directly incorporated into safety railings, wall treatments on the neighborhood sides of sound walls, and highway walls as tall as 40 feet. The team chose colors that are rarely seen in highway work—desert tones of pink, lavender, and sage green colors give their work an engaging and surprising, but familiar, quality.



This concrete retaining wall by Braaksma Design Inc uses custom images created from off-the-shelf textures.

Detail of a bridge pier with stylistic lizards by Braaksma Design Inc.

Thirteen bridges on the Pima Outer Loop use the pier lizard designed by Braaksma Design Inc.



This decorative noise wall by Braaksma Design Inc includes pink agaves and Maricopa Indian patterns that enhance the retaining walls become standard railing.

The railings on this bridge has a basket weave pattern that creates a light, airy character. Image courtesy FHWA.

This pile panel wall by Braaksma Design Inc. was designed for CATS (Charlotte Area Transit System). Image courtesy FHWA.

The River Road Bridge in Tucson, Arizona, includes a 400' long roadway bridge spanning the Rillito River Wash. Stair-stepped shapes derived from local buildings paired with the agave cactus forms create a wave motion on the bridge. The agave, viewed as a symbol of the natural environment and human intervention in the environment, frames this crossing. Balconies provide viewing platforms over the wash. An arch of windows perforates agave-shaped concrete panels dramatizing light and restricted view. Concrete panels signal the landmark providing opacity and verticality. Image courtesy ©Vicki Scuri SiteWorks.

In-progress Calico pattern by Braaksma Design for CATS (Charlotte Area Transit System).

Grass pattern design by Braaksma Design Inc is one of several design treatments on precast concrete retaining walls and noise abatement walls for Denver's Transportation Expansion Project of the I-25 Corridor; the imagery is based on history, geography and ecology of the Denver region.

APPENDICES

APPENDIX A

"Design must reflect the practical and aesthetic in business but above all, good design must primarily serve people."

Thomas J. Watson

APPENDIX A | COVER AND DIVIDER PHOTOGRAPH CREDITS

COVER

Retaining walls titled "Airway Gateway" in El Paso, Texas, by Vicki Scuri Siteworks and Jacobs Inc. Image courtesy Scuri Siteworks.

INTRODUCTORY PAGES

Fall in the mountains of North Carolina. Image courtesy NCDOT.

Outerbanks, North Carolina. Image courtesy Flickr Creative Commons.

Pedestrian activity along the streets of Saluda, North Carolina. Image courtesy AECOM.

FOCUS AREAS

Gateway to the Charlotte Douglas International Airport, titled "Ascendus" the sculpture was designed by Ed Carpenter. Image courtesy Charlotte Douglas International Airport.

Linn Cove Viaduct along the Blue Ridge Parkway, North Carolina. Image courtesy NPS public domain.

Chapter 1

I-26 Scenic Byway, North Carolina. Image courtesy NCDOT.

Chapter 2

Blue Ridge Parkway, North Carolina. Image courtesy Depositphotos.com.

"Passing Through Light" by artist Edwin Redl is located at the I-77 and West Trade Street underpass in North Carolina. Image courtesy NCDOT.

Chapter 3

Bridge along I-85, over the Yadkin River near Salisbury, North Carolina. Image courtesy NCDOT.

Bridge along the Neuse Trail, Raleigh, North Carolina. Image courtesy RaleighNC.gov.

Chapter 4

Walls along La Cholla Boulevard in Tucson, Arizona. Image courtesy Vicki Scuri SiteWorks.

Chapter 5:

Titled "The Great Wall," Tacoma, Washington, by Vicki Scuri Siteworks. Image courtesy Scuri Siteworks.

Chapter 6:

Roadside wildflower plantings and landscaping, North Carolina. Image courtesy NCDOT.

Chapter 7:

Pedestrian bridge in West Hyattsville, Maryland. Image courtesy Flickr Creative Commons.

Chapter 8:

North Durham County Scenic Byway, Durham, North Carolina. Image courtesy NCDOT.

Chapter 9

Artist Ayokunle Odeleye's monument, 1898 Memorial Park in Wilmington, North Carolina. Image courtesy NCDOT.

APPENDICES

Grassy shore along coastal North Carolina. Image courtesy DepositPhotos.com.

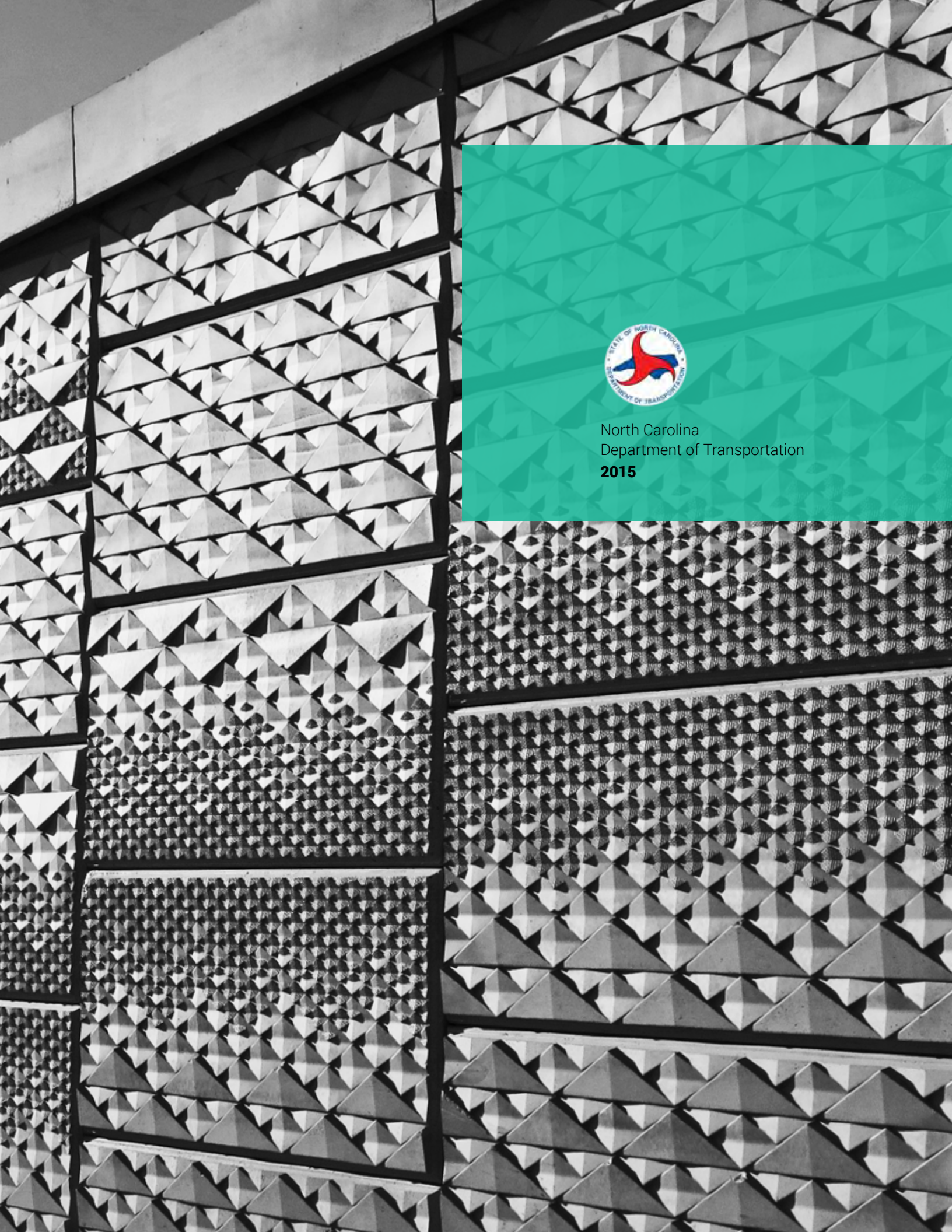
Pedestrian bridge detail in Durham Central Park, Durham, North Carolina. Image courtesy AECOM.

BACK COVER

Retaining walls titled "Airway Gateway" in El Paso, Texas, by Vicki Scuri Siteworks and Jacobs Inc. Image courtesy Scuri Siteworks

"The word beauty is used reservedly as it does not fully explain the aesthetic perception. A better word is experimental, as it encompasses not only the object but also the viewer."

William Zuk



North Carolina
Department of Transportation
2015