Iowa State Parks Design Guide
long-term vision for state park architecture
From the Director of the Iowa Department of Natural Resources:

Iowa state parks attract millions of visitors every year who seek enjoyment in these unique places that help define our natural heritage. People come for the solitude, recreation, and the enrichment of shared experiences in nature. They hold a special place in our hearts.

Today's 85 state parks and recreation areas provide a broad array of outdoor opportunities with beaches, campgrounds, trails, cabins, boat and canoe launches, shoreline fishing, picnic shelters, and lodges, that all serve as gathering places for friends, families, and groups of all sizes. They have incredible economic, environmental and quality of life importance to this state and its citizens.

This Design Guide provides a thoughtful long-term vision for state park architecture. With the year 2020 representing the 100th anniversary of Iowa state parks, it becomes even more important to guide the future image and identity of parks. The architectural framework established within pays homage to the rich past of the historic log and stone structures so prevalent in Iowa parks that were constructed during the Great Depression. This, coupled with the intention to reflect sustainability principles and the overall quality of state park facilities, will “showcase” the Department's role as the leader in natural resource stewardship and provider of outdoor recreation opportunities.

Iowans are proud of their state parks. Please join me in celebrating the creation of a renewed and unified state park identity for future generations.

Sincerely,
Roger Lande
# Table of Contents

1 | **OVERVIEW OF THE DESIGN GUIDE**

- Introduction and Purpose .................................................. 5
- Iowa State Park Image, Identity, & Visitor Experience ............... 5
- Key Considerations .......................................................... 6
  - Economic Realities ....................................................... 6
  - Cultural Treasures with Current Sensibility ......................... 6
  - Environmental Relationships .......................................... 6
- Audience .............................................................................. 6
- Process ................................................................................ 7

2 | **VISION**

- Goals .................................................................................. 9
- Objectives ............................................................................ 9
- Principles ............................................................................. 9

3 | **BUILDINGS & STRUCTURES - IMAGE**

- Introduction ........................................................................ 11
- Origins ................................................................................ 11
  - Existing Buildings & Structures – Eras & Design Intent ........ 11
  - CCC Era (1910 - 1942) .................................................... 12
  - Post WWII Era (1942 - 1985) .......................................... 14
  - Most Recent Era (1985 - Present) .................................... 16
- Ecology in Iowa State Parks ................................................. 18
  - Introduction ..................................................................... 18
  - Iowa State Parks in the Context of Geological Landform Regions 18
  - Iowa Plant Communities & Vegetation Change ................. 19
- Conclusion ............................................................................ 20

4 | **A SUSTAINABLE APPROACH**

- Introduction & Vision .......................................................... 23
- Sustainability Criteria for Park Development ......................... 24
  - Overall Park and Site Development .................................... 24
  - Materials and Processes ................................................... 24
- Energy Efficiency .................................................................. 25
- Water Conservation ............................................................ 26
- Conclusion .......................................................................... 27

5 | **VISUAL PREFERENCE**

- Visual Listening Survey ....................................................... 29
  - Study Process ................................................................... 29
  - Study Results .................................................................... 30
  - Analysis & Insights .......................................................... 42
- Conclusion ............................................................................ 45

6 | **DESIGN GUIDELINES**

- How to Use the Guidelines .................................................. 47
  - Step by Step Process ....................................................... 47
- Design Templates ............................................................... 49
  - Entry Portals .................................................................... 50
  - Kiosks .............................................................................. 56
  - Shelters ............................................................................ 62
  - Cabins .............................................................................. 68
  - Restrooms ........................................................................ 74
  - Administrative/Office Facilities ....................................... 80
- Materials and Color Palette .................................................. 85
  - Stone ............................................................................... 86
  - Wood .............................................................................. 90
  - Roof ................................................................................ 91
  - Color .............................................................................. 92
- Signage ............................................................................... 93
- Site Furnishings .................................................................. 96
- Next Steps .......................................................................... 98

APPENDIX & REFERENCES ...................................................... 101

Prepared by RDG Planning & Design and Applied Ecological Services with The Iowa Department of Natural Resources, 2011. See Appendix for additional contributors.
All photos used with permission given to RDG Planning and Design and the Iowa Department of Natural Resources.
INTRODUCTION AND PURPOSE

Iowa’s state parks host 14 million visitors a year. Visitors have celebrations of significant life events in state parks, such as birthdays, graduation parties, weddings, and family reunions. Many of these events become a part of long-standing traditions that over time create a strong sense of pride in Iowa state parks.

Think back to your first memories of a visit to an Iowa state park. What were your first impressions? They were likely dominated by a sense of awe of the natural environment, as state parks are located in many of Iowa’s most dramatic landscapes. This sense of awe was possibly combined with anticipation of seeing your first-cousins at a family reunion or participating in a family activity, like fishing, hiking, picnicking, swimming or any other outdoor recreation opportunity available in Iowa’s state parks. These first impressions were probably colored by the different look and feel of the buildings in the park. Iowa’s finest park buildings were built in the 1930s by the Civilian Conservation Corps (CCC) and the Works Progress Administration (WPA). The face of state parks was greatly changed by these two federal work programs during the Great Depression. The distinctive stone and timber beach buildings, lodges, shelters, trail bridges and cabins built during this period have become associated with the identity of Iowa state parks.

The Iowa State Parks Design Guide was developed in recognition of the importance of park architecture in the overall visitor experience - this being an interplay of the structures that frame outdoor life and family experiences within a backdrop of the most scenic and biologically significant places in Iowa.

The fundamental purpose of the Design Guide is to provide a thoughtful long-term vision for state park architecture. It will build on the best of the past, along with the best of the present, for future generations that will be enriched by both.

With the year 2020 representing the 100th anniversary of Iowa state parks, it becomes even more important to provide a road map for the future image and identity of Iowa state parks.

IOWA STATE PARK IMAGE, IDENTITY, AND VISITOR EXPERIENCE

Iowa was at the forefront of the nation in establishing a system of state parks. From the outset, the founders struggled with trying to balance facility development vs. resource protection or simple public ownership. The Great Depression federal work programs of the New Deal era, however, quelled the discussion and gave Iowa state parks a new look, with 1,000 plus CCC and WPA rustic stone and timber structures built in 39 state parks to serve ever increasing numbers of visitors. These were constructed of native materials available locally; logs cut from the park forests and stone quarried for the parks nearby. While individual in character, these structures represent the very essence of the Iowa state park system.

What happened to those great stone and timber buildings constructed in the 1930s that became part of Iowa state park visitor’s multi-generational experience? By the 1990s most were on the National Register of Historic Places, but were in...
an increasingly deteriorating condition. During an eight year period, many were restored and renovated, along with beach buildings that were converted to new uses for picnicking and family gatherings through a funding program known as Restore the Outdoors.

In the early years an “Iowa state park look” was established by the stone and timber structures, however, park buildings constructed for a period after WWII generally lacked consistency as a result of several factors.

VISITOR EXPERIENCE
The visitor’s experience continues to be of primary concern. The overall look and feel of the park architecture creates a significant impact and lasting impression. Understanding user perceptions has been and will continue to be an integral component of the ongoing efforts to make improvements to the built environment in Iowa state parks.

KEY CONSIDERATIONS

- **Economic realities**
  - Limited budgets, costs of improvements, and ongoing maintenance and operational expenses are important considerations when developing a guide for future state park facilities. Agency values that are grounded in quality and durability will need to be balanced with affordability. The higher long-term costs vs. lower short-term costs of improvements need to be factored into the discussion, as does the economic benefit of quality facilities. The Design Guide can be helpful by informing the design process, without necessarily always increasing the cost of the improvement. In other cases, an improvement may need to be deferred until adequate resources are available to meet basic design needs.

- **Cultural treasures with current sensibility**
  - There is a unique architectural aesthetic established in the early park development in Iowa that utilized a “rustic” style design. Over the years, this aesthetic has survived the test of time and these CCC-era structures are now even more treasured. A challenge for this document is to understand and articulate the unique design elements of rustic architecture, while applying a 21st century sensibility.

- **Environmental relationships**
  - Architectural development within Iowa state parks needs to exist in harmony with several environmental elements including relevant geological features and site considerations. The Iowa State Parks Design Guide strives to offer methods and options including material palette choices that provide flexibility, emphasize these relationships, and maintain an overall unified approach.

AUDIENCE
The design guidelines contained within this document have been prepared for the following key user groups as they plan, authorize, design, construct, maintain, and operate DNR facilities:

- DNR park and engineering staff
- Design consultants
- State park friends groups

“The better each of us understands the environmental, cultural, and economic context of each facility’s design, the better we will serve our customers and reflect a quality agency image. Everyone in the Forest Service has a stake in creating and perpetuating a positive built environment image.”

— Chris Hartman, USFS, regarding similar Forest Service Guide
CONCLUSION

Those who came before in developing and constructing the earliest park facilities not only provided a major contribution to the conservation and recreation needs in Iowa, but they also left a legacy to be treasured.

The Iowa State Park Design Guide will provide a visionary road map for tomorrow’s park architecture that pays homage to our rich past, yet keeps a sharp eye on the needs and resources available for future generations.

- Pay homage to our rich past, yet keep a sharp eye on the needs and resources available for future generations.

- Process

The process to identify and review the underlying factors relevant to development of the Design Guide, solicit input from the various stakeholders impacted by the project, and produce the Design Guide included the following specific components:

- Document Review
  - Research and review of previous Iowa state parks planning and construction documents, with relevance to the 1933 Conservation Plan. Historical blueprints were also scanned.

- Park Inventory and Documentation
  - The existing structures in each state park were inventoried and photographed.

- Review of Iowa Demographics
  - A summary of population characteristic changes that have impacted state park usage in the past fifty years was reviewed, focusing on recent trends between the 1990 and 2000 census.

- History of Iowa State Parks Development
  - A review of the funding and development of the state park system was conducted. Milestone events such as the establishment of the Civilian Conservation Corps under the National Works Program during the Great Depression, and the multi-year planning and restoration effort of park historic structures, known as the Restore the Outdoors (RTO), were identified.

- Overview of the State Parks System
  - A status report on the operational resources of the state parks system, including current staffing and maintenance funding levels.

- Environmental Review
  - A review of environmental issues that impact the state parks system, with separate detailed focuses on geology, forestry and ecology.

- Case Study
  - A review of a similar design guideline effort by the National Forest Service.

- Stakeholder Input
  - A multi-faceted stakeholder input process included staff interviews (park field and administrative staff, DNR engineer staff); a Steering Committee comprised of conservation organization partners, DNR staff (current and retired), and DNR Commissioners; and a Core Planning Committee. This component also included a Visual Listening Survey with all mentioned above, as well as specified public participants, whereby visual preferences were identified through the rating of selected park infrastructure images.

- Interactive Design Work Sessions
  - A multi-disciplinary series of focused design work sessions was conducted by consultants with DNR staff.

- Guideline Articulation
  - The development of critical text to support and clearly direct the implementation of design recommendations by various document users.

- The Iowa Park Foundation
- Potential donors
- Natural Resource Commission
To conserve and enhance our natural resources in cooperation with individuals and organizations to improve the quality of life in Iowa and ensure a legacy for future generations.

— DNR Mission Statement

Leading Iowans in caring for our natural resources.

— DNR Vision
The Design Guide is based on a set of goals, objectives and principles that were developed through the course of the project.

**GOALS**

- Provide a framework for future park infrastructure to enhance the Iowa state park experience and identity.
- Integrate the best of the past Iowa state park rustic architectural identity with the best of current sustainable design practices, materials and construction techniques to create an overall unified state park experience and image that is built to last.
- Reflect sustainability principles and the overall quality of state park facilities, consistent with the Department’s role as leader in natural resource stewardship and provider of outdoor recreation opportunities.

**OBJECTIVES**

- Identify design principles for elements common to all structures, yet allow for variations:
  - between and within geological regions
  - between parks
  - within structure categories and design templates that may reflect differing complexity, scale, materials and costs
- Maintain flexibility, creating options for use in the design of individual projects.
- Identify design guide parameters for those larger focal point facilities, such as lodges and enclosed interpretive centers.

**PRINCIPLES**

- Provide leadership in applying sustainable principles in the design, construction and operation of park facilities.
- Create an interpretation using environmental and cultural cues drawn from the specific park and site.
- Develop with quality and durability in mind. Projects should be buildable, affordable, accessible, functional and maintainable.
- Diminish the distinction between indoors and the outdoors by integrating the user with a quality experience in the natural environment.
“Hundreds of fragile original drawings dating from the 1920s have survived in the files of the Department of Natural Resources. In addition to the strong park design aesthetic they represent, the drawings are works of art in and of themselves. Considering that Iowa was in the vanguard of state park development in the early 1920s, it is not surprising that landscape architects at Iowa State College were involved in promulgating a new aesthetic in park design. What became known as the “rustic style” grew out of the English landscape gardening tradition as interpreted in the United States principally by Andrew Jackson Downing and Fredrick Law Olmstead, Sr. Based on the use of native materials to blend buildings into their natural surroundings, rustic architecture was perfectly suited to America’s new national parks.

During the next several years, the Iowa State landscape architecture department turned out a variety of studies and buildings plans for state parks. Among those assigned to the board, John R. Fitzsimmons appears to have developed the closest working relationship. Many of the buildings constructed between 1925 and 1931 were of his design. Fitzsimmons, in turn, used state parks as a laboratory for training future landscape architects. Under his direction, students designed lodges and shelter houses as well as standard plans for picnic tables, fireboxes, fences, gates, park signs, trail markers, trail steps, drains for trails, and erosion control barriers.”

— Rebecca Conard, Historian

Nearly 1,200 CCC and WPA era drawings from DNR files were scanned as a part of the research performed for this Design Guide, accounting for a variety of park structures ranging from entry portals to lodges.
INTRODUCTION
Hundreds of buildings and structures currently comprise the existing built environment of the overall state park system and each one can be evaluated based on the question above. The overall appearance and visual image or identity of structures is one of the primary considerations of this document.

ORIGINS
The image reflected in national and state park buildings has its foundation in park movements from the mid 19th century. Ironically, the greatest period of state park facility development occurred in the depths of the “Great Depression” of the 1930s as a result of the programs such as the CCC. Much has been written regarding the various leaders and efforts instrumental in the establishment and perpetuation of parks throughout the United States. The intent of the Iowa State Parks Design Guide is not to re-write a comprehensive history, but to clearly and concisely articulate a distillation of the thoughtful design intent utilized to develop park-related built facilities. The intention is to balance current visual preferences with current best practices to aid in the development of these guidelines.

Several books, articles and guides were studied to better understand the origins and background leading to the major park developments and movements over the past 110 plus years. The following two relevant documents are included within the appendix and should be referenced:

- Iowa State Parks, Sustaining a Vision from 1895 to 1995, Rebecca Conard, Iowa Conservationist, 1995
- Built Environment Image Guide, Chapter 2, Origins of the National Forest Built Environment

“Why do those park buildings look that way?”

EXISTING BUILDINGS & STRUCTURES – ERA & DESIGN INTENT
Since Backbone State Park was formally dedicated in 1920, Iowa state parks have undergone various initiatives, or eras of design. In an effort to identify the breadth and diversity of design thinking that has existed, and to summarize the essence of each era, facilities with similar design characteristics were grouped and evaluated. For each era, a study of the influences from that timeframe aids in revealing valuable insights.

The following are three eras that were identified with their respective generalized historical influences and resulting design intentions.
CCC ERA INFLUENCES (1910 TO 1942):

- Landscape Architects at Iowa State College, P.H. Elwood and John Fitzsimmons advanced the rustic design aesthetic throughout the 1910s and 1920s.

- The Civilian Conservation Corps (CCC) and the Works Progress Administration (WPA) were created by President Franklin Roosevelt as part of his “New Deal”. Their purpose was to put Americans to work doing things like improving parks, planting trees, and constructing terraces and soil conservation structures.

- In 1917, the State Park Act was passed by the Iowa Legislature, resulting in the formation of the Iowa Board of Conservation, charged with the creation of a system of state parks. Dr. Louis Pammel was the first chair of the board.

- The 1919 report of the new Board of Conservation identified the most critical places in Iowa for acquisition as state parks - places such as Backbone and Maquoketa Caves.

- In the 1920s, a large number of state parks were dedicated. These were times of great celebration, with local bands and numerous speakers, including legislators and often the governor. In addition, prosperity in America coupled with development of paved roads and cheap automobiles, resulted in a growing public desire for places to recreate.

- The 25 Year Conservation Plan of 1933 was a document of great significance for Iowa state parks. The plan provided an action blueprint for conservation in Iowa, including development of a greatly expanded state park system.
CCC ERA DESIGN INTENT:

- The era of “rustic park architecture” visually unified national and state parks. It was characterized by oversized architectural elements and celebrated hand-crafted details which reintroduced pioneer building techniques.

- Local, natural materials of stone and timber were predominantly used which resulted in regional variations that coincided with the geological and forest resources.

- Structures were intended to harmonize with nature, allowing the environment to take center stage. These buildings were distinctly different than the architecture in the surrounding communities.
POST WWII ERA INFLUENCES  
(1942 TO 1985):

- World War II spelled the end of the CCC and WPA. Post-war prosperity resulted in a demand for new state parks. Places such as Rock Creek, Green Valley, and Lake Geode state parks were developed to meet this new demand for water-based parks.

- Many new parks were centered on artificial lakes, offering a greater variety of outdoor recreational opportunities.

- In the 1950s and 1960s, camping increased greatly in popularity and became a favorite state park pursuit for thousands of visitors.

- The 1960s saw the “state recreation area” concept - large areas based upon lakes of up to 1,000 acres and offering year-round opportunities, including hunting as well as 24-hour access.

- Existing state parks were not ignored. Several were chosen for re-development master planning efforts with subsequent major facility upgrades.
POST WWII ERA DESIGN INTENT:

- CCC era facilities continued to become more maintenance intensive, resulting in design thinking favoring the use of more manufactured materials.
- Lack of centrally coordinated designs resulted in a wide variety of individualized facilities.
- Site issues were often resolved by the park field staff and the field engineers.
- Cost was the primary influence on design and construction that focused on basic function, economic and low maintenance facilities which often resulted in the reduction of material size, and use of stone and other natural materials. In addition, architectural details were simplified and in many cases concealed.
- In some cases, very limited financial and resource commitments resulted in building designs that were “borrowed” from the Army Corps of Engineers.
MOST RECENT ERA INFLUENCES
(1985 TO PRESENT):

- In 1986, using revenue from the State Park User Permit program or P.U.P. (1986-1989), a new DNR initiative focused on the renovation of existing state park facilities.

- The Resource Enhancement and Protection Act of 1989 (REAP) replaced the Park User Permit program and provided funding for a variety of conservation/outdoor recreation programs, including state park facility renovation and construction.

- The 1990s saw a renewed effort in state parks to more effectively manage the total park resource - the facilities as well as the natural communities which form the setting of state parks.

- In 1996, $3 million in park improvements was appropriated with special emphasis on historic structures. Then, in 1997, the Restore the Outdoors (RTO) initiative was signed into law, providing an additional $12 million over four years for restoration and renovation of Iowa state park structures.

- Interpretive programs and seasonal interpretive staff were re-introduced in many state parks, recognizing the need and importance of environmental education.

- The future shows a renewed investment in state parks with the passage of Senate File 2389, assuring 5 million dollars for State Park Infrastructure in 2011. The Legislature also expressed an intent to continue funding this effort at $5 million for an additional four years.

- The 100th anniversary of Iowa State Parks will be celebrated in 2020, with a goal to bring state parks into a premier condition by that time. A State Park Needs Assessment was conducted to better understand the scope and depth of the challenges and opportunities, as well as project associated cost estimates (see appendix for infrastructure listing).
MOST RECENT ERA DESIGN INTENT:

- This era centered on a mindset to protect, restore, and repurpose existing facilities prior to considering their replacement or removal.
- Most designs utilized high quality, standardized, and long lasting building materials such as split-faced block and tongue and groove roof decking.
- Strong consideration was given to the integrating lessons learned from previous project experiences, with a mindset to build on previous successes.
- Pre-manufactured structures, such as restrooms and shower facilities, were introduced.
- A focus was established for flexible use areas, such as shelters, with room to expand program space beyond roofed areas as needed.
- The need was identified for year-round self-guided interpretation, kiosks, and overall park orientation.
ECOLOGY IN IOWA STATE PARKS

INTRODUCTION

In her 1997 book titled Places of Quiet Beauty, Rebecca Conard wrote, “Iowa entered the field of park-making by dedicating a handful of sites in 1919 and soon emerged as a national leader in developing parkland.” In the beginning, leaders in the Iowa State Park system set out to preserve places of scientific, historic or scenic value and beauty. It was, and continues to be, these places of quiet beauty that draw enthusiasts to the landscape that became Iowa’s state parks.

Parks became more popular and the need for support facilities grew. Following the National Park rustic architectural style trend, focus turned to utilizing elements within the landscape to provide inspiration as well as the raw construction materials needed for building.

IOWA STATE PARKS IN THE CONTEXT OF GEOLOGICAL LANDFORM REGIONS

Today as one flies over the state, there are subtle and distinct lines in the landscape that indicate the passing of time through the demarcation of landforms—the shape and surface materials of the land, as formed by geological processes. Iowa’s building blocks are:

- Sedimentary rocks – limestone, sandstone, dolomite, and shale – millions of years old
- Ice Age Deposits – glacial till left by retreating ice, sand and gravel from glacial melt water, and loess, a fine wind-blown particle – hundreds to thousands of years old
- Alluvium – gravel, sand, and clay from river deposits – thousands of years old to present time
There are seven distinctive, geologically-formed areas in Iowa, each with its own unique signature. This signature is created by the type of material visible on the land surface, the topographic relief and general shape of the land, and drainage patterns. Some of this is evident from the ground, while some of this is only evident from the air.

IOWA PLANT COMMUNITIES AND VEGETATION CHANGE

The Iowa landscape and the status of Iowa's natural plant communities have undergone significant changes over the years. From 1832 to 1859, all of Iowa was mapped for settlers to be able to purchase land. As part of this mapping process, surveyors noted the types of plants they encountered, the names and sizes of trees they found, the stream crossings and water bodies present, and the settlements and roads established. From this information, it was possible to assemble a map of the “historical vegetation” of Iowa during the time period of 1832-1859.

Most of Iowa (78%) was prairie before European settlement. Embedded in this prairie were tens of thousands of wetlands, many concentrated in the recently glaciated Des Moines Lobe, but also along drainage ways and in river valleys. Out of the original 30 million acres of prairie, only some 30,000 acres remain (0.1%), mostly in Western Iowa. Wetlands have experienced similar losses.

Comparing the current amount of forest cover in Iowa to the historical cover, it appears things have not changed that significantly. Forests were and are today concentrated in northeast Iowa, south-central Iowa, and along rivers and streams. Pre-European forest cover, calculated from historical survey data, totaled seven million acres. Yet that number hides
an interesting and poorly known aspect of Iowa’s ecological past - the savanna. Close inspection of the early survey notes indicate some areas that might appear to be forests were called “barrens” or “oak openings” by surveyors. Other surveyors described the plant community as part prairie-part timber, or timber with scattered trees, or “openings”. Brush and thickets were also named. These plant communities shared a common ecological feature - they originated with disturbance, such as major windstorms, browsing and grazing by elk and bison, or more commonly, wildfire. These disturbances occurred often enough that a forest with tall, dense trees did not develop. It is estimated that historically there were three million acres of this disturbance-related plant community in Iowa.

The plant communities and the wildlife habitat they provide are undergoing continuous change – the loss of prairies and wetlands, evolution of forest cover, and alteration of disturbances that have contributed to the virtual disappearance of the savanna. The following issues are most urgent.

- **Edge Effects** – Land users next to parks can damage plant communities in parks and impact water quality. Herbicide drift, microclimatic effects, open country and edge predators, and invasive plants originate in lands next to parks and affect plant communities inside parks.

- **Decline of Oak Regeneration** – Lack of disturbance, such as fire, dense shading, and other factors prevent oaks from replacing themselves, leading to forest dominated by shade-tolerant species that have a lower value for some wildlife species.

- **Invasive Plants** – As introduced species, these plants alter plant communities and affect wildlife populations, rare species, and the functioning of ecological systems.

- **Fragmentation** – Species that need large blocks of habitat are rare in most of Iowa because habitat blocks are often too small for them. Habitat is an important park design consideration.

- **High Deer Populations** – Although deer sightings are popular with the public, when deer become too numerous, they preferentially eat certain herbs and tree seedlings, preventing them from regenerating.

- **User Impacts** – Sound recreation planning is a continual re-evaluation of the balancing act between resource protection and visitor access. Is it effective over time?

**CONCLUSION**

The geologic underpinnings of Iowa need to be understood if there is hope for a sustainable hydrologic cycle which will support state parks, wildlife habitat, and all healthy life in Iowa. Geology has contributed and will continue to contribute to the look, feel, and substance of state park architecture facilities.

Plant communities have always changed to varying conditions, whether it be the elimination of buffalo-herding and storm-related fires or shifting climatic conditions, but they will continue to change. Strategies may be devised to “manage” certain aspects of those changes based on science, staffing and funding. Through it all, it is important to interpret for the public so they better understand the complicated shifting of natural forces. Good park design will continue to strive to minimize impact on the natural plant and animal communities.
“Iowa state parks express a wide range of scenic topographic features and geologic materials. The diversity is the result of: 1) bedrock materials that range widely in geologic age and environmental deposition, 2) the state’s location in relation with the respect to the margins of overlapping glacial advances, and 3) the drainage evolution of river valleys. In addition to their customary recreational attractions, most state parks are at crossroads with some aspect of the state’s geologic past. This past may include the presence of ancient oceans, the passage of glaciers, the accumulation of wind–blown silt, or the sculpture of flowing water.

Geologic factors affect the shape of the land and the characteristics of its substrate, thus determining the habitats of a place and the plant and animal communities that live there. Interpretations of state park geology help visitors appreciate scenic differences and raise awareness of the characteristics of Iowa’s various geologic deposits. These lands contain scenic views to refresh the spirit, geologic concepts to stretch the imagination, and solid geologic facts on which to build a better public understanding of the resources and environmental issues which face society.”

— Jean Prior, Geologist
INTRODUCTION AND VISION

Our public lands are a vital and important resource for all Iowans. While few in number, these park and recreation areas provide significant protection for many of Iowa’s most beautiful yet vulnerable natural resources. In order for these special places to be enjoyed by future generations of Iowans, thoughtful consideration must be given before any development occurs. In this context, a sustainable approach recognizes the need to balance human needs as they relate to park facilities within the natural function of the environment by minimizing impacts of the public use and consumption of goods, natural resources and energy, as well as waste generation. Sustainable design begins with a connection to values that embrace the ecological, economic and social impacts of a project. There are rippling consequences to human actions on the land at local, regional, national and global levels. Environmentally responsible choices must be made in the process of conceiving and constructing park amenities.

Critical to this process is reinforcement of the department’s role as a leader in environmental protection and education. This includes educating the park visitor about natural and cultural resources and the impacts of facility developments upon them, from the choice of building materials and methods utilized, to personal energy consumption. The focus of this process will be on natural and cultural resources as the key experience and the interpretation of how the process of facility development works within the natural systems. Telling the story is as important as the functions fulfilled.

Economic factors must be evaluated for the long-term cost effectiveness of each effort. Much of this guide pertains to unenclosed structures (such as picnic shelters) and enclosed structures (such as cabins and restrooms) which are generally small in size. Neither of these fall within current standards of independent measure such as Leadership in Energy and Environmental Design (LEED). It is anticipated that there will be a few large facilities such as year-round lodges in future years which will require the full consideration, evaluation, and execution of current sustainability standards at the appropriate time. A listing is included in the Appendix.

The following three sections from the vision of this Design Guide address sustainability:

- This framework will reflect sustainability principles and the overall quality of state park facilities, consistent with the Department’s role as leader in natural resource stewardship and provider of outdoor recreation opportunities.
- Integrate the best of the past Iowa state park rustic architectural identity with the best of current sustainable design practices, materials and construction techniques to create an overall unified state park experience and image that is built to last.
- Provide leadership in applying sustainable principles in the design, construction and operation of park facilities.
SUSTAINABILITY CRITERIA FOR PARK FACILITY DEVELOPMENT

✓ Overall Park and Site Development
✓ Holistic overall state park and site specific planning, analysis, and design results in the stewardship of Iowa’s finite natural and cultural resources.
✓ An analysis of site characteristics is a critical part of the pre-design process.
✓ Minimize disturbance to the site and visual impact - respect the ecological context.
✓ Maximize user access and minimize park user conflicts by analyzing the function of the proposed location within the existing park layout.
✓ New development should efficiently utilize existing roads, parking areas, and trails to minimize disturbance as well as provide convenient access for visitors to a variety of park facilities.
✓ Whenever feasible, routinely design and operate the entire road right of way to enable safe and easy access of park facilities for pedestrians, bicyclists, equestrians and motorists.
✓ Optimize passive solar building design principles when siting – sun path, breezes, and seasonal and daily cycles.
✓ Diminish visual impact by using existing vegetation and topography to its best advantage.
✓ Minimize erosion and safeguard water bodies and hydrological systems during construction as well as operation.
✓ Avoid large impervious paved surface areas that concentrate runoff.
✓ Protect water quality (preserving physical integrity of receiving streams and waterways) and facilitate groundwater recharge by utilizing various forms of permeable pavements, bioswales and other storm water retention methods.
✓ Minimize visual impact on shorelines – consider visual impact of facilities from the water.
✓ Minimize segmentation of habitat.
✓ Avoid development within or disturbance of wildlife travel corridors.
✓ Identify and protect historical and prehistoric resources.

✓ Materials and Processes
Determine the most appropriate building materials for life cycle value through analysis of initial costs, as well as short and long-term environmental impacts. What is the primary source of material (renewable, sustainable, locally available, etc.)? How much energy is consumed in extraction and fabrication, and transportation; and eventual re-use or disposal? Sources of current comparisons can be found in the Center for Resourceful Building Technology’s Guide to Resource Efficient Building Elements and the AIA’s Environmental Resource Guide.
✓ Use materials found in nature such as stone and wood, with preferable local or regional origin (500 existing roads, parking areas, and trails to minimize disturbance as well as provide convenient access for visitors to a variety of park facilities.

Shown above is a typical stormwater infiltration area

“As we came across the continent, cutting the forests and plowing the prairies, we never knew what we were undoing because we never knew what we were doing.”

– Wendell Berry
miles or less) to reduce transportation costs and help sustain local economies.

- When possible, use salvaged materials; those that are certified sustainable, as well as engineered wood, and rapidly renewable materials.
- Analyze materials made from recycled components and those of assembled materials that are artificial, synthetic or nonrenewable (plywood, plastics, aluminum, etc.).
- Avoid toxic and nonrenewable materials, either on-site or during manufacture or disposal.

“Development should meet the needs of the present without compromising the needs of future generations.”

– Bruntland Commission, Our Common Future

✔ Use low-emitting products – low/no VOC paints and coatings and low/no VOC adhesives and sealants.
✔ Consider longevity of use (target 50 years or more), maintenance requirements and operational factors.
✔ Long life and loose fit – materials, systems and design solutions should enhance versatility, durability, and adaptive re-use potential while being mindful of right-sizing and future adaptations.
✔ Incorporate a construction and post construction waste management plan and provide storage of recycling.
✔ Track sustainable minded decisions through each project.
✔ Continue to evaluate relative success over time through collective wisdom and feedback loops with communication from field staff and park visitors.
✔ Integrate the best of current sustainable design practices, materials and construction techniques.

✔ Energy Efficiency

The best principles of architectural design will be used to create energy efficient buildings that will reduce both utility costs and environmental impacts of energy production, while providing healthier spaces for public use and enjoyment.

✔ Maximize the advantage of passive energy technologies with appropriate building location and orientation.
✔ Design high performance thermal building envelopes (wall and roof assemblies, insulation, air/vapor retarders, controlled ventilation, windows, weather stripping and caulking) with properly sized and energy efficient heating and cooling systems, energy efficient doors, windows and appliances, intelligent controls and sensors, and efficient lighting for tasks supplementing natural light.
✔ Encourage natural ventilation and airflow with ceiling fans and appropriately placed operable windows and screens.
✔ Use a variety of shading methods by protecting existing trees; careful selection and placement of new vegetation; calculated roof overhangs; and, covered porches and entryways to maximize sunlight in winter and minimize direct sunlight in summer.
✔ Identify the potential feasibility of the latest renewable energy strategies, such as wind generation, photovoltaic panels, solar water heating, bio-gas conversion, and geothermal heating and cooling. Celebrate light and respect darkness by using smart lighting, motion sensors, and solar lights, while being mindful that all exterior lights must be dark sky compliant.
✔ Integrate a “Dark Skies” approach to architectural and site lighting design including:
  o the use of energy conservation based electrical controlling systems
“With the melting of snow drops, water gathers for its innumerable journeys throughout Iowa. As it flows along, water may become part of a kettlehole, a marsh, a farm pond, a river, a flood, an aquifer, a fen, a cave, a spring, or a waterfall. In all of its aspects, water adds fluid and beauty to the landscape. Both above and below ground, water is an ever-present geologic force as well as a vital natural resource.”

— Jean Prior, Waterforms

- full cut-off light fixtures to limit upward light trespass
- carefully directed and aimed light fixture that focus the light only where needed

**Water Conservation**

Water conservation begins with a respect and knowledge of these natural systems and by addressing construction erosion and sediment control; storm water management that emphasizes conservation and the use of on-site natural features to protect water quality, local habitat, and to allow groundwater to recharge naturally; reduction in wastewater and potable water; and water re-use.

- **Identify a location in the early site analysis stage that will minimize erosion and impacts on all hydrological systems.**
- Include an erosion and sediment control and monitoring plan and utilize it throughout the construction process.
- **Use techniques that reduce runoff and pollutants from pavement such as:** crushed rock surfacing alternative; permeable pavement (asphalt, concrete or pavers); bioswales, vegetative filter strips, infiltration trenches, wetland detention, rain gardens (let plants and soil slow runoff, filter pollutants, and prevent erosion); and, when appropriate, provide smaller scattered parking facilities rather than large concentrated ones.
- Continue to pursue regional drinking water and wastewater treatment to maximize efficient use of collective, large scale and high quality treatment and supply options, as well as minimally impact already limited park staff time, expertise and resources.
- Utilize low-flow water fixtures to reduce strain on potable water and reduce wastewater input, with a minimum specification of: Dual flush toilets with a 1.6 gallon maximum permissible water use per flushing cycle; urinals flow rate of 1.0 gallon/minute and spring loaded; 2.0 gallons per minute shower heads; 1.5 gallons/minute kitchen faucets and .5 gallons/minute.
- Capture and re-use rainwater when feasible with rain barrels and cisterns.
CONCLUSIONS

This guide is intended to be a document that will be utilized for decades as new facility development occurs in state parks. Practical sustainable, real-world applications for park structures will be ever evolving and therefore are not prescribed in detail.

Finally, in the selection of sustainable materials, it is important to note that the identified preference for the continued use of a rustic-style of park architecture intrinsically implies that this will normally consist of heavy, over-sized structural member proportions of stone and timber. How best to achieve this aesthetic with sustainable materials and design techniques will be an important element of the dynamic design process, coupled with the continued exploration of technology, and considerations of the pertinent issues involved as outlined in this chapter.

See the appendix for a listing of information and checklists related to the current industry standards (as of publishing date):

- American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE)
- Leadership in Energy and Environmental Design (LEED)
- Sustainable Sites Initiative
- Energy Star
- Cradle to Cradle
- Life-Cycle Assessment (LCA)
Over 200 images were included within the visual listening survey.
VISUAL LISTENING SURVEY
A visual listening survey was conducted in this process to explore the visual preferences of various park users and caretakers. In many ways, image is synonymous with appearance, perception, and a more superficial view.

Visual preferencing typically results in a collection of images that are grouped into “likes” and “dislikes” for general use in considering planning or design recommendations. The Iowa State Parks Design Guide process goes beyond this simple grouping of images by probing deeper into the architectural elements that comprise a building or structure. Both the typical results and the more in-depth follow.

Do you like this image?
Is it appropriate for an Iowa State Park?

KEY COMPONENTS OF THE STUDY:
- Over 200 images comprised of Iowa and non-Iowa based park buildings and structures were assembled and organized for use in the visual preference study.
- A wide variety of image and character styles were included.
- The following categories of structures were included:
  - Entry Portals
  - Interpretive Kiosks
  - Shelters
  - Restrooms
  - Cabins
  - Lodges
- Both online and face-to-face survey participants were asked two questions:
  - Do you like this image?
  - Is it appropriate for an Iowa state park?
- The participants had to respond very quickly (generally six seconds) to each image.
- Participant groups included:
  - Iowa DNR Staff
  - The steering committee for this design guide
  - Supporters of Iowa state parks
  - A small sampling of younger (18 to 25 years of age)
  - A small sampling of minority (Latino) users
- Only slight variation was observed between participant groups and the conclusions are representative of a consensus among all groups.

The visual preference or most liked and disliked are shown on the following pages by each category type.
MOST LIKED ENTRY PORTALS

The photos shown below rated the highest during the study. The number in the lower left indicates it’s score on a scale from -5 to +5.
MOST DISLIKED ENTRY PORTALS

The photos shown below rated the lowest during the study. The number in the lower left indicates its score on a scale from -5 to +5.
MOST LIKED INTERPRETIVE KIOSKS
The photos shown below rated the highest during the study. The number in the lower left indicates its score on a scale from -5 to +5.
MOST DISLIKED INTERPRETIVE KIOSKS
The photos shown below rated the lowest during the study. The number in the lower left indicates its score on a scale from -5 to +5.

-4.0
-3.4
-3.3
-2.4
-1.8
-1.7
MOST LIKED SHELTERS

The photos shown below rated the highest during the study. The number in the lower left indicates its score on a scale from -5 to +5.
MOST DISLIKED SHELTERS

The photos shown below rated the lowest during the study. The number in the lower left indicates its score on a scale from -5 to +5.
MOST LIKED RESTROOMS
The photos shown below rated the highest during the study. The number in the lower left indicates its score on a scale from -5 to +5.
MOST DISLIKED RESTROOMS

The photos shown below rated the lowest during the study. The number in the lower left indicates its score on a scale from -5 to +5.
MOST LIKED CABINS
The photos shown below rated the highest during the study. The number in the lower left indicates its score on a scale from -5 to +5.
MOST DISLIKED CABINS

The photos shown below rated the lowest during the study. The number in the lower left indicates its score on a scale from -5 to +5.
MOST LIKED LODGES
The photos shown below rated the highest during the study. The number in the lower left indicates its score on a scale from -5 to +5.
MOST DISLIKED LODGES

The photos shown below rated the lowest during the study. The number in the lower left indicates its score on a scale from -5 to +5.
ANALYSIS AND INSIGHTS

By establishing key parameters for each of nine distinct architectural elements and then analyzing the results, trends became apparent. These trends then guided the articulation of visual preference position statements, which can then be utilized to inform both the development of design recommendations and to inform the evaluation and judging of suitable design options.

Key components of the analysis:

- The following nine architectural elements were established to represent the full spectrum of design considerations:
  - Scale & Mass
  - Form
  - Base
  - Walls
  - Roof
  - Windows & Openings
  - Details
  - Materials
  - Color

- Several parameters were established for each element. Examples include Heavy/Light or Horizontal/Vertical.

- The position statements are only part of the design recommendation and cannot be utilized without balancing other various design considerations.

TRENDS

- The parameters shown in the color red illustrate trends within each architectural element. A trend was identified when a large disparity occurred within a parameter.

SCALE & MASS:

The overall proportional relationship between the human figure and the built environment. The visual weight of an object.

Visual Preference Position Statement:
Consider utilizing heavy proportions emphasizing the visual weight of a structure.

FORM:

The overall shape of a structure.

Visual Preference Position Statement:
Consider utilizing rectilinear, horizontal forms.
**BASE:**
The lower portion of a structure that meets the ground delineated by change in material or texture.

**WALLS:**
The vertical face of a structure.

**ROOF:**
The horizontal covering of a structure.

**Visual Preference Position Statement:**
Consider utilizing walls that are visually heavy.

**Visual Preference Position Statement:**
Consider integrating heavy relief in the base of a structure.

**Visual Preference Position Statement:**
Consider integrating a visually heavy, pitched roof with large overhangs.

---

**Assessment Trends** (trends shown in the color red)

**Likes**
- Heavy/Light – 9/5
- Non-Existent/Exists – 14/12
- Heavy Relief/Fine Relief – 12/0
- Connected/Non-Connected – 8/4

**Dislikes**
- Light/Heavy – 3/0
- Non-Existent/Exists – 12/3
- Fine Relief/Heavy Relief – 3/0
- Non-Connected/Connected – 3/0

**Assessment Trends** (trends shown in the color red)

**Likes**
- Heavy/Light – 25/5
- Closed/Open – 20/6
- Solid/Transparent – 20/6
- Uniform/Non-Uniform – 22/4

**Dislikes**
- Light/Heavy – 8/7
- Closed/Open – 9/6
- Solid/Transparent – 10/5
- Uniform/Non-Uniform – 15/0
**WINDOWS & OPENINGS:** Visual penetrations through the wall.

**Visual Preference Position Statement:**
Consider integrating transition spaces linking indoor spaces to the exterior environment and consider a higher percentage of windows.

**Assessment Trends** (trends shown in the color red)

- **Likes:**
  - Large/Small – 13/7
  - High Percentage/Low Percentage – 12/9
  - Articulated/Non-Articulated – 15/6
  - Transition/Non-Transition – 18/3

- **Dislikes:**
  - Large/Small – 10/4
  - High Percentage/Low Percentage – 9/6
  - Non-Articulated/Articulated – 10/5
  - Transition/Non-Transition – 12/3

**DETAILS:** Smaller scaled articulations at transitions of materials and components.

**Visual Preference Position Statement:**
Consider integrating details at connections and material transitions which are strongly expressed.

**Assessment Trends** (trends shown in the color red)

- **Likes:**
  - Heavy/Light – 20/6
  - Expressed/Hidden – 25/1
  - Natural/Refined – 25/1

- **Dislikes:**
  - Light/Heavy – 13/2
  - Expressed/Hidden – 11/4
  - Refined/Natural – 14/2

**MATERIALS:** A structure’s substance and finished face.

**Visual Preference Position Statement:**
Consider integrating the use of natural materials with textural depth and visual weight.

**Assessment Trends** (trends shown in the color red)

- **Likes:**
  - Heavy/Light – 23/2
  - Natural/Manufactured – 25/1
  - Heavy Relief/Fine Relief – 25/2

- **Dislikes:**
  - Light/Heavy – 9/5
  - Manufactured/Natural – 14/6
  - Fine Relief/Heavy Relief – 12/3

**COLOR:** A structure’s visual perceptual property.

**Visual Preference Position Statement:**
Consider utilizing natural colors of the environment.

**Assessment Trends** (trends shown in the color red)

- **Likes:**
  - Dark/Light – 17/15
  - Natural Color/Applied Color – 25/2

- **Dislikes:**
  - Light/Dark – 8/6
  - Applied Color/Natural Color – 10/5
CONCLUSIONS

“Why do those buildings look that way, and do we like them?”

Exploring these questions results in the following conclusions:

- Most of the liked visual images can be linked to design efforts rooted in a rustic style and contain a balance of ecological and cultural influences.
- Most of the disliked visual images can be traced back to design efforts constrained by economics and lack a balance of influences.
- Thoughtful design intentions are not always synchronized with the resulting image of a park building.
- To better assure a positive image of the built environment of Iowa state parks, design intentions must be balanced, thoughtful, and results driven.

The nine position statements shown to the right are grounded in the visual preferences observed and serve as a baseline for the design of park structures.

In almost all cases, the most liked structures are CCC/ WPA in origin and this clear preference is reflected in the recommendations of this Design Guide.

CONSIDERATIONS:

- **Scale & Mass**: Utilize heavy proportions emphasizing the visual weight of a structure.
- **Form**: Utilize rectilinear, horizontal forms.
- **Base**: Integrate heavy relief in the base of a structure.
- **Walls**: Utilize walls that are visually heavy.
- **Windows & Openess**: Integrate transition spaces linking indoor spaces to the exterior environment and consider a higher percentage of windows.
- **Roof**: Integrate a visually heavy, pitched roof with large overhangs.
- **Details**: Integrate details at connections and material transitions which are strongly expressed.
- **Materials**: Integrate the use of natural materials with textural depth and visual weight.
- **Color**: Utilize natural colors of the environment.
How to Use the Design Guide

During the development of the Design Guide, it became evident that there was a need to create templates for various park structures (entrance portals, kiosks, picnic shelters, etc.) that define design elements common to all, yet allow for variations within different geological regions, scale, and varying site conditions.

These park structures, with applicable templates, will comprise the majority of future park development/redevelopment. The Design Guide, however, will also be used to identify design parameters for larger individually-designed focal point facilities such as lodges and enclosed interpretive centers.

For the purposes of this Design Guide, “projects” are identified as efforts intended to result in some type of physical improvement to Iowa state parks built facilities. Throughout the life of these projects, three overlapping steps represent milestones during which this Design Guide has the most direct application. These steps are identified as follows.

- **STEP 1: Project Request and Design Guide Pre-Documentation**

- **STEP 2: Project Design and Engineering**

- **STEP 3: Project Implementation**

Step 1: Project Request and Design Guide Pre-Documentation

All future park projects, whether initiated by park staff or other organizations, will utilize the guideline recommendations in project development and construction. The DNR administers the formal design, engineering and construction process for projects. All projects begin with an electronic project request that includes basic straightforward project data, such as project description, estimated cost, funding source, description of service required, project timing and a series of agency approval signatures which confirms budget status. The Design Guide will be incorporated at the outset of the initial project request, with an accompanying Design Guide pre-documentation questionnaire to include the following considerations:

- **Site Analysis**

- **Facility Category, template option (if applicable)**

- **Historical context of existing park architecture - level of influence**
  - high, medium, low

- **Type of building materials used in existing park structures**
  - Type of stone
  - Prevalent siding material, pattern, and color
  - Prevalent roof material and color

- **Geological region of park**

- **Identification of initial site**

The pre-design phase will culminate with an on-site meeting of all design, engineering and field staff involved in the project to confirm critical elements identified in the project request such as: site analysis, the proposed scope, purpose, and project program; preliminary site selection and conditions to be considered critical to the applicable Design Guide template. The preliminary budget and schedule/timeline will be reviewed at this time as well.

Step 2: Project Design and Engineering

The project design phase will evaluate the relevance of the components identified in the project request/Design Guide pre-documentation, as well as pertinent discussion generated during the pre-design site visit. It will also confirm and further develop the appropriate approach as it relates to the Design Guide recommendation.

Key considerations during this phase include:

- **Review the history of the project’s park development to understand the original design intent as it relates to existing facilities. Should components of the proposed project reflect this history?**

- **Design Template - The most appropriate design template applicable to the project will be identified/confirmed with the design options and details being integrated.**

- **Identify relevant sustainable criteria for materials, process and construction methodology for consideration in the template, or a more robust system for non-template application.**

- **Architectural Elements - In general, the nine position statements introduced in Chapter 3 will be supported within the design for:**
  - Scale & Mass
  - Form
**DNR Project Lifespan**

- Public and DNR Field Staff Input
- State Park Project in Current Fiscal Year Capital Budget
- Project Request and Design Guide Pre-Documentation
- DNR Engineering Bureau
- DNR In-house Architect/Engineer
- Consultant
  - Pre-Design Site Visit
  - Confirmation of Pre-Design Information
- *Project Design Utilizing Design Guide*
  - Bid Letting
  - NRC Approval noting Design Guide Compliance
  - Construction
  - Design Guide Integration

**Step 3: Project Implementation**

Design documents control the vast majority of thoughtful park built environment considerations, but the construction phase can pose a risk of jeopardizing even the best laid plans. As projects move beyond the design phase into implementation and construction, the design guide continues to be a quality assurance reference document. Consider during implementation:

- Value Engineering and Change Orders - With each opportunity to make adjustments to the design, the checklist items found in Steps 1 and 2 need to be revisited. Will the suggested value engineering or change order recommendations conflict with design intentions?

**DESIGN GUIDELINES**

These guidelines have been crafted to be prescriptive but fall just shy of defining all components of the finished product. Each project will require a site survey, detailed design and engineering. The design process cannot be sidestepped by using this document. It can, however, be streamlined and more efficient, and ultimately will produce a more unified Iowa state park image.
Facilities
The design considerations for each facility category template have been advanced to provide practical, focused recommendations and requirements. For each template, a standard format has been established that contains overall imagery, specific architectural requirements, and design options for various situations. One of the goals of this document is to provide flexibility during the planning, design and construction phases that won’t compromise recommended visual preferences, while providing options in scale, materials and detailing. To the right is the format for each component. Two, three or six page spreads are used for each of the following:

- Entry Portals
- Self Guided Interpretive Kiosks
- Shelters
- Cabins
- Restrooms
- Administration Building
- Signage

Universal Material/Color Choices
In addition to the design requirements and recommendations specific to each facility category, several more universal considerations are available for reference. Some guidance is provided for choosing the most applicable and appropriate option. However, the designer and the process must integrate these choices along with other potential site specific, contextual options to determine the final solution.

The majority of these universal choices relate to materials/colors and the presentation format is described and illustrated in the lower right of this page.
“In its simplest and, theoretically, its most desirable expression, the park entranceway is merely a trail or a roadway taken off from a highway and leading into an area dedicated to public use and enjoyment. As the outpost of a reserved area offering certain distinctive recreational opportunities to the public, it can with subtlety and grace, project the promise and lure of the region and its offered recreation to the very public highway. The truly successful entranceway will be contrived to be the simple essence of the park’s characteristics to no result and interfere with the basic and material functions of ingress, egress and barrier.”

— Park Structures and Facilities
National Park Service, 1935
The park visitor experience begins with the first impression of the entrance. Many older parks have stone portals of various sizes and materials and have served well as an identifier of state parks. All historic stone portals will continue to be restored to the original design intent. For parks that lack historic portals, a variety of entrance template options comprised of stone and wood have been developed. Some may be simple with a single monument on one side of the road, or more complex with monument signage and markers spanning both sides. Selection of the appropriate option will depend on the entrance location topography, size and scale of vegetative opening, and the type of existing geologic features.

*Reference pertinent local or state design standards.*

**Scale & Mass**
Utilize a heavy base and monument working collectively to create a notable entrance feature. The sign panel and timber support provide additional size, dimension and a level of flexibility, as shown on page 73.

**Form**
The design of the entrance portal contains vertical and horizontal elements that can be used in numerous combinations to respond to a variety of entrance site opportunities or limitations to embrace the landscape.

**Roof & Cap**
Integrate a stone or cast stone cap on the base and top of column, which protects the masonry and extends the life of stonework, while giving a horizontal terminus to the forms.
Walls
Express the monument base and face with differential relief, breaking the mass of the structure into varied forms. The expression of the base is carried vertically through the pylon to its angled edge.

Base
Integrate heavy relief in the base of the structure utilizing stone and heavy timber as it extends into the landscape.
As a first impression to the park, the Entry Portal must encompass not only the overall scale and mass of rustic architecture, but also its articulation of details. The sign panel expresses these details by utilizing large, exposed connections and a layering of material and textures.

**Details**

**Sign**
The letters, sign face and sign panel are supported by metal plate fasteners from both the top and bottom.

**Beam**
The wooden beam visually and physically passes through the column.

**Stone**
The stone veneer is supported by a ledge. The ledge is held below grade to result in the uniform appearance of stone along the ground plane.

**Logo Panel**
The possible future logo panel is fastened to the face of the column.

**12" x 6 3/4" x 19' 6" beam support structure with angled 30 degree end**

**Tongue and groove sign backer**

**Sign panel with 1" stand-off connectors**

**Steel support bracket**

**Stone cap with 1 1/2" drip edge**
The expanded option “A” for the entry portal is illustrated at the beginning of this template. Other options, to the right, are also viable entry portal designs. Considerations of site context and budget will aid in the determination of which option is most appropriate.

Option B
Illustrated above encompasses Option A but also includes other variables by subtracting Portal extensions.

Option D
A single stone pylon without base and the sign panel and future logo panel attached.

Option E
Consider removing the wood beam and extensions beyond the monument sign on the right and the marker on the left.
Chapter 6 - Design Guidelines

Lacey Keosauqua State Park - Entry Portal
Completion - June 2012
“By their purpose and intent markers and shrines are differentiated from signs. Signs function to direct, regulate, or caution, whereas the marker and its close cousin, the shrine or graphic guide, serve simply to further the public’s understanding and enjoyment of the cultural aspects of a park preserve. These cultural aspects may be in the realm of the natural sciences, history, archeology, and others.”

— Park Structures and Facilities
National Park Service, 1935
Interpretive Kiosks will be added in key locations to help guide the visitor through the state park, while providing information that connects the visitor to the inherent meanings of the resource. State park kiosks are generally intended to be a 360 degree messaging system to provide park orientation, as well as outdoor education on vegetation, geology, hydrology and more. Kiosks will engage many park users in their need for information. Of the Architectural Elements, Scale & Mass, Form, Roof, Walls, and Base are expressed in a similar way to the portal and park shelter templates.
Windows & Openness
The structure provides access from all directions. The interpretive panels and trusses are configured to maximize the open nature of the structure.

Roof & Cap
Integrate a visually heavy, pitched roof with generous overhang. The roof provides the desired cohesiveness between the templates, while balancing the proportion of the vertical supports and base.
There are critical details that are illustrated to the right, including panels, base, roof and fasteners, that underscore both the rustic style, function and durability requirements. The panels are designed to provide flexibility and ease of replacement.

**Details**

Panels

The support structure for the messaging panel is honestly expressed in its connection details.

**Base and Fasteners**

The base of the Kiosk is an important opportunity to visually link this structure to other structures with the park system. The use of natural stone, timber, and steel become important links. The fasteners on the vertical support will help provide strength to the Kiosk and a cohesive expression.

**Roof**

The roof system will provide protection to the interpretive panels as well and relate to key details on other components.

- 4" x 6" wood support beam
- Tongue and groove wood decking
- Steel plate brackets
- 48" x 48" stone cap
- Steel base plate
- Stone veneer
- (4) 6" x 6" wood columns
- Gusset plate with exposed connectors
Other options, illustrated to the right, are also viable Kiosk designs that utilize less material for construction. Varying options allow for flexibility in the quantity of information needing to be conveyed on the messaging panels, budgetary constraints, and the desired monumentality.

**Option B**
This option is for use with additional interpretive panels.

**Option C**
The roof is eliminated from the kiosk.
“Beyond a doubt the most generally useful building in any park is a shelter, usually open but sometimes enclosed or enclosable, and then referred to as a recreation or community building, or pavilion. Because its purpose and use usually lead to its placement in the choicest of locations within the park, where it is natural to invite the park user to rest and contemplate a particularly beautiful prospect or setting, the shelter finds itself in the very center of a stage.”

— Park Structures and Facilities
National Park Service, 1935
Shelters are a flexible, open-air facility ranging in size and use. They serve a variety of functions while providing park users a gathering place that is partially protected from the elements, and also provides an electrical source for cooking and limited lighting. A hard surface area extending beyond the shelter economically increases the seating capacity of the shelter and also provides options for sun or shade.

**Mass & Scale**
Utilize heavy proportions and members, emphasizing the visual weight of the structure. The roof, roof structure, columns and base help provide this preferred visual preference.

**Form**
The length of the shelter should be in proportion to the size and massing. The form should be supported by oversized structure for support.

**Base**
Integrate heavy relief in the base of the shelter. The four corner columns extend this expression vertically.

**Walls**
Utilize heavily textured pylons at the corners. Balance is found between the massing of corner supports and the visually open structure above.
Windows & Openness
Maximize the balance between support structure and an open visual preference. Also, integrate plaza space beyond the canopy of the shelter.

Roof & Cap
Integrate a visually heavy, pitched roof with large overhangs.
Details involving the base supports, vertical supports, fasteners, hardware and roof system provide consistency with the other park structure templates.

**Roof**
The support structure for the roof above will be an important detail expressing the linking of all members. Gusset plates with exposed connectors shall be integrated on all truss members.

**Base**
The base of the Shelter is an important opportunity to visually link this structure to other structures within the park system. Utilizing a natural stone veneer and stone cap, the base supporting timber will be an important detail to illustrate.
Other Shelter template options are illustrated to the right. Considerations of context, intended function, and entry sequence will have an impact in selecting the appropriate option. The overall length to width of the shelter should be targeted at a 70/40 proportion. Growing the shelter width much beyond 40 feet is not feasible, but the length can be modular beyond 70 feet and could be considered for unique situations.

Option B
Central columns open the ends of the Shelter and provide a possible entry feature.

Option C
The central stone columns are eliminated.

Option D
The stone column bases are eliminated.
SHELTER
“Among buildings that have come to be regarded as on occasion justified with our present conception of a natural park, the cabin alone has the favorable advantage of long familiarity to us in woodland and meadow. So accustomed have we become to the survivals of frontier cabins that dot the countryside that we have grown to look upon them as almost indigenous to a natural setting. Of all park structures, those cabins which echo the pioneer theme in their outward appearance, whether constructed of logs, shakes or native stone, tend to jar us least with any feeling that they are unwelcome.”

— Park Structures and Facilities

National Park Service, 1935
Cabin in the state park system currently range in size and type. The cabins illustrated in this Design Guide are 500 square feet. Proportions of each element may need to be adjusted according to Cabin size. As an enclosed structure, the Cabin embodies all of the architecture elements. Cabins have the unique opportunity to make a significant impact on the park user's memorable experiences. The Cabin illustrated is a small structure that relies on an internal/external relationship. The front porch creates a sense of welcome and the back porch invites activity from inside the structure to the porch and beyond.

**ARCHITECTURAL ELEMENTS**

**Mass & Scale**
Utilize heavy proportions and members, emphasizing the visual weight of the cabin structure. The roof, roof structure, columns, base and material choices all support this.

**Form**
The length and width of the main cabin (without porch extensions) should be approximately equal.
Windows & Openness
Windows shall directly relate to door height and width. The canopy over the entrance and back porch extends the structure into the landscape. Windows and ceiling fans will be used to cross ventilate.

Roof & Cap
Integrate a visually heavy, pitch roof with significant overhangs. Provide a front and back canopy that are offset from the roof line of the main structure to provide a more intimate scale.
While the cabin integrates nearly all of the details within the Design Guide, the four illustrated to the right are likely the most visible and significant.

**Stone**
The stone veneer is supported by a ledge in the footing. The ledge is held below grade to result in a uniform appearance of stone along the ground plane.

**Base**
The wooden vertical support timbers and their connection to the base cap are illustrated.

**Support**
The wooden vertical support timbers and their connection canopy structure are illustrated.

**Roof Structure**
(4) 6’ x 6’ wood columns
Steel brackets
36” x 36” stone cap
Steel base plate
Stone veneer

(2) 6’ x 6’ Wood columns
6’ x 8’ Wood beam with angled end
Steel bracket with exposed connectors

4’ x 6’ Wood truss with angled tails
4’ x 4’ Truss braces
Steel gusset with exposed connectors

4’ x 4’ Angled wooden support beam
Porch
Bedroom
Living Room
Bathroom
Front Entrance
OPTIONS

Other viable cabin design options include additional considerations of eliminating the base and/or changing the entry and back porch as shown.

Option B
Remove the stone base and bring the siding to the foundation.

Option C
Merge front entry canopy and rear porch for a single entry.

Option D
Support entry canopy with angular braces in lieu of columns.
“Toilets are the most important structures built in a natural park. If we were to provide only safe water and proper toilets, we would accomplish the essentials of development of these areas. Those who will not lead the field in proper sanitation should get out of it and allow those who are not ashamed to be proud of their toilet buildings to take over.”

— Paul V. Brown, Park Planner

*Park Structures and Facilities*

National Park Service, 1935
Although Restroom facilities may be considered utilitarian in nature, they are necessary components of Iowa state parks. As such, the design of these structures should also have visual connection to the architectural templates and rustic style. Restrooms will range from a single-user facility with individual private bathrooms to multi-user restrooms with public access and interior stalls. These facilities also range from custom built to pre-engineered, prefabricated concrete structures. Site context will be critical in determining the appropriate option. Economy of such structures may necessitate utilizing specialized prefabricated Restroom manufacturers that will fit within the characteristics portrayed in this Design Guide.

ARCHITECTURAL ELEMENTS

Mass & Scale
Utilize heavy proportions and members, emphasizing the visual weight of the restroom architecture. The roof, roof structure, columns and base help support this development.

Form
The predetermined length, width and height of the restroom will drive the form and size of the canopy extension.

*width of structure will vary based on restroom capacity
Windows & Openness
The canopy extension over the entrance expands the structure into the landscape.

Roof & Cap
Integrate a visually heavy pitched roof with large overhangs.

*Length of structure will vary based on restroom capacity
DETAILS

Utilize specialized prefabricated Restroom manufacturers for custom design to coordinate consistency of details prescribed in this Design Guide.

RESTROOM

Base
The stone base and stone cape receive the wooden vertical supports through the cape.

Detail
The wooden supports connection to the roof system, as shown.

Expanded Perspective
Canopy extension on premanufactured Restroom facility.

Gusset
OPTIONS

The Restroom that is illustrated utilizes a prefabricated system with modification to the veneer and roof system. Further options can be considered with varied material choices for exterior walls.

Option B
The stone base is eliminated.

Option C
The canopy extension and supports are eliminated.
“In theory, the administration building is headquarters for directing effort and business management of the park area. Actually it may be a vest pocket, a desk, a room, perhaps supplemented with typewriter, adding machine, safe, possibly even two or more rooms with multiplication of these accessories. But few, if any, examples of administration buildings are known to exist as entities, separate from other functions.”

— Park Structures and Facilities
National Park Service, 1935

“That facility least contacted by the using public, the maintenance building in parks, needs to make least effort in gesture to the environment, if it is properly located. Generally speaking, its location is off track beaten by park patrons, and is isolated and well obscure done, where this stepchild among park structures need not suffer unavoidable comparison with necessarily more self-conscious and better groomed neighbors. This is not to say that it need be conveniently located. Inconspicuous convenience is the qualification. If such a site is not available, then the service building must go in for protective coloration, and perhaps to a greater degree than other buildings because it is so nonrecreational and without the saving grace of very apparent direct benefit to the public itself. Its reason for being is so little sensed by the unanalytical public mind that its presence is more likely to be subconsciously resented.”

— Park Structures and Facilities
National Park Service, 1935
In Iowa state parks this is a multi-purpose building, serving as primary visitor contact station with park administration/office and also has considerable space for equipment maintenance functions for staff. The historic scarcity of park staff does not allow the luxury of having these exist as two separate buildings. In that desirable scenario, the visitor contact station and office/administration building would be sited in a convenient location for park users while the park staff maintenance building would be “hidden” as much as possible.

In recognition of this unavoidable dichotomy of functions, site planning implications, and challenges, the site layout of these facilities was modified in the 1990s. It separated visitor contact to one side of the building with the daily park equipment maintenance doors and access to the opposite side. Thorough examination and selection of location options is critical to achieving the right balance of visitor contact convenience.
The administrative office/shop building is a multi-purpose building, serving as the primary visitor contact station, park administrative office, and maintenance functions for staff. The architectural elements will focus on the park office portion of the building, utilizing many of the same design consideration promoted for both the Cabins and the Restrooms.

**ARCHITECTURAL ELEMENTS**

**Mass & Scale**
Utilize heavy proportions and members, emphasizing the visual weight of the building structure. The roof, roof structure, columns, base and material choices all support this.

**Form**
The entry form should be sized according to the overall proportions of the building.
Windows & Openness
Windows shall provide appropriate scale in terms of overall size and individual pane size. The canopy over the entrance extends the structure into the landscape.

Roof & Cap
Integrate a visually heavy, pitched roof with large overhangs. Provide a front canopy that is offset from the roof line of the main structure.
Color and material choices should complement and reflect the existing structures and the natural landscape. It is paramount that prior to selecting a material and color palette, the park context is clearly understood and evaluated for architectural significance, as well as the proposed site considerations. Sustainable principles will also play a significant role in the selection of materials and colors (See Chapter 4 for Checklist). The following is a list of considerations when selecting a material and color palette.

Draw visual cues from existing building and structures of significance. These cues may include the following:
NAURAL STONE AND APPLICATION

Iowa’s underlying bedrock regions and surface landform regions are illustrated above. The first consideration in evaluating the type of stone to be used in any project is to identify that used in the existing architecture. If there is no existing stone in the park structures, landform region should mandate which is used. Not only should the type and characteristics of prevalent stone be considered for use in state parks, but the detailing and application of that stone has a significant visual influence as depicted in various options shown on the following pages.

- Material type
- Material size
- Pattern
- Texture
- Color

Use nature as a visual cue:
- Wood
- Stone

Choose materials that:
- Withstand the Iowa climate
- Are low maintenance
- Are an honest expression of natural materials
- Appear as an outgrowth of the land
- Are easily replaceable and cost effective for lifecycle
- Provide a sense of depth, and a more natural appearance
Paleozoic Plateau

Des Moines Lobe/Iowan Surface
Southern Iowa Drift Plain

Southern Iowa Drift Plain
NW Iowa Plains/Loess Hills

Use sandstone only when restoring all of an existing structure, or a more durable sandstone when possible.
APPLICATION OF STONE TYPES

The primary geological processes have provided much of the geological features found in Iowa - sedimentary rock, ice age deposit (glacial erratic) and alluvium material.

Sedimentary rock, including limestone, sandstone, dolomite and shale, are found predominantly in northeast and southern Iowa. They are also found in western and northern Iowa where streams and rivers have removed overlying deposits. Glacial erratic are found in abundance in the northern half of the state. These stones were used around the Lakes Region and north central Iowa.

Many of these stones are still available today. During the WPA/CCC period, most were used as building material during the construction of park structures and were quarried nearby or within the park. These images illustrate how sedimentary rocks and glacial erratics can be used to express the aesthetic that is rustic architecture.
GLACIAL

This stone differs from the local stone of the area and was carried by large glacial movements. Even though it’s not a native stone, it is very prevalent in Iowa and provides a strong building material and rich aesthetic. The stone color generally has great color variation that varies from stone to stone.

SANDSTONE

Sandstone is sedimentary rock formulated through compression. Of the stones listed on this page, sandstone can be highly porous and should be used with caution. Careful attention should be given to the specification and selection. They are easier to cut and form to give a more refined aesthetic. Color tends to be darker than the other stones listed.

DOLOMITE AND LIMESTONE

Dolomite and limestone are sedimentary rock of carbonate formulated through compression and crystallization. They are often used because of their resistance to weather, workability, and strong aesthetic. Color tends to be light in value and it has warm rich tones.
WOOD

TIMBER

Heavy timber structural members are an integral part of the rustic architectural style aesthetic. The massive quality assists in supporting the scale and form of the architectural elements.

FABRICATED TIMBER

This material holds much of the same aesthetic quality of a true timber but has many more structural and environmental qualities. In addition, this composite material is easier to maintain and is less susceptible to weathering degradation.

SIDING

Attention should be given to a species that has both an aesthetic quality and a beneficial life-cycle cost impact. Species such as cedar, southern yellow pine or white oak are appropriate. These species should be augmented with a low-maintenance penetrating stain.

CEMENT BOARD

Similar to fabricated timber, composite siding also has benefits of weather protection, environmental sustainability, and low maintenance. Careful attention should be given to emulating the natural product they represent.
ROOF MATERIAL
The selection of roofing material and color will be informed by type of structure (new or historic), sustainable option considerations, and material and color of other building roofs within the park. If there are no other park roofs for contextual reference, the default color choice will be “weathered wood”.

COMPOSITE SHINGLE
This is a more refined flat shingle that is composed of asphalt and ceramic granules. Quality and aesthetics vary between products. A shingle should be selected that emulates a traditional wood shingle with varied edge and enhanced shadow lines. Cost will have to be balanced with desired lifecycle.

METAL
Metal is typically less desirable because of its refined, highly reflective quality. When implemented, special consideration should be given to a more non-uniform natural finish. This can be achieved with specialized metal blends and coatings. This system’s benefit is a longer lifecycle than the Roof systems listed above.

RECYCLED PRODUCTS
Newer technologies allow for many benefits when considering roofing. Utilizing recycled waste products saves virgin material. Low maintenance qualities provide better cost/benefit. This technology also is a stronger representation of natural material.
COLOR

Color is a critical part of this guide. It has the potential to strengthen or dilute all of the considerations of each of the components within. Two primary goals are to unify the architecture within the park and to integrate the structures into natural surroundings.

STAIN

Stains should have a color pigmentation similar to existing park architecture, and be transparent or semi-transparent. Its qualities are the protection it delivers by penetrating the wood surface while allowing the natural wood grain to be visible. Moreover, a quality stain can unify disparate wood colors. Stain qualities vary. Special consideration should be given to color fastness and longevity.
Signage is an important consideration when creating a unique and cohesive visual identity. The Entry Portal and Kiosk structures will lend form and detail to the structures of the Signage system. The logo will be developed in future studies and implemented into signage considerations.
The Iowa DNR has a sign manual that provides guidance to the sign panel. The signs are classified in categories according to their function. This document is to provide design guidance to the structure of the sign, not the sign content.

**SIGNAGE**

**Sign Types**

- **Guide Sign:** To guide park visitors to the park.
- **Entry Portal - Entrance Sign:** To identify the entrance of the specific park.
- **Directional/Rule Sign:** To provide direction to facilities within the park and to provide rules to be followed.
- **Kiosk:** To provide information, orientation, and interpretation for park users.
- **Trail and Trail Orientation Sign:** The purpose of the trail sign is to identify an individual trail, while the trail orientation signs provide information on all trails in the park, as well as their length and level of difficulty. These are located at all major trailheads.
- **Destination:** To identify the facility and any special consideration for the trail user.
6” x 6” wood beam with connectors

Fastener Detail

Column Detail

Base Detail

Elevations

Trail Orientation Sign Option A

Trail Orientation Sign Option B

Camping Check-in Station

Rule Sign Option A

Rule Sign Option B

Rule Sign Option C

Rule Sign Option D
“In truth, the dividing line is drawn with difficulty and perhaps without pure logic as a perusal of the illustrations under both classifications (Seats and Tables) may demonstrate. It is surely sound to urge for such glorifications of the simple bench, and of the picnic unit as well, a heightening of quality, somehow consistent with their size and pretensions. If a higher quality means a less quantity of these pretentious objects, it is still a good rule to follow.”

— Park Structures and Facilities, National Park Service, 1935

SITE FURNISHINGS

A more consistent pallet of site furnishings is preferred. These would include benches, picnic tables, and grills for picnic areas and campgrounds. The acknowledgement and recognition of existing site furnishings should always inform the choice of additional site accessories, especially with benches. New grills and picnic tables should conform to the identified images whenever possible. It is recognized that the preferred options available will change with time but will be consistent with a selection of quality material, durability, function, design guide goals of substantial outdoor scale, and when applicable, best solution recycled materials.

The bench on the top right is manufactured from a minimum of 96% (by weight) commingled, post-consumer and/
or post-industrial recycled plastic. For color, UV stability, and other desirable properties in the product, various additives are incorporated into the plastic amount to a maximum of 4% of the finished product.

Stone benches may be incorporated along trails or at overlooks whenever appropriate.

Like all site furnishings, fire rings need to be functional, durable, long lasting, vandal-resistant, and maintenance-friendly. The fire ring is rolled from a specific thickness of steel plate with draft holes provided for fire ventilation. The approximately 270 sq. inch cooking grate is vertically adjustable. The cooking grate can be lifted over and out of the campfire ring, but remains permanently attached. These include back anchor pins to keep the campfire ring secured in one place, but allow the fire ring to tip up for easy clean out. Taller fire rings with a thicker outside wall are available to accommodate ADA requirements.

Grills are made of a similar material along with the designed-in flexibility to adjust cooking height, ease of maintenance, and clean-out. Sizes are determined by the number of visitors potentially being served in any given picnic or shelter area.

Recent trail construction at Palisades Kepler which included new retaining walls, crushed stone trail surface, limestone seatwalls and cedar railing.
Next Steps

THE FUTURE OF THE DESIGN GUIDE

This Design Guide is a thoughtful long-term vision for Iowa state park architecture. For it to remain relevant and “undusty”, it will evolve and adjust to economic, social, environmental, technological, and constructability factors.

The most straightforward and simple reflective cycle process to facilitate the evolving needs of the Design Guide will follow three simple steps:

STEP 1: PLAN IT

STEP 2: DO IT

STEP 3: REVIEW IT

Iowa State Parks Design Guide: Reflective Cycle

The contributors to this Design Guide are committed to keeping this document alive with the most current and relevant field related experiences. Each implementation effort will reveal insights and better practices that will be incorporated into this document on a regular basis. Future modifications will be made with this same spirit and commitment to assure the long term vision.

Flexible Format and Access to the Guide

Most of the Design Guide contains long standing historical context with architectural implications. Chapter 6 includes the templates which contains specific design thinking and will likely need adjustment after many of the completed projects such as entry portals, shelters, kiosks, cabins, restrooms, or administrative buildings. The intent is for these sections of the Guide to be updated in the following ways:

- DNR staff will collect “lessons learned” from each construction project and will make changes to the Design Guide
- An on-line version of the Design Guide will be available and contain a method to view/download updates and the latest versions of specific templates/chapters. All will be dated as modified.

The fundamental purpose of the Design Guide is to provide a thoughtful long-term vision vision for state park architecture that will build on the best of the past, along with the best of the present, for future generations that will be enriched by both.
“The difference between being an ordinary outing and truly memorable outdoor experience is often a question of the quality of design of the surroundings we are in. The natural world has an inherent high quality of design. We should not expect any less than the finest in the design of facilities that we place in that natural world. This guide serves to set that high quality standard. We need to respect, adhere and remain consistent to this design guide.”

- Gerry Schnepf
Keep Iowa Beautiful
Appendix & References


Conrad, Rebecca. *Iowa State Parks, Sustaining a Vision from 1885-1995*,


*Illustrated Historical Atlas of the State of Iowa*. 1875.


Prior, Jean C. *Landforms of Iowa*. Iowa City, Ia.: University of Iowa Press, 1996.


## Acknowledgements

Special Thanks to Paul Tauke, Chris Hartman, and Jean Prior.

<table>
<thead>
<tr>
<th>NAME</th>
<th>ROLE</th>
<th>ORGANIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angela Corio</td>
<td>State Park Planner</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Don Labate</td>
<td>District Engineer</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>John Leusink</td>
<td>Architect</td>
<td>Iowa Parks Foundation</td>
</tr>
<tr>
<td>Kevin Szcodronski</td>
<td>State Parks Bureau Chief</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Michelle Wilson</td>
<td>Interpretation</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Dennis Parker</td>
<td>Director</td>
<td>Polk County Conservation</td>
</tr>
<tr>
<td>Diane Ford</td>
<td>Assistant Conservation and Recreation Division Administrator</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Gerry Schnepf</td>
<td>Director</td>
<td>Keep Iowa Beautiful</td>
</tr>
<tr>
<td>Jerry Reisinger</td>
<td>Retired District Park Supervisor</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Jim Scheffler</td>
<td>Retired State Park Administrator</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Joan Flecksing</td>
<td>Park Manager</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>John Maehl</td>
<td>Park District Supervisor</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>John Pearson</td>
<td>Ecologist</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Julie Sparks</td>
<td>Publications and Communication</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Kay Halloran</td>
<td>Board Member</td>
<td>Iowa Parks Foundation</td>
</tr>
<tr>
<td>Kevin Pape</td>
<td>Park Ranger</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Lisa Hein</td>
<td>Program and Planning Director</td>
<td>Iowa Natural Heritage Foundation</td>
</tr>
<tr>
<td>Liz Garst</td>
<td>Former DNR Commissioner</td>
<td>Natural Resource Commission</td>
</tr>
<tr>
<td>Margo Underwood</td>
<td>DNR Commissioner</td>
<td>Natural Resource Commission</td>
</tr>
<tr>
<td>Mark Ackelson</td>
<td>Director</td>
<td>Iowa Natural Heritage Foundation</td>
</tr>
<tr>
<td>Mike Broderick</td>
<td>Contract Manager – Engineering</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Pat Boddy</td>
<td>Former Deputy Director</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Ryan Richey</td>
<td>Architect</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Scot Michelson</td>
<td>Park Ranger</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Sherry Amtzen</td>
<td>Park Administrator</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Steve Bell</td>
<td>Former Park Ranger</td>
<td>Iowa Department of Natural Resources</td>
</tr>
<tr>
<td>Tom Basten</td>
<td>Park District Supervisor</td>
<td>Iowa Department of Natural Resources</td>
</tr>
</tbody>
</table>
Iowa’s 85 state parks comprising 54,000 acres that serve more than 14 million visitors annually. State parks are challenged like small towns to maintain its aging vertical infrastructure as well as to properly treat sewage, provide safe drinking water systems, and address the ever increasing demand for electricity in campgrounds.

- 74 campgrounds
- 5000 campsites
- 3 group camps (dining halls, dorms and/or cabins and/or tenting area)
- 88 rental cabins
- 27 day-use lodges
- 147 open picnic shelters
- 4 open picnic shelters w/kitchenettes
- 5 museums/interpretive centers
- 19 beach/concession buildings
- 4 historic sites w/buildings
- 39 beaches
- 67 modern restroom/shower buildings
- 75 modern restrooms
- 230 pit latrines
- 40 sewer lagoons
- 150 septic tanks/systems
- 56 parks with drinking water systems
- 51 parks with office/maintenance buildings
- 620 miles of hiking and multi-use trails
- State park road system is funded annually through the Park and Institutional Road Fund administered through Iowa Department of Transportation
- 251 miles of hard surfaced roads
- 214 acres of parking lots
- 125 boat ramps under park jurisdictions
- 18 miles of hard surfaced bike trails
## Design Guide Project Process and Timeline

<table>
<thead>
<tr>
<th>Date</th>
<th>Title</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 8, 2010</td>
<td>Natural Resource Commission (NRC) Presentation</td>
<td>Introduce the need for the project</td>
</tr>
<tr>
<td>July 2010</td>
<td>Contract signed</td>
<td></td>
</tr>
<tr>
<td>June-August 2010</td>
<td>Park Tours by Design Team</td>
<td>Project team visited over 70 state parks and recreation areas</td>
</tr>
<tr>
<td>July-September, 2010</td>
<td>DNR Staff Interviews</td>
<td>RDG interviewed DNR staff and rangers related to the built environment</td>
</tr>
<tr>
<td>July-September, 2010</td>
<td>Archive Scans</td>
<td>RDG scanned hundreds of CCC/WPA park drawings</td>
</tr>
<tr>
<td>July 30, 2010</td>
<td>Planning Committee Meeting</td>
<td>Preparation for Steering Committee #1</td>
</tr>
<tr>
<td>August 13, 2010</td>
<td>Steering Committee Meeting #1</td>
<td>Introduction to project, history and future of PARKitecture, park funding, demographics, purpose of Design Guide</td>
</tr>
<tr>
<td>August 20, 2010</td>
<td>Planning Committee Meeting</td>
<td>Preparation for Steering Committee #2</td>
</tr>
<tr>
<td>September-November, 2010</td>
<td>Case Studies</td>
<td></td>
</tr>
<tr>
<td>September-November, 2010</td>
<td>Interviews with National Parks and Forest staff</td>
<td>Forests, Geology, and Ecology in State Parks</td>
</tr>
<tr>
<td>September 2, 2010</td>
<td>Steering Committee Meeting #2</td>
<td>Preparation for Steering Committee #3</td>
</tr>
<tr>
<td>September 24, 2010</td>
<td>Planning Committee Meeting</td>
<td></td>
</tr>
<tr>
<td>October 1, 2010</td>
<td>Steering Committee Meeting #3</td>
<td>Introduction to Visual Listening Survey, Case Study Review (BEIG), Test Drive of plan</td>
</tr>
<tr>
<td>October 30, 2010</td>
<td>DNR/RDG Internal Meeting</td>
<td>Review of project process and goals</td>
</tr>
<tr>
<td>November-December, 2010</td>
<td>Visual Listening Survey</td>
<td>DNR Rangers &amp; Managers, Steering Committee, Public</td>
</tr>
<tr>
<td>December 13, 2010</td>
<td>Core Group Kick-Off</td>
<td>Review of goals and objectives, Document of Discovery, deliverables, and project schedule</td>
</tr>
<tr>
<td>December 16, 2010</td>
<td>Core Group Meeting</td>
<td>Review of Visual Listening Survey</td>
</tr>
<tr>
<td>January 5, 2011</td>
<td>Core Group Meeting</td>
<td>Design Development – Entry Portals</td>
</tr>
<tr>
<td>January 10, 2011</td>
<td>Core Group Meeting</td>
<td>Design Development - Kiosks</td>
</tr>
<tr>
<td>January 12, 2011</td>
<td>Core Group Meeting</td>
<td>Design Development - Shelter</td>
</tr>
<tr>
<td>January 12, 2011</td>
<td>NRC Progress Update</td>
<td>Review of Project Process, Goals, and Timeline</td>
</tr>
<tr>
<td>January 19, 2011</td>
<td>Core Group Meeting</td>
<td>Design Development – Restrooms and Cabins</td>
</tr>
<tr>
<td>January 24, 2011</td>
<td>Core Group Meeting</td>
<td>Review of all preliminary designs</td>
</tr>
<tr>
<td>January 27, 2011</td>
<td>Steering Committee Meeting #4</td>
<td>Review of all preliminary designs</td>
</tr>
<tr>
<td>January 31, 2011</td>
<td>Core Group Meeting</td>
<td>Review of Steering Committee comments</td>
</tr>
<tr>
<td>February 17, 2011</td>
<td>Core Group Meeting</td>
<td>Review and finalize template options, material considerations, and Design Guide content and format</td>
</tr>
</tbody>
</table>
## Design Guide Project Process and Timeline

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 1, 2011</td>
<td>Design Guide Draft sent to Core Group</td>
<td>All chapters – preliminary draft</td>
</tr>
<tr>
<td>March 3 &amp; 4, 2011</td>
<td>Design Guide Draft sent to Core Group</td>
<td>All chapters – revised format</td>
</tr>
<tr>
<td>March 9, 2011</td>
<td>Core Group Meeting</td>
<td>Review of Design Guide content and format, preliminary revisions received from DNR</td>
</tr>
<tr>
<td>March 14, 2011</td>
<td>Design Guide Draft sent to Core Group</td>
<td>Chapter 5 – revised content and format</td>
</tr>
<tr>
<td>March 15, 2011</td>
<td>Design Guide revisions received from DNR</td>
<td>Via email</td>
</tr>
<tr>
<td>March 29, 2011</td>
<td>Core Group Meeting</td>
<td>Review sustainability content</td>
</tr>
<tr>
<td>April 8, 2011</td>
<td>Design Guide Draft sent to Core Group</td>
<td>All chapters – revised content</td>
</tr>
<tr>
<td>April 11, 2011</td>
<td>Design Guide Draft sent to Core Group</td>
<td>Chapters 1-4 – revised content</td>
</tr>
<tr>
<td>May-June, 2011</td>
<td>Revisions received from DNR</td>
<td>Comments on chapters 3 &amp; 5</td>
</tr>
<tr>
<td>July 13, 2011</td>
<td>Design Guide Draft sent to Core Group</td>
<td>Chapters 3 &amp; 5 – revised content</td>
</tr>
<tr>
<td>July 21, 2011</td>
<td>Core Group Meeting</td>
<td>Review of document progress and schedule for completion</td>
</tr>
<tr>
<td>August 4, 2011</td>
<td>Final Draft sent to Core Group</td>
<td>All chapters – final review</td>
</tr>
<tr>
<td>August 15, 2011</td>
<td>Steering Committee draft sent to members</td>
<td>Draft for review prior to Steering Committee meeting</td>
</tr>
<tr>
<td>August 23, 2011</td>
<td>Steering Committee Meeting #5</td>
<td>Review and comment on Design Guide draft</td>
</tr>
<tr>
<td>September 6, 2011</td>
<td>Draft sent to NRC members</td>
<td>Draft for review prior to NRC meeting</td>
</tr>
<tr>
<td>September 8, 2011</td>
<td>NRC Presentation</td>
<td>Review and comment on Design Guide final draft</td>
</tr>
<tr>
<td>September 19, 2011</td>
<td>Document distributed to DNR staff</td>
<td>Review and comment on Design Guide final draft</td>
</tr>
<tr>
<td>October 13, 2011</td>
<td>NRC Meeting</td>
<td>Finalize Design Guide</td>
</tr>
</tbody>
</table>
Iowa CONSERVATIONIST

January/February 1995
Volume 54, Number 1

STAFF
Ross Harrison, Bureau Chief
Julie Spade, Editor
Kathryn Retzlaff, Assistant Editor
Jason Rutten, Editorial Assistant
Llewellyn Washburn, Writer/Photographer
Larry Pool, Graphic Artist
Ken Formaneck, Photographer

NATURAL RESOURCE COMMISSION
Mark Dell, Chair, Council Staff
Richard Garrett, Vice-Chair, Mount Pleasant
Douglass R. Smalley, Secretary, Des Moines
Thomas G. Monson, Signer
Lavois M. Tressa, New Hampton
Marlen Kluft, Rolleson
Joan Schmieder, Okoboji

ENVIRONMENTAL PROTECTION COMMISSION
Nancy Lee A. Stiefelmann, Chair, Cedar Rapids
Clark A. Yeager, Vice-Chair, Ottumwa
Raymond King, Secretary, Monmouth
Verlon Birt, Elkader
William Emlen, Creston
Charlotte Moore, Eldridge
Gary P. Poth, Alpena
Kenneth Murphy, LaMesa
Terrance Townsend, Newton

DIRECTOR
Larry J. Luton

DEPUTY DIRECTOR
Don Paulus

DIVISION ADMINISTRATORS
Stan Koba, Administrative Services
Larry Bean, Energy and Geological Resources
Allan Stites, Environmental Protection
Allen Farris, Fish and Wildlife
William Farris, Forests and Forestry
Michael Carrier, Parks, Recreation and Preserves
Teresa D. Ray, Waste Management Assistance

SPECIAL PHONE NUMBERS
DNR Central Office, (515) 281-5145
Emergency Spill Response, (515) 281-8604
Telecommunications Device for the Deaf, (515) 281-5167
Telecommunications (TTP), (515) 532-2620
Waste Reduction and Recycling, (800) 267-1025

The Iowa Conservationist (ISSN 0201-9471) is published bi-monthly by the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0024. Second class postage paid in Des Moines, Iowa, and additional mailing offices. Subscription rates: $3.95 for one year, $4.97 for two years and $10.07 for three years. Prices subject to change without notice. Include mailing label for renewals and address changes. POSTMASTER: Send changes to the Iowa Conservationist, Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0024.

Federal regulations prohibit discrimination on the basis of race, color, national origin, age, sex, or disability. If you believe that you have been discriminated against in any program, activity, or facility as described above, or if you desire further information, please write to: Director, Iowa Department of Natural Resources, Wallace State Office Building, 500 E. Grand Ave., Des Moines, Iowa 50319-0024, or the Equal Employment Opportunity Commission, Washington, D.C. 20549.

FEATURES
4 IOWA STATE PARKS -- SUSTAINING A VISION FROM 1895 TO 1995 by Rebecca Conard
11 PARKS PROFILE -- BACKBONE STATE PARK by Bob Schaut
16 A LEGACY MEANT TO LAST Sidebar -- CRUMBLING DOWN by Tim Yancey
22 REMEMBER WHEN? by Nancy Exline-Downing
26 STATE PARK CONCESSIONS OLD AND NEW by Nancy Exline-Downing
29 FOR MANY REASONS by James Zohrer
32 PARKS WITH A LITTLE EXTRA by John Pearson and Daryl Howell
36 MAQUOKETA CAVES by Angela Corio

SPECIAL INSERT -- STATE PARKS 75TH ANNIVERSARY POSTER
41 BIKE IOWA STATE PARKS by Angela Corio
45 FAVORITE FISHING HOLES by Martin Konrad
50 HAPPY TRAILS by Mark Edwards
56 PARKS PROFILE -- PLEASANT CREEK RECREATION AREA by Arnie Sohn
60 WHERE DO YOU STAND ON STATE PARKS by Jason Rutten
64 IT'S THE RIGHT THING TO DO! by James Scheffler
75 LET IT SNOW by Angela Corio

DEPARTMENTS
66 The Practical Conservationist 73 Conservation Update
76 Classroom Corner 78 Ranger's Diary

COVERS
Front -- Maquoketa Caves by Ken Formaneck.
Back -- Fort Defiance lodge, built approximately 1931. DNR photo.
May 28, 1995 will mark the 75th anniversary Iowa’s first state park. On that date in 1920, Backbone State Park was formally dedicated. It took a long time, however, to get to that dedication ceremony. The history of Iowa’s state parks actually begins 100 years ago, in 1895, with Thomas Macbride. The name Macbride is still familiar around the University of Iowa, where Thomas H. Macbride had a distinguished 40-year career as professor of botany and president. His colleagues also considered him the “father” of conservation in Iowa. Macbride began to earn this title in 1895, when he addressed the members of the Iowa Academy of Science on the need for “county” or “rural” parks, terms he used to distinguish his idea from the more formal, landscaped parks that were beginning to appear in towns and cities. What he had in mind was setting aside places outside city boundaries where people could go to experience “primeval nature” -- in his words, places of “quiet beauty.”

Macbride saw rural parks as a means to preserve a portion of Iowa’s natural history for future generations. But he was not just another “nature lover” with a sentimental vision. He, and others,
were concerned about clear streams turned muddy and fouled, eroded hillsides once covered with timber, the diminishing sounds of songbirds, prairies drained and plowed up, and fast-disappearing species of flora and fauna. Macbride envisioned parks serving a multiple mission. They would be a vehicle for resource conservation, promote public health and happiness, and serve as outdoor laboratories for educating the next generations about Iowa -- its geology; its native trees, birds, flowers, and wildlife; its past inhabitants and early settlers.

The Iowa Park and Forestry Association, founded in 1901 by Macbride, Pammel, Shimek and a handful of others, was established to promote rural parks and forestry conservation. Success, however, came hard. First, the IPFA had to build a grassroots constituency -- a task that took years. It was not until about 1915 that momentum for parks began to build. The Iowa Federation of Women’s Clubs, Audubon societies, the State Horticultural Society, and the Iowa Academy of Science all joined with the IPFA (renamed the Iowa Conservation Association) in order to muster the support needed to pass state legislation.

The State Park Act of 1917 not only authorized the expenditure of funds to acquire state parks, it also authorized a new entity, the State Board of Conservation, to investigate and select park lands. Its passage followed the 1916 National Park Act by one year and placed Iowa among the first states to enact state park legislation.

During his lifetime, Macbride rebuffed all attempts to honor him with a name place, including an attempt to change the name of Iowa Lakeside Laboratory, another manifestation of his legacy. His death in 1934, however, effectively ended his say in matters. It also coincided with the dedication of a new area four miles west of Solon, near Iowa City -- Lake Macbride State Park.

If Macbride provided the inspiration for state parks, Louis Pammel was the pragmatist who gave that vision form. During the last 12 years of his life, Pammel’s name was nearly synonymous with state parks. Head of the botany department at Iowa State College, now Iowa State University, Pammel instigated the Iowa Park and Forestry Association and helped to draft the 1917 State Park Act. His major contributions, however, would come over the next several years. From late 1918 until 1927, he served as chairman of the Board of Conservation. During his tenure, the state park system began to take shape, and the board’s mandate expanded to encompass jurisdiction over natural lakes and streams.

The 1920s constituted a crucial decade for Iowa’s state parks, and Pammel guided the Board of Conservation through some dark valleys and rough waters in his quest to create a system of parks that represented the great diversity of Iowa’s natural and cultural heritage. Among other things, the Board of Conservation had to establish a smooth working relationship with the Fish and Game Department, an agency that stretched all the way back to 1874. By virtue of the 1917 State Park Act, the Fish and Game Warden was included in the process of establishing and maintaining state parks, although that office remained separate from the new Board of Conservation. The board also had to fend off countless proposals for commercial and private use of the lands and waters in state parks.

There were some notable defeats as well as major victories. For instance, Pammel and G.B. MacDonald, professor of forestry at Iowa State College, tried to establish a forestry program within the state parks. Commercial nurserymen, however, stopped every
attempt. More successful were the board’s efforts to work with the State Highway Commission in order to build roads and bridges that respected the contour of the land, and with landscape architects at Iowa State College to design plans for park improvements that blended with the natural surroundings. Even so, Lacey-Keosauqua State Park considered to be the quintessential “conservation park,” was laid out with a golf course. Although Iowa’s state park system had its origins in the conservation movement, a swiftly increasing number of visitors (thanks to the dawn of the automobile age) came to parks seeking outdoor recreation.

Under Pammel’s chairmanship, the Board of Conservation concentrated its budget and its attention on land acquisition. This tactic effectively delayed having to confront the dilemma of balancing recreational use with resource protection, although when Pammel retired from the board in 1927, he knew that decision was just around the corner. Nonetheless, he could with justifiable pride point to one of the finest state parks systems in the country. Iowa’s park numbered 38 in 1927, and they did represent remarkable diversity. When the “Devil’s Backbone” area of Madison County was formally dedicated as a state park a few years later, its name became Pammel State Park in honor of the man who had so expertly negotiated the Board of Conservation, and state parks, through some difficult political terrain.

Pammel, of course, did not create the initial park system by himself. Several members of the Iowa Federation of Women’s Clubs also played key roles in establishing Iowa’s state parks. None of them was more important than Cora Call Whitley of Wester City, who, as president of the Iowa Federation from 1915 to 1917, offered up the services of “17,000 well-organized club women” to aid the cause. She thus helped to bring club women into the conservation constituency at a time (before universal suffrage) when women’s clubs provided the means for women to become involved in politics and social reform.

Conservation education and the preservation of natural scenery were two of Whitley’s principal concerns. She promoted both through the Iowa Federation and the General Federation of Women’s clubs. To combat the careless destruction of nature that came with the hoards of tourists and day-trippers who began pouring into state and national parks in the 1920s, she launched a nationwide “Outdoor Good Manners” campaign through the General Federation of Women’s Clubs. Famed conservationist “Ding” Darling lent assistance by contributing one of his typical to-the-point editorial cartoons.

During the 1930s, the General Federation undertook another nationwide project to establish a “chain” of Federation Forests in every state, commemorating the farsightedness of club women and their efforts on behalf of conservation. To honor the woman who had led the way in Iowa, the state federation donated the trees to plant Whitley Forest at Lake Ahquabi State Park in Warren County. The Daughters of the American Revolution also contributed to reforestation efforts in several state parks. The DAR, for instance, donated a stand of 6,000 white pines in Backbone State Park and

In 1928, the Board of Conservation established Woodman Hollow as the first “preserve” within the state park system.
established the George Washington Memorial Forest at Lake Arrowhead in Black Hawk State Park.

Whitley helped to bring women into the conservation movement. Other prominent members of the Iowa Federation continued that alliance throughout the 1920s and 1930s with service on the Board of Conservation. May McMider of Charles City and Mary C. Armstrong of Fort Dodge, both of whom were on the board in the 1920s, were tenacious in their efforts to keep power companies from building hydroelectric dams and generating stations in or near state parks. One such proposal threatened to inundate what is now Woodman Hollow State Preserve, near Dolliver Memorial State Park. In 1928, after conservationists had defeated the dam project, the Board of Conservation declared Woodman Hollow to be a “reserve for the full protection of plant and animal life therein,” thus establishing the first “preserve” within the state park system.

Margo Frankel of Des Moines, who joined the board when Pammel retired in 1927, took a special interest in landscape architecture and the aesthetics of park improvements. During the intensive park-improvement program of the 1930s, she oversaw the preparation of landscape and building plans. Louise Parker, who succeeded Frankel, became the voice of conscience and continuity when the Board of Conservation became the State Conservation Commission in 1935. Among these, and other, important women, only Margo Frankel has been memorialized with a state park in her honor. After the Greater Des Moines Committee purchased Saylor Woods near Polk City and turned it over to the state in 1945 for a state park, the State Conservation Commission renamed the area Margo Frankel Woods.

The person behind the 1935 organization that resulted in the State Conservation Commission was Jan N. “Ding” Darling. More than any other individual of his time, Darling stirred public awareness of
environmental degradation. Through the pages of the *Des Moines Register*, the *New York Tribune*, and every other newspaper that picked up his syndicated editorial cartoons, his biting wit reached even those who could not read. By 1930, he had become an articulate spokesman for resource conservation, especially the protection of wildlife. He also had an idea for more effective management of all natural resources in Iowa. In 1930, he presented his idea to both the Board of Conservation and the Fish and Game Commission, whose mandates overlapped. Iowa should survey its natural resources, assess its resource restoration and outdoor recreational needs for the coming decades, and come up with a long-term comprehensive plan for conservation.

In 1931, the state legislature appropriated money to do just that. As a member of the Fish and Game Commission, Darling guided much of the survey effort, even calling on Aldo Leopold, the “father” of modern wildlife management, to conduct the first systematic survey of game in Iowa. Out of this massive effort came the *Twenty-five-Year Conservation Plan for Iowa*, completed in 1933. One of its principal recommendations was to merge the functions of the Board of Conservation and the Fish and Game Commission into a new agency with more comprehensive authority over natural resources. In 1935, the State Conservation Commission came into being, organized with three main divisions: administration, fish and game, and lands and waters.

The 25-Year Plan placed Iowa in an excellent position to take full advantage of federal relief programs during the Great Depression, since federal regulations required applicant states to submit a planning document. By 1938, more than half of the recommendations contained in the 25-Year Plan had been carried out under the auspices of the Civilian Conservation Corps (CCC), the Works Progress Administration (WPA), and related New Deal programs.

G.B. MacDonald, who had been designated State Forester in 1920s, wore yet another hat during the 1930s. As director of Emergency Conservation Work in Iowa, he coordinated project planning and implementation, no small task considering the volume of construction that took place. Between 1933 and 1942, hundreds of buildings and other improvements were constructed in state parks -- staff housing, maintenance buildings, picnic shelters, fireboxes, lodges, overlooks, overnight cabins, latrines, bathhouses, boat houses, piers, dams, bridges, water systems, trails, roads and fences. CCC enrollees and WPA workers also excavated fish rearing ponds and artificial lakes, planted trees, constructed drainage levees and carried out other soil conservation projects.

The New Deal building era gave parks a new look. The Central Design Office, still located at Iowa State College, provided technical support in engineering, architecture and landscape architecture to design buildings and structures that harmonized with their natural environment. Rustic park architecture, a style developed in the 1920s and widely used by the National Park Service, flowered in the 1930s. The New Deal building program also vastly enhanced the recreational potential of Iowa's parks. As a result, the State Conservation Commission would now squarely face the issue of public access versus resource protection.

Federal aid also gave G.B. MacDonald an opportunity he had been trying to create for at least a decade. Under his direction, Iowa began to work with the U.S. Forest Service to purchase distressed lands for reforestation. Eventually, the State of Iowa would spend more money on forestry reserves than the federal government, but MacDonald’s plan nonetheless went forward -- slowly. By the early 1940s, Iowa had the beginnings of forest reserves in three areas of the state -- several thousand acres of reserves that were intended for multiple use as timber-producing forests and as wildlife habitats.

In 1950, the reserve units in Van Buren and Lee counties were designated as Shimek State Forest to honor Bohumil Shimek, whose academic career in botany at the University of Iowa rivaled that of
his colleague, Thomas Machride. Shimck's botanical research contributed greatly to the understanding of plant ecology in several of Iowa's regions, particularly the ecology of the prairies and the loess hills. Passed over for a seat on the Board of Conservation in the late 1920s because he was considered too old (he was then in his 70s), Shimck never got the public attention he deserved during his lifetime for his role in the conservation and parks movement. MacDonald acknowledged his role posthumously (Shimek died in 1937) by naming Iowa's largest state forest after him. MacDonald's own contributions, however, have never been so recognized.

World War II brought an end to New Deal relief and conservation programs. As construction started to wind down in 1941, the State Conservation Commission took stock of the changes that had occurred during the 1930s and reclassified its holdings on the basis of their inherent characteristics or their function. The new reclassification scheme called into serious question the meaning of the term "park," for clearly this generic term was no longer sufficient to convey the complex mandate of the State Conservation Commission or the system under its jurisdiction. Iowa now had 73 parks, preserves, recreation reserves, historic and archaeological sites, wayside parks, and forests -- well above the nationwide average of 29 park units per state.

Although World War II halted the flow of federal funds during the 1940s, "the system" nonetheless expanded to include prairie preserves during that decade. No person played a greater role in this effort than Ada Hayden, professor of botany at Iowa State College. Her study of prairie plants and prairie conservation was long-standing and well-known, dating back to her days as a doctoral student under Louis Pammel. In 1940, supported by a $100 grant (no, there are no zeros missing!) from the Iowa Academy of Science, Hayden began to survey prairie remnants and to make recommendations for their preservation. Acting on her recommendations, the

In 1940, Ada Hayden began to survey prairie remnants and to make recommendations for their preservation.

Lodge at Dolliver State Park. Between 1933 and 1942, hundreds of buildings and other improvements were constructed in state parks, thanks to the CCC and WPA.
first prairie preserves were acquired in the late 1940s. The largest of these preserves, a 240-acre site in Howard County, was named Hayden Prairie in her honor after she died in 1950.

During the 1950s and 1960s, state parks began to assume a more distinct identity as outdoor recreation areas. In part, this was because a new generation of parks was especially dedicated to serve growing urban populations and areas of the state lacking in outdoor recreation opportunities. The 1950 dedication of Lake Darling State Park, named for “Ding” Darling, signaled this trend, as did the establishment of Viking Lake, Lake Anita and Prairie Rose state parks. These were followed by large “state recreation areas” including Brushy Creek, Volga River, Pleasant Creek and Badger Creek, designed to provide an even greater range of outdoor opportunities such as hunting and 24-hour access.

In the 1960s the Conservation Commission also began to divest the state of some smaller state park areas. Landmark state legislation authorizing county conservation boards, created an opportunity to transfer management, and sometimes ownership, of many parks to the local level. Additionally, in 1965, the Legislature officially recognized the need for “preserves” as distinct from state parks and recreation areas. In order to maintain natural conditions as nearly as possible in areas that have special scientific or educational value, the Legislature authorized a separate body to oversee the acquisition and management of preserves -- the State Preserves Advisory Board.

As we look back on what has been accomplished and because of Iowa’s state parks, let me share some words that “Ding” Darling spoke at the Lakes Region Planning Institute in 1936:

They talk about me being a conservationist and what I have done for conservation. Nobody has done anything for conservation. If they had, we wouldn’t have less and less every year instead of more and more. . . . All I have succeeded in doing is to utter a warning against continuation of our wasteful policies, but as to constructive conservation and real restoration there has been so little that all of it put together is practically negligible.

If he were here to assess how far Iowa has come in the last six decades, would he still utter such despairing remarks? If he did, a host of other voices from the past would raise in protest. No, Darling would certainly acknowledge that we have cleaner lakes, more abundant wildlife, some thriving woodlands; that we are making progress on restoring prairie remnants and wetlands; that we have managed to protect for several generations, now, many “places of quiet beauty.” He would also, no doubt, acknowledge the need for redoubled efforts to ensure that these resources remain available for generations to come. Most important, I think he also would acknowledge the central role that the state parks have played in resource conservation in Iowa. Then, of course, he would admonish us all to go out and do more. So would Thomas Macbride, Louis Pammel, Cora Call Whitley, Margo Frankel, Bohumil Shimek, G.B. MacDonald, and Ada Hayden.

Rebecca Conard is an assistant professor of history at Wichita State University.

Dedication of Lake Darling in 1950. "Ding" Darling is seated just right of the speaker.
Chapter 2

Origins of The National Forest
Built Environment

“...the interest of the visitor...should concentrate on features of natural, in preference to artificial, beauty.... Architectural features should be confessedly subservient...”

—Frederick Law Olmsted & Calvert Vaux
A BRIEF HISTORY OF USDA FOREST SERVICE BUILT ENVIRONMENTS

In establishing the image of the Forest Service's built environment, the origins and meanings of the buildings, structures, furnishings, and signs that exist today were studied.

EARLY PARK AND RECREATION DESIGN INFLUENCES

The emphasis on harmonious design of the built environment on the national forests had its roots in the Public Park Movement of the mid-19th century. During the Industrial Revolution and its aftermath, social thinkers became concerned over crowded and unsanitary cities and the perceived loss of connection for the average citizen to the natural world. That led to efforts to set aside or create natural areas in urban areas, such as New York’s Central Park (1853) and the metropolitan park system for Minneapolis-St. Paul (1872-1895).

At the same time, national interest was growing to conserve the dramatic landscapes of the West for tourism. As a result, large natural areas such as the Yosemite Valley (first as a California State park in 1864, later as a national park in 1890), the Adirondack Forest Preserve (1885), and Yellowstone (1872) were reserved as “public parks or pleasing grounds for the benefit and enjoyment of the people” (Carr, 1998, p. 11).

The urban parks of that era emphasized maintaining “picturesque” landscapes for “passive” use such as picnicking or touring to enjoy the scenery. The built environment was often minimal, consisting primarily of curvilinear carriage drives and winding walking paths from which to enjoy the views of the landscape. Bridges and other structures were kept low and horizontal in form, often using rock from the immediate area. Rather than creating facilities for specific uses, large meadows and open spaces were provided to support an array of activities.

This philosophy prevailed when the Forest Service began permitting construction of summer homes, resorts, lodges, and boathouses in the early 20th century. The Forest Service constructed its own ranger stations, roads, and trails for administrative purposes, while private interests designed and built recreation facilities under Forest Service permits and regulations. Most of these early facilities fit into the landscape quite well (Tweed, 1978, p. 2).

However, public recreational facilities remained rare even though recreation use was growing rapidly. As described in an early report, rangers tried to fill this gap in some cases:

“Forest rangers took time to clear inflammable material from around heavily used camp spots and to build crude rock fireplaces. They erected toilets and dug garbage pits whenever materials could be obtained… Tables, toilets, and garbage pit covers were made from lumber scraps and wooden boxes, and crude signs were painted and displayed on rough-hewn shakes. Many of these…improvements were raw looking and some of them were clearly out of place in the forest environment, but they filled a real need” (Tweed, 1978, p. 3).
Public recreation facilities on a national forest were first truly planned and developed in 1916. This occurred in the Columbia Gorge Park division of the Oregon National Forest (later Mt. Hood National Forest and now within the Columbia River Gorge National Scenic Area) (Tweed, 1978). The campground and ranger station at Eagle Creek included an entrance station, restrooms, tables, fireplaces, and a trail designed in the Arts and Crafts architectural style of the day.

The Arts and Crafts movement favored the beauty and honesty of traditional handcraftsmanship and the use of natural building materials (Carley, 1994). Like the earlier Public Park movement, the Arts and Crafts movement arose out of concern over the effects of the advancing Industrial Age. Proponents believed that mass production threatened people’s appreciation of natural materials and craftsmanship. The use of natural materials, as well as an emphasis on simplicity in form, line, and function, made Arts and Crafts architecture fit well in natural settings. This influence was clearly visible at Eagle Creek and was a major influence in the evolving “rustic” style of architecture in natural areas (Tweed, 1978).

Arts and Crafts included the prairie-style architecture of Frank Lloyd Wright, who believed that a building should appear to grow organically from its site. Prairie-style roofs were low-pitched, usually hipped, and had wide, overhanging eaves and low porches and terraces. Architectural details emphasized horizontal lines as well. The style echoed the context of the landscape. Its long, low character reflected the horizontal line of America’s prairies.
THE CIVILIAN CONSERVATION CORPS
AND PUBLIC WORKS ERA

With the Great Depression of the 1930’s came the first era of large-scale recreation planning and development in the Forest Service. Beginning in 1933, spurred on by the plentiful labor provided through the Civilian Conservation Corps (CCC) and other public works agencies, the Forest Service began to employ professionally trained landscape architects and architects to design and implement plans on national forests across the country.

Design guidance evolved quickly to ensure consistent levels of quality and image throughout the Forest Service. In 1935 and 1936, the Forest Service hired Albert D. Taylor, president of the American Society of Landscape Architects, to analyze problems and devise solutions to recreation planning and design. Taylor’s three-volume 1936 report included drawings of many types of recreation structures unknown to earlier Forest Service recreation designers, such as bathhouses, shelters, amphitheaters, and playgrounds. “Across the country in the middle 1930’s, these types of facilities appeared in national forests where before there had been only privies and ranger cabins” (Tweed, 1978, pp. 20-21).

At the same time, the National Park Service contracted architect Albert H. Good to catalog appropriate structures for use in the parks. In 1938, the Park Service published the definitive work, Park & Recreation Structures, edited by Good, which collected these and other examples of rustic architecture.

By 1940, W. Ellis Groben, Chief Architect of the Forest Service, had written Architectural Trends of Future Forest Service Buildings. In it, Groben decried the widespread use of inappropriate urban styles on many forests. He advocated “buildings of a more distinctive character…which both express the purposes of the Forest Service and which are more appropriate to their particular locales.”

All these guides emphasized the need for harmonious design using local natural materials such as timber and stone. They also called for the use of trained design professionals.

The effects of this guidance, carried out by trained professionals and labor forces, soon became visible in the design and construction of forest roads, trails, buildings, and public recreation sites. Stone masonry and log structures predominated, and the massive scale of structural elements and site furnishings implied permanence and connection to the landscape.
The style was generally referred to as “rustic architecture.” It was based upon a canny combination of pioneer building skills and techniques, principles of the Arts and Crafts movement, and the premise of harmony with the landscape. The guides captured and codified the prevailing design that already had been practiced for many decades in natural settings such as New York’s Adirondack Reserve and the early national parks.

The work of the CCC influenced virtually every national forest. While the architectural style was consistently rustic, featuring stone and massive timbers, regional variations that reflected cultural context and the availability of building materials did occur.

For example, in the Juan Tabo and La Cueva Picnic Area on the Cibola National Forest in New Mexico and in Sabino Canyon on the Coronado National Forest in Arizona, picnic shelters, restrooms, and bridges are made entirely of large granite boulders and native stone. These fit well within the rocky, arid character of the site.

“However, the highest expression of CCC-era rustic architecture came in the Pacific Northwest Region of the Forest Service. Both in quantity and quality of facilities, this region surpassed all others, including that of the National Parks in the area. Rich in timber and volcanic rock, the region’s architecture and recreation site furnishings exhibited the classic elements of rustic architecture—stone bases, massive timbers, wood shakes, and incorporation of handcrafted features. This expression of rustic architecture in the Northwest became known as Cascadian style” (Tweed, 1978, pp 21–22).
The most significant example of the Cascadian style is the Timberline Lodge. Begun in 1936 by the Works Progress Administration (WPA), this massive rustic structure used native materials and incorporated lavish use of handcrafted regional decoration in the Arts and Crafts style.

With the onset of World War II, the public works era came to an end. The built works and publications of the era, however, established the principles and tradition of rustic architecture for parks and public lands. These principles, summarized, were:

- Emphasis on horizontal form and avoidance of hard straight lines.
- Combinations of harmonious exterior textures and colors.
- Use of local natural materials sized in proportion to the grand scale of the landscape.
- Appearance of pioneer building methods.
- Strong incorporation of handcrafted elements.
- Reflection of regional cultural influences.

The rustic style resonated strongly because it reflected the character of the forests themselves and stood in pleasing contrast to the increasing “civilization” of the rest of the country. People sensed a connection to the uniqueness of the natural settings and to frontier traditions. These bonds contributed strongly to the agency image for decades. For many people, rustic architecture represents the ideal for natural parks and forests. Indeed, the work of the CCC is a legacy we cherish to this day.
Post-World War II and Operation Outdoors

Following World War II, the context of recreation use and architecture in the United States changed again. The post-war economic boom created demand for recreation on the national forests. It also increased distribution of manufactured and finished materials throughout the country.

In 1956, the National Park Service began “Mission 66,” a 10-year program to upgrade its facilities by the agency’s 50th anniversary. The Forest Service began a parallel program called “Operation Outdoors” in 1957. Designers in both programs consciously departed from the nostalgic rustic style and embraced the tenets of the international style and modern design. This style included simple forms with clean, straight edges; functional design with little ornamentation or decoration; and the use of manufactured rather than handcrafted materials.

In addition, construction practices reflected a new era of manufacturing technology, distribution processes, and human resources. As such, facilities from that era reflect the practical realities and the spirit of their time as clearly as those built by the CCC. This modern era resulted in some landmark structures, as well as many other examples of design excellence. In other cases, the new manufactured materials proved less durable than the natural materials of the rustic era. Many people sensed that modern design, in general, was less evocative of and sensitive to the forest settings.

Evolution of Sustainable Design

Pioneered by landscape architects Ian McHarg and Phillip Lewis in the 1960’s, a new ecological approach to planning and design emphasized respect for the flows of wildlife, air, and water across the landscape. Parallel to that movement was the increased awareness of the need to conserve energy, prompted by the oil crisis of the mid 1970’s. This resulted in increased conservation measures in buildings, development of such “off the grid” energy systems as solar and wind power, and use of natural ventilation and daylighting. Recycling became part of the American consciousness, reflected in increased reuse of building materials and buildings themselves. The effects of building materials on human health also became a concern.

These developments eventually converged under the umbrella term of “sustainable design.” A 1993 National Park Service publication, Guiding Principles of Sustainable Design, synthesized many of these concepts for park and recreation settings.
RECREATION PLANNING AND SCENERY MANAGEMENT SYSTEMS

Over the past 25 years, two systems based on social science research emerged to affect the form of the built environment. These are the Recreation Opportunity Spectrum (ROS) and the Scenery (previously known as Visual) Management System (SMS). In addition to these two systems, the Forest Service’s customer base has diversified and expanded, reflecting social changes.

RECREATION OPPORTUNITY SPECTRUM

ROS is based on the premise that people expect certain levels of development related to the character of the setting and the type of recreation they prefer. For example, a facility intended to create a safe, controlled environment for large numbers of people should be highly developed using modern materials and providing ample conveniences. Consistent with visitor expectations, a more primitive “backwoods” area would have far fewer constructed elements. Those would generally be small in scale and made of natural materials. More detail on ROS can be found in chapter 3 and appendix C.

SCENERY MANAGEMENT SYSTEM

One premise of SMS is that land management activities (including construction of facilities) should not contrast with the existing natural-appearing landscape. Within a framework of regional landscape character types, form, line, color, and texture should be used to make activities and structures “fit” within landscapes (Agricultural Handbook 666). This approach promotes a strong response to the context of the natural landscape. It also reinforces the concept of early park planning that structures should be visually subordinate to the landscape.

DIVERSITY OF CUSTOMER BASE/ACCESSIBILITY

Public lands provide outdoor recreation opportunities for an increasingly diverse customer base. This reflects demographic changes within the American population, including an increase in the number of ethnic groups, recognition of nontraditional family structures, and the increased mobility of persons with disabilities. Locally, such factors may require new design responses for different group sizes, different types of amenities, and different language needs. Although they generally do not affect overall architectural character on a regional scale.

Under the Architectural Barriers Act of 1968 and other mandates, universal design requires complete integration of accessibility within our facilities. As with sustainable design elements, universal design principles applied to a site or facility design from the outset seldom, if ever, have any obvious effect on architectural character. When skillfully executed, universally designed facilities fit seamlessly within the natural and social environments.

As population increases near national forests, facilities must also be made more resistant to vandalism. In addition, offices must be made secure for Forest Service employees who sometimes work in communities where tensions arise over forest resource issues.
Three trends of the post-World War II era have accelerated in recent years. Construction technology and distribution systems have greatly increased the availability and variety of construction materials and furnishings. Labor for construction is increasingly scarce and costly. Two developments in particular have direct bearing on the image of the built environment:

- Prefabricated construction systems or modular buildings and structures, including toilets, are readily available, have relatively low initial costs, and require little labor beyond site preparation to install. Therefore, they are often used to meet functional needs and economic constraints.
- Prefabricated recreation site furnishings, such as tables, benches, and trash receptacles, are often used instead of the custom designed and built furnishings of the past. The character of these ranges from fairly rustic (made of natural or natural-appearing materials) to manufactured (including metal and plastics).

Already an economic reality, prefabricated units can be carefully selected and sited to meet requirements of function, efficiency, and aesthetics. This requires professional analysis of the landscape and ROS setting to yield locations and design treatments that blend these elements into forest settings. Without such measures, prefabricated units can look out of place. The contexts of ecology and culture should not be sacrificed to economics. All three contexts must be kept in careful balance.

“The era of big government is over.”

Then-President Clinton’s pronouncement during the 1996 State of the Union address capped a 20-year trend toward reduced Government size and increased privatization of public services. The Forest Service had been moving in that direction for some time. In 1987, the National Recreation Strategy emphasized “partnerships” and private investment in national forest recreation management. Since then, the number of entities involved in providing recreation facilities and services has exploded. Nonprofit organizations have contributed to construction of recreation and wildlife viewing facilities. About 50 percent of the national forest campground capacity is managed under concessionaire permits. The Forest Service is also strongly considering a program to encourage private investment, not just for the operation but for the planning, design, and construction of recreation facilities.

In short, the Forest Service is moving away from direct development of projects to a position of guidance, approval, and oversight. Our design philosophies will face the realities posed by the private sector’s cycles of investment and amortization. Key considerations include permanence versus short-term adaptability and the use of prefabricated elements, as previously discussed.
THE BUILT ENVIRONMENT IMAGE—PAST AND FUTURE

To many people, the rustic imagery of the CCC era remains the most positive image for the built environment of the Forest Service. Perhaps this image remains popular because of its strong relation to the natural, cultural, and economic contexts; its reflections of a frontier past; and the humanizing aspects of handcrafted buildings. In subsequent decades, different stylistic trends have touched the Forest Service, with varying levels of success. All were responses to the context and spirit of the times.

Many trends have had positive effects, but others simply reflect the changing context of the times. One result has been a lack of a unified vision for the appropriate built environment image for the Forest Service. This guide attempts to define that vision. Just as the success of the rustic style was based on integration of context, the new Forest Service philosophy for the built environment must integrate the lessons of the past with the context of the present to create new and enduring places.
**ENERGY STAR**

ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping us all save money and protect the environment through energy efficient products and practices. Results are already adding up. Americans, with the help of ENERGY STAR, saved enough energy in 2010 alone to avoid greenhouse gas emissions equivalent to those from 33 million cars — all while saving nearly $18 billion on their utility bills.

**For the Home**

Energy efficient choices can save families about a third on their energy bill with similar savings of greenhouse gas emissions, without sacrificing features, style or comfort. ENERGY STAR helps you make the energy efficient choice.

- If looking for new household products, look for ones that have earned the ENERGY STAR. They meet strict energy efficiency guidelines set by the EPA and US Department of Energy.
- If looking for a new home, look for one that has earned the ENERGY STAR.
- If looking to make larger improvements to your home, EPA offers tools and resources to help you plan and undertake projects to reduce your energy bills and improve home comfort.

**For Business**

Because a strategic approach to energy management can produce twice the savings — for the bottom line and the environment — as typical approaches, EPA’s ENERGY STAR partnership offers a proven energy management strategy that helps in measuring current energy performance, setting goals, tracking savings, and rewarding improvements. EPA provides an innovative energy performance rating system which businesses have already used for more than 200,000 buildings across the country. EPA also recognizes top performing buildings with the ENERGY STAR. (www.energystar.gov)

**CRADLE TO CRADLE®**

Cradle to Cradle® Certification is a multi-attribute eco-label that assesses a product’s safety to humans and the environment and design for future life cycles. The program provides guidelines to help businesses implement the Cradle to Cradle framework, which focuses on using safe materials that can be disassembled and recycled as technical nutrients or composted as biological nutrients. Unlike single-attribute eco-labels, MBDC’s certification program takes a comprehensive approach to evaluating the design of a product and the practices employed in manufacturing the product. The materials and manufacturing practices of each product are assessed in five categories: Material Health, Material Reutilization, Renewable Energy Use, Water Stewardship, and Social Responsibility. Click here for complete description of Certification Criteria. (www.mbdc.com)

**INTERNATIONAL DARK-SKY ASSOCIATION (IDA)**

The mission of the International Dark-Sky Association (IDA) is to preserve and protect the nighttime environment and our heritage of dark skies through environmentally responsible outdoor lighting. IDA is the recognized authority on light pollution. Founded in 1988, IDA is the first organization to call attention to the hazards of light pollution, and in 22 years of operation our accomplishments have been tremendous. We promote one simple idea: light what you need, when you need it. We know some light at night is necessary for safety and recreation. We work with manufacturers, planners, legislators, and citizens to provide energy efficient options that direct the light where you want it to go, not uselessly up into the sky. (www.darksky.org)

**U.S. GREEN BUILDING COUNCIL (USGBC)**

The U.S. Green Building Council (USGBC) is a Washington, D.C.-based 501(c)(3) nonprofit organization committed to a prosperous and sustainable future for our nation through cost-efficient and energy-saving green buildings. USGBC works toward its mission of market transformation through its LEED green building certification program, robust educational offerings, a nationwide network of chapters and affiliates, the annual Greenbuild International Conference & Expo, and advocacy in support of public policy that encourages and enables green buildings and communities.

The LEED® green building certification program is a voluntary, consensus-based national rating system for buildings designed, constructed and operated for improved environmental and human health performance. LEED addresses all building types and emphasizes state-of-the-art strategies in five areas: sustainable site development, water savings, energy efficiency, materials and resources selection, and indoor environmental quality. (www.usgbc.org)
## Sustainable Sites

### Possible Points: 26

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
<th>Prereq</th>
<th>Credit</th>
<th>Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td>Construction Activity Pollution Prevention</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Site Selection</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Development Density and Community Connectivity</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brownfield Redevelopment</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alternative Transportation—Public Transportation Access</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alternative Transportation—Bicycle Storage and Changing Rooms</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alternative Transportation—Parking Capacity</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Site Development—Protect or Restore Habitat</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Site Development—Maximize Open Space</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stormwater Design—Quantity Control</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stormwater Design—Quality Control</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat Island Effect—Non-roof</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heat Island Effect—Roof</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Light Pollution Reduction</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

## Materials and Resources, Continued

### Possible Points: 15

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
<th>Prereq</th>
<th>Credit</th>
<th>Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Recycled Content</td>
<td>1 to 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Regional Materials</td>
<td>1 to 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rapidly Renewable Materials</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Certified Wood</td>
<td>1</td>
</tr>
</tbody>
</table>

## Indoor Environmental Quality

### Possible Points: 10

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
<th>Prereq</th>
<th>Credit</th>
<th>Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Minimum Indoor Air Quality Performance</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Outdoor Air Delivery Monitoring</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Increased Ventilation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Construction IAQ Management Plan—During Construction</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Construction IAQ Management Plan—Before Occupation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Low-Emitting Materials—Adhesives and Sealants</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Low-Emitting Materials—Paints and Coatings</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Low-Emitting Materials—Flooring Systems</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Low-Emitting Materials—Composite Wood and Agrifiber Products</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Indoor Chemical and Pollutant Source Control</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Controllability of Systems—Lighting</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Controllability of Systems—Thermal Comfort</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Thermal Comfort—Design</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Thermal Comfort—Verification</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Daylight and Views—Daylight</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Daylight and Views—Views</td>
<td>1</td>
</tr>
</tbody>
</table>

## Water Efficiency

### Possible Points: 10

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
<th>Prereq</th>
<th>Credit</th>
<th>Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td>Water Use Reduction—20% Reduction</td>
<td>2 to 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Water Efficient Landscaping</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Innovative Wastewater Technologies</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Water Use Reduction</td>
<td>2 to 4</td>
<td></td>
</tr>
</tbody>
</table>

## Energy and Atmosphere

### Possible Points: 35

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
<th>Prereq</th>
<th>Credit</th>
<th>Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td>Fundamental Commissioning of Building Energy Systems</td>
<td>1 to 19</td>
</tr>
<tr>
<td>Y</td>
<td></td>
<td></td>
<td>Minimum Energy Performance</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>On-Site Renewable Energy</td>
<td>1 to 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Enhanced Commissioning</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Enhanced Refrigerant Management</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Measurement and Verification</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Green Power</td>
<td>2</td>
</tr>
</tbody>
</table>

## Materials and Resources

### Possible Points: 14

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
<th>Prereq</th>
<th>Credit</th>
<th>Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Storage and Collection of Recyclables</td>
<td>1 to 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Building Reuse—Maintain Existing Walls, Floors, and Roof</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Building Reuse—Maintain 50% of Interior Non-Structural Elements</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Construction Waste Management</td>
<td>1 to 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Materials Reuse</td>
<td>1 to 2</td>
</tr>
</tbody>
</table>

## Innovation and Design Process

### Possible Points: 6

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
<th>Prereq</th>
<th>Credit</th>
<th>Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Innovation in Design: Specific Title</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Innovation in Design: Specific Title</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Innovation in Design: Specific Title</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Innovation in Design: Specific Title</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>LEED Accredited Professional</td>
<td>1</td>
</tr>
</tbody>
</table>

## Regional Priority Credits

### Possible Points: 4

<table>
<thead>
<tr>
<th>Y</th>
<th>N</th>
<th>Prereq</th>
<th>Credit</th>
<th>Possible Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Regional Priority: Specific Credit</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Regional Priority: Specific Credit</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Regional Priority: Specific Credit</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Regional Priority: Specific Credit</td>
<td>1</td>
</tr>
</tbody>
</table>

## Total

### Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110
# INDEX OF PREREQUISITES AND CREDITS

## 1. Site Selection  
21 possible points

Select locations to preserve existing resources and repair damaged systems

- **Prerequisite 1.1:** Limit development of soils designated as prime farmland, unique farmland, and farmland of statewide importance  
  - 15 points
- **Prerequisite 1.2:** Protect floodplain functions  
  - 19 points
- **Prerequisite 1.3:** Preserve wetlands  
  - 22 points
- **Prerequisite 1.4:** Preserve threatened or endangered species and their habitats  
  - 24 points
- **Credit 1.5:** Select brownfields or greyfields for redevelopment (5–10 points)  
  - 26 points
- **Credit 1.6:** Select sites within existing communities (6 points)  
  - 28 points
- **Credit 1.7:** Select sites that encourage non-motorized transportation and use of public transit (5 points)  
  - 30 points

## 2. Pre-Design Assessment and Planning  
4 possible points

Plan for sustainability from the onset of the project

- **Prerequisite 2.1:** Conduct a pre-design site assessment and explore opportunities for site sustainability  
  - 33 points
- **Prerequisite 2.2:** Use an integrated site development process  
  - 44 points
- **Credit 2.3:** Engage users and other stakeholders in site design (4 points)  
  - 46 points

## 3. Site Design—Water  
44 possible points

Protect and restore processes and systems associated with a site’s hydrology

- **Prerequisite 3.1:** Reduce potable water use for landscape irrigation by 50 percent from established baseline  
  - 49 points
- **Credit 3.2:** Reduce potable water use for landscape irrigation by 75 percent or more from established baseline (2–5 points)  
  - 54 points
- **Credit 3.3:** Protect and restore riparian, wetland, and shoreline buffers (3–8 points)  
  - 57 points
- **Credit 3.4:** Rehabilitate lost streams, wetlands, and shorelines (2–5 points)  
  - 60 points
- **Credit 3.5:** Manage stormwater on site (5–10 points)  
  - 63 points
- **Credit 3.6:** Protect and enhance on-site water resources and receiving water quality (3–9 points)  
  - 78 points
- **Credit 3.7:** Design rainwater/stormwater features to provide a landscape amenity (1–3 points)  
  - 82 points
- **Credit 3.8:** Maintain water features to conserve water and other resources (1–4 points)  
  - 85 points

## 4. Site Design—Soil and Vegetation  
51 possible points

Protect and restore processes and systems associated with a site’s soil and vegetation

- **Prerequisite 4.1:** Control and manage known invasive plants found on site  
  - 88 points
- **Prerequisite 4.2:** Use appropriate, non-invasive plants  
  - 90 points
- **Prerequisite 4.3:** Create a soil management plan  
  - 92 points
INDEX OF PREREQUISITES AND CREDITS

Credit 4.4: Minimize soil disturbance in design and construction (6 points) 95
Credit 4.5: Preserve all vegetation designated as special status (5 points) 99
Credit 4.6: Preserve or restore appropriate plant biomass on site (3–8 points) 101
Credit 4.7: Use native plants (1–4 points) 109
Credit 4.8: Preserve plant communities native to the ecoregion (2–6 points) 111
Credit 4.9: Restore plant communities native to the ecoregion (1–5 points) 114
Credit 4.10: Use vegetation to minimize building heating requirements (2–4 points) 116
Credit 4.11: Use vegetation to minimize building cooling requirements (2–5 points) 118
Credit 4.12: Reduce urban heat island effects (3–5 points) 120
Credit 4.13: Reduce the risk of catastrophic wildfire (3 points) 122

5. Site Design—Materials Selection 36 possible points

Reuse/recycle existing materials and support sustainable production practices

Prerequisite 5.1: Eliminate the use of wood from threatened tree species 124
Credit 5.2: Maintain on-site structures, hardscape, and landscape amenities (1–4 points) 125
Credit 5.3: Design for deconstruction and disassembly (1–3 points) 126
Credit 5.4: Reuse salvaged materials and plants (2–4 points) 128
Credit 5.5: Use recycled content materials (2–4 points) 130
Credit 5.6: Use certified wood (1–4 points) 132
Credit 5.7: Use regional materials (2–6 points) 133
Credit 5.8: Use adhesives, sealants, paints, and coatings with reduced VOC emissions (2 points) 135
Credit 5.9: Support sustainable practices in plant production (3 points) 136
Credit 5.10: Support sustainable practices in materials manufacturing (3–6 points) 138

6. Site Design—Human Health and Well-Being 32 possible points

Build strong communities and a sense of stewardship

Credit 6.1: Promote equitable site development (1–3 points) 142
Credit 6.2: Promote equitable site use (1–4 points) 144
Credit 6.3: Promote sustainability awareness and education (2–4 points) 146
Credit 6.4: Protect and maintain unique cultural and historical places (2–4 points) 149
Credit 6.5: Provide for optimum site accessibility, safety, and wayfinding (3 points) 152
Credit 6.6: Provide opportunities for outdoor physical activity (4–5 points) 156
Credit 6.7: Provide views of vegetation and quiet outdoor spaces for mental restoration (3–4 points) 161
Credit 6.8: Provide outdoor spaces for social interaction (3 points) 165
Credit 6.9: Reduce light pollution (2 points) 168

7. Construction 21 possible points

Minimize effects of construction-related activities

Prerequisite 7.1: Control and retain construction pollutants 170
Prerequisite 7.2: Restore soils disturbed during construction 172
Credit 7.3: Restore soils disturbed by previous development (2–8 points) 180
Credit 7.4: Divert construction and demolition materials from disposal (3–5 points) 185
Credit 7.5: Reuse or recycle vegetation, rocks, and soil generated during construction (3–5 points) 187
Credit 7.6: Minimize generation of greenhouse gas emissions and exposure to localized air pollutants during construction (1–3 points) 188