DESIGN GUIDELINES FOR:

THE GREAT RIVER ROAD

PREPARED FOR:

THE WISCONSIN DEPARTMENT OF TRANSPORTATION

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"That portion of the Mississippi which extends from Prairie du Chien to Lake Pepin is the most mountainous and truly beautiful on the whole river, and may with strict propriety be called the Alpine Region. The river here varies from a quarter to a full mile in width, and on either side throughout the whole distance is a range of mountains which sometimes actually bend over the river, and sometimes recede into the interior for several miles. The Mississippi here is rather sluggish, but perfectly translucent and completely filled with islands which are covered with every variety of forest trees found between Kentucky and the Great Lakes"

Charles Lanmen, 1846

CONTENTS

GUIDELINES THEME 1.1

"Wisconsin's Great River Road flanks the Mississippi and St. Croix Rivers as they tumble southward through the rolling hills and dells of western Wisconsin. It is an area to be enjoyed... leisurely; a marvelous mix of natural beauty and history blended to perfection." The Great River Road was established along existing state highways in 1964. The road provides a scenic highway system spanning the entire length of the Mississippi River through state by state connections.

The road is responsible for generating revenue from recreational uses that exceeds 1.2 billion dollars annually. It is used predominately for daytrips with over 2.3 million recreational trips occurring per year.

There are many portions along the route that are heavily used by commercial traffic which may lower the quality of the pleasure driving experience. In 1993 The Wisconsin Department of Transportation and the Mississippi River Parkway Commission determined that there was a need to have a comprehensive plan for aesthetic enhancement of this scenic drive. This document represents the first phase of the comprehensive plan, in the form of general design guidelines for the corridor.

The importance of the character of the road was emphasized by Stanley Abbott, a landscape architect who designed the Blue Ridge Parkway. Abbott was involved in determining the objectives for the Mississippi parkway in 1949. He stated, "...if this parkway is to be simply another road with no claim to distinction, then the project has little reason for being. The objective is to reveal for the visitor all that comes to mind with the word Mississippi..." Miller 1989. This goal for the overall road should provide a basis for the Wisconsin portion of this scenic highway. This provides the initial program statement for the development of these Design Guidelines.

Stanley Abbott also stated that "the parkway must carry its justification throughout its entire composition" and therefore ought to be "built so as to reveal the charm and interest of the native American countryside." The major goal of the scenic drive design guidelines is to provide a basis for planning and design that emphasizes preservation, protection and restoration of scenic beauty and the natural and cultural character of the Mississippi River valley. In this regard, the Great River Road corridor should capture the essence of the river and its surroundings.

The process for establishing the theme, the basis for these Guidelines, begins with the Stanley Abbott program statement. This initial program statement, used for the development of these Guidelines (SEE FIGURE 1.1) provide direction for information collection and the basis with which to define the theme.

The first step in the collection of information consists of image assessment. These assessments include evaluating documented images from previously complied written inventories of the Mississippi River Valley, recording physiological images through a visual site inventory, and listening to groups such as the technical committee and local residents. The end product of the image assessment is a reference summary of the cultural, environmental, and historical elements significant to the region.

The next step is to verify the existing image assessment. The image documented during the collection is reviewed to clarify and check the validity of the information gathered in the prior step. The existing image is then compared to a desired image of cultural, environmental, and historical elements. The deficiency between the existing image

and the desired image becomes the basis for the discussion of the Design Guidelines.

The last step outlines issues to be discussed in these Guidelines. The theme provides a unifying element for the future development of the Great River Road. The Guideline issues are visual resources, road location, vegetation enhancement, facility development, alternative transportation, and signage development.

The Design Guidelines will establish a design theme for the transition of the Great River Road of Wisconsin into a scenic drive. The theme will be based on the natural features drawn from, and representative of, the region. These features include materials such as water, stone, and wood consisting of design elements of line and form as influenced by topography, and of color as influenced by vegetation. The establishment of a "timeless natural theme" (without reference to a point in time) will allow the character of the drive to evolve in correspondence with change in the region.

A scenic highway is not simply a means to travel from one point to another. It should create an experience that is much different from that on point to point roadways, an experience that with natural forms and materials creates a design continuity to reflect the beauty and importance of the river and surrounding landscape.

The road can be designed especially for pleasure driving or to provide a scenic route from one place to another. Maintenance, improvement and development of recreation sites, lookouts, picnic areas, rest stops and information centers along the corridor will help achieve the desired Great River Road experience. The route also needs to accommodate pedestrians and bicyclists.

Wildlife habitat protection and enhancement, vegetation management and conservation, improved landscape aesthetics, enhanced community pride and identity, can enhance awareness and appreciation and diversify local economics through tourism. Tourism goals can be met at the local community level through the development of interest and activity nodes along the corridor.

To achieve this, the natural and cultural character of the region must be recognized and used as a basis for design decisions. The relationship between existing human, plant, and animal communities and the river needs to be considered. Guidelines and standards should encompass design elements within the viewshed corridor as a minimum. Design guideline application can encompass entire visitor zones and should not be limited to the Great River Road boundaries.

The overriding theme responds to the natural elements of the corridor and will provide the basis for these Design Guidelines. This theme emphasizes the protection of the visual resources of the corridor while allowing for flexibility in design.

Cultural and historic elements will also play a major role in the interpretation of the region. Individual applications of the theme can be specific to a given community, while at the same time maintaining the continuity and quality of the design theme.

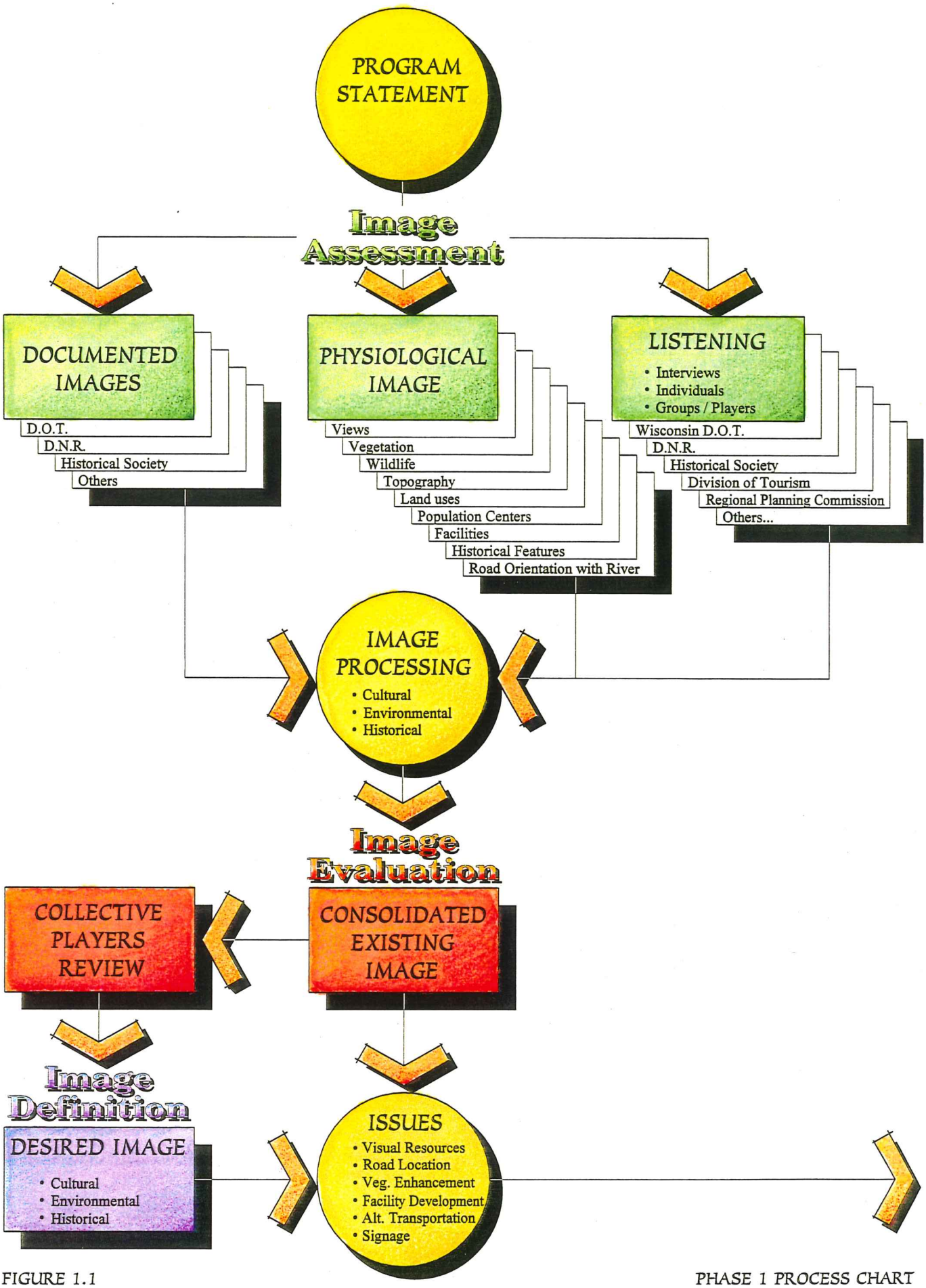


FIGURE 1.1

PHASE 1 PROCESS CHART

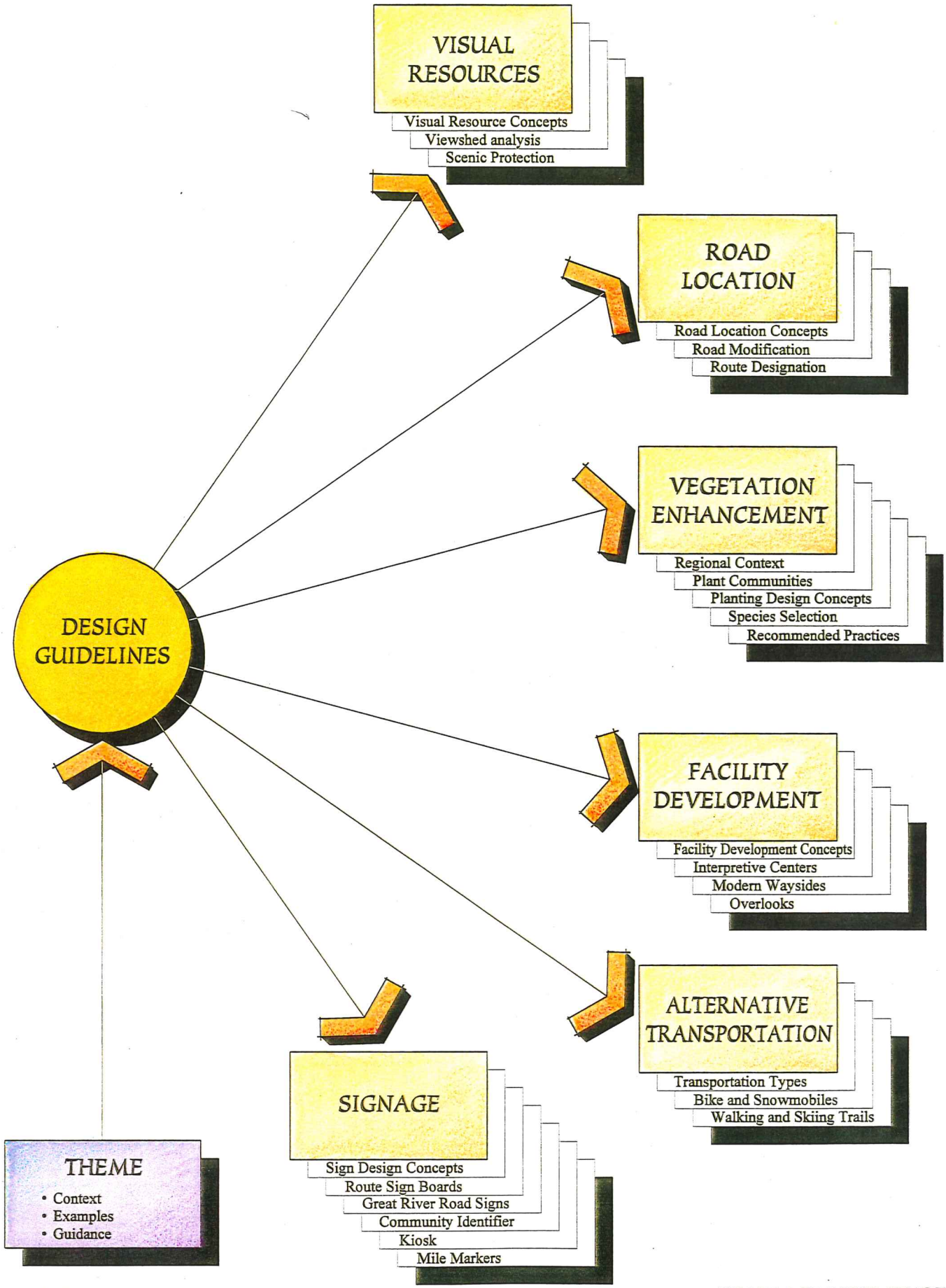


FIGURE 1.1

PHASE 1 PROCESS CHART

VISUAL RESOURCE CONCEPTS 2.1

The Great River Road in Wisconsin travels through areas that offer spectacular views and interesting scenery. The river, its bluffs and sloughs dominate the landscape along the corridor. The interpretation of corridor scenery provides excellent opportunities for educational experiences focused on the region's natural and cultural history, and its current environmental resources. Opportunities to view the rich scenic resources along the road and the Mississippi River promotes passive education as well as recreational opportunities that can stimulate interest in the region.

This section of the document will provide descriptions of vista or viewshed types, a brief introduction to viewshed analysis and guidelines for scenic resource protection.

Scenic resources are a composition of the visual characteristics of an area. They can consist of a wide variety of elements such as agriculture lands, structures, water, vegetation, skylines and bluffs. Visual character includes the ordinary, or vernacular elements; spectacular elements; and undesirable elements. The relationship or sequence of elements creates a pleasant or unpleasant aesthetic character depending on the elements' context or appropriateness and congruency in the scene (*SEE FIGURE 2.1*). Scenic beauty occurs when the composition of the elements in the viewshed is pleasing to the human viewer (*SEE FIGURE 2.2*). In other words, the pattern of composition establishes the character and visual quality of the scenic road.

A viewshed, or vista includes all areas visible from a certain vantage point creating a scene. The "edge of the view" (or viewshed boundary) can be depicted in plan on topographic maps. This is particularly helpful because in many cases, especially in rural landscapes, the topography of an area defines the vista. There are two types of vistas that are important to the quality of the views from the scenic drive; stationary vistas and moving vistas. Along with these, views toward the road also are important to consider. Limiting views of the road allow for the natural landscape to prevail on the horizon.

"The view toward the road is often associated with negative reactions from adjacent landusers and the general public. The role of the highway designer is to minimize the negative impact of the road on the physical landscape and on the scenic beauty of that landscape." (Province of B.C., p.11). The close association of the road with the river suggests the need for careful consideration of potential impacts of

FIGURE 2.1 UNPLEASANT EXISTING CONDITION

FIGURE 2.2 PLEASANT EXISTING CONDITION

the road on river users. The road forms a line in the landscape. Through proper road placement (SEE SECTION 3.0) and vegetation management the impact of the road can be minimized (SEE SECTION 4.0).

Proper road alignment allows for the mitigation of the effects of the highway on existing views. The formation of views consists of detailed alignment, buffering vegetation, revegetation, and earthform, and careful attention to color and placement of retaining structures.

Stationary vistas are those seen from the perspective of a stationary viewer (SEE FIGURE 2.3). The road can take advantage of these views with overlooks, pull outs, rest areas and interpretation centers (SEE SECTION 5.0). Size of vista openings can be narrower than that of moving vistas. Stationary views are often used to direct attention to significant features and spectacular views. They are also used where driving distraction is of concern.

Moving vistas are views seen by travelers while driving vehicles or participating in other forms of transportation such as on bicycles, skis or by foot. The width and angle of view must be targeted to the speed and elevation of the viewer (SEE FIGURE 2.4). Views developed at 30 degree angles to the road will direct the driver's attention forward and provides less of a distraction away from the road (SEE FIGURE 2.5). The typical size of openings for vistas may be several hundred yards (SEE FIGURE 2.6). Overall spacing between points of interest should vary but occur frequently to prevent driver boredom and weariness.

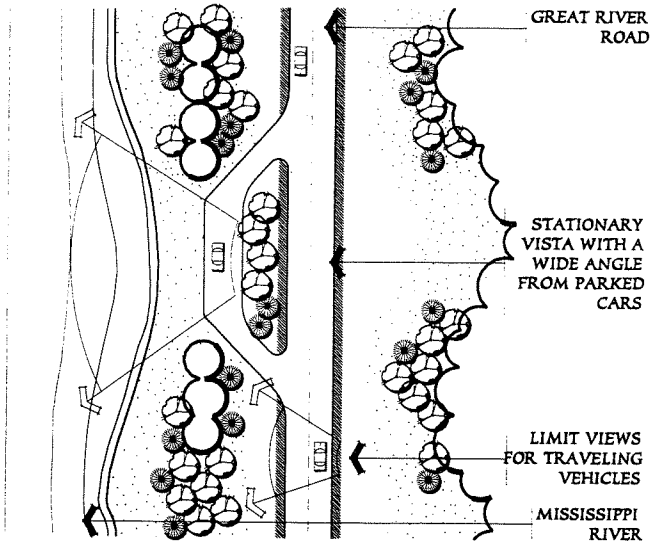


FIGURE 2.3 STATIONARY VISTA

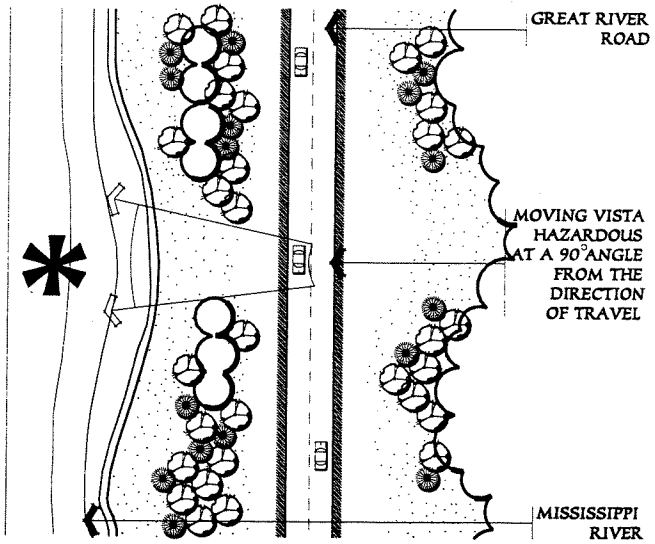


FIGURE 2.4 POOR MOVING VISTA DESIGN

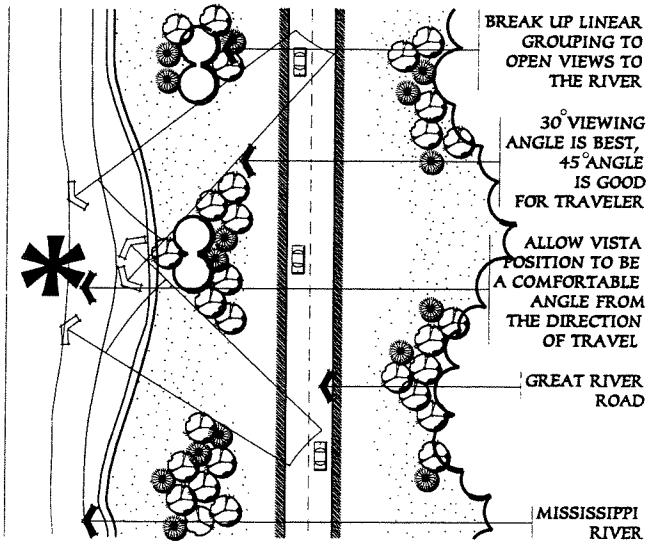


FIGURE 2.5 GOOD MOVING VISTA CONDITION

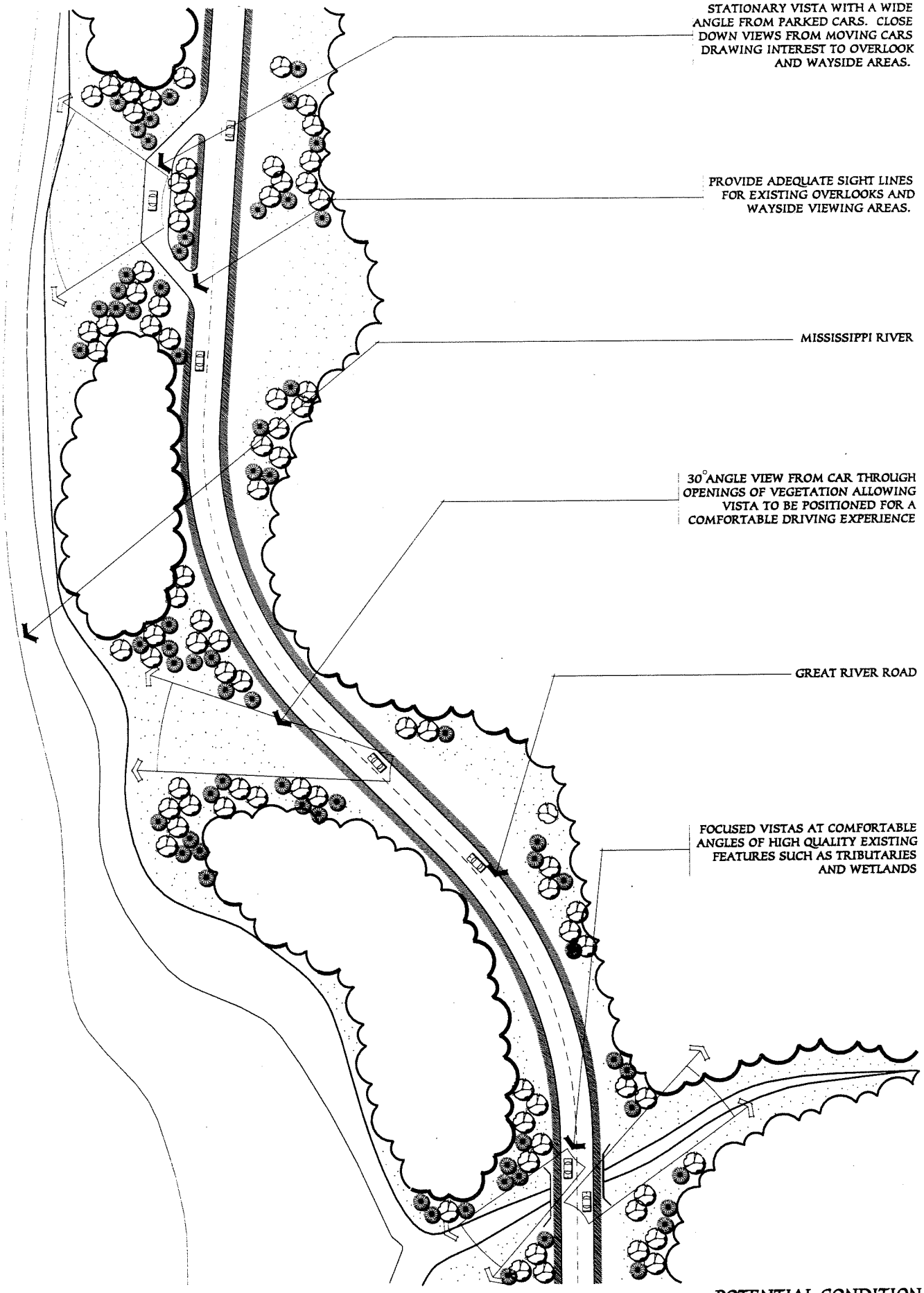


FIGURE 2.6

POTENTIAL CONDITION

VIEWSHED ANALYSIS 2.2

A viewshed analysis is used to determine the elements that visually affect the character of a landscape. The Manual of Aesthetic Design Practice, published by the Ministry of Transportation and Highways of the Province of British Columbia is an excellent resource for guidelines to identify, protect and enhance scenic resources. This document uses a number of scenic beauty concepts established by the US Forest Service and Bureau of Land Management. The process outlined in that document is recommended for the addition of further information to be discussed in Phase 2 and 3 of the development of the Great River Road.

The first step in viewshed analysis involves conducting an inventory. The edge of the view from the road should be located on plan maps using topographic contours and other factors. Views of the road from important positions should also be located. Landscape types should be noted and landscape units, areas of homogeneous visual character, should be identified and mapped (*SEE FIGURE 2.7*). Points of visual interest, such as landmarks, should be identified and documented (*SEE FIGURE 2.8*).

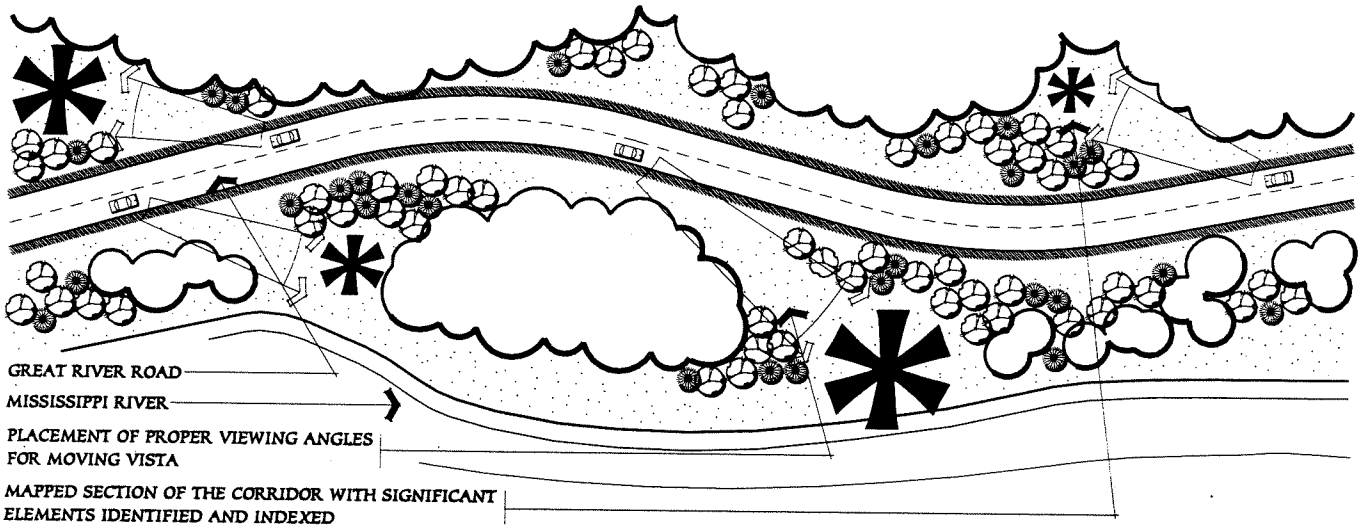


FIGURE 2.7 IDENTIFIED MAPPING

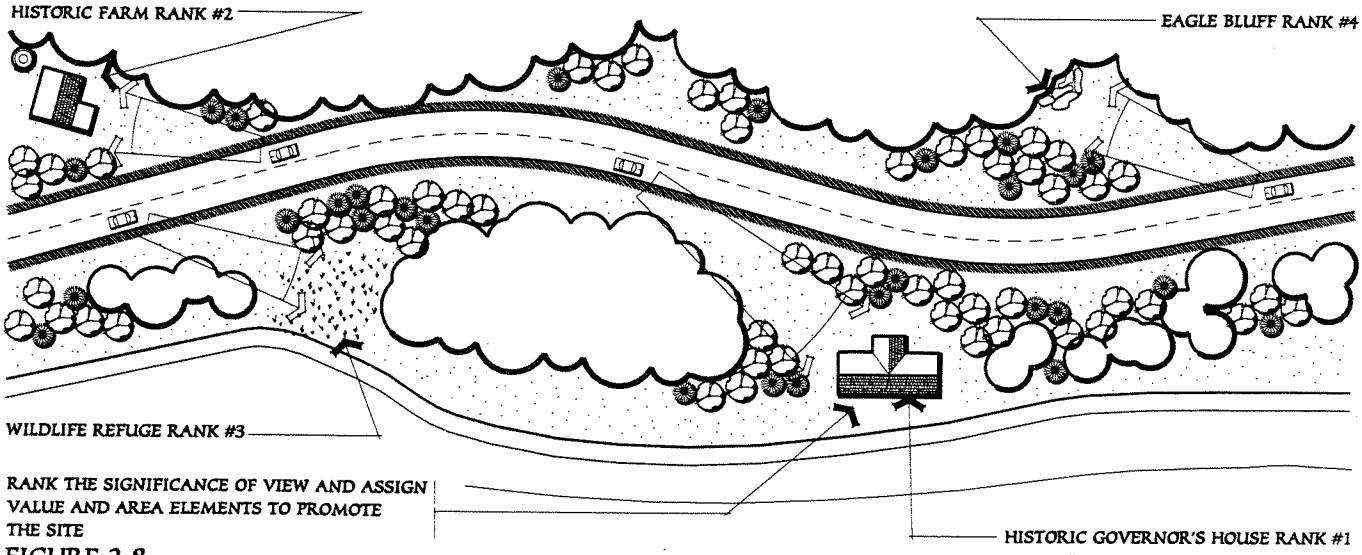


FIGURE 2.8 RANKED LANDMARKS

After documentation of the existing visual characteristics, an assessment of their quality should be conducted. This involves comparing the relative value of the visual features. Type, quality, quantity, and desirability of each aesthetic attribute should be weighed based on a set of criteria developed from objectives.

Areas within view, landscape types and landmarks are assessed based on their positive (attractor) and negative (detractor) characteristics. Examples of attractors along the Wisconsin Great River Road include bluffs, the river, natural vegetation (oak forest, prairie, savanna, wetland), wildlife, and distinctive land uses (agricultural practices, settlement patterns, historic or architecturally significant buildings, parks, and rest areas.) (*SEE FIGURE 2.9*). All efforts should be made to take advantage of views of these types of elements.

Detractors are elements that are incongruous with the desirable landscape character and provide little to no educational or character value to the corridor. Examples of detractors along the corridor can include sand and gravel quarries, billboards, salvage yards and dumps, forest clearcuts, dozer activity and slash, and commercial and industrial sites (including parking, utilities and equipment operations) (*SEE FIGURE 2.10*). Detractors need to be softened and integrated into the landscape when possible. Some of the above activities and elements may not always be detractors. For example commercial and industrial sites that are well maintained and linked in purpose to the river and the theme may be of educational value.

FIGURE 2.9 ATTRACTOR

FIGURE 2.10 DETRACTOR

SCENIC PROTECTION 2.3

General goals for protecting visual quality in the corridor include protecting areas of high visual interest and limiting or mitigating detracting elements. The concept of acquiring full or partial control over viewshed areas outside the right-of-way deserves strong consideration.

The corridor contains of limited scenic easements from Prairie Du Chien to the Pepin county line most of which exist from State Highway 63 to the South. South of Prairie Du Chien the easements are incomplete. Towns in these areas have different levels of zoning regulations. Most easements in the corridor are no more than 350' from the center of the road right-of-way, and exist only on the side toward the bluffs. Few easements exist toward the Mississippi River side of the road. In some cases easements extend out 400' to 700' from the centerline but none incorporate the entire viewshed.

The bluffs of the Mississippi River valley have great importance and with their native vegetation exemplify the corridor's scenic characteristic. The bluffs and any development that occurs on them will be the most visually significant element of the corridor. For the drive to exist as more than a utility highway and fulfill Abbott's philosophy for the uniqueness of the Great River Road the protection of these bluffs is critical (SEE FIGURE 2.11).

Viewshed or bluff easements have been obtained along southern sections of the Great River Road with the aid of citizen groups. Bluff protection may range from fee simple title acquisition to easements that appoint specific development or use restriction on the owner. Fee simple title may serve greater purpose where land use is restricted to the degree that the land owner has little incentive to retain title. More specific guidelines include the following examples:

Maintain and/or create visual continuity with the adjacent countryside. The roadside should respond to adjacent topography and vegetation. Landscaping should use native plant species indigenous to the area and planted in naturalistic patterns.

Take advantage of borrowed landscapes, such as views to existing parks, open spaces, and vistas that visually extend the highway beyond its legal boundaries (SEE FIGURE 2.12). It is important to only utilize borrowed landscapes when there is a long-term guarantee that they will maintain their desired aesthetic characteristics.

FIGURE 2.11 NEIGHBORING BLUFFS

FIGURE 2.12 BORROWED LANDSCAPE

Preclude development of billboards and strip development by acquiring right-of-way, or scenic easements. Limit the impact of buildings and structures to help maintain views.

Prohibit obstructions of bluff tops or other vistas. Major threats to scenic integrity are non-informational signs (SEE FIGURE 2.13) and marginal commercial activity attracted by the highway. Structures created for such activities block views to the bluffs, rivers and surrounding landscape introducing an incongruous element that detracts from viewer experience. The limiting of development activities of the Great River Road will help maintain the integrity of the Mississippi River corridor.

Provide view and natural resource protection to the boundary of the viewshed. This will be more effective in protecting scenic quality than easement boundaries that are a predetermined, consistent width throughout the corridor.

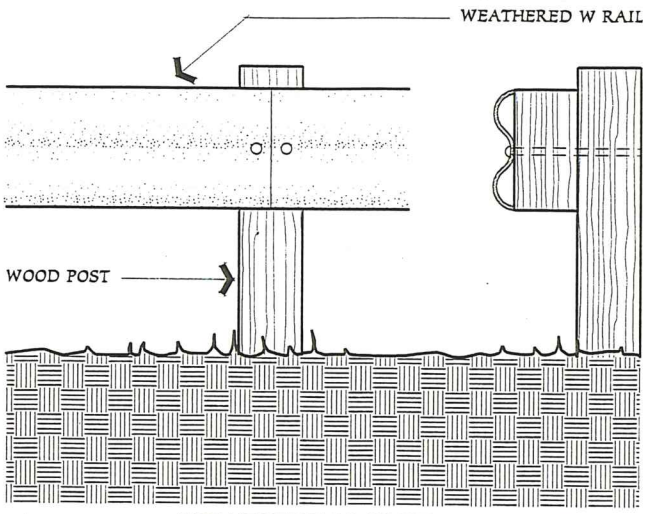
When the viewshed reaches into another state, obtain commitments for scenic protection from the owners of the opposite lands and bluffs. Protect views of farms and agriculture land use throughout the corridor on both sides of the river.

Maintain some openings along the river, but sequence these (SEE FIGURE 2.14). Views all open or all closed are not desired. Views to the river tend to be closing. Opening views to the river in areas of otherwise low visual interest, and the screening of detractor elements can promote positive images.

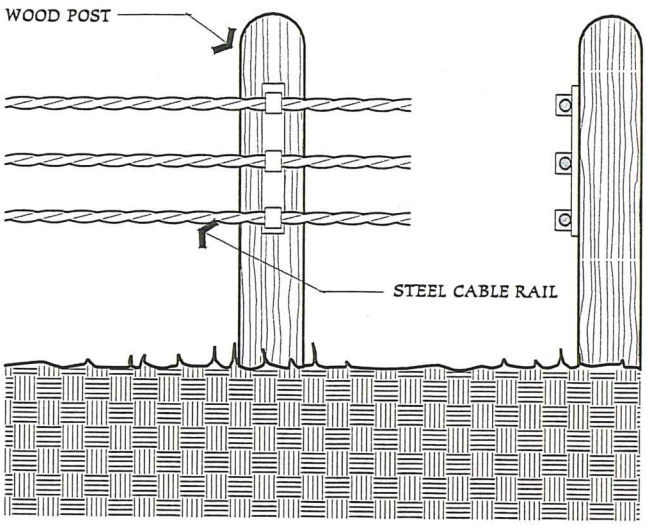
Vegetation design and management can be used to enhance the visual diversity along the roadsides. Vary the width of the recovery areas or edge lines of roadside vegetation. Allow guardrails to be open in design for viewing through (SEE FIGURE 2.15). Incorporate more natural materials such as wood or stone in guardrail construction (SEE FIGURE 2.16). Ditches do not have to be parallel to the pavement edge. Allow ditches to meander in wide shallow swales within the safety recovery area. Fences can also be sited in irregular lines. Additional recommendations are located in Section 4.5 of this report.

FIGURE 2.13 LIMIT BILLBOARD PLACEMENT

FIGURE 2.14 OPEN RIVER VIEWS



WEATHERING W BEAM GUARDRAIL



CABLE GUARDRAIL

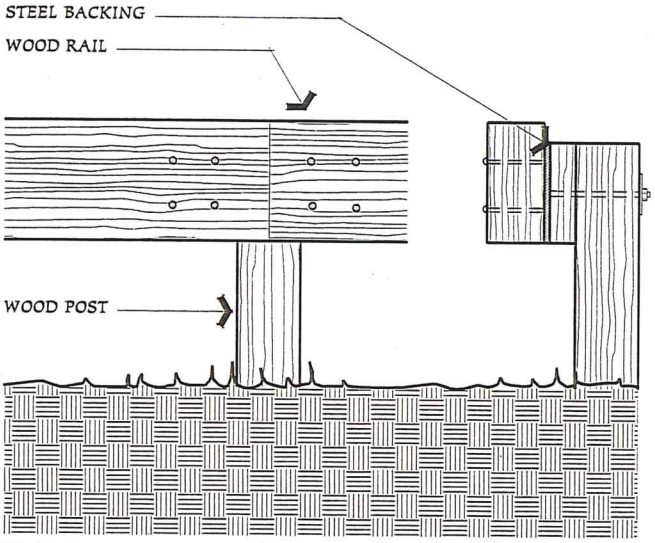
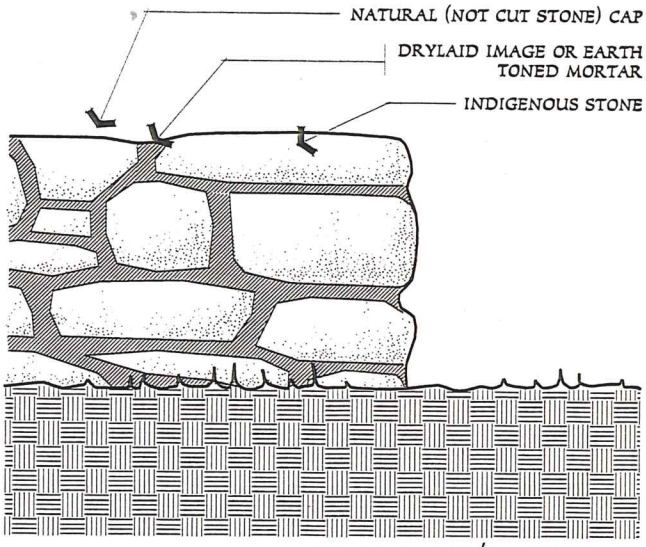


FIGURE 2.15 WOOD GUARDRAIL



STONE WALL/GUARDRAIL

FIGURE 2.16 HIGHLY VISIBLE GUARDRAIL

NATURALLY BLENDING GUARDRAIL

ROAD MODIFICATION 3.2

In considering redevelopment of the road, it is important to emphasize limiting the impacts of new construction. Realignment should occur only when absolutely necessary to achieve the desired character of the road or when safety conditions dictate. In such cases, reuse of the previous road area for overlooks, rest areas, etc., should be maximized, reducing the need to disturb new ground in other areas.

Road modifications should emphasize blending of the road into the landscape. This will limit the impact of the road on the natural character of the area, while providing opportunities for pleasant driving experiences. The road should disappear into the landscape rather than cutting through it. This is accomplished by design that follows natural contours whenever possible. Bisecting the landscape, or running across the topographic contours, should be avoided (FIGURE 3.4).

Existing vegetation and historic structures should also be considered in realignment design. Road location should minimize impact to existing amenities and maximize visual diversity (SEE SECTION 2.0).

Road alignment can greatly enhance visual interest by creating diversity in viewing opportunities. Alternating open areas with broad sweeping vistas and enclosed areas can create a rhythm in the driving experience that stimulates interest and intrigue. Curves should be allowed to gently glide along the most natural passage possible. Long tangents can be broken by groves of trees, or slopes (SEE FIGURE 3.5). This can help improve the driving experience by breaking long sight lines and providing interest. Providing a variety of views will make the landscape a more prominent feature, helping achieve the overall goal of the scenic highway design.

The road edge should be varied gracefully by using curvilinear patterns for mow edges where necessary. Vegetation community transitions should be gradual.

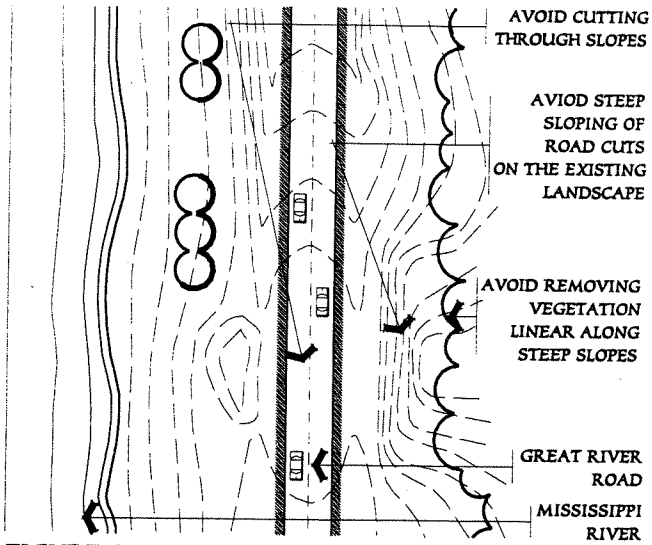


FIGURE 3.4 EXISTING CONDITION

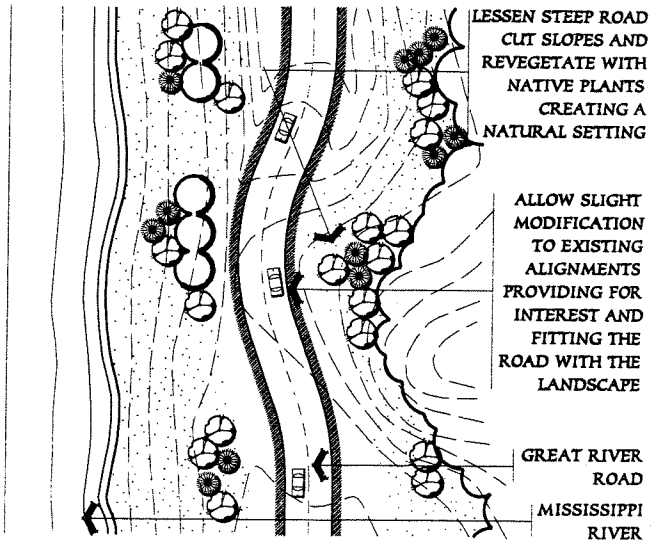


FIGURE 3.5 POTENTIAL CONDITION

ROUTE DESIGNATION 3.3

Some of the existing portions of the Wisconsin Great River Road are heavily used by commercial traffic creating a conflict with pleasure driving traffic. Some of the designated roadways may not be the best and most scenic routes available in the area (SEE FIGURE 3.6). Redesignation of portions of the scenic roadway, as well as developing alternate routes for non-local commercial traffic may be necessary to provide the unified experience desired (SEE FIGURE 3.7).

Determining the need for redesignation of the road should be made based on corridor inventory and analysis (SEE FIGURE 3.8). This should take into account qualities of the existing route as well as those of nearby potential routes.

Redesignate the Great River Road route to local roads nearer the Mississippi influenced landscape as appropriate. Car and truck traffic should be separated when feasible. Non-local truck traffic can be rerouted to highways that parallel the Great River Road, many which provide more efficient routes.

The design speed, proximity to river and views, and availability of land for road side sites are some of the criteria to consider in future route planning.

FIGURE 3.6 EXISTING CONDITION

FIGURE 3.7 POTENTIAL CONDITION

FIGURE 3.8 ROUTE PLACEMENT

REGIONAL CONTEXT 4.1

The north-south orientation of the Mississippi River corridor (SEE FIGURE 4.1) provided a southward retreat for species during glacial periods. As glaciers retreated and temperatures rose, the vegetation returned northward. However, pockets of northern vegetation remained behind in the southern zones in geologic enclaves. As a result the flora and fauna in the riverside communities are unusually rich. River and backwaters, wetlands and flood plain forests are crucial habitat for many fish and wildlife species including a number that are threatened or endangered. In addition southern floodplain species have been able to migrate north along river and stream corridors. Waterfowl and migrating birds use the river corridor as a travel corridor or flyway from the tropics to Canada. The Mississippi River Corridor is the major flyway for approximately 40% of north America's ducks, geese, swans and wading birds. More than 50 species of mammals, 45 reptile and amphibian species, and 37 mussels are found in the Mississippi River and adjacent lands.

In 1988 the National Park System established a 72 mile Mississippi National River and Recreation Area. In addition, more than 267,000 acres of national wildlife refuge lands are distributed along the upper river intermingled with over 60 state conservation areas. These areas provide opportunities for preservation of plant and animal communities, as well as for visitor education and recreation. The Great River Road is the regional human travel linkage of these areas, making continuity of flow from one area to the next an important design consideration.

FIGURE 4.1 MISSISSIPPI RIVER CORRIDOR

PLANT COMMUNITIES 4.2

The design theme for the Wisconsin Great River Road indicates the importance of the natural features of the region. Native vegetation plays a prominent role as one of these features. The natural plant communities found along the River corridor are diverse and rich. The colors, textures and patterns formed by these communities can form the basis for the design concepts used for roadway improvements (SEE FIGURE 4.2 NEXT PAGE). Design decisions regarding vegetation can draw from these plant community characteristics to help develop the aesthetic character of the corridor (SEE FIGURE 4.3). Vegetation along the river can be divided into two broad categories, open and closed. The closed communities are those that include densely clustered plants, limiting views through the groupings and creating a shaded environment. Open communities typically have limited shade. When they are present, trees in open communities are more widely spaced and are broader spreading. The open and closed communities naturally occur in a diverse matrix of relationships based on site conditions (SEE FIGURE 4.4). A brief description of each community type in the two groups is included in the following paragraphs.

The closed groups consist of forested areas and include upland dry forest, upland mesic forest, lowland forest, and floodplain forest (SEE FIGURE 4.5). The upland dry forests typically are oak forests and most often exist on south and west facing slopes. The upland mesic forests are typically composed of sugar maple and red oak and are found on north and east facing slopes, as well as moist rich soils of gentle sloping or level lands. The lowland forest is found slightly above the immediate flood plain. This area will flood intermittently. Silts (alluvial plains) often are left as floodwaters recede. The flood plain consists of the area which is adjacent to the river and

FIGURE 4.3 POTENTIAL CONDITION

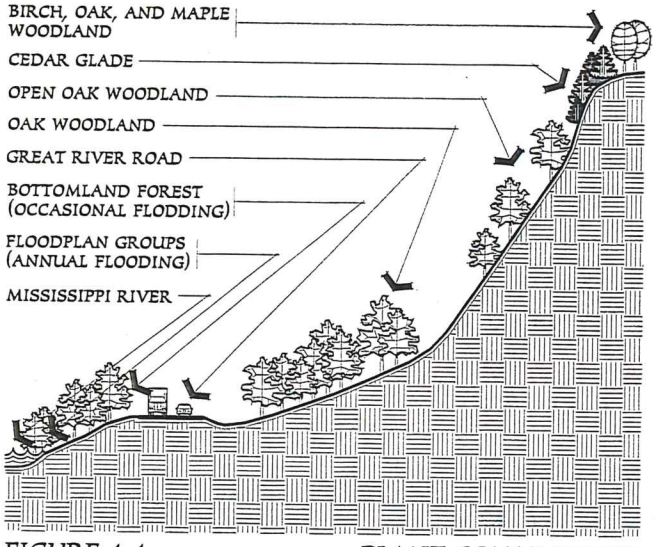


FIGURE 4.4 PLANT COMMUNITIES

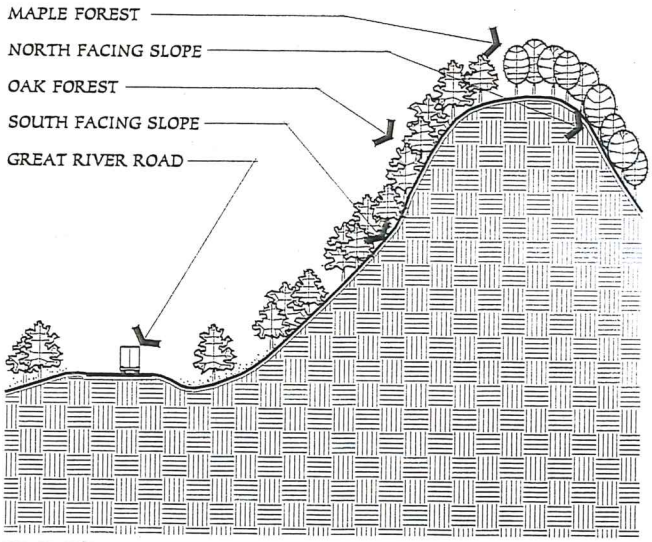


FIGURE 4.5 CLOSED VEGETATION COMMUNITIES

DRY PRAIRIE




MESIC PRAIRIE




UPLAND OPEN




UPLAND DRY FOREST




UPLAND MESIC




LOWLAND FOREST




FLOODPLAIN FOREST




FIGURE 4.2 EXAMPLE PLANT PHOTOS

backwaters that flood each year, often holding standing water for several weeks.

The open group consists of upland open, mesic prairie, dry prairie, sedge meadow and marsh (SEE FIGURE 4.6). The upland open group consists of savanna areas where trees create less than 50% of a canopy. Such areas can be oak savanna or cedar glades often bordered by oak forest. The mesic prairie is dominated by tall grasses and is typically found near the base of slopes and on gentle rolling and level land with deep rich soils. The upland prairie is often found on steep south and west facing slopes often with shallow bedrock. The sedge meadow and marsh are typically found along the river and backwaters where there is a very gradual slope into the water.

All communities in the prairie group are dominated by grasses, the mesic by tall 6' to 8', the dry by smaller grasses ranging from 8" to 36". These are highly diverse communities that require full sun. Without long term management, or periodically occurring natural fires, forest species will tend to creep into these remnants (SEE FIGURE 4.7), (SEE SECTION 4.4 FOR PLANT COMMON NAMES).

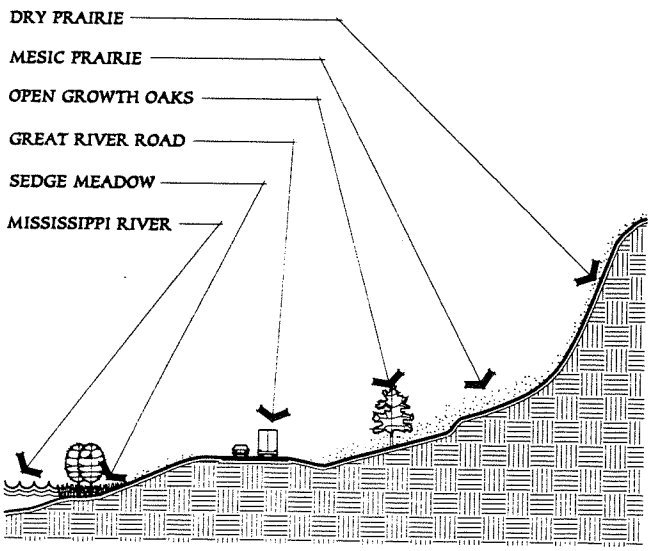


FIGURE 4.6 OPEN VEGETATION COMMUNITY

DRY PRAIRIE

- Amorpha canescens
- Asclepias tuberosa
- Aster ericoides
- Aster sericeus
- Bouteloua curtipendula
- Ceanothus americanus
- Coreopsis palmata
- Dalea purpurea
- Koeleria cristata
- Lespedeza capitata
- Schizachrium scoparium
- Sporobolus heterolepsis

MESIC PRAIRIE

- Andropogon gerardii
- Aster novae-angliae
- Baptisia leucantha
- Elymus canadensis
- Eryngium yuccifolium
- Liatris aspera
- Parthenium integrifolium
- Ratibida pinnata
- Silphium laciniatum
- Solidago rigida
- Sorghastrum nutans
- Veronicastrum virginicum

UPLAND OPEN

- Crataegus punctata
- Juniperus virginiana
- Malus ioensis
- Prunus americana
- Quercus macrocarpa
- Rhus glabra

UPLAND DRY FOREST

- Betula papyrifera
- Carya ovata
- Cornus alternifolia
- Cornus racemosa
- Corylus americana
- Juglans nigra
- Pinus strobus
- Prunus serotina
- Quercus alba
- Quercus muhlenbergii
- Rubus spp.
- Viburnum lentago

UPLAND MESIC

- Acer saccharum
- Amelanchier laevis
- Fraxinus americana
- Gymnocladus dioica
- Hammamelis virginiana
- Ostrya virginiana
- Quercus rubra
- Tilia americana

LOWLAND FOREST

- Acer saccharinum
- Betula nigra
- Celtis occidentalis
- Euonymus atropurpureus
- Fraxinus pennsylvanica
- Gleditsia triacanthos
- Populus detoides
- Quercus bicolor

FIGURE 4.7

Within urban settings plant selection may need to be modified to meet the human created soil conditions and microclimates (SEE FIGURE 4.8). The soil and microclimate of urban centers is unlike that of any natural systems. Attempts should be made to use species indigenous to the region, but not necessarily in community-type groupings.

Where the road passes through urban settings, revegetation and vegetation management should create a smooth transition between urban structures and the highway. Plants used should be consistent with those used in the adjacent areas when possible.

URBAN

- Amelanchier spp.
- Amorpha canescens
- Anemone cylindrica
- Aster laevis
- Aster sericeus
- Betula nigra
- Coreopsis palmata
- Cornus racemosa
- Corylus americana
- Fraxinus americana
- Gentiana andrewsii
- Geum triflorum
- Gleditsia triacanthos
- Helianthus occidentalis
- Liatris aspera
- Petalostemum purpureum
- Quercus rubra
- Salix amygdaloides
- Salix bebbiana
- Solidago speciosa
- Tilia americana
- Ulmus americana
- Viburnum lentago

FIGURE 4.8 URBAN PLANT TYPES

PLANTING DESIGN CONCEPTS 4.3

The natural compositions of the native plant communities provide a basis for the planting design and vegetation management concepts. Several approaches for planting design and management are recommended, including naturalistic landscaping, native plant community restoration and techniques for management of existing vegetation for specific goals. Their arrangement should be organized based on existing opportunities and constraints in specific areas.

Native plant community restoration refers to the establishment of community-like groupings of native plants on a site with environmental conditions expected to support them. "The essential quality of restoration is that it is an attempt to overcome artificially the factors that we consider will restrict ecosystem development" (Bradshaw, 1987, p.28). This type of planting design and vegetation management is a way for humans to help nature "do her thing". Simply letting nature take over in areas of past disturbance typically results in generation of a disturbed landscape that is greatly reduced in benefits offered and diversity. By stepping in to remove some of the disturbance introduced factors (i.e. invasive exotic plants) humans can greatly improve the chances for natural systems to regenerate.

Naturalistic landscaping consists of the use of plants to create the aesthetic character of the native landscape. The intent is to establish the essence of native plant communities with a simplified, or sometimes exaggerated, array of species. Natural landscaping differs from native plant community restoration for several reasons. In essence, a natural landscape tries to idealize the community, whereas a restoration tries to reproduced the structure and/or function of the community. In natural landscaping there is: emphasis on visual character (showy species, scents, texture, etc...); de-emphasis on non-showy or inconspicuous species; lower diversity (typically 10 to 15 species); and minimal emphasis on ecosystem functions (such as nitrogen fixation).

Vegetation management is the determination of strategies and the implementation of techniques that influence or direct change in the portion of the landscape dominated by plants. Management of existing vegetation can be used to provide a representation of the natural vegetation character within a region, screen the undesirable views and activities, create or enhance desirable views and create or preserve wildlife habitat. Vegetation analysis and planning should note those areas where planting does not need to be done but where vegetation management is needed and where restoration or preservation of existing communities is desired. This may include the addition of select species or management that enables a community to recover.

The three planting design concepts described share an emphasis on the use of native vegetation. The use of indigenous vegetation supports several objectives by: reducing maintenance costs and labor; reducing dependency on chemicals; increasing erosion control; enhancing the aesthetic experience of highway travelers; creating an image linked to the original regional landscape at the time of settlement; and increasing the stability and permanence of the roadside.

SPECIES SELECTION 4.4

Selection of native plant species should be based on the criteria described in the following paragraphs.

In rural areas select plants indigenous to the area and habitat of interest. Such criterion will ensure plants to be suited to localized soils and climate. Origins of seeds and plants should be within 100 miles of the planting site whenever possible. In many situations it may be desirable to collect seed for grassland and wetland species.

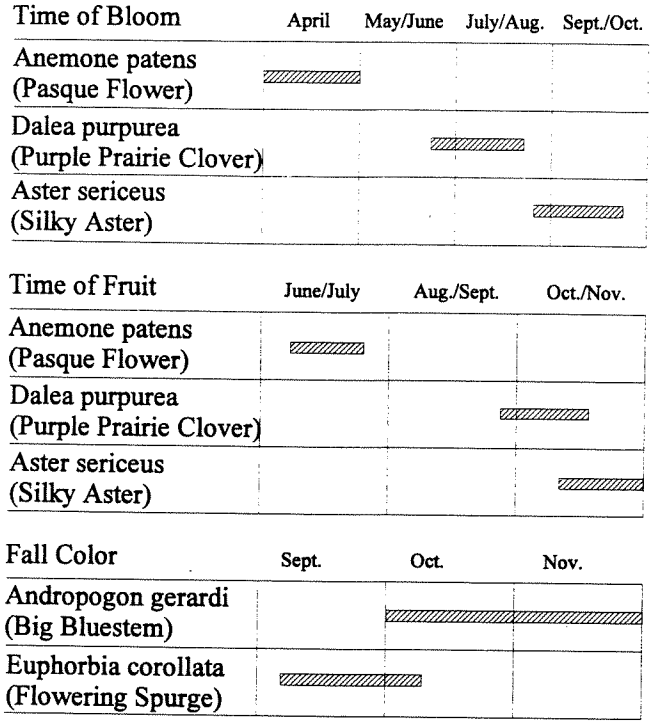
Planting lists should try to mimic the natural diversity found in a community and region (SEE FIGURE 4.9). Although reaching the maximum diversity is a challenge, attempts should be made to reach 40% of the diversity and to include all major species. Diversity is a key to a long-lived healthy plant community and reduced maintenance problems. Diverse plantings contain species that are adapted to a wide variety of conditions. During droughts some species may decline in population but other species will quickly spread to occupy the empty space. As rains return the former species may recolonize. Without diversity in the planting, bare ground is often exposed after a disturbance and less desirable invading species will move in and can slowly entrench themselves into the planting, often occupying vast amounts of the soil surface. Purple loosestrife and leafy spurge are excellent examples of undesirable species that invade into poorly maintained plantings.

Species composition for enhancement of aesthetic benefits requires careful consideration of the phenology (time of occurance) of individual plants. Bloom time and color, fall color, fruit time and other seasonal characteristics should be coordinated to ensure a continually interesting and varied visual appearance (SEE FIGURE 4.10).

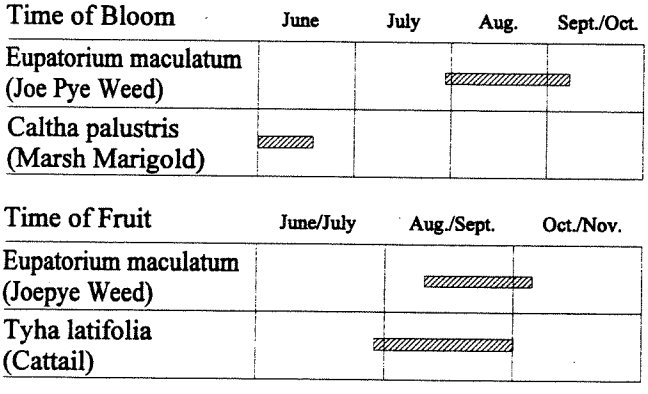
Scenitific Name	Common Name
PRAIRIE PLANTS	
• Andropogon gerardii	Big Bluestem
• Amorpha canescens	Leadplant
• Asclepias tuberosa	Butterfyweed
• Aster ericoides	Health Aster
• Aster novae-angliae	New England Aster
• Aster sericeus	Silky Aster
• Baptisia leucantha	White False Indigo
• Bouteloua curtipendula	Sideoats Grama
• Ceanothus americanus	New Jersey Tea
• Coreopsis palmata	Stiff Coreopsis
• Elymus canadensis	Canada Wild Rye
• Eryngium yuccifolium	Rattlesnake Master
• Gentiana andrewsii	Bottle Gentian
• Koeleria cristata	Junegrass
• Lespedeza capitata	Roundheaded Bushclover
• Liatris aspera	Rough Blazingstar
• Parthenium integrifolium	Wild Quinine
• Ratibida pinnata	Yellow Coneflower
• Schizachrium scoparium	
• Silphium laciniatum	Compassplant
• Solidago rigida	Stiff Goldenrod
• Sorghastrum nutans	Indaingrass
• Sporobolus heterolepsis	Prairie Dropseed
• Veronicastrum virginicum	Culver's Root
DECIDUOUS TREES	
• Acer saccharinum	Silver Maple
• Acer saccharum	Sugar Maple
• Betula papyrifera	Paperbark Birch
• Betula nigra	River Birch
• Carya ovata	Shagbark Hickory
• Celtis occidentalis	Common Hackberry
• Fraxinus americana	White Ash
• Fraxinus pennsylvanica	Green Ash
• Gleditsia triacanthos	Honeylocust
• Gymnocladus dioicus	Kentucky Coffeetree
• Juglans nigra	Black Walnut
• Ostrya virginiana	American Hophornbeam (Ironwood)
• Populus detoides	Eastern Poplar
• Quercus alba	White Oak
• Quercus bicolor	Swamp White Oak
• Quercus macrocarpa	Bur Oak
• Quercus muhlenbergii	Chinkapin Oak
• Quercus rubra	Red Oak
• Salix spp.	Willow
• Tilia americana	American Linden
• Ulmus Americana	American Elm
ORNIMENTAL TREES	
• Amelanchier laevis	Serviceberry
• Cornus alternifolia	Pagoda Dogwood
• Corylus americana	American Filbert
• Crataegus punctata	Thicket Hawthorn
• Malus ioensis	Prairie Crabapple
• Prunus americana	American Plum
• Prunus serotina	Black Cherry
EVERGREEN TREES	
• Juniperus virginiana	Eastern Redcedar
• Pinus strobus	White Pine
SHRUBS	
• Cornus racemosa	Gray Dogwood
• Euonymus atropurpureus	Eastern Wahoo
• Hammamelis virginiana	Common Witchhazel
• Rhus glabra	Smooth Sumac
• Rubus spp.	Rasberry
• Viburnum lentago	Nannyberry Viburnum

FIGURE 4.9 EXAMPLE PLANT LIST

PRAIRIE PHENOLOGY



WETLAND PHENOLOGY



FOREST PHENOLOGY

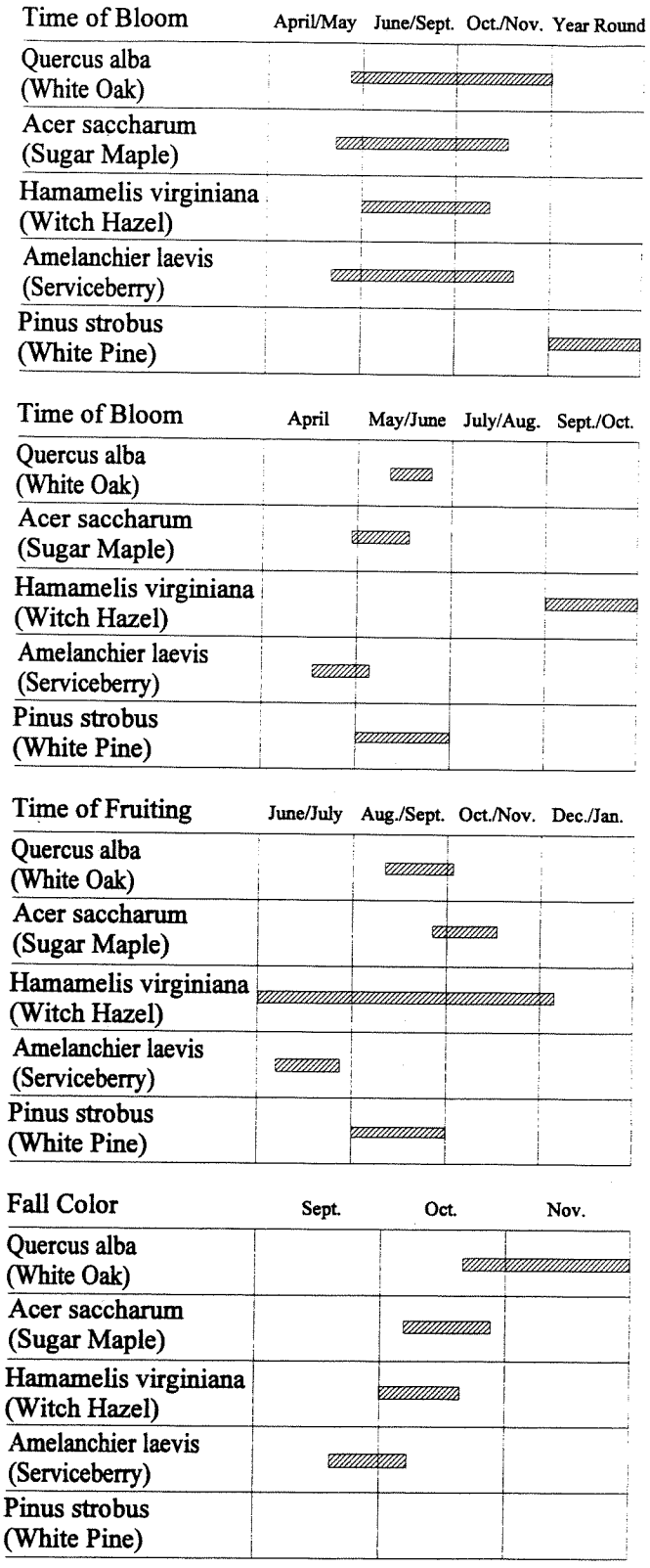


FIGURE 4.10

PHENOLOGY CHART

Include key species of a community whenever possible. Key species are those that have direct biological influences on a community as well as those which have a strong physical presence. For example white oak tends to be a key species in the dry woods found on many west facing slopes along the Mississippi River bluffs. This species dominates the tree canopy in numbers and size and has great impact on the ability of other species to find their niche due to its shading of sun, acidity and chemical content of its leaf litter, attraction of wildlife species.

Species with tendencies to spread rapidly and migrate out of the planting area are to be avoided where such behavior is not desired. Urban conditions require species selection to be hardy and tolerant of limiting factors such as confining space and weather (i.e., road salting), (SEE FIGURE 4.11). Species selection should emphasize plants that provide wildlife habitat for nesting, food and cover (SEE FIGURE 4.12). Selection of species should also involve consideration of functional benefits such as erosion control, snow catches and filtering of sediments and pollutants (SEE FIGURE 4.13).

FIGURE 4.11 URBAN CONDITION

FIGURE 4.12 WILDLIFE ENHANCEMENT

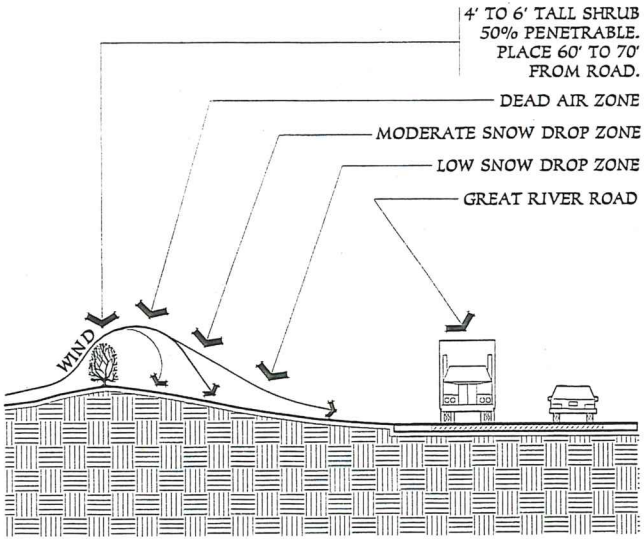


FIGURE 4.13 SNOW CATCHING

RECOMMENDED PRACTICES 4.5

Vegetation management and design priorities should respond to and balance several objectives. Mimicking the natural distribution of plants within a community setting is one, while others focus on functional aspects of the planting design. Screening of undesirable views and activities play an important role. Safety standards of the road such as clear zones are also important considerations. The following paragraphs include recommended practices for vegetation enhancement.

The placement of vegetation planted into the right-of-way often attempts to extend the character of the adjacent vegetation into the right-of-way. For example, where the right-of-way abuts pasture, prairie can be planted. Where the right-of-way abuts red pine plantations, (SEE FIGURE 4.14) additional pines, birch, and maples should be planted and feathered to soften the abrupt edge (SEE FIGURE 4.15). For a natural appearance avoid regularly spaced plantings. Plant with non-uniform spacing and in groups of widely ranging sizes.

Vegetation naturally spreading downhill should be allowed to continue and not be cut back. Plant flowering indigenous trees if none exist. Along the edges of wooded sections, serviceberry (Amelanchier laevis) and cherry (Prunus spp.) might be planted to brighten the woods in the spring. In draws the wild plum (Prunus americana), prairie crabapple, and hawthorn (Crataegus spp.) can be planted (SEE FIGURE 4.16).

In response to views from the road, revegetation of the right-of-way can be used to frame and define desirable views (SEE SECTION 2.0) Design speed, angle of vision, distance to foreground detail, and focusing distance should all be considered when determining view management practices.

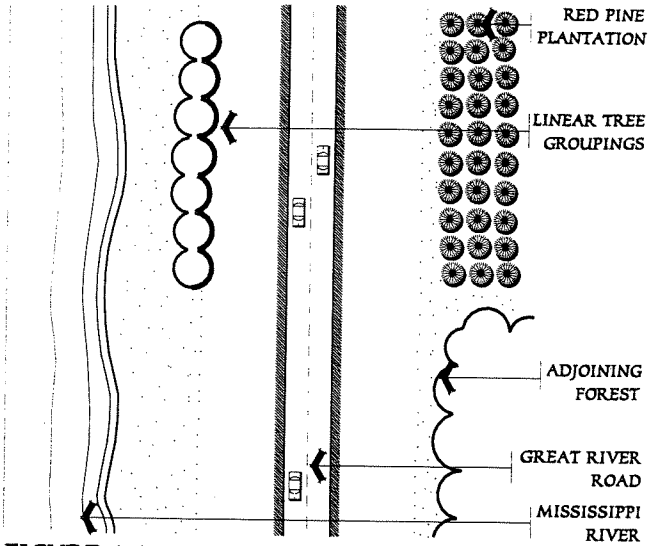


FIGURE 4.14 EXISTING CONDITION

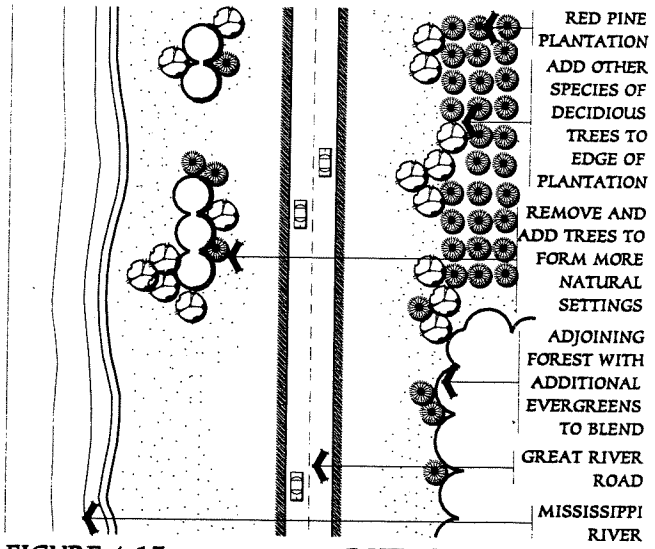


FIGURE 4.15 POTENTIAL CONDITION

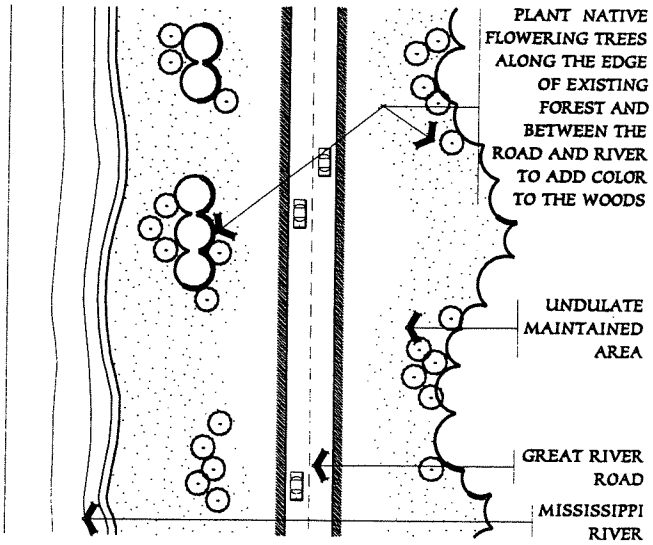


FIGURE 4.16 POTENTIAL CONDITION

Undulate edges of right-of-way to provide natural flow for vegetation. Feather forest edges. Do not mow or cut in straight lines (SEE FIGURE 4.17). Undulated edges create the perception of an area that is larger than its actual size due to the difficulty in seeing and organizing the area from one view point (SEE FIGURE 4.18).

If a fleeting view is desired a minimum length of .5 seconds at the highway design speed is required. Fleeting views, particularly when sequenced with interesting features can stimulate the driver's interest and awareness of their surroundings.

Panoramic views require a minimum of 5 seconds at design speed. Selective clearing, and/or limbing of large trees can be used to maintain the desired view. Small clumps of trees and shrubs can be retained or planted to add interest and frame the view in the foreground. This is especially useful where the cleared length results in a view of greater than 10 seconds.

Break up long tangents with groves of trees, enhancing views by framing and defining vistas from the road.

Screen unsightly land uses such as quarries, by providing a planted buffer. Where the opportunity to screen an unsightly view does not exist, consider providing an attractive feature to divert attention. This can be done by opening attractive views in the opposite direction. Provide exceptional plant displays with distinctive grasses, wildflowers, and flowering shrubs inside the right of way (SEE FIGURE 4.19).

Vegetation management should enhance attractive views and screen negative views toward the road. The visual and audible impact of the roadway on adjacent land use is an important consideration with plant placement.

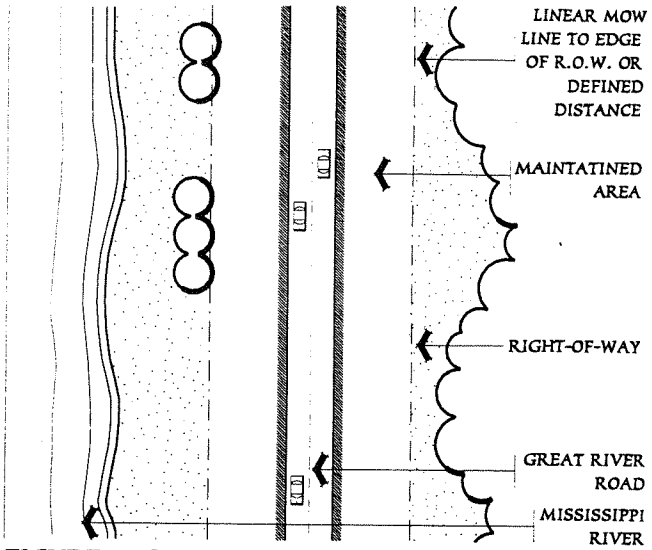


FIGURE 4.17 EXISTING CONDITION

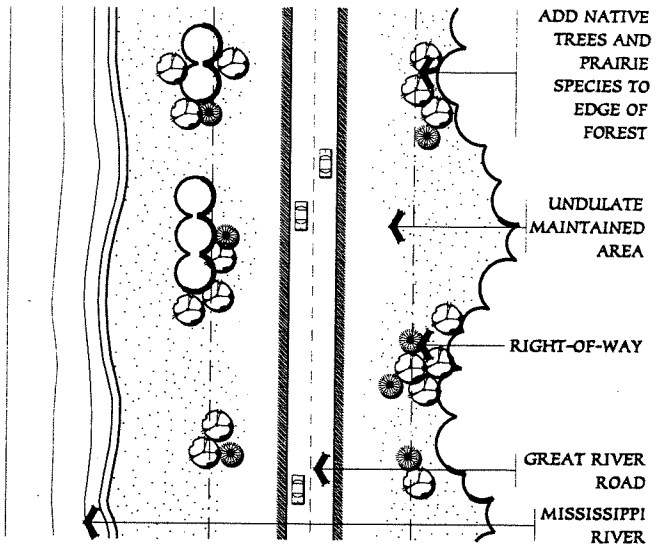


FIGURE 4.18 POTENTIAL CONDITION

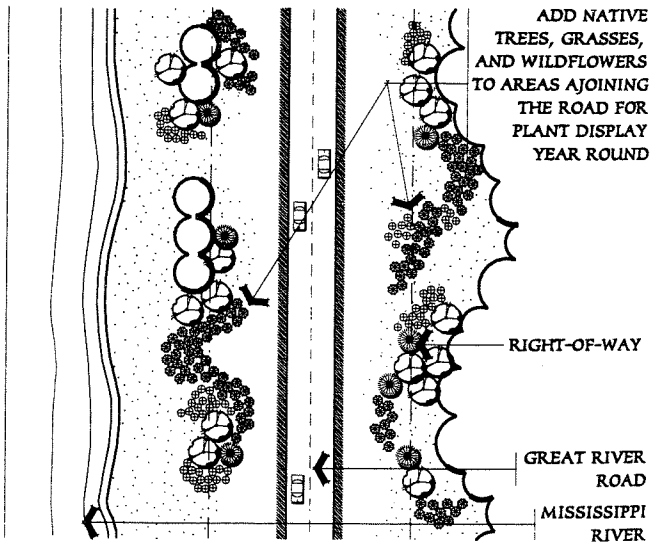


FIGURE 4.19 POTENTIAL CONDITION

Where the road is to be viewed from recreational areas vegetation management should emphasize screening of the view toward the highway. Where the highway passes near the riverbank, ensure that revegetation or vegetation management is undertaken to preserve the visual integrity of the shoreline.

Successful treatment of the roadside border begins with the acquisition of sufficient right of way. It is desirable to maintain natural vegetation as close to the road as safety permits. Limit management of woody vegetation and grasslands to that with a strong and agreed upon purpose. Such purposes should be in the plan and recognized by all parties involved.

When natural vegetation is present, take measures to ensure proper treatment. Identify areas of high quality natural vegetation and limit disturbance of these areas. Soften harsh edges by undulating with new plantings which extend the natural character of native plant communities. Avoid straight lines within the planting pattern and at the planting edge. (*SEE FIGURE 4.20*)

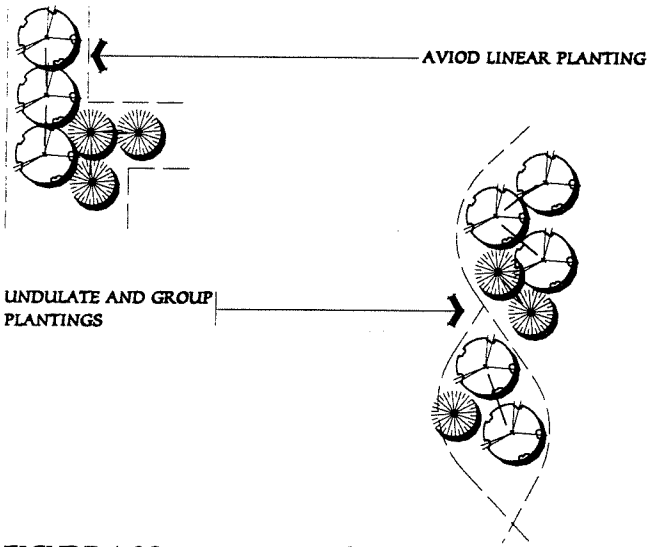


FIGURE 4.20 POTENTIAL CONDITION

Screening or softening of erratic or confusing views can increase driver comfort and safety. Screens can isolate drivers from parallel frontage roads, reinforce the line of the road, minimize the prominence of utility corridors, mitigate the effect of highway structure and unsightly land uses.

Shrub plantings in groups less than 3 meters in width can seldom be effectively used for screening purposes but do provide variation in the degree one is exposed to adjacent land uses. Groups of trees require even greater depths to adequately screen unsightly views, however, few trees may be required to enhance desirable scenes. For screening purposes, the combination of trees and shrubs can produce highly effective and scenic screens.

Where local roads, adjacent to the highway, occur on flat land, glare from headlights becomes a problem. Glare control can be served by combinations of evergreens or deciduous shrubs if densely stemmed species are selected.

Where flat lands occur on the west shoulder or in wide open medians snow drifting onto lanes is often a problem. Traditionally in many Wisconsin road's rights-of-way the use snow fencing or rows of red pine help to create wind and snow breaks and provides glare screens. The snow fencing has questionable aesthetic appeal and is labor intensive. The use of pines for windbreaks and glare control appear unnatural and have the potential for creating long linear tunnels as they mature. The pines as they increase in size may increase the problems of snow drifting, since the leeward location at which snow is deposited relates to the height of the windbreak. They are also not suited to narrow rights-of-way. An alternative solution for snow control is the use of deciduous shrubs with a limited mature height, and wide corridors of unmown prairie. Although not previously attempted in Wisconsin, farmers in western states have often used tall grasses to trap snow for moisture supply.

To minimize the occurrence of sun glare, feather vegetation edges to reduce abrupt transitions from full shade to full sun. Bring larger wide branching trees close to roadway edge to block the sun at low angles.

Develop platforms or overlooks that take advantage of wildlife gathering areas along the river (SEE SECTION 5.0). Wait to mow at least 1/3 of the vegetation until after July 15 for the protection of nesting birds. For wildlife habitat, food and cover, mowing and other maintenance practice should never occur throughout the right-of-way at one time. Divide the right-of-way into small vegetation units, with many units being duplicated. Maintain no more than 1/3 at any one point in time. This will provide standing cover in the spring, summer and winter as well as food sources and nesting sites (SEE FIGURE 4.21).

Reasons for removal of trees include development of scenic views, diseased control, and damaged vegetation that causes hazardous conditions for the road or trails. Dying trees should not be removed except when hazardous or if they may serve as the disease source. Dead trees serve a highly significant purpose in providing nesting and food sources for wildlife.

Manage vegetation in a way that mimics natural controls. Fire plays a significant role in vegetation management. Although its use does require training and contracting with experienced fire leaders, its benefits in establishing and maintaining grassland vegetation is excellent. Mowing mimics fires in some respects but does not recirculate nutrients as rapidly, remove litter or duff and create a blackened soil surface that warms the soil in early spring. All mowing in grassland areas needs to be followed by raking of the thatch. Thatch can prevent needed light from reaching plants and can bind up nutrients.

Girdling of trees, although time consuming, is an excellent woody plant control reducing the need to use herbicides to control sprouting. Girdling the removal of bark to the cambium in 8" bands around the trunk disrupts the ability of the canopy to feed the roots.

Recommend mowing no more than 10' off the shoulder except when undesired shrubs are creating problems for planting goals or creating safety hazards.

Reduced mowing will let existing shrubs move into right-of-way. In many cases this is desirable. Such plants show adaptation to habitat and often greater survivability to plants of the same species installed as part of a separate or additional planting. Shrubs should be removed, however, when not meeting the desired characteristics or, if in a natural community model, not a part of the species list.

Create sequences of sun and light by varying the width of openings. Views can be framed through selective clearing or limbing. When doing this, minimize the effect of timber cuts by cutting stumps so that they are angled away from the road. Do not cut except when ground is frozen and leaf-off conditions are present. Cut vegetation where prevailing winds will not induce wind throw or create wind channels.

FOOD SOURCES

- Corylus americana
- Cornus racemosa
- Amelanchier spp.
- Viburnum lentago

NESTING SOURCES

- Crataegus spp.
- Malus ioensis
- Prunus americana
- Viburnum spp.

FIGURE 4.21 PLANTS BENEFICAL TO WILDLIFE

FACILITY DEVELOPMENT CONCEPTS 5.1

Creating a rhythm of road side facilities along the Great River Road is important for the recreational function and experience of the corridor. A rhythm establishes periodic stopping points during travel and allows time for scenic enjoyment. A strong program of facilities development builds a support system for the user/tourist. These facilities supporting the experience will attract new users and promote return visits.

Rest stops, regardless of size or function, should provide information about aspects of the corridor. A developed interpretive system for the Great River Road, will encourage the user to experience a slower, more enjoyable traverse of the road. Areas of tourist interest along the corridor should be identified by signs and markers. The signs and markers should depict the site's historic, cultural, and environmental significance to the region (SEE SECTION 7.0). Informational signs and markers can be a source of interpretation within a facility development.

The protection and enhancement of natural habitats are aspects of great importance in the interpretation of the corridor. This can include, the restoration of native plant communities and wildlife habitats, and provides an interpretive opportunity to incorporate in facility development (SEE FIGURE 5.1). The addition of trail systems (SEE SECTION 6.0) through natural habitats ought to be a part of a facility development. The trails provide living information and experiences for the user.

Building design for roadside facilities depends upon the site location. Blending structures into the landscape limits views of built elements from the river (SEE FIGURE 5.2). Limiting structures from views of ridge lines and open vistas will maintain the natural setting of the Mississippi River Valley. The rhythm and placement of facilities should focus on potential user need ands enjoyment of the corridor.

Building materials for facility development should be within the theme of the natural environment. The stone, brick, and wood of the existing vernacular buildings comprise a portion of the color palette (SEE FIGURE 5.3). These buildings of the region are made of brick and stone and are reddish to orange brown in color. The use of the brown colors and natural materials will promote compatibility with the existing built environment. The second half of the color palette is made up of green and blue tones of the natural landscape. The greens of vegetation and the blues of the river and sky provide a range of

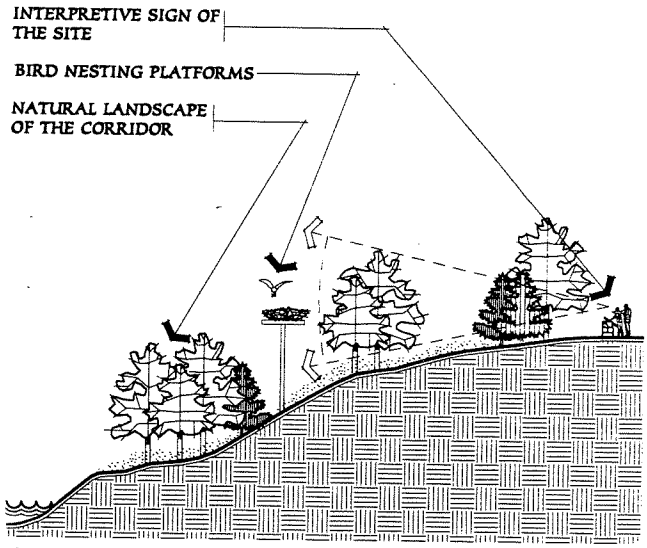


FIGURE 5.1 INTERPRETIVE NESTING PLATFORM

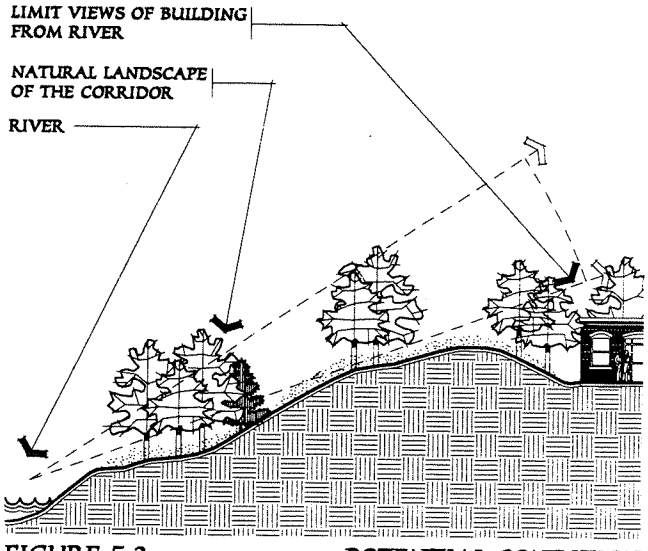
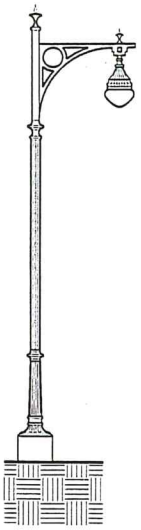


FIGURE 5.2 POTENTIAL CONDITION

highlighting color to be used on structures. The proper uses of the color palette will harmonize the built elements with the surrounding environment throughout the year, and over the long-term life of the facility.

Existing structures of the region provide a base for facade design and textures prevalent in the Mississippi River Valley. Borrowing design form from existing elements of the corridor can provide a design continuity with the communities of the region. Elements of existing buildings may also influence amenity design such as light fixtures (SEE FIGURE 5.4). Building detailing explore and select from a collage of existing window types, doorways, and building facades to create a strong compatible design (SEE FIGURE 5.5). Color, texture, and building elements borrowed from the context strengthens the timeless, natural theme.

General criteria for corridor development of facilities for the Great River Road are discussed in this section. Specific spacing, location, and hierarchy of sites along the corridor will be addressed in phase 2 of the planning for the Great River Road.



HISTORIC STRUCTURAL REPLICATION

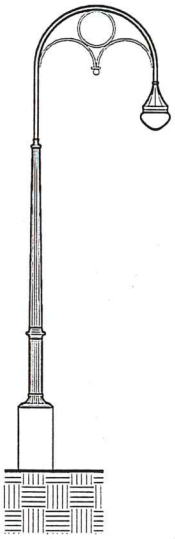


FIGURE 5.4

HISTORIC WINDOW REPLICATION

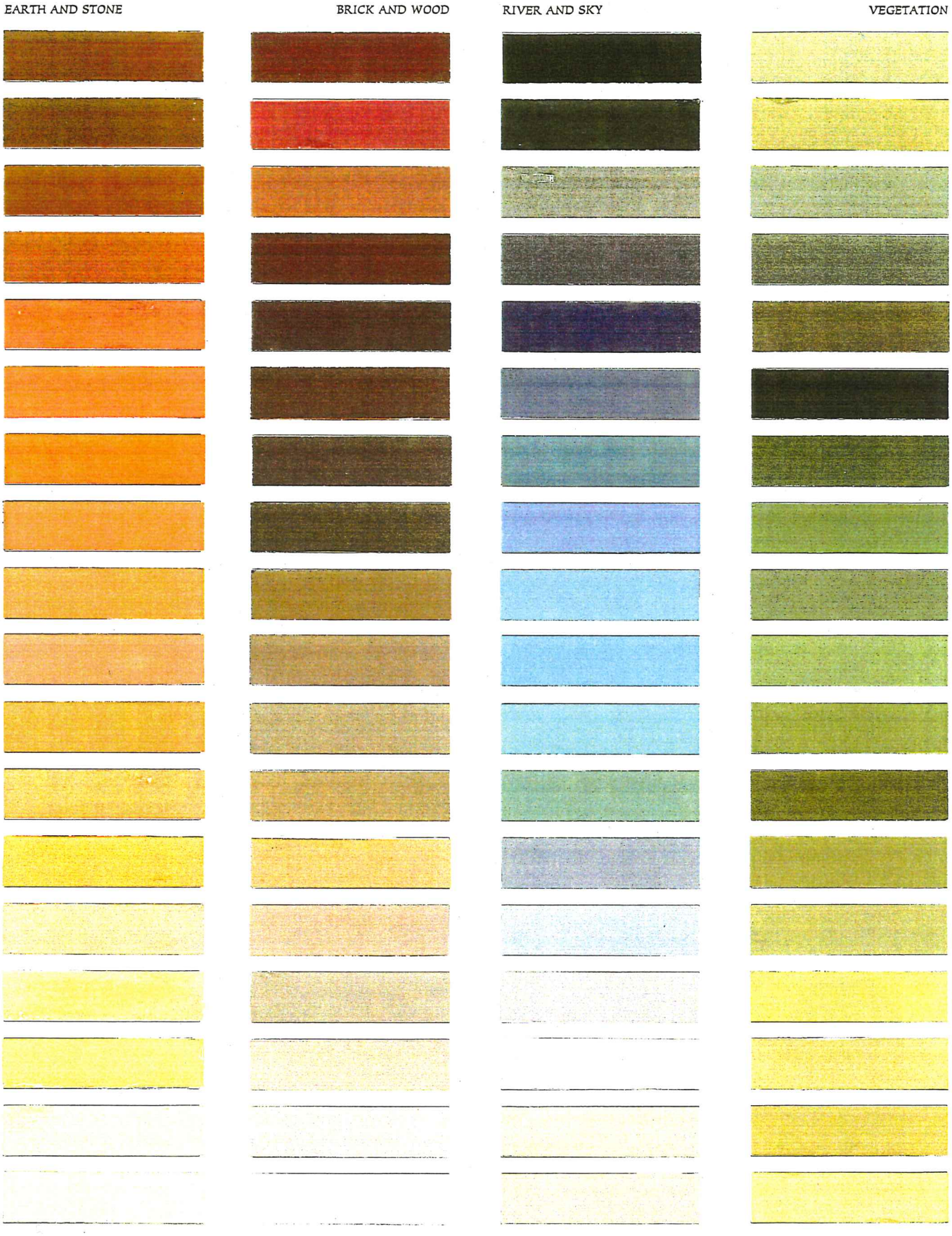


FIGURE 5.3

EXISING WINDOWS OF THE REGION

EXISTING DOORS OF THE REGION

FIGURE 5.5

EXISTING WINDOW AND DOOR COLLAGE

INTERPRETIVE CENTERS 5.2

Interpretation centers provide a resource that informs and enlightens people about the history, culture, and environment of a region. The portions of the Great River Road at state line crossings are areas of the corridor where interpretation centers may be valued. The theme of the Wisconsin corridor can be established at the entrance into the State. The information on display in the buildings along with maps and brochures provided at these interpretive centers allow the user to be a part of the full experience of the region.

The roles of interpretation centers require interpretation centers to be large full service facilities. The size and the requirements are similar to the criteria of Safety Rest Areas (SEE FIGURE 5.6).

The interpretation center sites are large areas to be used for a longer time than rest areas. Expected pedestrian use dictates that vehicular area and walkways be adequate to handle large volumes. The Great River Road is primarily a two-lane highway. The southern end of the route is combined with State Highway 151 to form a four-lane road which can be beneficial in choosing new interpretation center sites.

The Great River Road corridor is the living museum and recreational resource that is described within the interpretive center. The primary goal is to establish a base of information for use of the corridor. The building offers shelter from inclement weather and provides an array of colorful displays for tourist enjoyment (SEE FIGURE 5.7).

The site location for an interpretive center should allow for views from the building or grounds to the Mississippi River. This should be a heavily weighed criterion for interpretive center site selection. The views to the Mississippi River are beneficial,

INTERPRETIVE CENTERS (SAFETY REST AREAS)

CHARACTERISTICS

- Site of 20 acres or more in size
- Heated rest rooms and lobby
- Modern plumbing
- Open 24 hours per day, year round
- Public Telephone
- Picnic areas
- Posted travel information
- No overnight camping
- Dual toilet rooms for each sex
- Signed rest area

CRITERIA

- Design Section Length Determinants
  - State Line
  - Existing site
  - Urban areas
- Spacing
  - AASHTO - 1 hour driving time (40 to 70 miles)
  - FHWA - closer spacing to control size
  - TRB - 1 hour after decision to stop
  - 45 mile national average
  - Factors used in spacing determination
    - ADT - or mainline
    - Percent stopping
    - Percent trucks
    - Availability of suitable site
- Sizing
  - FHWA sizing factors
    - ADT and percent stopping
    - Rest rooms users per vehicle
    - Design hour / day usage
    - Peak factor
    - Cycle time for rest rooms
    - Cycle time for vehicles
    - Percentage cars / trucks
- Development Considerations
  - ADA requirements
  - Vandalism
  - Public health
  - Security
  - Motorist safety

FIGURE 5.6 INTERPRETIVE CENTER CRITERIA

whereas views from the river of the building and facility development are a sensitive issue in the protection of the corridor. Building sites that offer views to the river must also maintain a low profile.

The ease of vehicular and pedestrian movement throughout the site contributes to the functions and operations of the center, and will encourage return visits. Walkways and parking areas should serve the building directly. Proper site planning promotes the ease of pedestrian movement through the facility as with Safety Rest Areas (SEE FIGURE 5.8). The Americans with Disabilities Act should be given strong consideration in the design and accessibility of the facility.

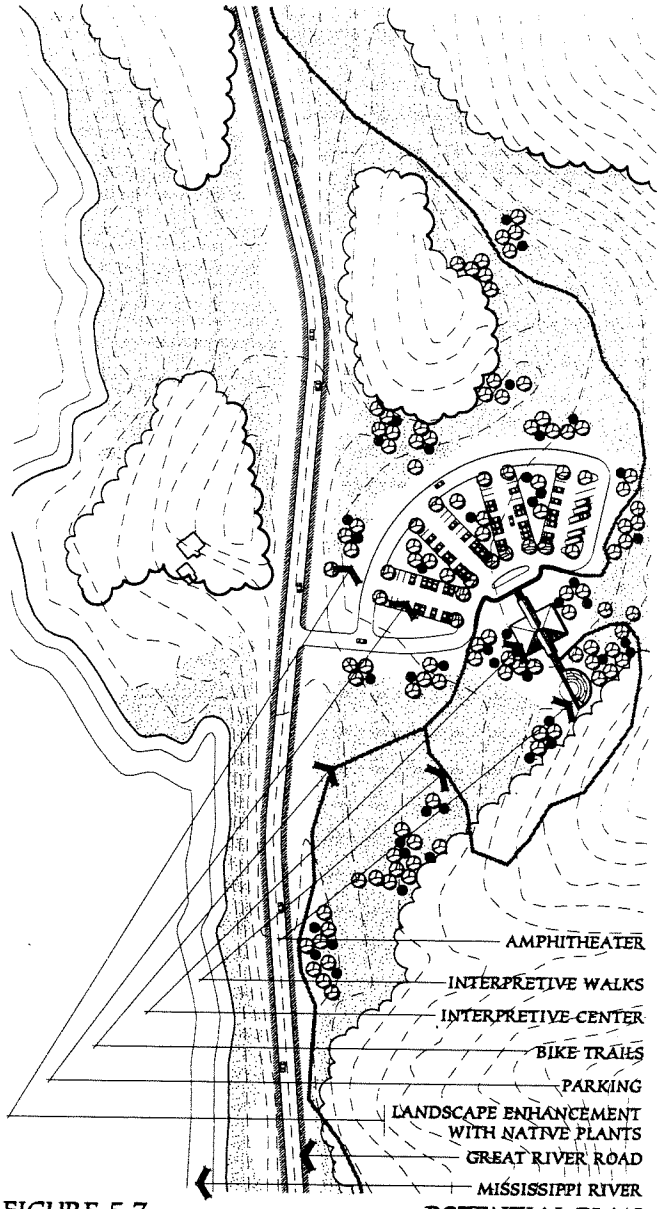


FIGURE 5.7 POTENTIAL PLAN

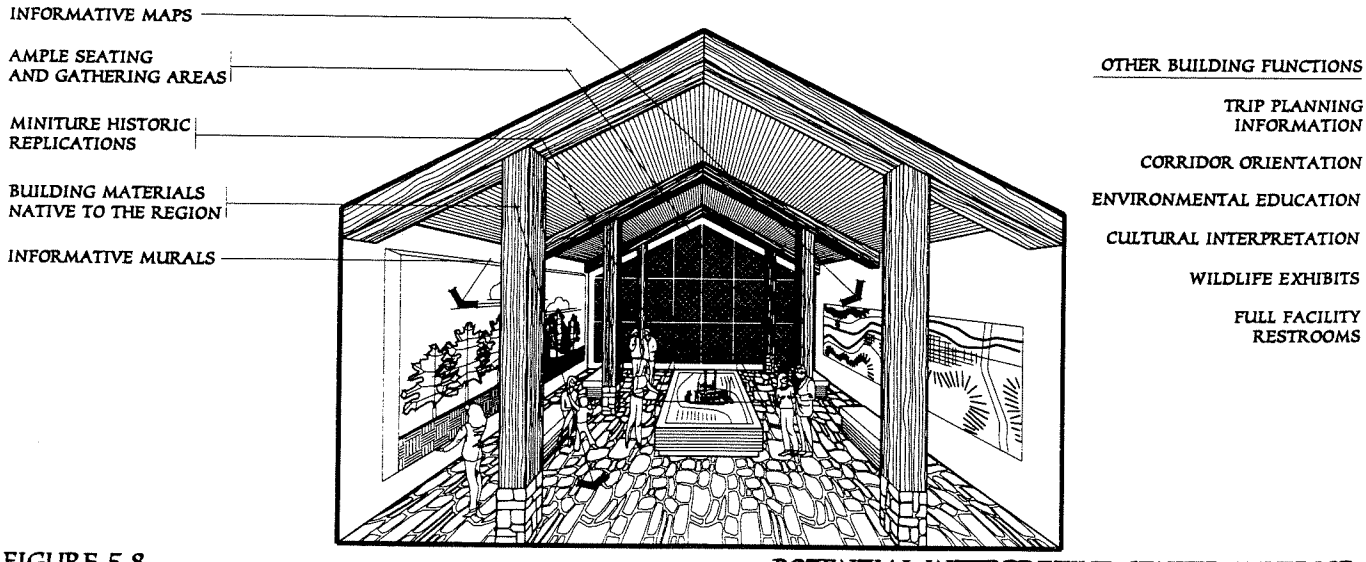


FIGURE 5.8 POTENTIAL INTERPRETIVE CENTER INTERIOR

MODERN WAYSIDES 5.3

Modern waysides are similar to interpretive center sites in that they provide a high level of service to the user. The existing waysides of the corridor are rustic and inadequate in providing year-round service for tourist. Many of these waysides need to be updated to modern facilities.(SEE SECTION 5.4).

The criteria for modern waysides consist of full service facilities that are usable all day and year-round (SEE FIGURE 5.9). The modern wayside provides an atmosphere conducive with comfort levels needed to promote tourism. All new waysides, and when possible older waysides, should incorporate and improve overlooks and views of the Mississippi River Valley.

The design of a modern wayside consists of vehicular use areas with enough space for R.V.'s and buses. The nature of the corridor limits sites to long narrow parcels that may be challenging to develop or redesign for new modern waysides (SEE FIGURE 5.10). Modern waysides located in the corridor will be unique compared with other sites throughout Wisconsin. Recognizing the linear form of the land next to the Great River Road and the Mississippi River is important in maintaining the natural landscape character of the region. By blending wayside sites into the overall landscape the corridor can retain a more natural aesthetic.

Modern wayside development acts as a base for alternate transportation routes. Modern waysides provide nodes that may be linked with smaller pedestrian or bicycle paths to form a continuous trail system in the corridor for alternate transportation. The modern waysides offer resting points and a warming or sheltering opportunity for users during all seasons.

MODERN WAYSIDES

CHARACTERISTICS

- Entrance and exit design to standards of highway service
- Site of about 10 to 20 acres in size
- Heated rest rooms and lobby
- Modern plumbing
- Open 24 hours per day, year round
- Public Telephone
- Picnic areas
- Posted travel information
- No overnight camping
- Signed wayside

CRITERIA

- Design Section Length Determinants
  - State Line
  - Existing site
  - Urban areas
- Spacing
  - AASHTO - 1 hour driving time (40 to 70 miles)
  - FHWA - closer spacing to control size
  - TRB - 1 hour after decision to stop
  - 45 mile national average
  - Factors used in spacing determination
    - ADT - or mainline
    - Percent stopping
    - Percent trucks
    - Availability of suitable site access to user
- Sizing
  - FHWA sizing factors
    - ADT and percent stopping
    - Rest rooms users per vehicle
    - Design hour / day usage
    - Peak factor
    - Cycle time for rest rooms
    - Cycle time for vehicles
    - Percentage cars / trucks
- Development Considerations
  - ADA requirements
  - Vandalism
  - Public health
  - Security
  - Motorist safety

FIGURE 5.9 MODERN WAYSIDE CRITERIA

Environmental awareness is an element important to establishing the natural setting theme. Modern waysides may provide areas for interpretation (SEE FIGURE 5.11). Areas of natural habitats can be displayed to facility users within the site boundaries of the wayside. The design of the grounds of the facility can also feature the vegetation native to the corridor. The recognition of historic and cultural events or places informs tourist of the evolution of the region.

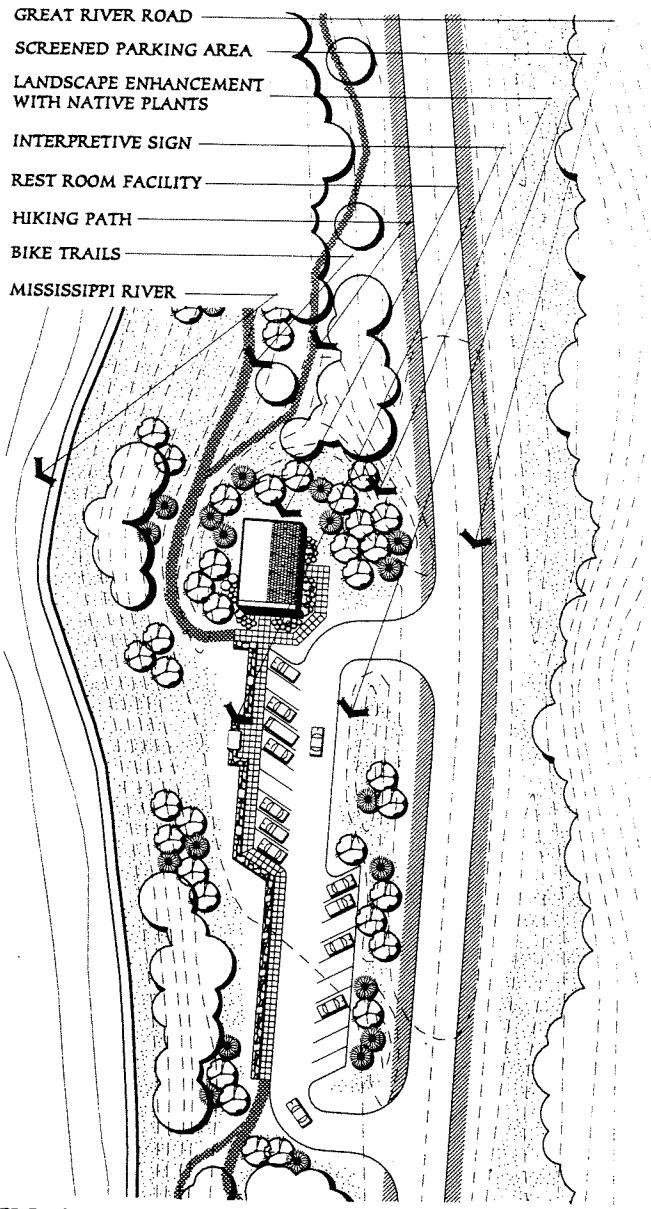


FIGURE 5.10 POTENTIAL PLAN

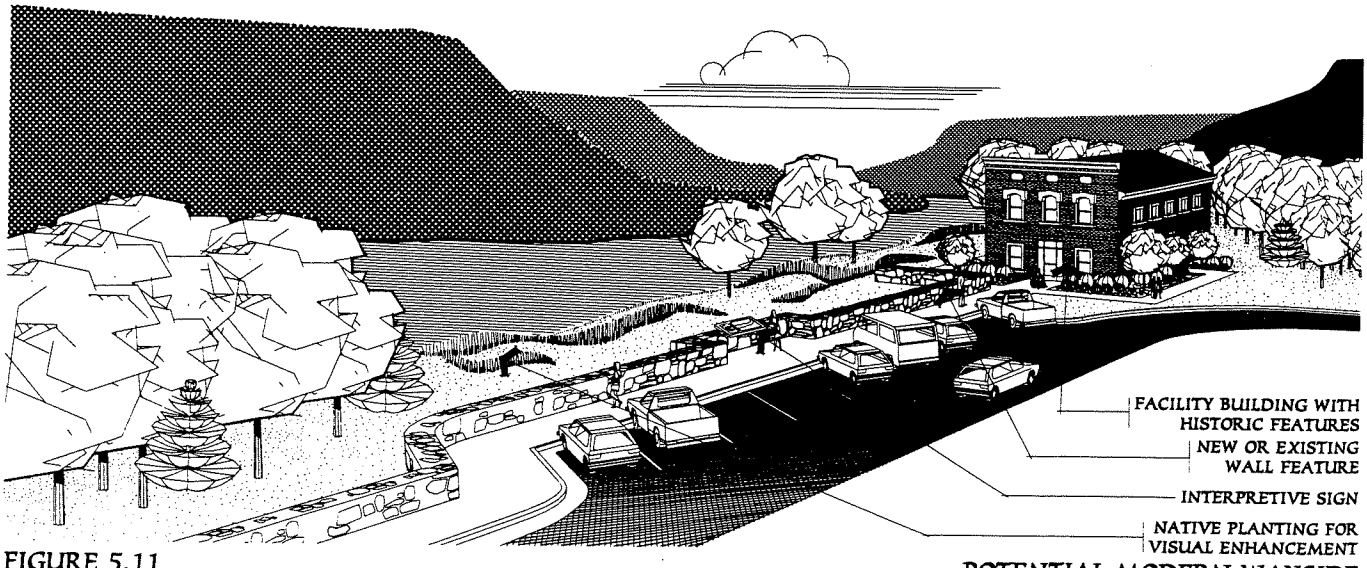


FIGURE 5.11 POTENTIAL MODERN WAYSIDE

OVERLOOKS 5.4

Overlooks are periodic stopping points along a route that allow the user to rest and enjoy a scenic view. With the proposed improvement of some current rustic rest areas to modern waysides, there is a need for rustic sites. These sites should be changed into overlooks to utilize valuable views at the individual location, and to provide periodic resting points.

In addition, new overlooks should be placed along the Great River Road opening up new opportunities for viewing historic, cultural, and environmental elements of the corridor. These overlooks should provide areas at a pedestrian scale (SEE FIGURE 5.12). Interpretive walks and signs should be placed throughout the site describing the region and/ or views.

Overlook sites should provide outdoor areas. With the development of picnic areas, trails, and other outdoor facilities, these sites will provide opportunities to interact with nature.

Overlook sites should allow for R.V.'s and buses to park for viewing opportunities and picnicking. Overlook sites are likely to be narrow and limited due to the linear landscape of the Mississippi River valley (SEE FIGURE 5.13). Views of the Mississippi River should be maintained at these sites allowing for a clear vista of the corridor.

Overlook sites may be linked to other facilities with alternate transportation routes. Overlook sites can be interpretive and educational information nodes, and should be a short resting stop for bicyclist, hikers, and winter sport enthusiast. Interpretation through signs and native vegetation can play an integral part in overlook design. The primary goal of overlook

OVERLOOKS (WAYSIDE RUSTIC)

CHARACTERISTICS

- Located on STH system
- Site usually 5 acres or less
- Maintenance limited to periodic site cleaning
- Facilities usually cosist of:
  - Picnic areas
  - Parking for 10 to 15 cars and about 5 R.V.'s
  - Posted information
  - Interpretive information
- No overnight camping
- Signed overlook

CRITERIA

- Design Section Length Determinants
  - Modern Wayside location
  - Urban areas
- Intergrate spacing with modern waysides
- Convenience to public
- Integrate with other opportunities to stop such as fuel stations, restaurants and parks
- Spacing between other stops
- Unique characteristics of the site or area
- Quality of the site
- Development Considerations
  - ADA requirements
  - Vandalism
  - Public health
  - Security
  - Motorist safety

development should be the interpretation and scenic value of an area (SEE FIGURE 5.14). These sites may offer bench seating but should not include shelter structures that can limit the natural aspect of an overlook. Overlook sites should maintain the natural atmosphere of a rustic wayside without the placement of structures.

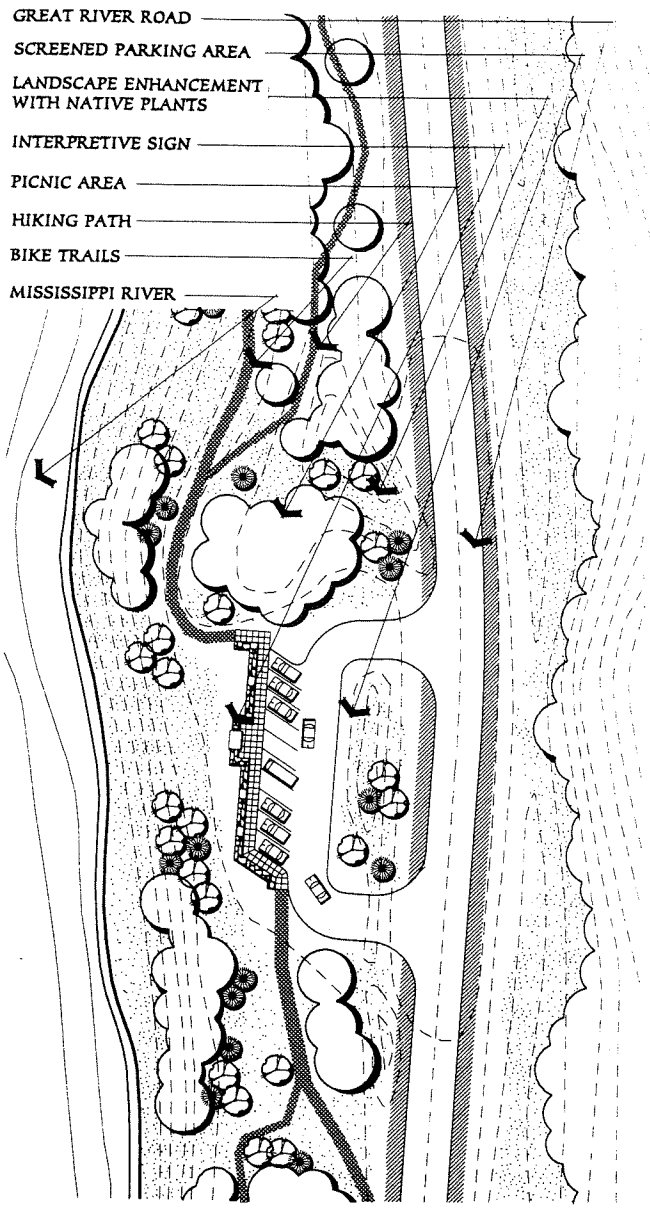


FIGURE 5.13 POTENTIAL PLAN

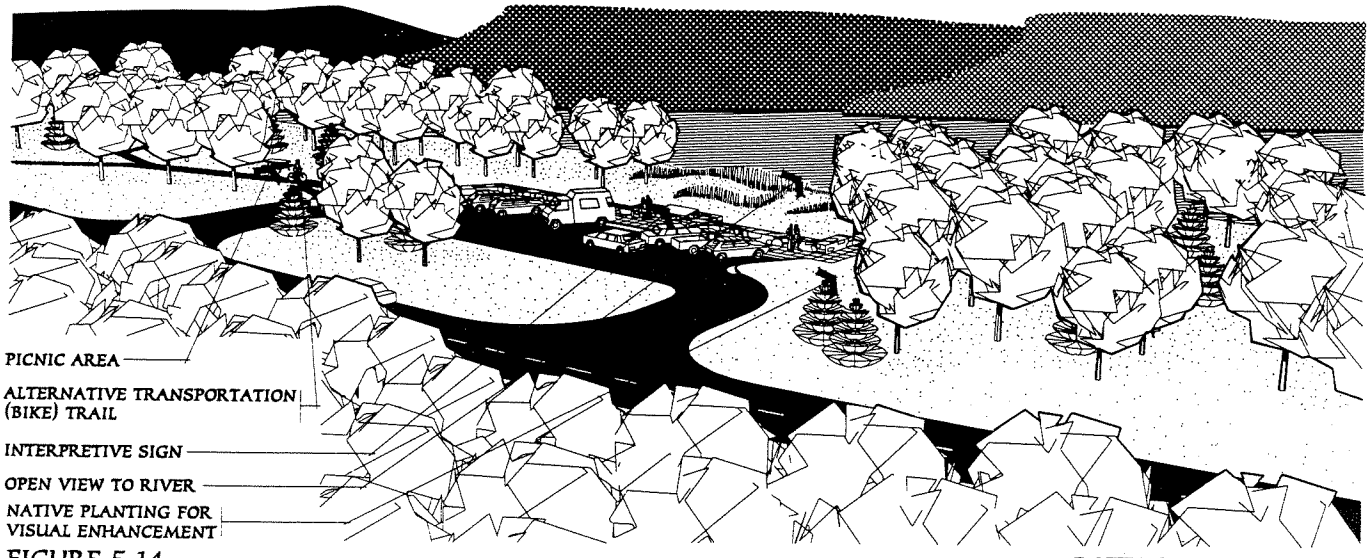


FIGURE 5.14 POTENTIAL OVERLOOK

TRANSPORTATION TYPES 6.1

The historical significance of the Mississippi River corridor is closely tied to its use as a transportation route. Barge and steamboat traffic began sparingly in the early to mid 1800's but by the late 1800's became a prevalent form of transportation for the transfer of goods and people through the interior of the country, linking region to region. The concept of the scenic highway along this corridor evolved at a time when automobile travel was increasing, for transportation and recreation. Today, many more people have the opportunity to experience the corridor by way of automobile than any other means of transportation.

In addition to the automobile, people can travel along the corridor by bike, foot, boat, ski, snowmobile and train. This being the case, consideration of alternative means of transportation is important in this document. The following paragraphs will describe various forms of transportation and recommended practices for their planning and design.

Existing railroad tracks traverse the corridor, roughly parallel to the river. Currently these are used mainly for freight, with Amtrak passenger service stopping at La Crosse, Wisconsin, Winona and the Twin Cities, Minnesota. The consideration of road and facility development near railroad tracks should take into account the potential impact on views from a passenger train.

Access to the river should be provided for all types of transportation routes. Development of river access points that are accessible from a variety of transportation types may best address this concern. These should be separate facilities from ones that are oriented toward through-traffic.

Although this section has described several forms of transportation along the corridor, times change as do modes of transportation and the future will bring options for travel that may not even be considered currently. Hopefully the Great River Road will always hold a place in the hearts of Americans, inducing a desire to see, travel along, and experience the heritage of the Mississippi River Valley.

FIGURE 6.1 EXISTING BIKE TRAIL

FIGURE 6.2 EXISTING PARK HIKING TRAIL

BIKES AND SNOWMOBILES 6.2

Long distance recreational bike travel is becoming very popular in the United States. The potential for use of this corridor for long distance biking, as well as local, short trips is great. There are several regional bikeways in Wisconsin, some of which could be tied directly to the Great River Road corridor. The northern terminus of the Great River Road in Wisconsin is within twenty-five miles of Minneapolis/St. Paul; the southern end is a short distance from Dubuque, Iowa, and Galena, Illinois. These cities, as well as many in between are great sources of potential bike corridor visitors, and can be promoted at destination points.

Bike route location along the Great River Road corridor should be designed with several important factors in mind. The bicyclist should not be placed along a highly traveled roadway. Trail system design should accommodate bikes, separate from automobile routes whenever possible (SEE FIGURE 6.1). The slopes and widths of the bike trail can create of exist in an environment different from one dominated by automobiles (SEE FIGURE 6.2).

The type of pavement should be native chrushed stone creating a fit between the regional character and the trail.

Trail locations should emphasize connections with cities, towns and recreational areas as well as existing bike trails, providing direct access to activity areas. This will allow them to act as transportation routes along with being recreational trails.

If designed properly, the slope, width, and location of bike trails make them excellent candidates for snowmobile routes in the winter. This type of use will stretch the utilization of the trails through most of the calendar year.

Signage for snowmobiling should be consistent with local sowmobiling sign system. This form of signs provide a scale best suiting the user needs. For additional information on signs see section 7.0.

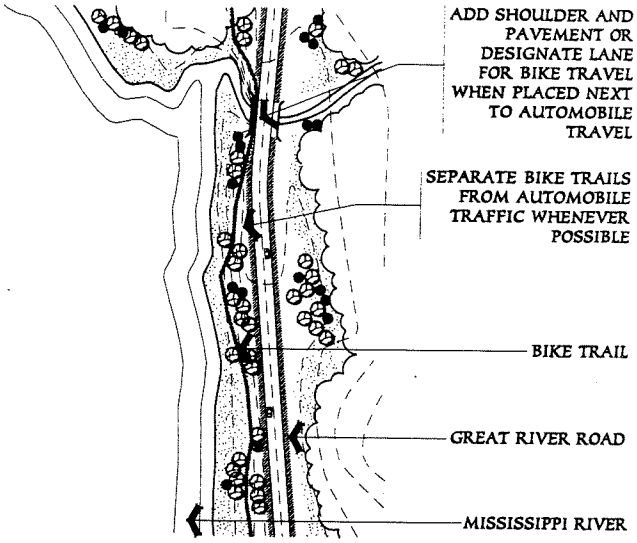


FIGURE 6.3 POTENTIAL CONDITION

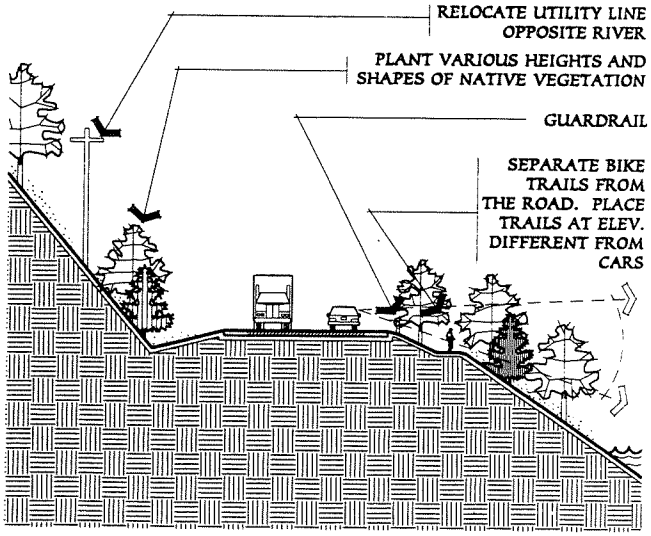


FIGURE 6.4 POTENTIAL TRAIL ELEVATION

WALKING AND SKIING TRAILS 6.3

Development of walking trails next to rest areas, towns, cities, and parks allow for short trips emphasizing relaxation and interpretation. These potentially short trails could be connected to create a continual hiking trail system along the entire length of the Mississippi River. This type of trail could be developed based on the Appalachian trail model.

As mentioned above, hiking trails provide an excellent opportunity for interpretation of the natural and cultural history of the region as well as other significant features (SEE FIGURE 6.3). Development of an interpretive signage system for these trails should take these considerations into account (SEE FIGURE 6.4).

The hiking trails can double as cross country ski trails during the winter months. This winter ski trail system could connect communities that are fairly close to each other. Cross country trails can connect towns (such as Prairie Du Chien) to park system trails (like Wylusing State Park).

Trails ought to depart and end at rest areas, but should not be limited to only one aspect of the corridor. The trail can best interpret the corridor if allowed to move from the river valley up into the bluffs and ridgetops and then return. Such trail placement would require easements (SEE SECTION 2.3) as means to cross the highway and to be placed separate the Great River Road right-of-way. Trail development may best be accomplished as joint endeavors with state, regional, and local agencies.

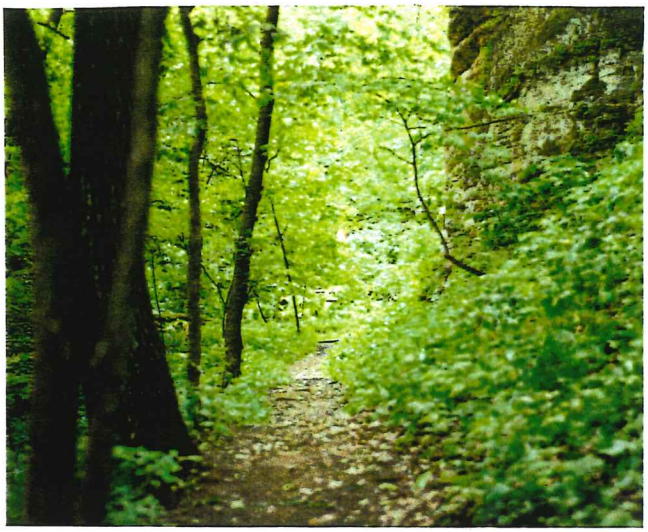


FIGURE 6.5 POTENTIAL CONDITION

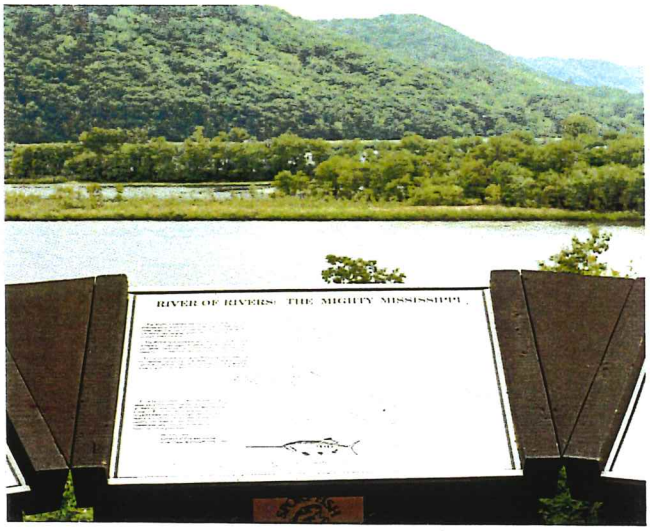


FIGURE 6.6 POTENTIAL CONDITION

SIGN DESIGN CONCEPTS 7.1

The overall design theme of the Great River Road is derived from the natural environment of the Mississippi River corridor. Sign design should respond to this theme through the use of appropriate materials, texture and color. Subtle earth tone colors, and recommended maximum sizes, and heights can help to minimize the visual impact of the sign structures. The use of appropriate complimentary colors can highlight important information against a consistent background tone or color. Signs can become a part of the overall corridor setting and still maintain a high level of legibility.

Earth, rocks, river, and vegetation of the region provide the basis for the color palette . These colors are subdued tones of browns, blues, and greens. Stone, brick, and wood are present in the vernacular structures of the corridor exist throughout the region. These materials have equal importance in the creation of the color palette. The red-brown to orange-brown brick colors widen the range of colors, as do the yellow to gray stones native to the region. The daily effects of the environment can alter the hue of colors. The sun or rain changes the tone of blue of the river. The seasons affect the shade of green in the native vegetation. Wide in variety, the color palette (SEE FIGURE 7.1) maintains a subtle tone.

Materials for sign design should be selected to recall the rock and wood features of the corridor. New, recycled materials can replicate native wood and should be considered when applicable. Selection of a recycled material should be based upon a high quality of replication.

Sign messages provide direction and information for activities and facilities throughout the corridor. The application of color and texture combined with size and content can establish a hierarchy of information. Text size should be determined by road design speed and legibility. The Times Roman font is recommended because it is familiar to most people and is an easily readable text style.

These elements, plus color coding of information groups will create a consistent pattern throughout all aspects of sign design, and through repetition, further reinforce the corridor theme.

FIGURE 7.1

ROUTE SIGN BOARDS 7.2

Route identification signs listing federal, state, and local highways and roads meet approved federal and state transportation department requirements (SEE FIGURE 7.2). These guidelines do not contemplate or recommend any changes to existing sign panels and graphics.

These signs are important to directing automobile traffic throughout the country safely and efficiently. However, the structure and material of the support post and framing is not critical to the function of the sign yet is important to the corridor's aesthetic character. The use of natural materials like wood or stone for posts, and background panels in place of metal, can contribute to the overall corridor theme.

Such route sign boards should provide the information required, and yet be unique to the corridor. Materials and colors of structural support components (SEE FIGURE 7.3) can blend with other new signs along the Great River Road. Federal, state, and local route information signs can maintain and increase visibility. Using highlighted borders this (SEE FIGURE 7.4) harmonious design strengthens the aesthetic and reinforces the theme throughout the corridor.

Organizing auxiliary distance and directional signs into the design theme provides an opportunity to strengthen the overall design theme, and create secondary features along the corridor. The natural color palette should be used for selection of colors for auxiliary signs (SEE FIGURE 7.1).

Material used in design should maintain current breakaway capabilities. Lettering should maintain present legible and reflective requirements.

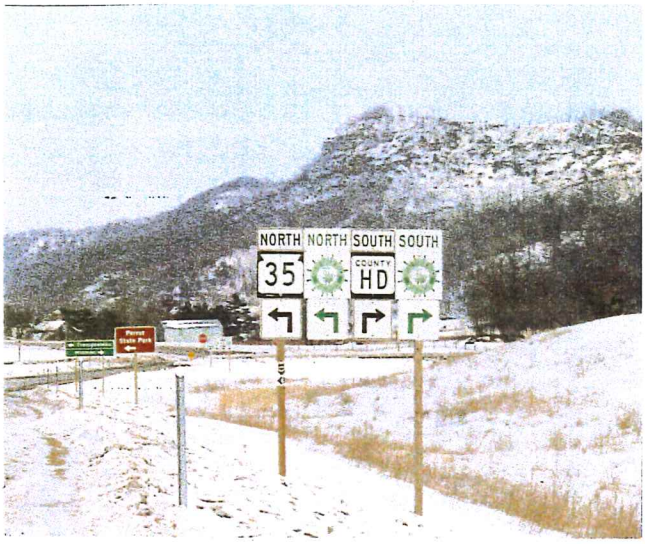


FIGURE 7.2 EXISTING CONDITION

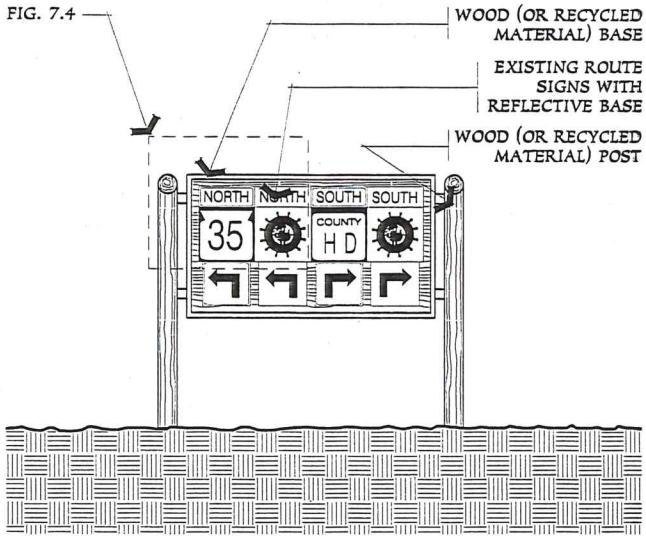


FIGURE 7.3 POTENTIAL CONDITION

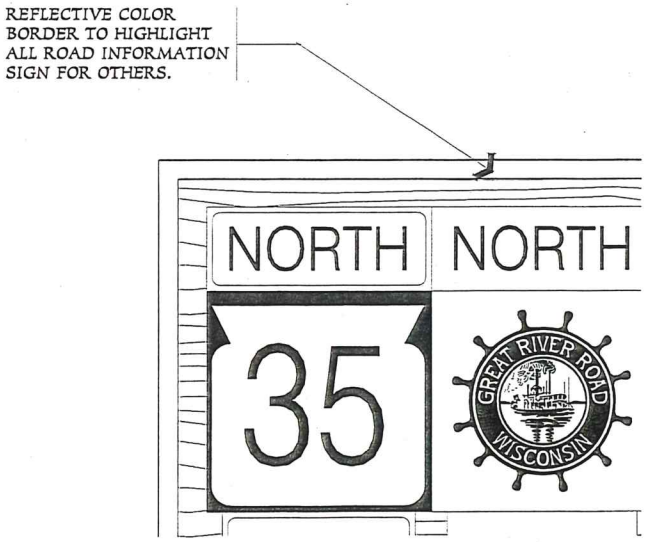


FIGURE 7.4 POTENTIAL CONDITION

GREAT RIVER ROAD SIGN 7.3

The existing Great River Road identification signs consist of the green boat steering wheel and paddle wheeler with title on aluminum sign panels similar to the format of state highway signs. These signs are to remain in their current graphic format, but may be attached to wooden support structures (SEE FIGURE 7.3).

One task of Phase 2 of the Great River Road planning process should be to inventory and assess the actual repetition of the logo sign throughout the corridor. Simply increasing the frequency of this image will strengthen the corridor's identity. Other existing signs currently provide distance and direction to given points. Signs constructed of natural materials, such as wood, can blend the information with the corridor aesthetic theme (SEE FIGURE 7.5).

The corridor contains historic, cultural, and environmental elements. Colors can be used to identify and categorize the information defined on signs, i.e., parks labeled in green reflective text. The repetition of color will easily identity parks from other activities and features along the corridor (SEE FIGURE 7.6). Other features and systems along the corridor can be categorized and successfully identified by color.

The Great River Road logo provides a base of the continuity for the sign system (SEE FIGURE 7.7). The traveler's attention becomes drawn to the logo. The established rhythm of historic, cultural, and environmental elements define the location of the sought feature. The Great River Road signs may additionally be color coded with maps provided at interpretive centers (SEE SECTION 5.0) outlining the events and features throughout the region. The harmony of signs and maps of the corridor solidifies a theme for the Great River Road.

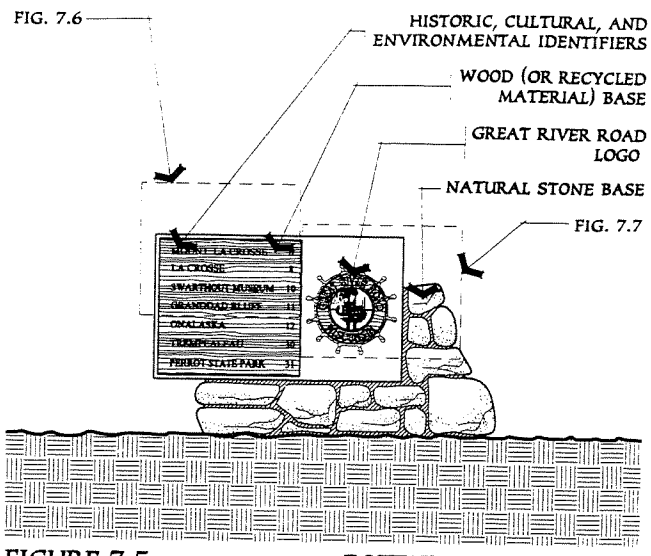


FIGURE 7.5 POTENTIAL CONDITION

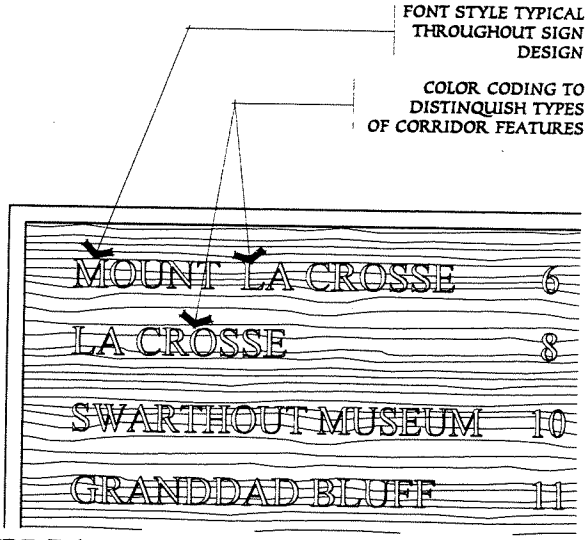


FIGURE 7.6 POTENTIAL TEXT

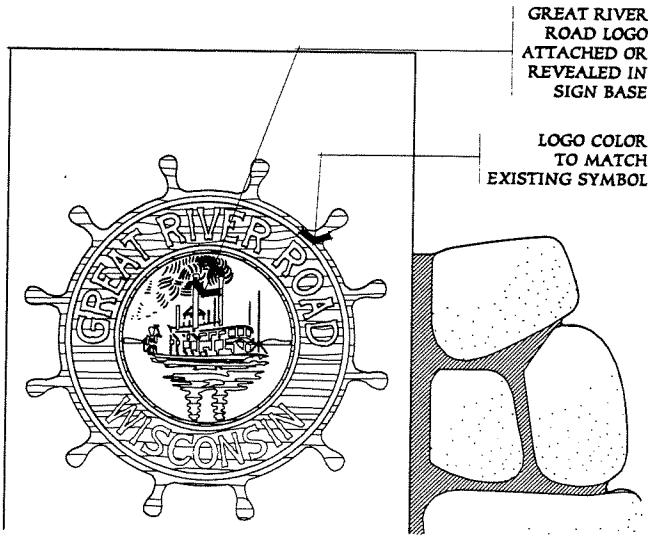


FIGURE 7.7 POTENTIAL IMAGE

COMMUNITY IDENTIFIER 7.4

A variety of entrance signs identify cities and towns along the Great River Road. Most community identification signs consist of the standard D.O.T. green aluminum base with white reflective lettering (SEE FIGURE 7.8). Other towns have had signs designed specifically for their community (SEE FIGURE 7.9). Overall, there is no continuity among community entrance signs.

Communities located along the Great River Road share a common environment. The natural theme allows community entrance signs to establish consistency through materials and yet stand independently in design (SEE FIGURE 7.10). The format provides opportunity to create a unified system with other signs along the corridor. The use of unique images and the sign graphic design will highlight the identity of the individual community.

Existing community symbols as well as new images can be incorporated in the design of new entrance features (SEE FIGURE 7.11). The use of the palette of subtle colors in sign design is important in maintaining consistency with the theme. Image content and placement with community name are crucial to the design. A consistent hierarchy of information is important to the design of the individual sign, and the overall sign system. The community name is the main subject of the sign and support images or symbols are secondary.

Text for entrance signs can allow for legibility at a moderate distance. Text can be larger than current D.O.T. signs and design aspect can be a positive addition to the corridor aesthetic.

Entrance sign placement and setting are equally important design elements. Entrance signs should be placed at a perceptual edge of the community.

FIGURE 7.8 EXISTING CONDITION

FIGURE 7.9 EXISTING CONDITION

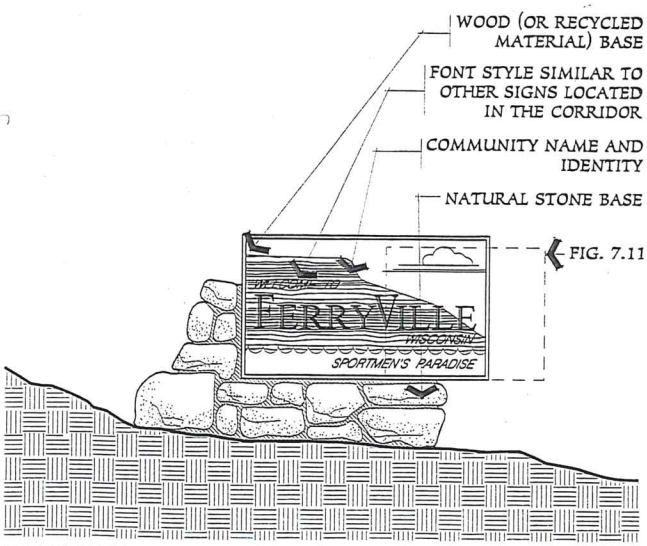


FIGURE 7.10 POTENTIAL CONDITION

Placement of an entrance sign among unattractive structures or in an unattractive setting will diminish the effect of the feature. The area next to the sign should be large enough to allow for plantings (SEE FIGURE 12). These plantings add color and additional visual interest for the entrance sign. Combining good sign design with proper placement and site development, signs can be positive additions the corridor landscape (SEE FIGURE 7.13).

Lighting should be used for entrance signs. Ground lighting facing upward to the sign face will allow for subtle illumination without adversely affecting driver's sight (SEE FIGURE 7.14). Lighting should only be from an external source. Back lighting and neon are not consistent with the natural setting of the corridor. Reflective lettering is a possibility but is better suited for the route signs and markers. Design speeds entering a community are slower allowing more time for sign recognition.

Communities are important elements of the experience of the Great River Road. Proper entrance identification for each community can be an important component in the interaction between Great River Road users and individual communities and businesses.

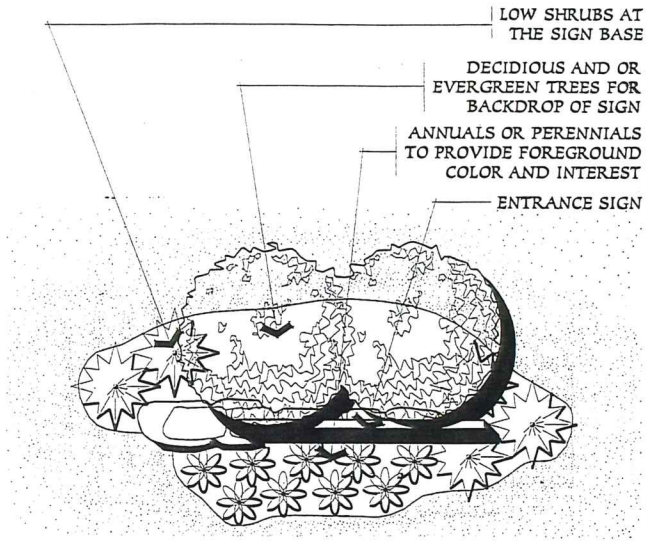


FIGURE 7.12 POTENTIAL PLANTING PLAN

FIGURE 7.13 POSITIVE EXISTING CONDITION

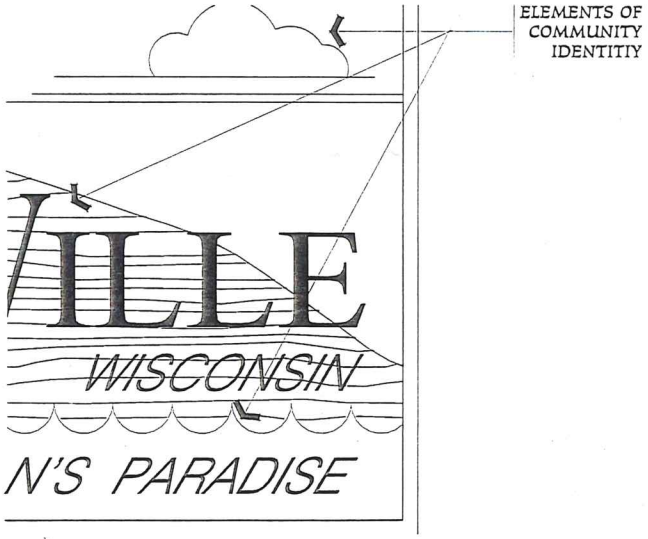


FIGURE 7.11 POTENTIAL IMAGE DESIGN

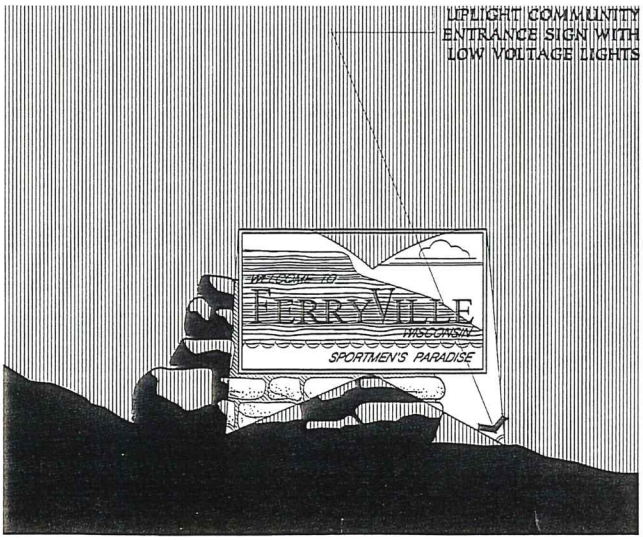


FIGURE 7.14 POTENTIAL LIGHTING

KIOSK 7.5

Throughout the year, communities along the Great River Road corridor schedule social activities and special events to promote tourist activity. Some towns list events in brochures provided by the Wisconsin Division of Tourism or in local newspapers. The development of a kiosk in communities and at rest areas will establish a familiar means of conveying information along the route.

These kiosks, as with community entrance signs, can be independently designed for each city and town. The use of the theme elements, materials and colors, maintains consistency with the overall sign system.

The kiosk development should have adequate area allowing convenient access for the traveler. The kiosk is a pedestrian scale sign. The form and design of kiosk depend on amount, type, and scale of information to be conveyed at each location. Typically the kiosk design area is 3 to 4 feet wide and 8 to 12 feet high (SEE FIGURE 7.15). Adequate gathering area for pedestrians and convenient parking arrangement are important for the function of the facility (SEE FIGURE 7.16).

The design for kiosk may utilize other symbols or identity elements from the community. Revitalization of urban areas along the corridor could use historic features of the towns and cities (SEE SECTION 1.1). These features can be incorporated in a kiosk design to reinforce the local design theme (SEE FIGURE 7.17).

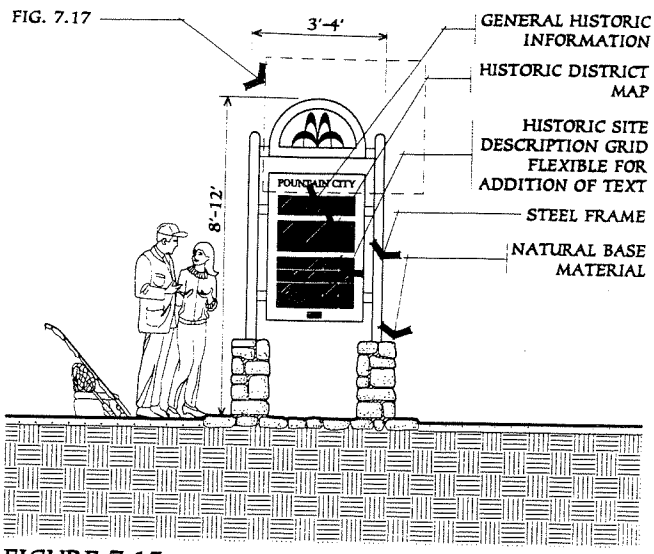


FIGURE 7.15 POTENTIAL KIOSK

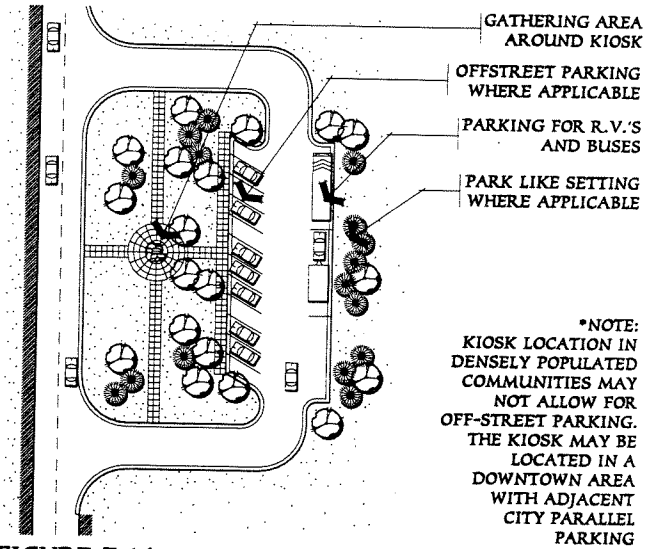


FIGURE 7.16 POTENTIAL KIOSK SITE PLAN

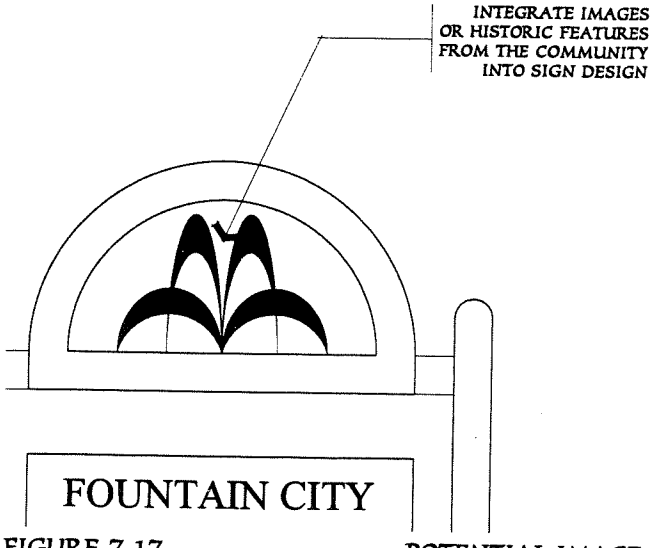


FIGURE 7.17 POTENTIAL IMAGE

MILE MARKERS 7.6

Typically, roadway development includes the placement of mile markers along the route. On the Great River Road, mile markers are inconspicuous or nonexistent. The placement of mile markers both northbound and southbound will allow for the user to place themselves along the route, assisting in location of stops and turnoffs. The mile marking system can be cross referenced in maps and brochures for the Great River Road and surrounding areas, strengthening the way finding system.

The design of the mile markers consists of natural elements, wood or stone, similar to other proposed signs of the corridor (*SEE FIGURE 7.18*). A simple, natural design appropriately reflects the theme of the Great River Road. The colors and tones will establish harmony between the marker and its surroundings.

The size and design of the mile marker should depend upon the settings surrounding the marker. The type of guardrail (*SEE SECTION 2.0*) and signs may determine the design of the marker. The mile marker height and width or diameter will allow for the mile number to be legible to the traveler (*SEE FIGURE 7.19*).

Use of typeface matching other sign designs along the corridor blend the mile markers into the theme. Numerals should be large enough to read at higher design speed. The color and reflective quality will allow for the marker to be identified at an adequate distance (*SEE FIGURE 7.20*).

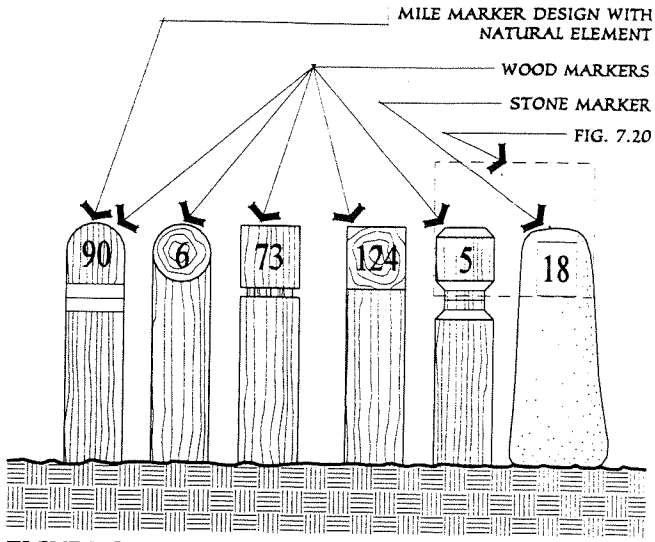


FIGURE 7.18 POTENTIAL MILE MARKERS

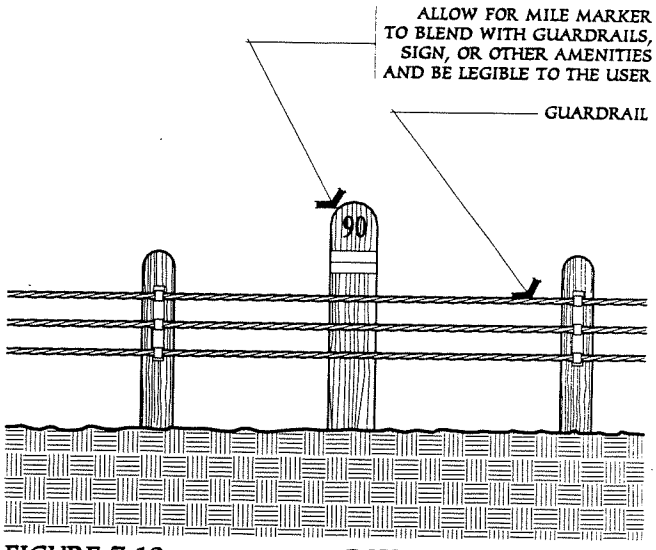


FIGURE 7.19 POTENTIAL CONDITION

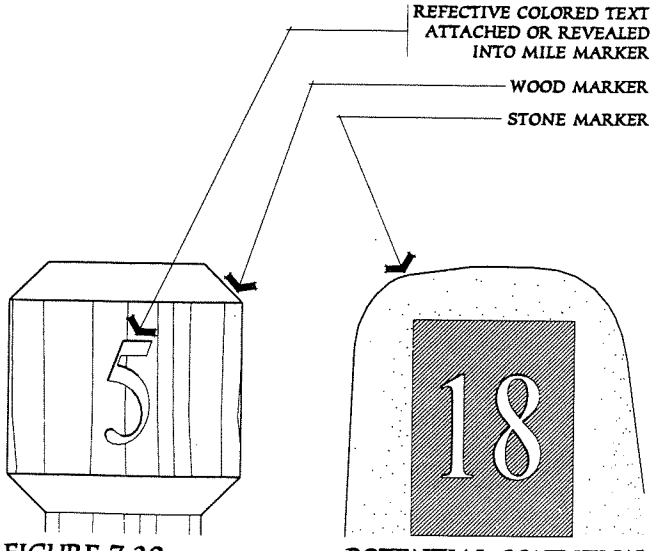


FIGURE 7.20 POTENTIAL CONDITION

CONCLUSION 8.1

The development of the Great River Road from concept to actuality is a three phase process. These Design Guidelines are the first step in determining and implementing a theme for the corridor. Phase 2 should be a schematic approach to design including the collection and analysis of data. This information should be used to generally locate, and overall plan and assists in the improvement of the corridor sites, facilities, and amenities. Phase 3 should be the final process of specific design, which consist of construction documentation and implementation.

Exploration and inventory are the basis for Phase 2 of the development of the Great River Road corridor. This step of the process requires the exploration of the physical and cultural aspects of the corridor, and should consist of the gathering of information through on-site observations as well as the research of records and plans. The result of this inventory can be analyzed to determine if the existing conditions of the corridor are compatible with the desired images of these guidelines. The product of this analysis can be used to establish a priority for the image enhancement of the corridor.

Conditions along the Great River Road vary greatly. The level of visual quality, the extent of road side sites and facility development, and the overall experience of the corridor should be evaluated, in-depth, to provide for guidance in how and where improvements should be made.

A general preliminary visual analysis is shown in the section labeled Great River Road Maps. This analysis will respond to issues discussed in these guidelines and is based on initial responses gathered during automobile travel. Phase 2 should explore more deeply into the existing conditions in the corridor.

These Design Guidelines provide direction for future development and design for the Great River Road corridor. Efforts to recognize, interpret and enhance the natural and cultural characteristics of the region, should use these guidelines as a basis for design. This will provide an image and aesthetic continuity to reinforce the quality of The Great River Road experience.

GREAT RIVER ROAD MAPS

The application of these guidelines assists in the development of the Mississippi River corridor of Wisconsin. These maps are a base for applying the theme discussed in these guidelines.

The existing communities located along the corridor are highlighted on the maps in purple. The size of the community is broken down into three categories, cities, towns, and villages according to population. The distinctions between these categories are shown by the size of text and square on the maps symbolizing the community.

The maps also point out natural areas and parks located along the route. These highlighted parks are potential destinations for long periods of use by tourists. Wildlife areas, along with parks, are significant for the development of views and interpretive stops. These areas are symbolized with the green circles and text on the maps.

The Great River Road itself, is symbolized by a yellow to orange line stretching across the maps. The colors illustrate the characteristics of the corridor experience. The characteristics of the road are identified by a letter and number combination which is colored to match that section of the line. This type of evaluation is an indication, positive or negative, of the experience felt in the overall corridor.

The characteristics of the corridor experience are as follows:

V1

- Views of the river
- Utilities screened or on inland side
- Railroad tracks below road
- Gently curved road alignment
- Views of the bluffs

V2/N2

- Natural setting with topographic or vegetative interest
- Minor utility visual impact
- Serpentine road alignment
- Railroad tracks below road
- Views of river are intermittent

V3/N3

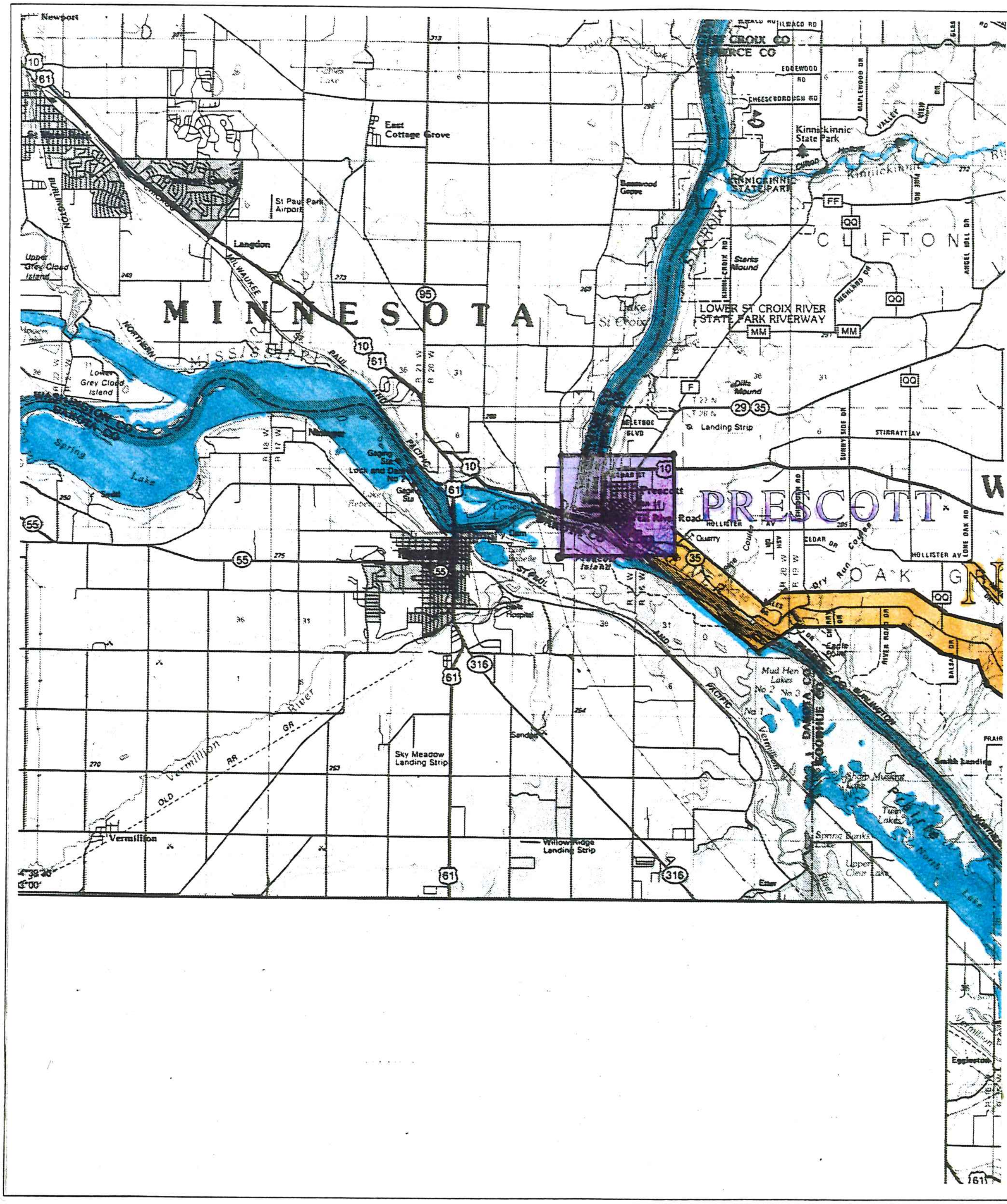
- Moderate topographic interest
- Some utility visual impact
- Railroad tracks level with road
- Roadside vegetation too dense for river view/ possible views of the river

V4/N4

- Little topographic interest
- Distant view of the bluffs
- Prominent agricultural land use
- Straight or right angle turn road alignment
- Railroad embankment above road

N5

- Little topographic interest
- Prominent utilities
- Heavy functional traffic volume
- Billboards
- Detracting adjacent land use
- No view to river



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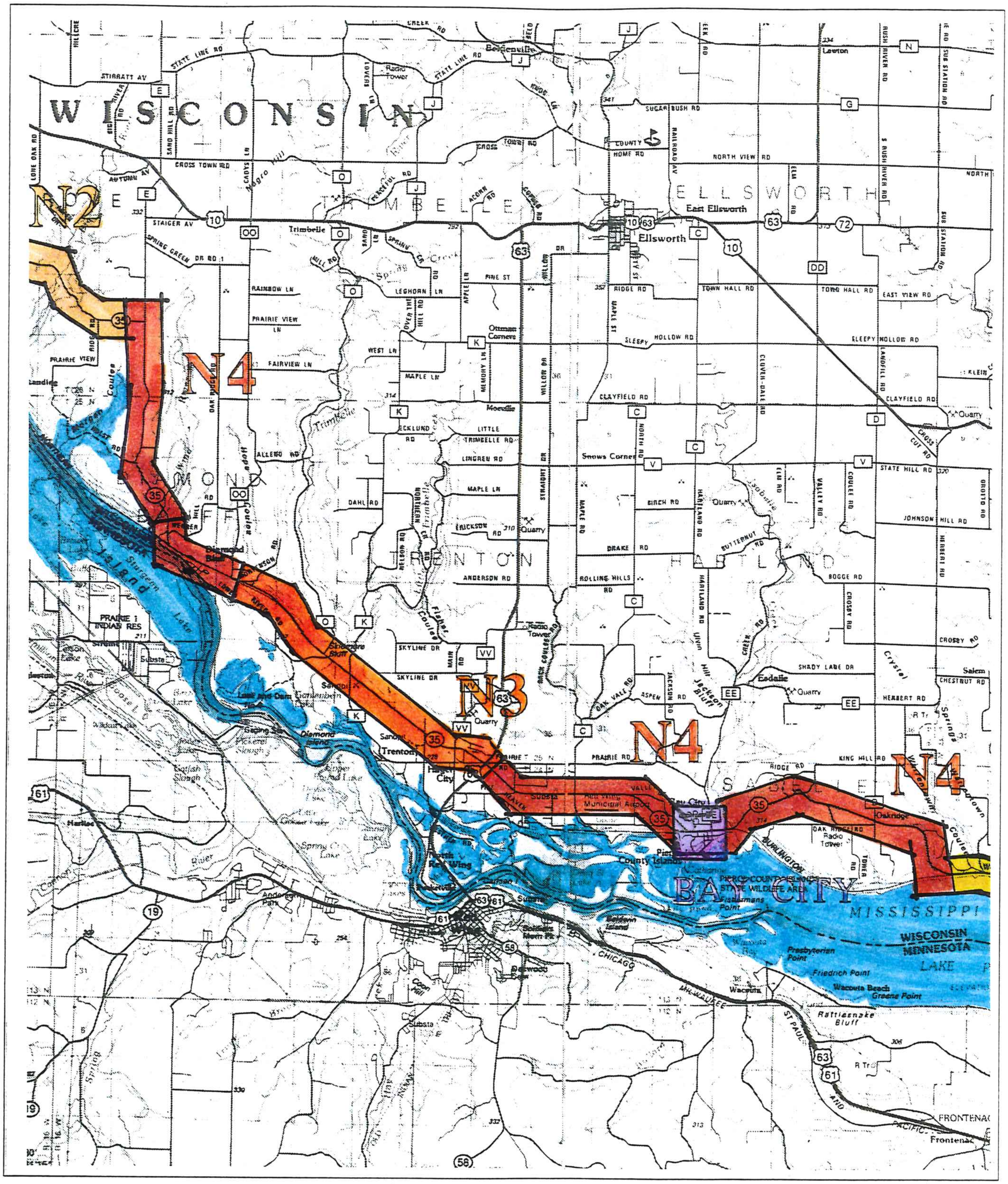
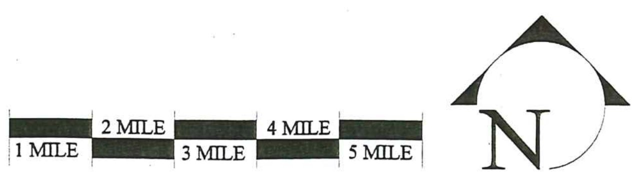
GREAT RIVER ROAD MAP

DESIGN GUIDELINES

A


WISCONSIN
N2
N4
N3
N4
N4
ELLSWORTH
East Ellsworth
Ellsworth
TRIMBELLE
Trimbelle
TRENTON
Trenton
BAY CITY
MISSISSIPPI
WISCONSIN
MINNESOTA
LAKE
Lawton
Snows Corner
Diamond Bluff
Ottman Corners
Oakridge
Wacouta
Rattlesnake Bluff
FRONTENAC
Frontenac
STATE LINE RD
SUGAR BUSH RD
NORTH VIEW RD
CROSS TOWN RD
STAIGER AV
RIDGE RD
TOWN HALL RD
SLEEPY HOLLOW RD
CLAYFIELD RD
STATE HILL RD
JOHNSON HILL RD
BOGGE RD
KING HILL RD
PRAIRIE RD
SKYLINE DR
RAINBOW LN
FAIRVIEW LN
PRAIRIE ISLAND INDIAN RES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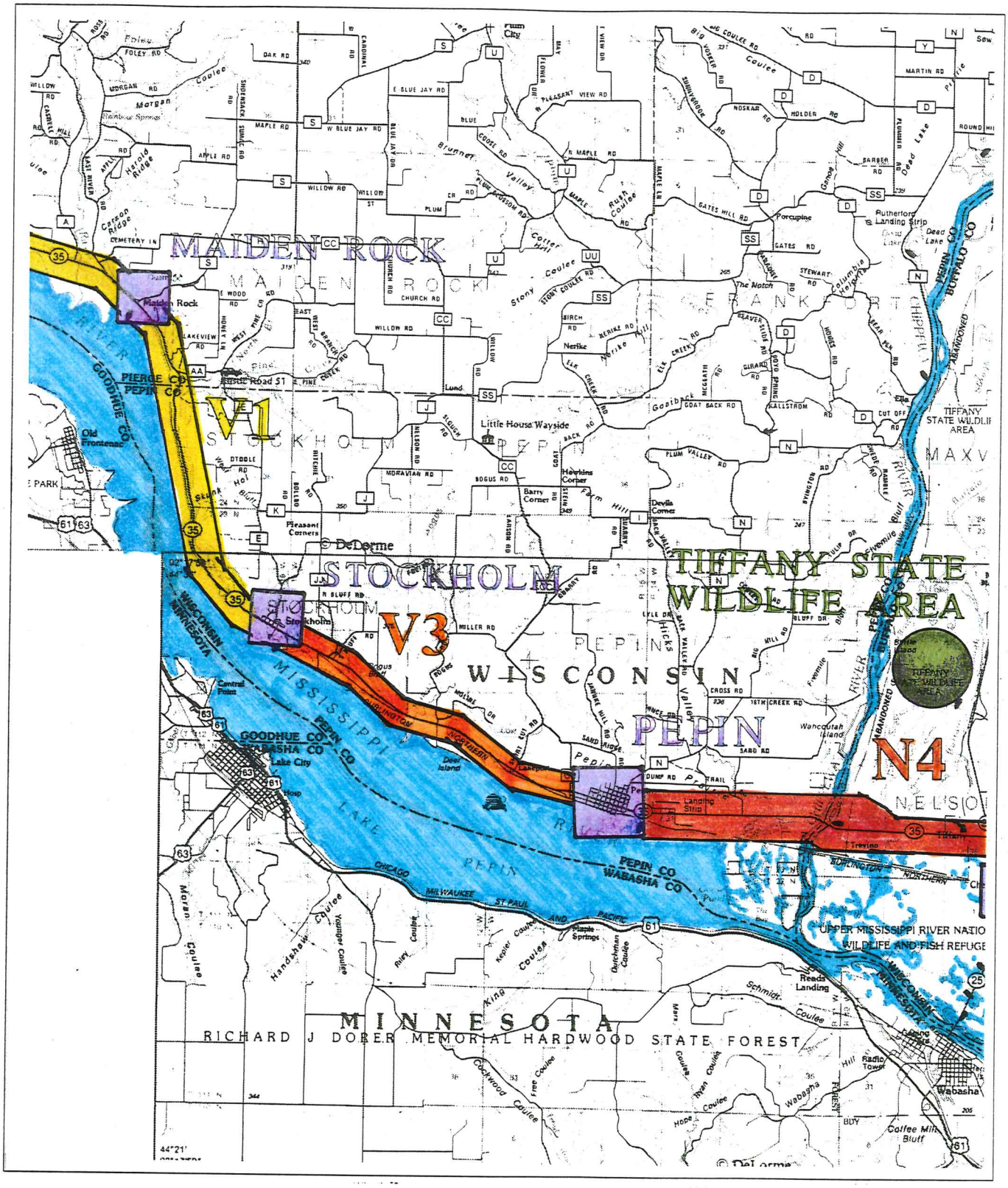
MAIDEN ROCK
STOCKHOLM
PEPIN
FRANKFORT
V1
V3
N4
TIFFANY STATE WILDLIFE AREA
WISCONSIN
MINNESOTA
MISSISSIPPI
LAKE PEPIN
RICHARD J DOBER MEMORIAL HARDWOOD STATE FOREST
UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE AND FISH REFUGE
PIERCE CO
PEPIN CO
GOODHUE CO
WABASHA CO
Maiden Rock
Stockholm
Pepin
Lake City
Old Frontenac
DeLorme
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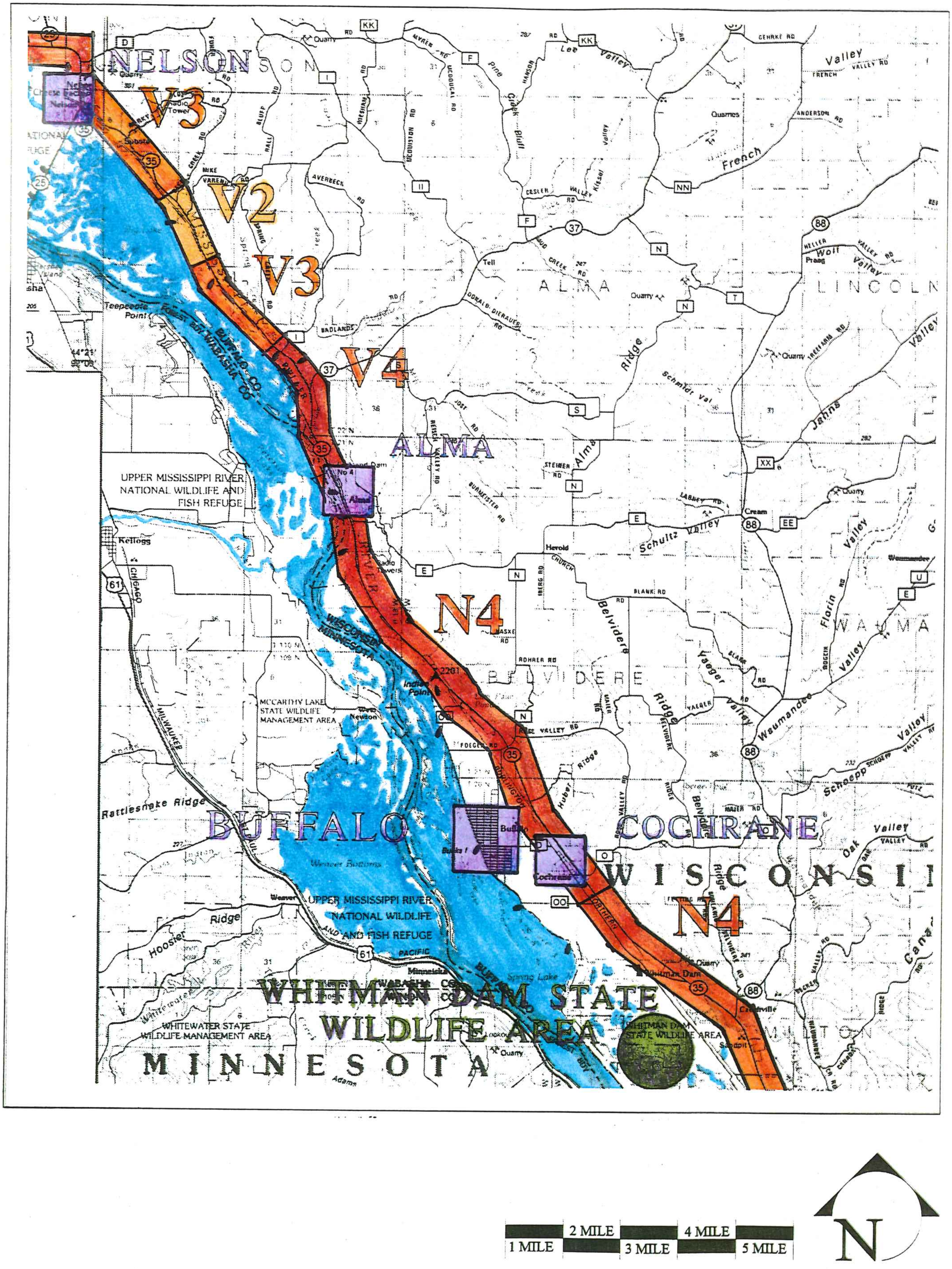
NELSON
V3
V2
V3
V4
ALMA
N4
BUFFALO
COCHRANE
N4
WHITMAN DAM STATE WILDLIFE AREA
UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE AND FISH REFUGE
MINNESOTA
WISCONSI
LINCOLN
BELVIDERE
WAUMA
Kellogg
WHITEWATER STATE WILDLIFE MANAGEMENT AREA
MCCARTHY LAKE STATE WILDLIFE MANAGEMENT AREA
Rattlesnake Ridge
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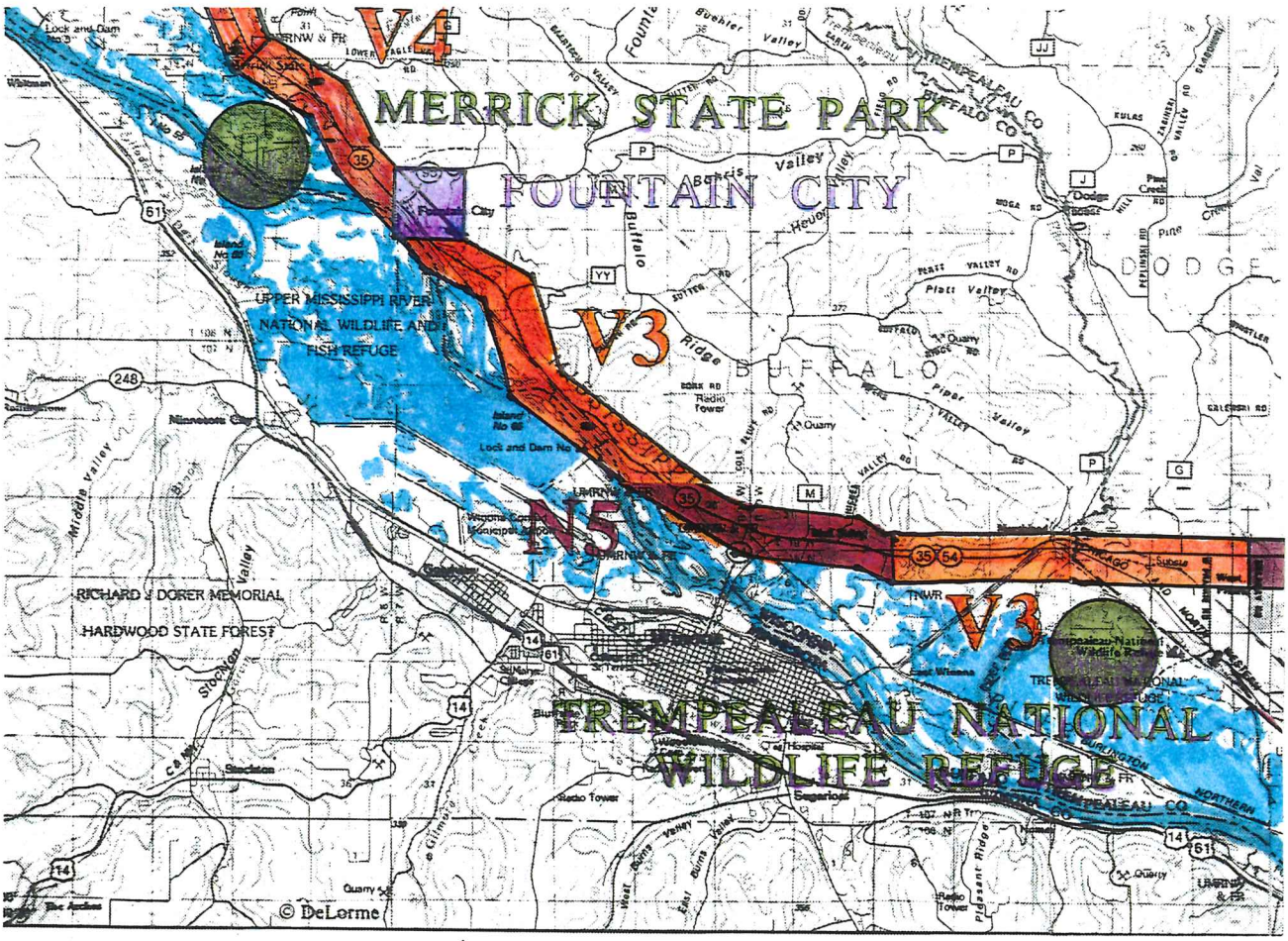

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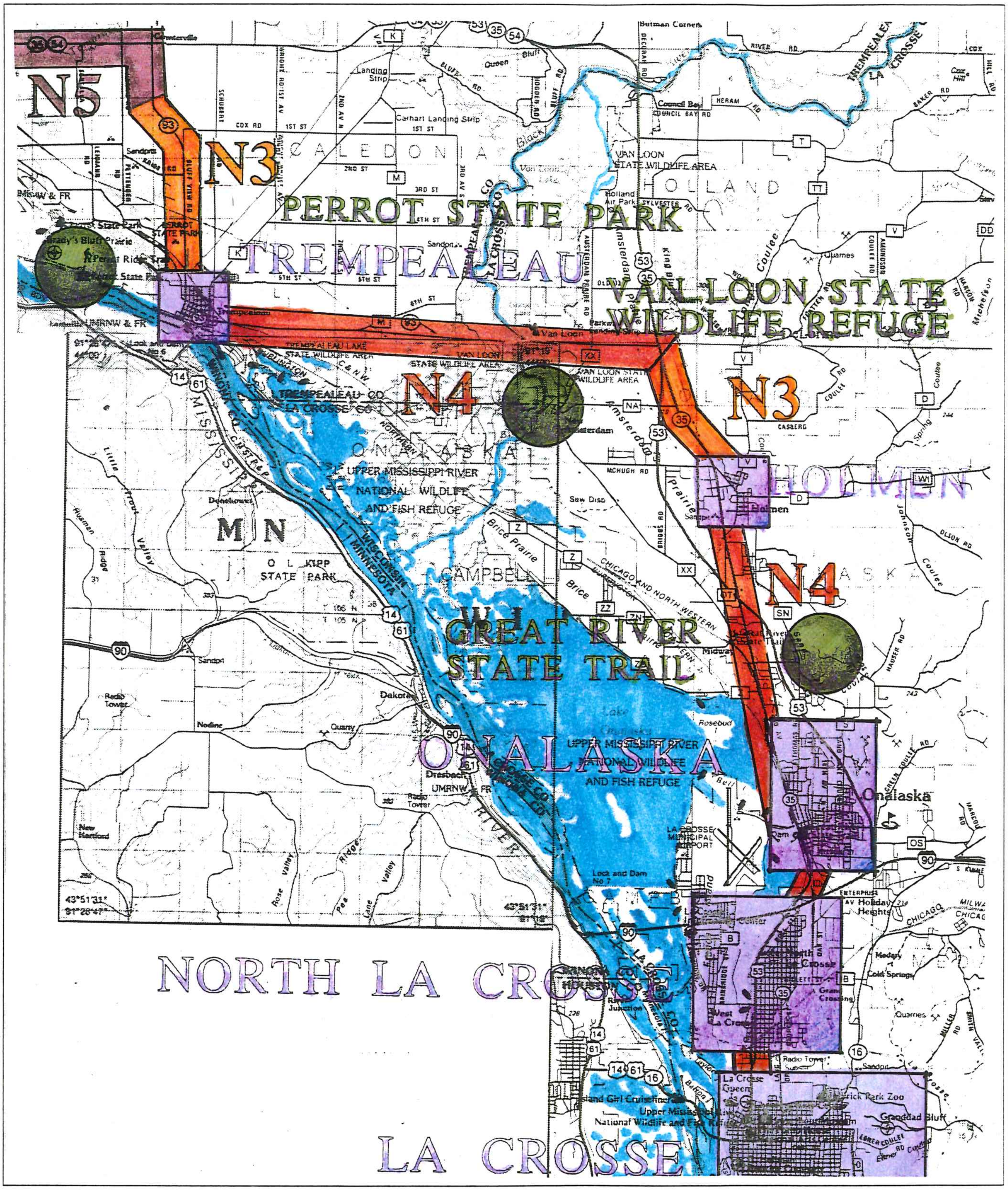
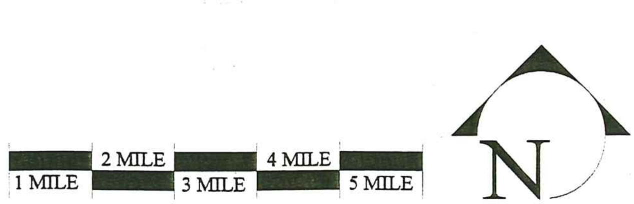

N5
N3
PERROT STATE PARK
TREMPEALEAU
VAN LOON STATE WILDLIFE REFUGE
N4
N3
HOLMEN
N4
GREAT RIVER STATE TRAIL
ONALASKA
UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE AND FISH REFUGE
MN
NORTH LA CROSSE
LA CROSSE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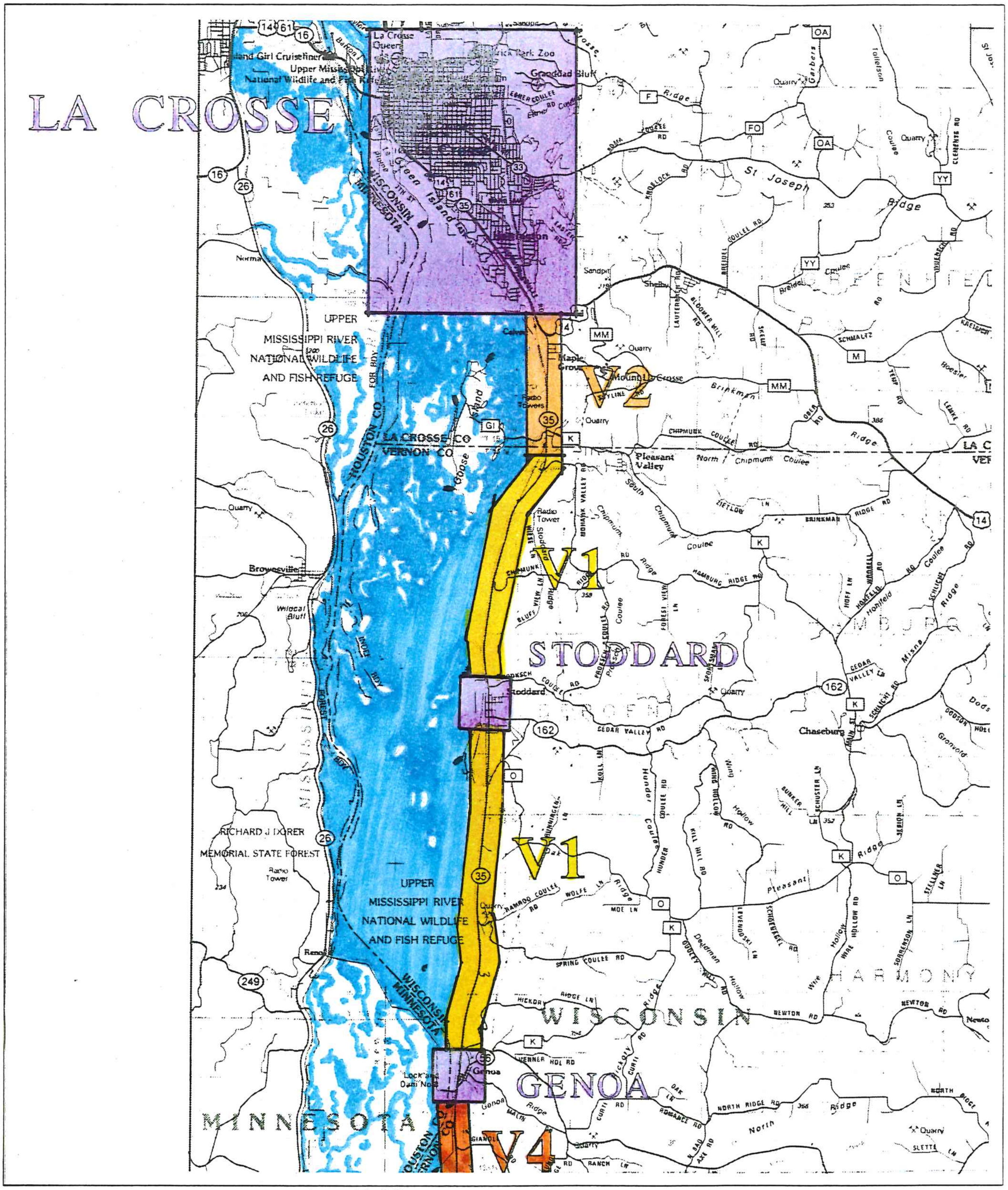
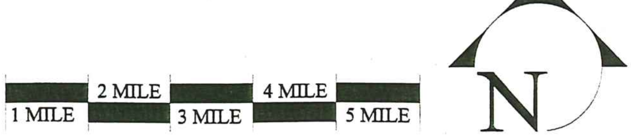

LA CROSSE
V2
V1
STODDARD
V1
GENOA
V4
WISCONSIN
MINNESOTA
UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE AND FISH REFUGE
LA CROSSE CO
VERNON CO
HOUSTON CO
RICHARD J DORER MEMORIAL STATE FOREST
Chaseburg
Browsville
Pleasant Valley
HARMONY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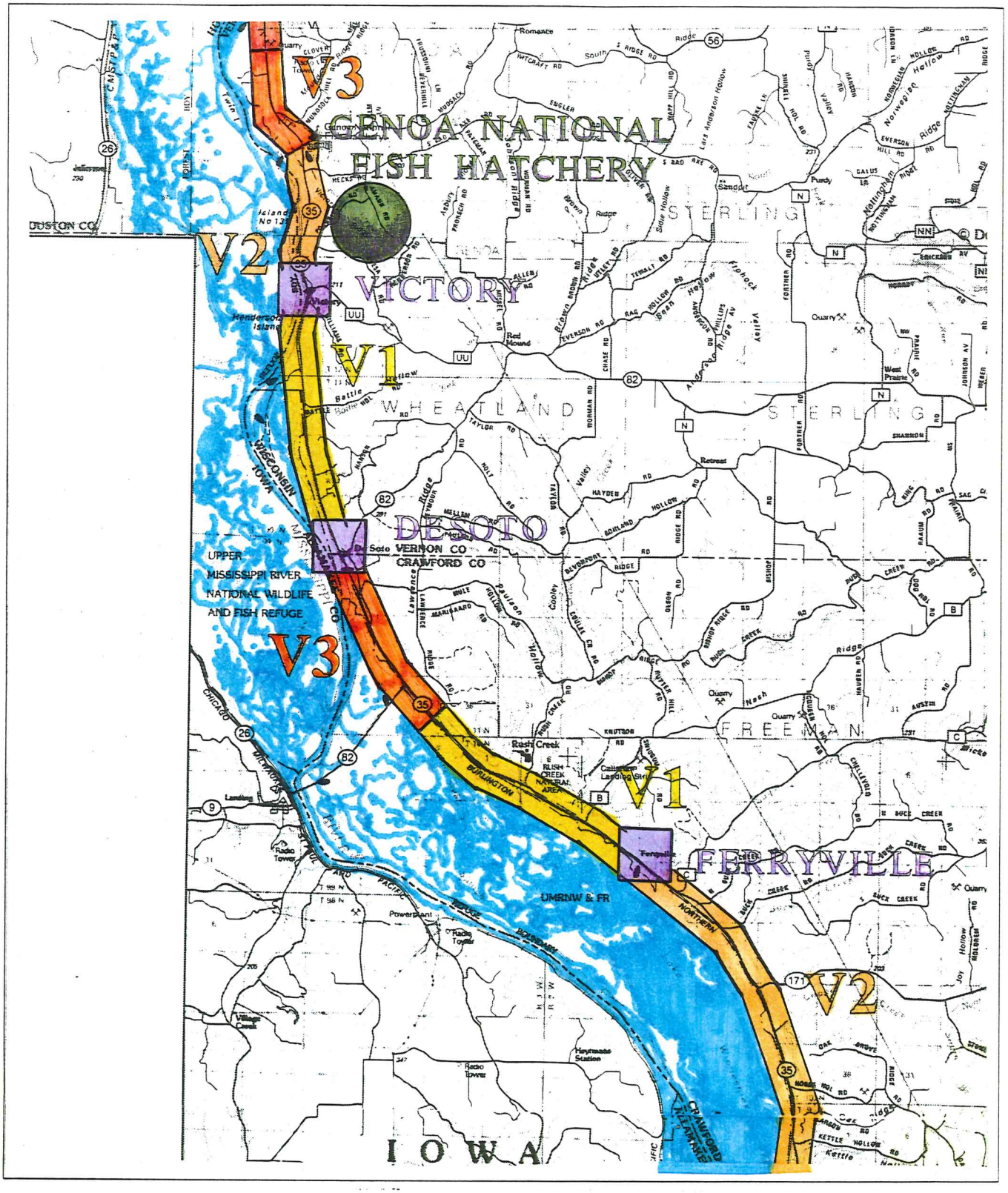
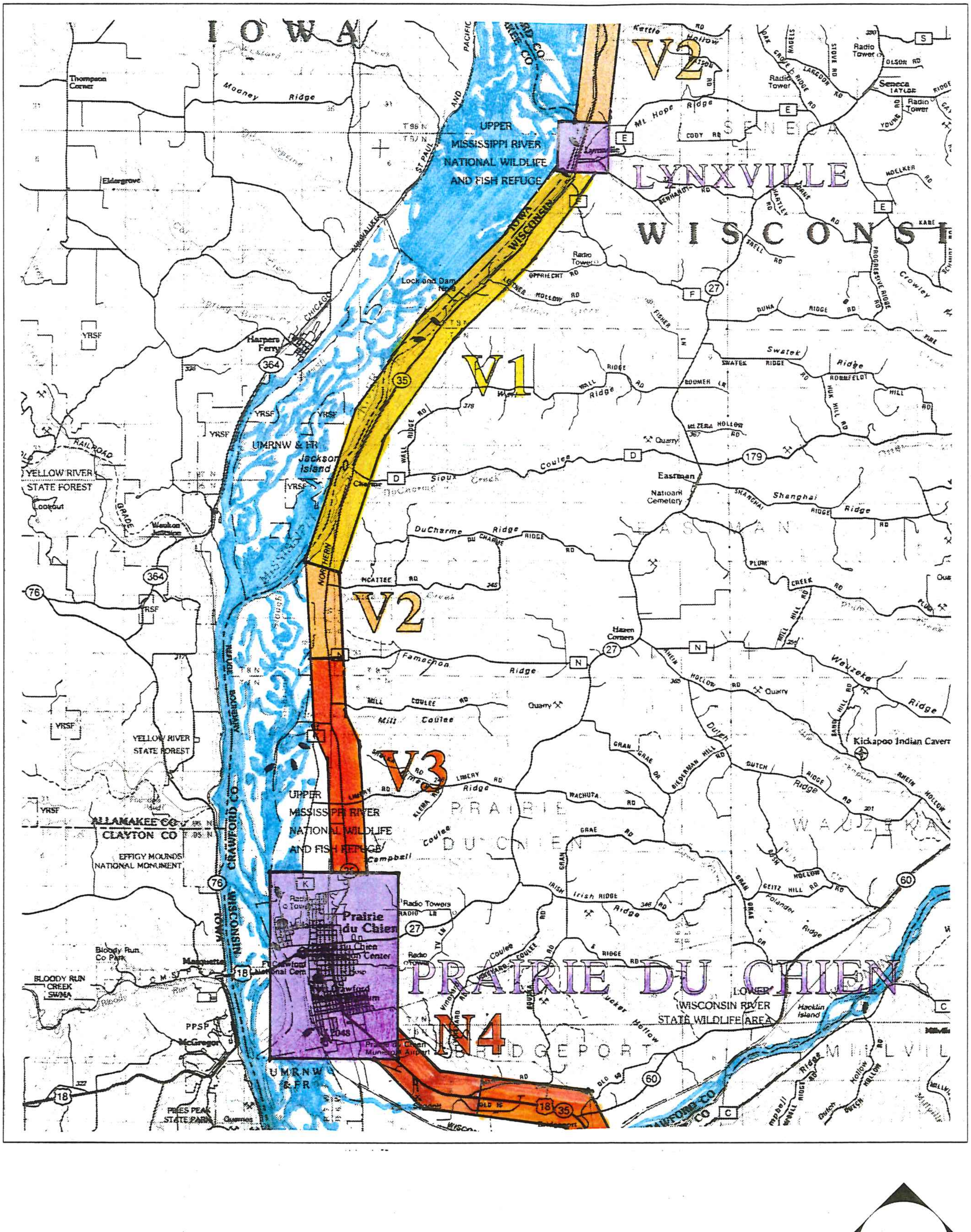


GREAT RIVER ROAD MAP

DESIGN GUIDELINES


IOWA
WISCONSIN
V2
LYNXVILLE
UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE AND FISH REFUGE
V1
V2
V3
UPPER MISSISSIPPI RIVER NATIONAL WILDLIFE AND FISH REFUGE
PRAIRIE DU CHIEN
N4
LOWER WISCONSIN RIVER STATE WILDLIFE AREA
YELLOW RIVER STATE FOREST
ALLAMAKEE CO
CLAYTON CO
EFFIGY MOUNDS NATIONAL MONUMENT
Harpers Ferry
Eastman
Kickapoo Indian Cavern
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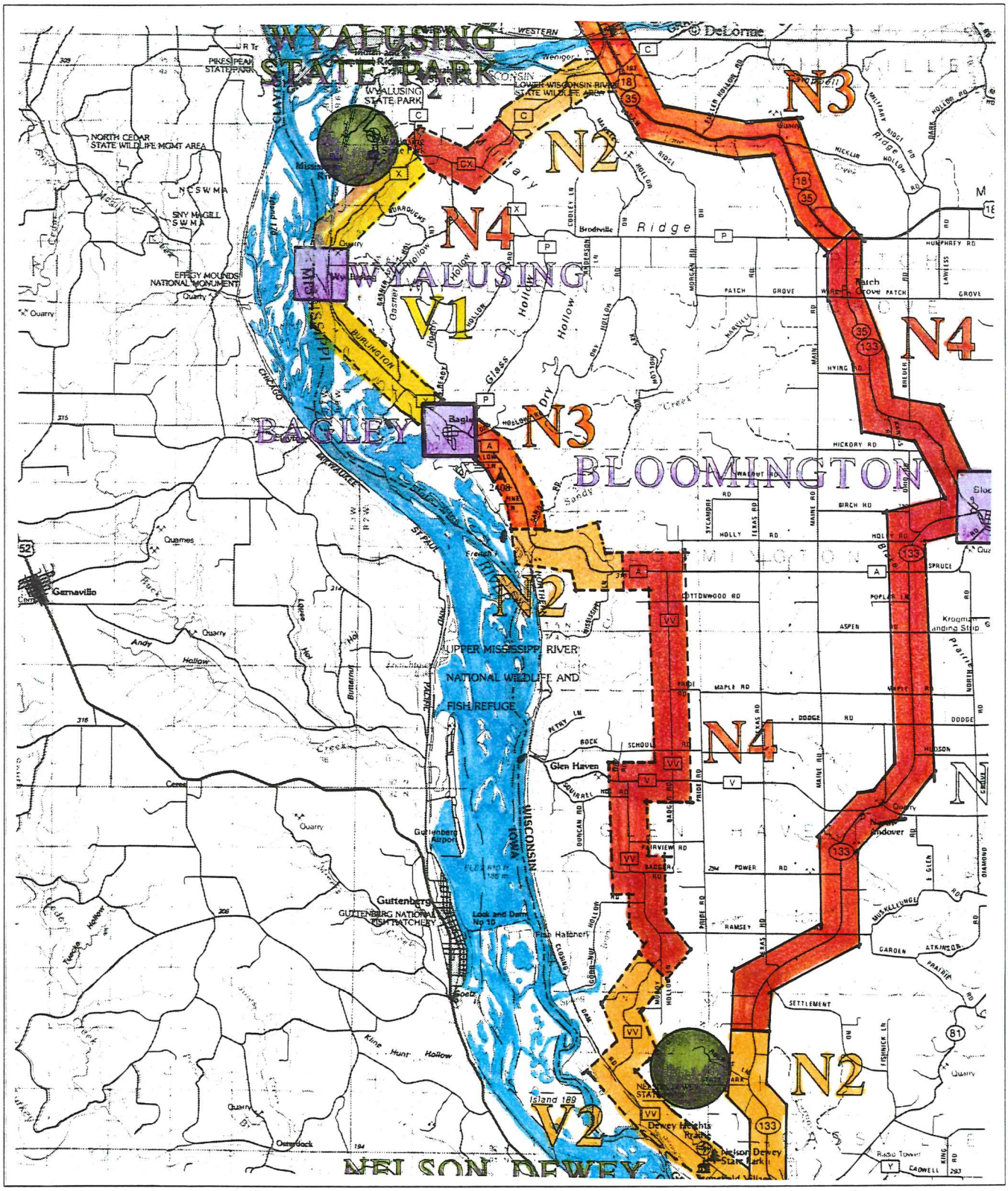
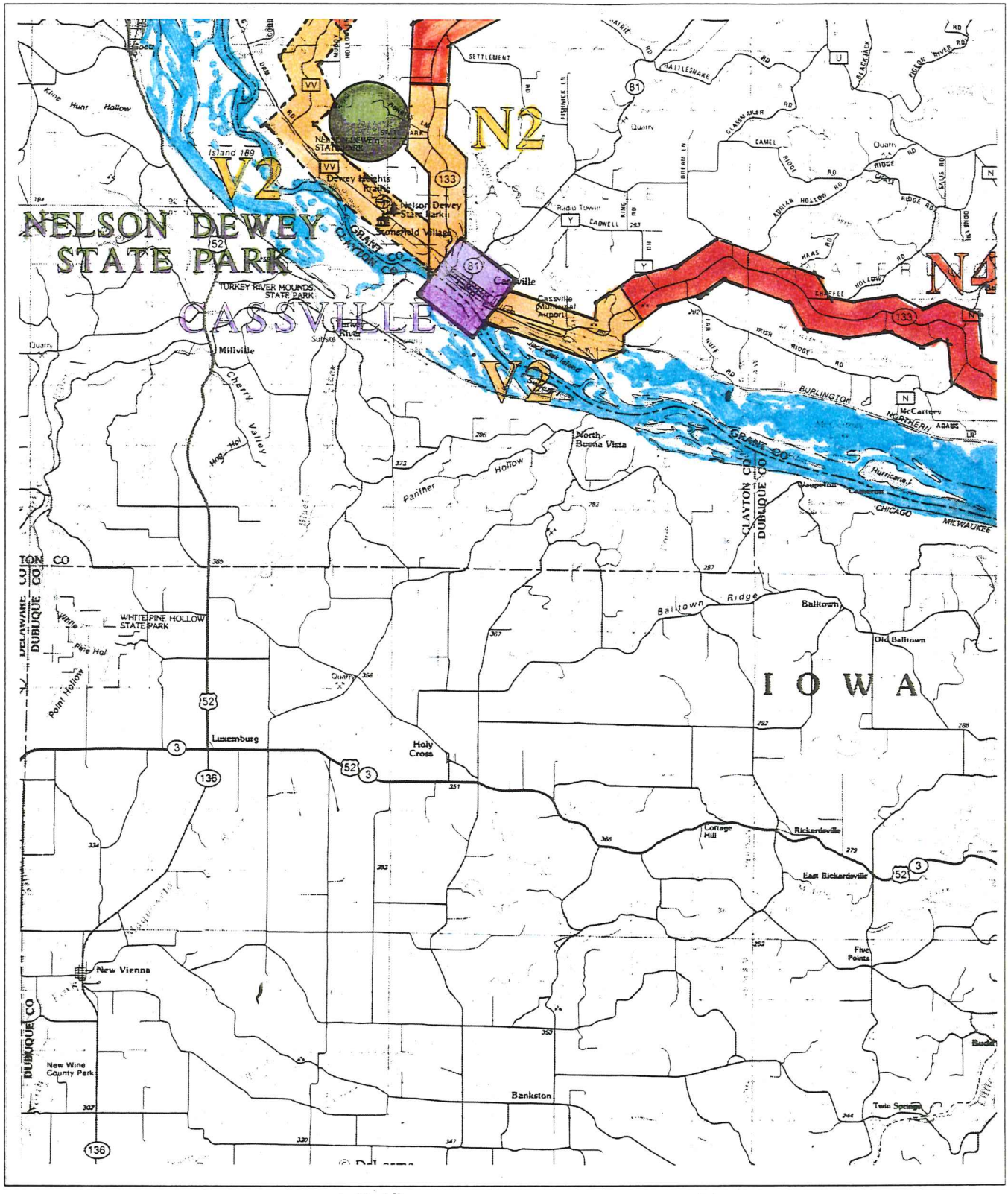


GREAT RIVER ROAD MAP

DESIGN GUIDELINES



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GREAT RIVER ROAD MAP

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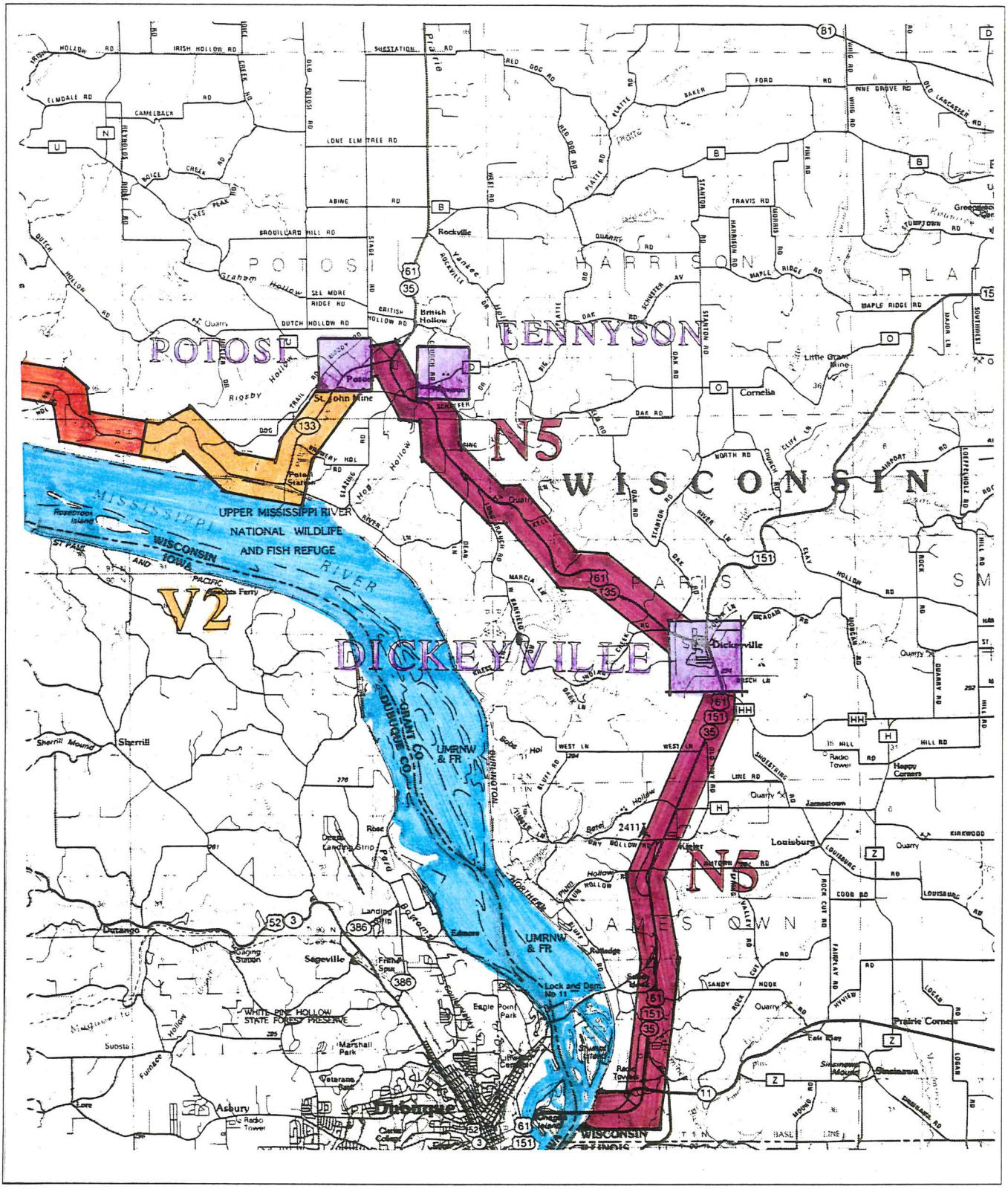

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GREAT RIVER ROAD MAP

DESIGN GUIDELINES

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